REDACTED



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April 10, 2026

Itron, Inc.
2111 N. Molter Road
Liberty Lake, Washington 99019

***Re: Letter of Intent – Connecticut Advance Metering Infrastructure***

Ladies and Gentlemen:

This letter of intent ("LOI") sets forth a proposal by Eversource Energy Service Company d/b/a Eversource Energy, an entity organized under the laws of Connecticut ("Eversource") to Itron, Inc., an entity organized under the laws of Washington ("Itron") to acquire additional AMI electric meters and network devices from Itron all as more particularly set for this in this LOI. Eversource and Itron are each sometimes referred to singularly as a "Party" and collectively as the "Parties." Capitalized terms used herein that are not otherwise defined in this LOI shall have their meanings specified in the AMI Order Document and/or the Agreement.

Except as specifically set forth in this LOI, the provisions of this LOI are not legally binding on the Parties. Such provisions are intended to serve as the nonbinding basis for a proposed amendment to the AMI Order Document (as defined below).

**Background**

A. Eversource and Itron entered into a Master Sales Agreement dated April 3, 2019 ("Agreement"), and an Order Document issued under the Agreement, dated December 21, 2023, for the purchase of AMI Electric Meters and Network Devices related to the Commonwealth Massachusetts AMI Program ("AMI Order Document").

B. Eversource has filed with the State of Connecticut's Public Utilities Regulatory Authority ("PURA") seeking approval for Advance Metering Infrastructure within the State of Connecticut.

C. Provided PURA grants such approval, Eversource and Itron are willing to amend the existing AMI Order Document and extend the same terms for the State Connecticut's AMI Program.

As is currently contemplated, the amendment would include but is not limited to the following terms:

1. **Quantities**. Upon regulatory approval and subject to mutually acceptable terms, Eversource agrees to purchase from Itron and Itron agrees to sell to Eversource

approximately 1.3 million additional AMI Electric Meters and ancillary Network Devices.

2. **Pricing**. Itron agrees to extend the same pricing as currently set forth in the Pricing Summary contained in the AMI Order Document through the earlier of (a) June 15, 2027; or (b) ninety (90) days after final regulatory approval.

3. **Deployment Period**. The deployment period for the additional ~1.3M meters shall be six (6) years from the execution of the amendment.

4. **Conditions Precedent**. (i) Regulatory approval; and (ii) the execution of an amendment to the current AMI Order Document.

5. **Representations and Warranties**. Each Party represents and warrants as of the date of this LOI that each Party is duly authorized and has the full power, right and authority to enter into this LOI and to perform all of its obligations under this LOI and to execute and deliver all documents required by this LOI.

6. **Non-Binding Agreement**. Eversource and Itron each acknowledge that a transaction of the type contemplated by this LOI involves terms and conditions which have not yet been agreed upon and that this LOI is in no way intended to be a complete or definitive statement of all the terms and conditions of the proposed transaction but contemplates and is subject to the negotiation and execution of a mutually satisfactory amendment to the AMI Order Document. Except as provided in Section 7 neither Eversource nor Itron will be legally bound in any manner unless and until an amendment to the AMI Order Document has been executed by both Parties. The provision of Section 7 is intended to be and shall be legally binding upon the Parties.

7. **Governing Law**. This LOI and any dispute arising out of or related to it shall be governed by the internal laws of the State of Connecticut, without regard to conflicts of law principles.

8. **Electronic Signatures; Counterparts**. This LOI may be executed in counterparts, which may be delivered by email or similar means.

[*Signature Page Follows*]

If this Letter of Intent accurately reflects the understanding between Eversource and Itron with respect to the matters set forth herein, please date and execute a copy of this Letter of Intent where indicated below and return it to Eversource not later than five (5) business days after the date hereof.

We look forward to collaborating with you on this transaction in a mutually beneficial manner.

Sincerely,

Eversource Energy Service Company

[redacted]

Name:
Title: [redacted]

Director, Procurement

Agreed to and accepted on April 13, 2026

[redacted]

Name:
Title: [redacted]

VP Tax Treasury M&A

SIEMENS

Subject: Siemens Gridscale X™ Meter Data Management price validity extension
Project: Meter Data Management System for AMI Doc 3824604157

Name: [redacted]
Phone: [redacted]
E-mail: [redacted]
Date: April 23, 2026

Provided Eversource obtains regulatory approval for Advanced Metering Infrastructure in the State of Connecticut, Siemens Industry, Inc. (SII) is pleased to extend the validity of our Gridscale X™ Meter Data Management price per meter as referenced in Purchase Order 13169648: Siemens Proposal Energy IP Licenses – AMI MDMS in order to accommodate the additional ~1,300,000 meters in Connecticut. Upon approval and subject to negotiation of final terms, the Parties will enter a written amendment modifying the terms of the current License Agreement accordingly.

Per Eversource Purchase Order 13169648 and the incorporated Siemens proposal in response to MDMS for AMI Doc 3824604157 dated August 21st, 2023, specifically Section 2.2, Siemens confirms updating the existing validity date from September 30th, 2025 to March 31st, 2027. This updated language in Section 2.2 should read, "Additional meter licenses may be purchased at a rate of $[redacted] per meter and is based on a minimum license purchase 1,300,000 licenses. Pricing shall remain valid until March 31st, 2027. M&S for all additional meters will be calculated at [redacted]% of the license price and maintain the escalation rate as stated in Section 6.0."

With Best Regards,
Siemens Industry, Inc.

[redacted]

[redacted]
Siemens Account Manager

CONFIDENTIAL
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June 9, 2026

Eversource Energy Service Co.
107 Selden St
BERLIN, CT, 06037-1616

**SAP Proposal Summary**

**Eversource Connecticut Advanced Metering Infrastructure (AMI) Initiative**

On behalf of SAP, we are pleased to participate in Eversource's Connecticut Advanced Metering Infrastructure (AMI) initiative and are excited by the prospect of expanding our companies' existing partnership. SAP understands the strategic importance of this initiative for Eversource and is committed to supporting the long-term success of your organization.

Eversource has filed with the Connecticut Public Utilities Regulatory Authority (PURA) seeking approval for the Connecticut AMI initiative. This proposal is intended to support Eversource's planning, evaluation, and regulatory activities associated with that initiative.

Included is a proposal outlining the SAP software components and entitlements identified to support Eversource's Connecticut Advanced Metering Infrastructure (AMI) initiative. The pricing reflected in this proposal is valid through March 30, 2027, and is intended to establish a pricing ceiling for the software scope included herein. Upon regulatory approval, the parties will work in good faith to validate the proposed solution scope and confirm alignment with Eversource's program requirements. Subject to the scope, sizing, and deployment assumptions remaining materially unchanged, pricing for the proposed SAP solution will not exceed the amounts reflected in this proposal.

**Background**

- Eversource and SAP entered into an SAP Cloud Services Agreement and an Order Form issued under such agreement (Case ID 3062028259), dated June 30, 2022, for the purchase of an SAP Customer Information System related to the Commonwealth of Massachusetts AMI Program.
- Eversource has filed with the State of Connecticut's Public Utilities Regulatory Authority ("PURA") seeking approval for Advanced Metering Infrastructure within the State of Connecticut.
- Provided PURA grants such approval, Eversource and SAP anticipate amending the existing agreement to support the Connecticut AMI Program.

As currently contemplated, the amendment would include, but not necessarily be limited to, the following:

**1. Quantities –** The proposed SAP Customer Information System assumes 2.2 million points of delivery across Eversource's Connecticut electric service territory. This forms the basis of SAP's pricing proposal. SAP and Eversource acknowledge that certain product names, SKU numbers, packaging constructs, licensing metrics, or solution components may evolve over time as SAP updates its solution portfolio and price list offerings. Accordingly, the final bill of materials may be adjusted to align with SAP's then-current offerings, provided such adjustments do not materially alter the intended solution capabilities, sizing assumptions, or commercial outcome reflected in this proposal.

**2. Pricing** - SAP agrees to extend the pricing reflected in this proposal through the earlier of (a) June 15, 2027, or (b) ninety (90) days following final regulatory approval of the Connecticut AMI initiative.

Based on the proposed solution scope, the Annual Contract Value is $[redacted]. This pricing includes High Availability and Disaster Recovery capabilities designed to support the resiliency, availability, and

operational requirements of a modern Customer Information System supporting Eversource's Connecticut AMI program.

SAP intends for the pricing contained in this proposal to provide Eversource with commercial certainty for planning, budgeting, and regulatory purposes. Accordingly, subject to the overall program scope, sizing assumptions, deployment architecture, and required solution capabilities remaining materially unchanged, pricing for the proposed SAP solution will not exceed the amount reflected in this proposal.

The parties acknowledge that individual solution components may require updates to reflect SAP's then-current product offerings, SKU structures, licensing metrics, packaging constructs, or solution naming conventions. Any such adjustments will be made in a manner intended to preserve the commercial intent of this proposal and will not result in an increase to the net pricing reflected herein, provided the underlying program requirements remain materially unchanged.

**3. Future Commercial Documentation -** Upon regulatory approval, Eversource and SAP will work in good faith to finalize the solution scope and execute any required amendments or commercial documentation necessary to support the Connecticut AMI Program.

This proposal is intended to support Eversource's planning, budgeting, and regulatory activities and reflects SAP's current understanding of the program requirements. Any future transaction remains subject to the execution of mutually acceptable commercial documentation between the parties.

[redacted]
Senior Account Executive
([redacted]
[redacted]

[redacted]
SAP Vice President
[redacted]
[redacted]

Docusign Envelope ID: 45BC81E0-4073-81C1-8396-21FB6002A49D

**Order Form**
**for SAP On Premise Software and Support**

Between

**SAP Industries, Inc.**
**3999 West Chester Pike**
**Newtown Square, PA 19073**
**USA**
**("SAP")**

And

**Eversource Energy Service Co.**
**107 Selden St**
**BERLIN, CT, 06037-1616**
**US**
**("Customer" or "Licensee")**

**Customer ID: 1404281**
**Case ID: 3063634345**

**1. EFFECTIVE DATE**

This Order Form as issued by SAP is a binding offer by SAP. It only becomes effective upon SAP's receipt of this Order Form duly signed by the parties (" **Effective Date** ") on or prior to 12/05/2026.

**2. SOFTWARE AND LICENSE FEES**

2.1. Customer receives the right to Use the software products in line with the metric and quantities set forth in Schedule 1 ("**Software**") in accordance with the terms and conditions of the Agreement for the Total License Fee set forth in Schedule 1.

2.2. Affiliate Use

If Customer has an Affiliate with a separate software license and/or SAP support agreement with SAP SE, any SAP SE affiliate (including SAP) or any other distributor of SAP software ("**Separate Agreement**"), the Software must not be used to run such Affiliate's business operations and such Affiliate will not receive any SAP Support as set forth in this Order Form even if the Separate Agreement has expired or is terminated.

**3. SAP SUPPORT AND SAP SUPPORT FEES**

3.1. SAP will provide Customer with SAP Enterprise Support for the Software as set forth in the SAP Support Schedule and Customer must pay the SAP Support Fee which is shown as an annual amount. The Initial Annual Support Fee is set forth in Schedule 1.

3.2. The SAP Support Fee is priced at the Support Percentage multiplied by the Maintenance Base set forth in Schedule 1, whereby "**Support Percentage**" means the Initial Support Percentage set forth in Schedule 1 or any increased support percentage.

3.3. Support Term

3.3.1. SAP Support will start on the first day of the month following the Effective Date and will end on December 31st of the next full calendar year (except if the first day of the month following the Effective Date falls on January 1st, in which case the initial term will run until December 31st of the same calendar year) ("**Initial Term**").

3.3.2. After the Initial Term, SAP Support will automatically renew for subsequent one-year periods (each a "**Renewal Term**") whereby the first year immediately following the Initial Term will be defined as "**1st Renewal Term**".

3.4. Fee Increase

3.4.1. The Initial Annual Support Fee will remain unchanged for the Initial Term and the 1st Renewal Term.

3.4.2. Thereafter, SAP may increase the SAP Support Fee by giving Customer three months' notice prior to the end of each Renewal Term by the percentage increase in the Index, applied on a cumulative year-over-year basis starting from either the Effective Date or, if a fee increase already happened, the Index used in the last fee increase notice, whichever occurred later ("**Fee Increase**").

Index is the CPI index whereby CPI as used herein means “U.S. Consumer Price Index for all Urban Consumers, U.S. City Average - All Items 1982-1984 = 100 Base for a twelve (12) month period prior to such increase as published by the Bureau of Labor Statistics”.

3.4.3. Not raising fees is not a waiver of SAP's right to do so.

**4. PAYMENT TERMS AND INVOICING**

4.1. All fees are in the currency set forth in Schedule 1 and do not include Taxes. Customer must pay the Total License Fee within 30 days of date of invoice and the SAP Support Fee within 30 days of date of invoice.

4.2. The Total License Fee and the SAP Support Fee will be invoiced upon execution of this Order Form.

4.3. For the first part of the Initial Term, the SAP Support Fee will be invoiced on a pro-rata basis from the first day of the month following the Effective Date. Thereafter, the SAP Support Fee will be invoiced annually in advance.

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4.4. Customer agrees that SAP may provide invoices electronically. Customer must provide a contact person and email address for such purposes.

**5. DELIVERY OF SOFTWARE**

5.1. Customer confirms that it received the remote access information necessary to electronically download the Software through the SAP Customer Support Website (https://support.sap.com/) and Customer confirms it has access to the SAP Customer Support Website as required to download the software licensed under this Agreement.

SAP will deliver the version of the Software that is current at the time of the Effective Date.

The following token can be used by Customer to select a different or additional User and gain access to SAP support web sites:

User Onboarding Token: 2e743bae-e07f-4797-9182-213aa70823d4

User Onboarding Website: https://account.sap.com/onboard/token/2e743bae-e07f-4797-9182-213aa70823d4

**6. EXPORT RESTRICTIONS**

Customer may not export, transfer or Use the Software and may not use SAP Support, Documentation and/or other SAP Materials in any country where these may not be used according to the export control and trade sanctions laws of the United States, Canada, the EU, and Germany and/or any other applicable export control and trade sanctions laws. Customer may not permit the export, re-export, transfer or Use of the Software and may not grant the use of SAP Support, Documentation and/or other SAP Materials to any end user with whom transactions are prohibited in accordance with the terms of the Agreement. Further information on SAP's Export Control and Sanctions Compliance can be found at: https://www.sap.com/about/agreements/export-statements.html.

**7. ADDITIONAL TERMS**

7.1. SAP may include Customer's name and licensed Software in SAP customer lists and earnings communications.

**8. REFERENCED DOCUMENTS**

This Order Form is governed by and incorporates the following documents in effect as of the Effective Date. All documents are listed in order of precedence. All Order Forms previously executed and in effect under the GTC are integral to this agreement, collectively form a single agreement, and are referred to herein as the "**Agreement**".

| No. | Agreement | Location |
|---|---|---|
| 1. | This Order Form including Schedule 1 | |
| 2. | Software Use Rights ("**Use Terms**") | https://www.sap.com/about/agreements/product-use-and-support-terms.html?tag=agreements:product-use-support-terms/on-premise-software/software-use-rights |
| 3. | SAP Support Schedule ("**SAP Support Schedule**") | https://www.sap.com/about/trust-center/agreements/on-premise/product-use-and-support-terms.html?tag=agreements:product-use-support-terms/on-premise-software/support-terms |
| 4. | SAP Software License Agreement ("**GTC**") | General Terms and Conditions/End User License Agreement effective November 20, 2020 |

Customer has had the opportunity to review the Agreement, including, without limitation, the Use Terms, SAP Support Schedule, and GTC prior to executing this Order Form. SAP recommends that Customer prints copies of these documents for Customer's records.

For the purposes of this Agreement, any references to "Licensee" means "Customer" and vice versa.

All defined terms used in this Order Form have the meaning stated in the Agreement.

Signatures sent by fax, pdf, email, DocuSign or other electronic means for which a process has been provided by SAP will be deemed original signatures.

| Accepted By: | Accepted By: |
|---|---|
| SAP Industries, Inc.<br>(SAP) | Eversource Energy Service Co.<br>(Customer) |
| Name: | Name: |
| Title: | Title: |
| Date: | Date: |

Docusign Envelope ID: 45BC81E0-4073-81C1-8396-21FB6002A49D

**Schedule 1**

**Pricing Summary and List of Software**

| | |
|---|---|
| **Total License Fee** | [redacted] USD |
| **Support Type** | SAP Enterprise Support |
| **Initial Support Percentage** | [redacted] % |
| **Maintenance Base** | [redacted] USD |
| **Initial Annual Support Fee** | [redacted] USD |
| **Initial Support Percentage for BSI** | [redacted] |

| **Software** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Product** | **TPP** | **SAV** | **HSAV** | **DSC** | **Sales Unit** | **Blocks of (units)** | **Licensed Quantity** | **Net License Fee** |
| SAP Archiving and Document Access by OpenText for SAP S/4HANA | X | | X | X | Users | 1 | 1500 | [redacted] |
| SAP Document Presentment by OpenText for SAP S/4HANA | X | | X | X | Transactions | 100,000 | 65 | [redacted] |
| SAP Document Presentment by OpenText, add-on for business correspondence for SAP S/4HANA | X | | X | X | Transactions | 100,000 | 65 | [redacted] |
| SAP HANA, runtime edition for applications & SAP BW - New/Subsequent | | X | | X | HSAV | 1 | 1 | [redacted] |

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Legend:

TPP "Third Party Product": 'X' indicates the software product is a Third Party Product licensed from SAP

SAV "SAP Application Value": 'X' indicates that the product is part of the SAP application value and thus relevant for runtime databases licensed by SAP.

HSAV "HANA SAP Application Value": 'X' indicates that the product is part of the HANA SAP application value and thus relevant for HANA runtime databases licensed by SAP

DSC “Discountable" Product

The amounts set forth above are net amount. Applicable taxes are not included. This is not a tax invo

Itron



# Eversource Energy

Advanced Metering Infrastructure
(AMI) Solution
Doc3876476192
April 17, 2023

April 17, 2023

Mr. [redacted]
Procurement Department
Eversource Energy
107 Selden Street
Berlin, CT 06037

Via Procurement Portal

Re: RFP for an Advanced Metering Infrastructure (AMI) Solution - Doc3876476192

Dear [redacted]

Thank you for the opportunity to respond to Eversource Energy's Advanced Metering Infrastructure request for proposals (RFP). Please find attached Itron's comprehensive response for your consideration.

Our proposal is based on industry leading Gen5 Riva technology which offers a robust, multi-purpose networking platform with the most mature and proven AMI 2.0 capabilities, including realization of outcomes uniquely enabled by distributed intelligence (DI). Our goal is to enable Eversource to maximize the positive impact for your customers and utility operations while optimizing total cost of ownership (TCO) for the entire AMI solution lifecycle.

This response features two complete commercial proposals aligned with Eversource's primary response scenarios:

- a Bridge meter utilization proposal to maximize existing asset value, and
- a greenfield Gen5 proposal to enable every meter with full AMI 2.0 capabilities.

Itron is honored to provide Eversource with this response. As a long-standing partner, we are truly excited about the prospects of further building our relationship if selected for your AMI program. Eversource has Itron's full commitment to achieving the goals of your AMI solution.

I am personally available to discuss any aspect of Itron's commitment with you and your colleagues. You may contact me directly at [redacted] or via [redacted], Enterprise Client Executive, [redacted] and [redacted].

[redacted]

**ITRON**
2111 North Molter Road
Liberty Lake, WA 99019
**www.itron.com**

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# EXECUTIVE SUMMARY

## EVERSOURCE'S AMI GOALS

As part of Eversource's grid modernization strategy, Advanced Metering Infrastructure (AMI) will bring significant benefits. Eversource's chosen AMI technology must deliver a new level of visibility and control of the grid to enable safety, reliability, and a clean energy future. Itron believes an AMI platform capable of real-time situational awareness and control is essential for any utility to thrive during the present *clean energy transition*. The entire Itron team sincerely appreciates this opportunity to present such a platform.

## COMPREHENSIVE AMI PLATFORM FOR EVERSOURCE

Itron's solution for Eversource is designed to deliver maximum value through improved customer service responsiveness, reduced operational expenses, and unprecedented levels of situational awareness to improve grid resilience and reliability. Itron proposes an end-to-end AMI platform to meet Eversource's current use cases and to prepare for future business needs. To meet Eversource's desire for advanced metering, grid management, and an enhanced customer experience, Itron proposes our proven Gen5 AMI solution with Distributed Intelligence (DI).

Eversource has made a significant investment in Itron AMR technology which includes a large number of Itron AMR Bridge meters delivering advanced AMR functionality while capable of being converted, over the air, to fully functional AMI assets. Itron recognizes this investment and is uniquely able to upgrade these meters to provide Eversource with ongoing value and full return on investment. To this end, Itron is providing a commercial proposal for two distinct meter deployment options for Eversource's consideration:

- **Bridge Meter Utilization deployment:** All installed Bridge meters in MA and CT are utilized in accordance with the Bridge Meter Utilization approach described in *Appendix A.3*.
- **Greenfield Gen5 deployment:** All Eversource meters are replaced with new Gen5 Riva meters in accordance with the Bridge Meter Replacement approach described in *Appendix A.3*.

Our Bridge Meter Utilization offering fully integrates existing Bridge meters into the proposed AMI system with greater AMI capabilities than originally available from any AMI 1.0 market solution. Itron will deliver the required capabilities for either deployment scenario to Eversource through our proven AMI platform that meets or exceeds the *Functional Requirements* outlined in **Section 5.4** of the RFP.

### Multi-Purpose AMI Network

Itron's 5th generation Gen5 network technology – the industry leading, multi-purpose radio frequency (RF) field area network – connects AMI electricity meters, gas meters, and water endpoints as well as numerous non-meter to cash assets such as Distribution Automation (DA), DER Management, Smart Streetlights, Smart Cities, and Industrial Internet of Things (IoT) solutions, all on the same network. Additionally, Itron meters and meter modules provide advanced functionality making every meter a sensor on your electric, gas, and water systems, providing detailed information on the health and condition of these distribution systems. Itron continues to expand the capabilities of the Gen5 network with innovations, such as the Solar Battery Access Point (AP) with meshing battery endpoints for cost-optimized networking in gas-only areas.

This Gen5 AMI platform offers standards-based integration with Eversource's current and planned enterprise systems to ensure operational and customer service benefits. Itron's proposed Gen5 technology provides market-proven benefits:

- **High performance** proven to consistently exceed Service Level Agreement (SLA) requirements for coverage, availability, throughput, and read success – including near real-time AMI interval data collection from the field to the back-office every 15 minutes.
- **Backwards compatibility** with earlier generations of GenX devices and designed to be compatible with future GenX network technologies, eliminating obsolescence risk.
- **Distributed Intelligence** experience includes over 5.7 million DI-enabled endpoints shipped, 11.7 million contracted, and 7.4 million licensed apps in use.
- **Robust gas and water applications** for AMI endpoints including the innovative ultrasonic Intelis Gas Meter.
- **Comprehensive security** utilizing a multi-layer security architecture.
- **Self-forming and self-healing mesh technology** which makes the network simple to install and manage, while being resilient to storms and weather events.
- **Extensive implementations with third-party meters** with potential to enable distributed intelligence value with Itron's DI Network Interface Card (NIC), as referenced in the enclosed joint letter with Aclara.
- **Global experience base** with nearly 50 million connected devices.

Eversource can count on Itron's continual improvements to its network offering and our commitment to driving standards and choices for utilities.

### Advanced Electricity Metering

For Eversource, Itron proposes the industry's most advanced meter technology proven at scale: Itron's Gen5 Riva electricity meter. The Gen5 Riva meter is built around an A7 core processor running a Linux computer operating system. This design enables not only the measurement and recording of traditional metering data, but also creates a distributed intelligence (DI) platform within each meter.



The Gen5 Riva meter contains multiple communications capabilities, such as a RF Mesh radio, a power line carrier (PLC) radio for DI data collection and awareness, and a secure Wi-Fi radio that can be leveraged for both local field operations and as an IEEE 2030.5 customer interface.

The Gen5 Riva meter provides a wealth of electricity measurement capabilities, with Eversource being able to configure the meters over-the-air (OTA), as desired. All meters have threshold settings to monitor and log a variety of parameters, such as voltage, current, temperature, and arc detection, which provides Eversource with state-of-the-art situational awareness. The residential meter can also be outfitted with a 200A service switch, used for a variety of use cases, including service limiting.

### Industry-Leading Distributed Intelligence

Itron's DI platform enables multiple single-purpose applications (*apps*) to be distributed to and run directly on selected AMI network endpoints, such as smart meters, NICs, and gateways. DI's grid edge computing capability enables a broad range of innovative capabilities for customer and grid-facing solutions providing benefits that grow and evolve over time.

As the market leader in meter-based DI, Itron's platform offers Eversource immediate value from DI in grid operations with optional applications capable of identifying issues such as failing service connectors, damaged service wires, meter bypass theft, and EV/Solar detection. Safety-focused DI apps are especially well suited for use during the initial AMI meter deployment for early issue identification and resolution. Location Awareness relies on the unique combination of RF Mesh and PLC radios to dynamically and continuously determine grid connectivity for DER management. This dynamic grid model supports operational inputs from Active Transformer Monitoring apps with near real-time access to virtual transformer meter data available to real time systems.

Itron has included with this proposal a DI starter kit featuring the Safety Bundle, Location Awareness, and Active Transformer Monitoring Bundle DI apps, along with Itron's Virtual Remote Terminal Unit (RTU) Software Gateway for one year for 50,000 meters to implement DI at the outset of meter deployment to accelerate Eversource's AMI benefit realization. This starter kit includes platform and application software and professional services implementation and integration support.

Furthermore, Eversource can draw from a robust ecosystem of Itron partner apps to solve future challenges, introduce new services, and improve customer engagement. Eversource may even choose to develop its own DI apps, either for its own use or to license to other utilities and service providers. Itron's DI portfolio has now grown to more than twenty applications in the areas of grid stability, consumer engagement, and DER enablement. Please see *Appendix A.12 - AMI Technology Distributed Intelligence Support* below for details on Itron's DI application offerings, solution platform implementation, and partner ecosystem solutions.

## CONCLUSION

Eversource's AMI initiative will result in significant benefits for Eversource customers, both now and in the future. Itron is a long-time strategic partner who understands Eversource's vision and dedication to its customers. Itron's proposed AMI platform combines the highest performance, the most proven AMI network, the most advanced AMI meter (Gen5 Riva), and the most field-proven edge computing technology (DI). When combined with IEE MDM, Itron's industry-leading meter data management system, additional value is derived from extensive, vendor-supported pre-integration to minimize integration risk and maximize speed to value.

The Gen5 AMI platform is proven to deliver value such as improved customer service, reduced operational expense, and an unprecedented level of grid awareness and control. The Gen5 platform will equip Eversource to support clean energy initiatives and to meet ever-growing pressures on grid resilience and reliability. Itron's market-leading systems will deliver the greatest value to Eversource's stakeholders including a deeply enhanced experience for Eversource's customers.

April 12, 2023

To Whom It May Concern:

Itron, Inc. ("Itron") and Aclara Meters LLC ("Aclara") are pleased to offer this joint statement of cooperation in support of next generation Advanced Metering Infrastructure (AMI) deployments.

Itron and Aclara have a long-standing collaborative relationship and a history of working together to deliver AMI/metering solutions. Today, Itron network interface cards (NIC) which enable OTA communication are integrated within Aclara's I-210+c residential meters and kV2c commercial/ industrial meters. This meter integration allows utilities to source meters from multiple vendors and deploy them on the same AMI network. These integrated meters are currently production operational and continue to be deployed in high volumes across more than a dozen utilities in North America.

Recent discussions and planning activities between our two companies are focused on elevating this relationship to a new level. Specifically, Itron would like to offer a second source electricity meter for its Next Generation AMI solution. Aclara is supportive of this initiative and the two parties are actively coordinating the development of a new meter integration that would support Distributed Intelligence (DI) on Aclara meters. Ultimately, for our customers this will provide a second source electric meter alternative without having to sacrifice any of the functional benefits that come with a next generation AMI system. The result will be an AMI solution with multiple vendors' meters, all of which are fully DI-capable, support peer-to-peer communication with one another on the network and are managed through a single headend solution.

Based on the Itron and Aclara history of development on these existing meter platforms, we view the technical challenges to be of low risk for the development and integration of a Gen5 DI NIC into the Aclara meter platform for use in the Itron Gen5 network solution.

We would like to clearly communicate the following:

1. Itron and Aclara are in active planning discussions regarding the development and commercialization of a Gen5 DI NIC for integration into the Aclara metering platform.

2. Itron confirms its willingness to develop an Itron Gen5 DI NIC module for Aclara meter.

ITRON
2111 North Molter Road
Liberty Lake, WA 99019
www.itron.com

Aclara Meters, LLC.
77 Westport Plaza – Suite 500
St. Louis, MO 63146
www.aclara.com

3. Aclara confirms its willingness to support the development/integration effort to support the higher resolution data requirements of DI as well as the physical meter/NIC integration within their meter production facility.

Both Itron and Aclara have direct costs associated with this development effort and agree in good faith to continue the ongoing efforts to reach a joint commercial agreement for this activity.

Itron and Aclara are pleased to present this joint statement and welcome any opportunities to discuss this further with current or prospective utility customers.

Sincerely,

[redacted]

Vice President – Product Marketing
Networked Solutions
Itron

[redacted]

Vice President
Business Development and Meter Sales
Hubbell (Aclara Division)

Confidential Information of Itron and Aclara

Not for Public Disclosure

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# APPENDIX A.1. PROPOSER COMPANY PROFILE

## PROVIDER COMPANY INFORMATION

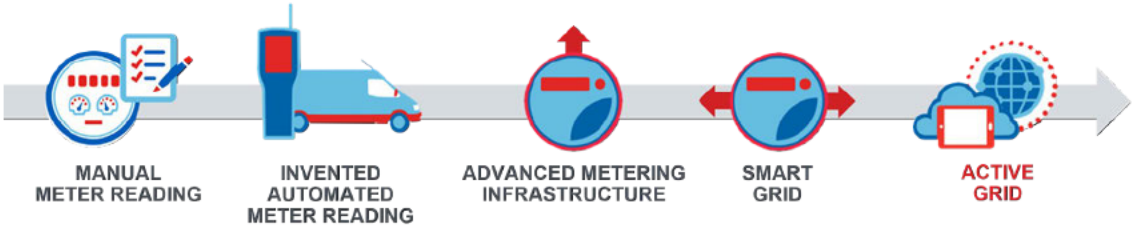
Itron is responding to this RFP as the AMI technology and services provider and the AMI MSaaS provider.

| | |
|---|---|
| COMPANY NAME | **Itron, Inc.** |
| ADDRESS | 2111 North Molter Road<br>Liberty Lake, WA 99019 USA |
| CONTACT INFORMATION | Phone: [redacted]<br>Web: https://www.itron.com/na/contact |
| NATURE OF ORGANIZATION | Corporation, Publicly Traded (NASDAQ: ITRI) |
| CHANGE IN OWNERSHIP | As an incorporated entity since 1977, Itron does not expect a change in ownership within the next 3-5 years. |

## COMPANY BACKGROUND

### History

Itron was founded and incorporated in 1977 in Spokane, Washington, as a computing and communications company whose initial focus was automating the collection of meter data for the utility industry. In the early 1980s, Itron pioneered and developed the first broadly adopted automated meter reading (AMR) systems, which consisted of utility field workers using portable, radio-equipped computers—running dedicated application software—to collect data from meters remotely via wireless radio signal.




Itron's Decades of Innovation

Itron soon evolved this technology to vehicle-based drive-by systems to deliver new levels of scale and efficiency, and eventually to the fixed network infrastructure and two-way communications that many utilities are deploying today.

### Company Background

As a global technology and services company dedicated to the resourceful use of energy and water Itron provides solutions for measuring, managing, and analyzing energy and water. Our comprehensive product portfolio includes electricity, gas, water, and thermal energy measurement

devices and control technologies; communications systems; software; and management and consulting services. Itron provides value to our clients by delivering knowledge that is essential for optimizing the delivery and use of the world's vital resources. Together, we are creating a more resourceful world.



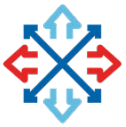
**OUR VISION**

The way we manage energy and water will define this century.



**OUR PURPOSE**

Itron is dedicated to **creating a more resourceful world**.



**OUR VALUE PROPOSITION**

We enable cities and utilities to safely, securely and reliably deliver critical infrastructure solutions.

Itron is the only end-to-end solutions provider offering a full suite of customized products and services that help utilities manage the world's most valuable resources efficiently and sustainably. Itron has deployed hundreds of millions of electricity, gas, and water meters to leading utilities throughout the world. Itron's Gen5 network platform has nearly 50 million devices deployed across more than 50 utility customers supporting a wide breadth of applications. Itron has provided AMI and MDM technology deployment to a wide variety of utility and cooperative clients nationally.

### Additional Facts About Itron

- 75% of power in the U.S. touches Itron technology
- More than 80% of electricity in North America is forecast by Itron software
- Itron has over 8,000 customers in 100 countries
- Itron has the #1 industrial IoT and smart city solution running on a single platform
- Itron networks are installed in 7 of the 10 largest metropolitan areas in the U.S.
- Itron has more than 700 managed services customers in North America
- Over 70 million Itron gas endpoints have been installed in North America

### Partnership and Alliance Relationships

Itron has a long history of participation and leadership in the standards organizations that have shaped the past, present, and future of utility AMI, Smart Cities, and IoT solutions. Itron's membership in industry standards organizations spans multiple generations of metering and communication technologies as well as computing platforms. As a market leader for smart grid products, Itron supports standardization committees in many countries and is a member of 38 global alliances, standards development organizations, and associated consortia. Our staff participates directly in CEN, CENELEC, DLMS UA, ETSI, IEC, IETF, ISO, NIST, and Wi-SUN committees, and we are contributing members to such organizations as ANSI, G3-PLC, IDIS, and PRIME.

## ATTACHMENT H & I QUESTIONS

### Company Background

1. **Official registered name (Corporate, D.B.A., Partnership, etc.), Dun & Bradstreet Number, primary and secondary SIC numbers, address, main telephone number.**

   Itron, Inc. (Corporate)
   2111 North Molter Road
   Liberty Lake, WA 99019 USA

   Main Telephone No: 800.635.5461

   DUNS: 09-364-9895

2. **Brief history of your company.**

   Itron, Inc., is a global technology and services company dedicated to the resourceful use of energy and water. Since 1977, we have provided solutions for measuring, managing, and analyzing energy and water. Our comprehensive product portfolio includes electricity, gas, water, and thermal energy measurement devices and control technologies; communications systems; software; and management and consulting services. Itron provides value to our clients by delivering knowledge that is essential for optimizing the delivery and use of the world's vital resources. Together, we are creating a more resourceful world.

3. **Where is your corporate headquarters and what other offices do you have?**

   Our corporate headquarters is located in Liberty Lake, Washington with 40 global office locations (14 major offices) throughout more than 35 countries across Africa, Asia, Europe, Middle East, North America, South America, and Oceania.

4. **Which office will be servicing this work?**

   This work will be serviced through our Raleigh, NC office with close collaboration with our Liberty Lake, WA headquarters.

5. **Is there a specific Business Division that will be managing this product?**

   Our Delivery (Program Management) team, within our Outcomes business unit, will primarily manage this AMI program. Our proposal includes products from all three of our business units, Networked Solutions, Outcomes, and Devices.

6. **How many years have you been in business?**

   Itron has been in business for over 45 years.

7. **How many employees does your company have?**

   As of 2022, Itron has 5263 employees with an additional 605 contingency (agency and contract) workers.

8. **What are your annual sales?**

   2022: USD $1.80B
   2021: USD $1.99B
   2020: USD $2.17B

   For the latest reports, see https://investors.itron.com/financial-information, Annual Report/10-K: Item 6 Selected Consolidated Financial Data.

9. **Key contact name, title, address (if different from above address), direct telephone number.**

   [redacted], Enterprise Client Executive, [redacted]

**10. Person authorized to contractually bind the organization for any proposal against this RFP.**

[redacted], Senior Vice President and Chief Financial Officer.

**11. Summarize the capabilities your company brings to this project.**

From early handheld manual meter reading to automated mobile reading and fixed network solutions, Itron has a long history of supplying innovative technology solutions to the utility industry This experience brings a host of unique and diverse capabilities to the Eversource AMI project. Since we have deployed both large- and small-scale projects in numerous countries, Itron has the valuable global experience needed to manage the diverse challenges of implementing and integrating complex smart metering systems.

Itron has delivered more than 200 million connected devices to customers in projects ranging from small pilots to massive, multi-million endpoint rollouts, Itron is a leader in the industry and delivers comprehensive AMI systems. We are focused on the utility industry—solving utility challenges is why we were founded; making utilities successful, efficient, and effective is in our DNA. Our customers have put their trust in us and relied on our solutions for over four decades.

Itron is has delivered some of the largest and most innovative AMI smart grid programs around the world. Itron has proven its GenX AMI communications platform with 40+ active and pending deployments that manage tens of millions of active smart meters from multiple vendors.

**12. What percentage of your customer base is related to the Utility industry?**

Over 95% of Itron's customer base is related to the utility industry.

**13. What percent of the Utility market uses your product?**

As shown in the section above, 75% of power in the U.S. touches Itron technology with more than 80% of electricity in North America forecast by Itron software.

### Software

**14. Is a soft copy of the product brochure available and can it be provided to Eversource?**

Yes. Itron will provide a soft copy upon request.

**15. Provide a product user manual and technical details document for Eversource review.**

Gen5 AMI product user manuals and technical details can be found in *Attachment – User Guides and Technical Support Documentation* accompanying this proposal response.

**16. Provide the Name for each proposed Product/Module(s) for this engagement.**

See *Appendix A.2 – Solution Summary* below for a comprehensive list of proposed products and modules Itron proposes for Eversource.

**17. Provide a list of all software and documentation that is shipped with the proposed Product/Module(s).**

All latest AMI product documentation and release notes are delivered through the Itron Customer Center. This documentation includes: **1) User Guides and Manuals** - Content includes installation and upgrade guides, configuration guides, API reference and database schema guides, integration guides, and much more. **2) Online Help** – Content includes a standalone version of the Online Help articles, enabling access to help articles. For more information, see the *Attachment - User Guides and Technical Support* included with this response.

**18. What are the future milestones in the product's roadmap?**

Itron's product roadmap is dynamic and driven primarily by market requirements and direct customer input. Two key tenets drive Itron's Next Generation AMI portfolio:

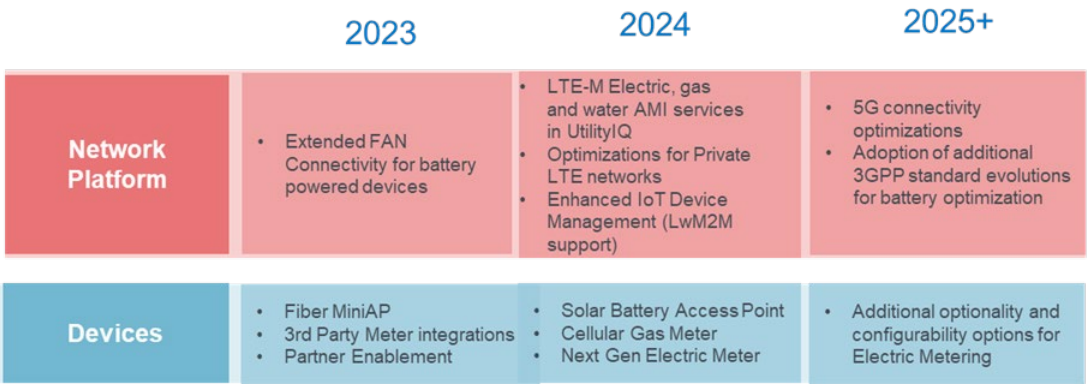
1.) Enablement of all of Itron's smart metering value on the Gen5 platform. This includes Itron's electric, water, and gas endpoints, grid management portfolio, smart city solution portfolio, and our Itron Riva distributed intelligence capabilities.

2.) Diversification of connectivity options, including industry-leading RF-mesh technology as well as utility use-case optimized implementations of 3GPP standard cellular solutions, both public and private.

Itron maintains this roadmap for incorporating near-term and long-term enhancements to meet the collective needs of our customers and the industry. This is achieved only through frequent, honest, and close cooperation with our customers.

- Our product managers work directly with customer stakeholders and user group communities to define, prioritize, and communicate future product enhancements. These groups provide invaluable contributions through input and insight, and they play a key role in prioritizing future functionality.
- Our product marketing teams actively work with our existing customers, industry experts and partners to conduct research, gather market requirements, and analyze market feasibility with proofs of concept to form our solution roadmap.
- Itron maintains an executive level team for strategic business development. This group is at the forefront of all Itron's future-forward projects and partnerships.
- Itron hosts several annual and bi-annual events, both in person and virtual, for utilities to attend and participate for the purpose of providing product updates, sharing future roadmap plans, and soliciting feedback from the active user base. Itron also sponsors functionally specific working groups to facilitate the creation of strong user communities across utilities that use Itron solutions and give these communities a collective voice to affect future product roadmaps.

The roadmap below outlines how Itron plans to deliver upon these tenets.




Our objective is to ensure our customers benefit from the highest-performing, most secure, industrial IoT network platform in the industry, can choose connectivity options to suit their business objectives, and are able to flexibly realize new business value for years to come. Support for all capabilities listed is planned on the technology platform Itron has proposed.

**19. What is the current version of the product?**

UtilityIQ 5.1.8 is the current version of the proposed UtilityIQ Suite software solution.

**20. When was the first version of the product released (first shipment of product)?**

The first large AMI deployment with UtilityIQ software operating as the headend application started in 2007 at a large investor-owned utility in the Southeast United States.

**21. When was the major upgrade released?**

The last major upgrade of UtilityIQ 5.1.0 was released January 17, 2022, with eight service packs having followed since, the latest of which (v5.1.8) released on March 8, 2023.

**22. Typically, how often do you issue patches/releases?**

Itron communications firmware typically has a minor version release that includes new features and enhancements every nine to twelve months. Service pack and maintenance releases are released as needed and the necessity of an update is generally customer dependent or based on customer contractual requirements. Support for new features or functionality in the software applications is also a consideration as it is possible that firmware dependencies exist. Firmware and software applications are released as system releases.

UtilityIQ applications typically have a minor version release every 9 to 12 months. Minor version releases include new features and may change API and export schema specifications, with backward compatibility maintained for all supported releases. Service pack releases are generally released quarterly and are limited priority fixes. Service pack releases generally do not contain new functionality or changes to APIs and export schemas.

**23. How do you identify new product release features?**

UtilityIQ applications typically have a minor version release that includes new features every 9 to 12 months. All software upgrades and server patching activities for the hosted headend applications are performed by Itron. Timing, frequency, and version selection are determined by Itron based on customer needs or contractual requirements.

**24. How do you collect and prioritize feature enhancement requests?**

New features are suggested by our customers during our customer forums or via our support processes that are reviewed, prioritized, and logged-in our product backlog. Prioritization of enhancements is driven by the market, often through consultants, customer feedback, and customer polling assisting in driving priorities and value. Product backlogs are reviewed and revised on a quarterly basis.

**25. How is the software kept current with changing technologies?**

Itron's Gen5 platform is designed to avoid technical obsolescence by providing a truly open, native IPv6 platform. Through open standards, Itron protects customers from obsolescence of proprietary systems and utilizes the latest IP-based security solutions. In addition, by deploying a standards-based smart grid, customers will benefit from a broader set of device and software choices as suppliers compete to deliver the best smart grid solutions.

Itron continues to review new technologies to deliver on the latest AMI requirements and market needs while reducing total cost of ownership for our customers.

**26. Provide your solution deployment options (Cloud, On Premise, or Both), which option you recommend for this request and why.**

Itron offers multiple deployment options to accommodate a variety of customer needs. Each option contains unique features and benefits designed to accommodate different ownership requirements, capitalization needs, skill levels, and risk profiles.

For Eversource, Itron recommends our **Managed SaaS** option deployment model. With Managed SaaS, Eversource leverages Itron's significant experience to reduce deployment time and project risk while maintaining the benefits of long-term ownership and capitalization.

With Managed SaaS, Eversource purchases a license for the software applications needed to support network endpoints. In turn, Itron builds, owns, maintains, and manages the back-office headend system software and supports the IT infrastructure at a secure Itron data center. This design includes a buffer to support growth. Eversource owns and maintains the solution's meters and network devices.

Eversource will then pay Itron a monthly SaaS fee to provide the IT infrastructure for the environments they have contracted. As part of this fee, Itron monitors the network's access points, relays, and bridge devices. Itron sends notices via a remedy ticket to Eversource when a device is outside of monitoring thresholds so Eversource can easily investigate and resolve as needed.

This flexible deployment model shifts the solution's IT risk and skill requirements to Itron. By leveraging existing infrastructure at Itron data centers, we can rapidly deploy client environments, which significantly reduces one of the largest operational risks in any smart grid deployment. Shared infrastructure (i.e., routers, storage, database, servers, backups, etc.) also allows Eversource to avoid additional costs and delays associated with acquiring dedicated hardware without sacrificing data integrity and security.

Software licenses (and associated software maintenance) are unbundled from the monthly SaaS fee, leaving only an ongoing managed services fee for hosting and maintaining the applications. Although Itron collects the data, Eversource fully retains its ownership.

Itron recommends hosting the headend system in the Switch Las Vegas data center with the disaster recovery environment geographically separated and hosted in our Switch Atlanta data center. Both are tier IV data centers and meet the stringent power, cooling, and connectivity requirements set forth by Itron to ensure customer SLAs are being met. Itron currently hosts 22 Production (large scale and not pilot) environments, 12 disaster recovery (DR) environments, and 27 lower-tiered environments within the Switch Las Vegas and Atlanta data centers with another 9 Production, 5 DR, and 12 lower-tiered environments under management.

The UIQ application stack was developed with hosting in mind and Itron has incorporated years of product maturity and hosted experience into a refined and comprehensive service management program to ensure that hosting SLAs are met and that Itron is providing a positive hosting experience for our customers.

While UIQ has been hosted in our data centers for many years, hosting UIQ in the public cloud space, specifically Azure, is relatively new. Itron is currently focused on scale testing UIQ in Azure as well as developing additional monitoring capabilities based off Azure micro-services to reduce case management duration.

**27. Does the product use any 3rd party software licenses? If so provide a listing.**

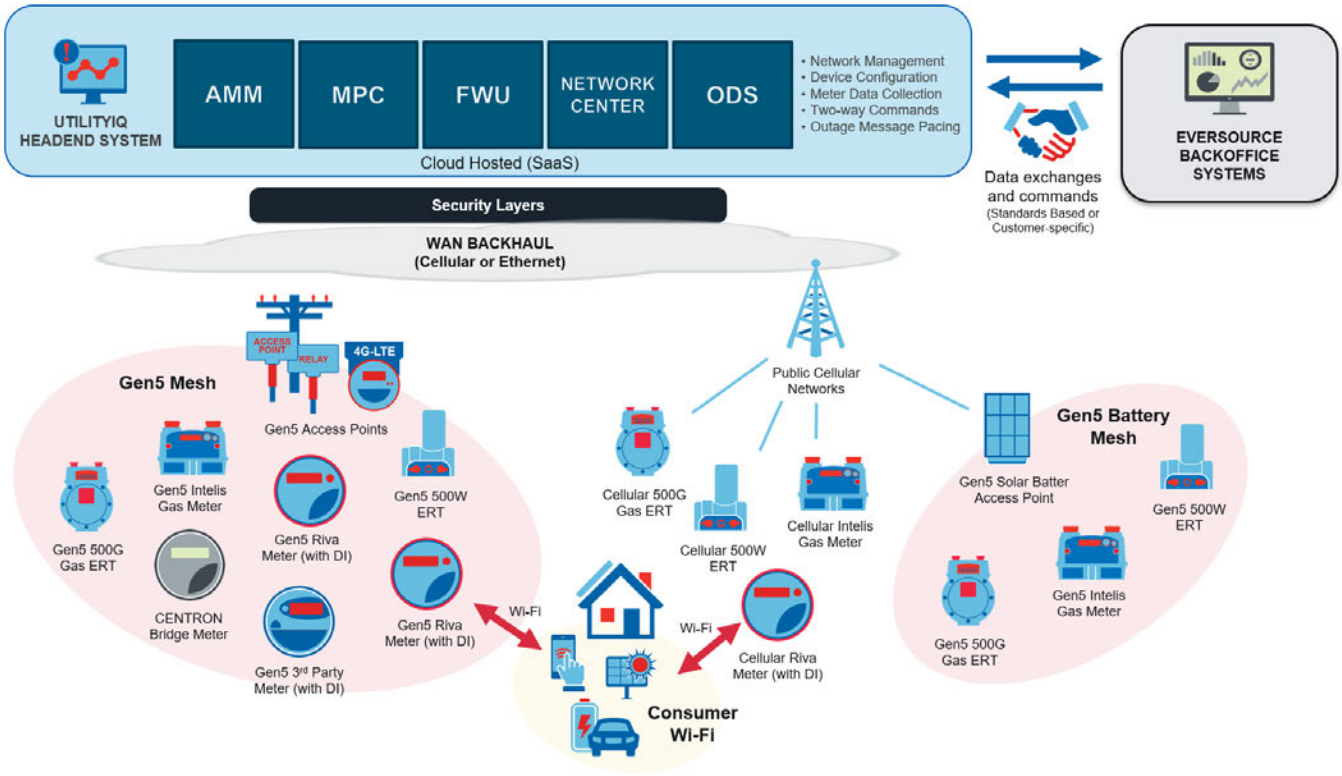
UtilityIQ 5.X utilizes several third-party components, certificates, and keys within the system stack. The licensing of these components is included as part of the Itron SaaS deployment model.

- Apache Tomcat 9.0.41
- PKI key material for GMR,FWU, and MPC in a keykeep or in KeySafe
- SSL certificates for GMR, MT, AMMJMSRoute, FWU, and MPC
- Zing JDK 20.08.201.0-3
- Zing ZST 5.22(zing-zst-8c.4.18.0-5.22.7.0.3.4.el8.x86_64)
- Zulu8.48.0.50 (equivalent to Open JDK 1.8.0_262)
- Oracle 19c
- RHEL 7.8

**28. What is your typical proposed technical architecture? Provide a high-level architecture diagram.**

The centerpiece of Itron's proposed solution is our proven, standards-based, multi-application Gen5 Network Platform. While this platform is specifically designed to support AMI for electricity, gas, and water services, the Gen5 Network Platform also supports DI, Demand-Side Management, Smart Streetlights, Smart Cities, and IoT solutions, all on the same network. The Itron Gen5 platform is based on multi-tiered application-server architecture, affording interoperability across operating systems, databases, and hardware platforms.

Itron's application software is based on a service architecture, which simplifies integration with existing IT systems. The Itron system supports services-oriented back-office architecture via industry-standard web service interfaces or APIs. The Advanced Metering Manager (AMM) headend application exposes functionality as web services using SOAP 1.1 over HTTPS. For asynchronous and event-based integration, AMM publishes XML messages (based upon the same XML Schema Definition or XSD as the web services) to several JMS queues.




Gen5 Network Platform Architecture

**29. Do you offer four** environments **(Dev, QA, Test, Production) at no cost?**

Development, QA, Test, and Disaster Recovery licenses are included in our proposal. The only additional cost that would apply is if environments are needed beyond what was scoped.

**30. Provide your integration API capabilities, Integrations with other products, and overall integration architecture.**

UtilityIQ exposes functionality via a well-documented set of web services and JMS queues that allow integration with enterprise applications. Any application can call the web services to perform an action, such as a remote disconnect command, an on-demand read, or an on-demand ping. UtilityIQ has been integrated with CIS from Harris Cayenta, SAP, CIS O/V Oracle Utilities, EDDIS, SunGuard, and NICS.

MultiSpeak 4.1 integration is supported through the Itron MultiSpeak Interoperability Adapter. Current integrations include NISC, MeterSense, Cayenta, and MilSoft and can be used for other MultiSpeak back-office applications. Web services and integration references guides are extensive and can be provided electronically upon request.

31. **Provide minimum software requirements (OS and version, DB and version, 3rd party products, etc.) needed to deploy the product. List any known limitations and/or compatibility issues.**

    For more information regarding minimum software requirements, see *Appendix A.9 – System Requirements* of this proposal response.

32. **Provide minimum network requirements (communication bandwidth, speed, etc.) needed to deploy the product. List any known limitations and/or compatibility issues.**

    For more information regarding minimum network requirements, see *Appendix A.9 – System Requirements* of this proposal response.

33. **Does the product have an open architecture such that users will have ad-hoc access to the data?**

    Since the UtilityIQ AMM database is a critical operational component of the application, it is not recommended to allow users to directly query the database. Doing so can cause issues with business-critical processes, such as meter reading and exports. All the data from AMM is available via web services for Customers to build reports after subscribing to its preferred IT tools of choice. If customers insist on direct access to the database, the database provisioning must be modified to allow for the overhead and an ongoing statement of work is required for support from the Solution Architect team. In that case, standard Oracle tools are available for querying the database.

34. **Describe your best practices for training. Documents/materials, type of training (classroom, train-the-trainer), etc.**

    Itron typically employs a train-the-trainer approach. This technique has several advantages for our utility customers, including:

    - It leverages training time and enables a large number of personnel to be trained in relatively small groups, enhancing the learning process.
    - It is cost-effective. Its flexibility can minimize travel and disruption to normal operations.
    - It maximizes utility knowledge by spreading training geometrically to many individuals.
    - It allows utilities to incorporate their own company viewpoints and experience.

    Instructors are usually the same individuals who are implementing the Itron solution. Whenever possible, they will incorporate their experience with past projects alongside training specific to the utility's solution. This includes information on best practice deployments, lessons learned, and recommendations pertinent to the customer's environment and business practices. Itron provides the following on the proposed system:

    - **Equipment Training** – For installation technicians, field personnel, and contractors outlining the specific aspects of installing Itron-enabled meters and field network equipment. This training can be completed within a two-day time period.

- **Application Training** – Participants learn how to use the applications and tools to administer, monitor and analyze a typical AMI network environment. Includes a single on-site session over four days with a classroom size of six students. Training courses are provided as consultative style training session(s), live/hands-on demonstrations with the Itron applications, and "Question and Answer" interaction with an experienced instructor. The following structured courseware is included: AMM, Network Center, MPC, FWU, and Field Service Unit Tools.

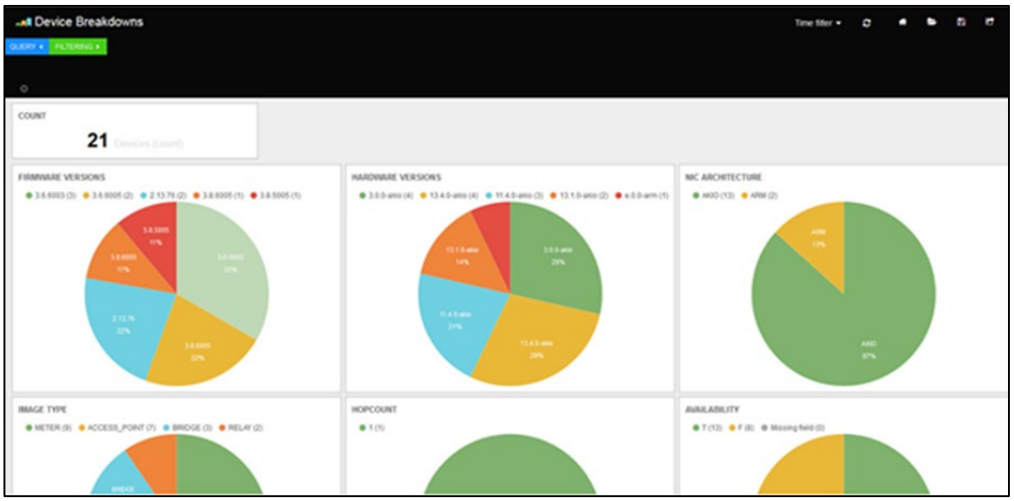
**35. Provide a description of report options, with sample screenshots of reports.**

UtilityIQ provides many pre-defined system management reports that can be displayed on screen, exported as files, or accessed by external applications through web services. Many of these reports can be customized, such as modifying the frequency with which they run and defining device groups against which to run. Please refer to the *Attachment - HES-4* for screenshot examples. The following standard reports are available:

- Meter Security Report
- Interval Gap Report
- Event Log Gap Report
- Meter Last Read Report
- Remote Service Management Report
- Device Inventory Report
- Meter Read Report
- Full Device Synch Report
- Gas Excess Flow Report
- Low Battery Report
- Network Summary Report
- Device Success ReportPI

**36. Provide a description of Dashboard options, with sample screenshots of dashboards.**

UtilityIQ and Network Center reports put critical information at the fingertips of the utility in an easy-to-read format. Itron's AMI applications come with many pre-defined reports that can be displayed on screen, exported as files for customization, or accessed by external applications through web services. UtilityIQ reports and dashboards include the following: Meter Security Report, Interval Gap Report, Event Log Gap Report, Device Inventory Report, Meter Read Report, Last Read Report, and Network Summary Report



Please refer to the *Attachment - HES-4* included with this response for additional screenshot examples.

**37. Describe your operational support services, including any additional options for user help and support with your product.**

Itron is committed to providing our customers with comprehensive operational support throughout the solution's lifecycle and ensuring the highest possible level of success and satisfaction with the solution. This commitment drives Itron's continued success in the marketplace.

During the deployment phase of the project, Itron personnel will be onsite to provide technical support. Itron's Project Manager is an onsite resource who will also have access to other resources that may be required from Itron during the implementation of the AMI system.

During the final phase of the project, support is transitioned to Itron's Global Managed Services (GMS) group. This organization is comprised of high-quality professional groups driven by a common commitment to the success and satisfaction of Itron's customers. Itron customers can obtain assistance on any issue through Itron's Global Customer Support Services. Support services include system operator assistance, troubleshooting, sales order inquiries, support questions, and any other questions our customers may have. Calls are routed by system type so they can be immediately directed to personnel trained on the customer's specific system. Itron's goal is to resolve reported problems during the first call.

For calls that require additional assistance, Itron's system support personnel act as a "second tier" of resources. They investigate and resolve issues that require effort outside of the Service Desk. In those cases where an issue requires a higher level of technical support, Itron Global Customer Support Services personnel will coordinate and track support until resolution.

Itron's Global Customer Support Services Service Desk personnel are available during regular business hours, Monday through Friday, 8 a.m. to 5 p.m., local time. Should incidents occur outside of regular business hours that cause a customer system to be unavailable, Itron's Global Customer Support Services staff is available 24x7x365. Under Itron's maintenance agreement or SaaS, the following on-call support resources are available to customers:

- **Service Desk:** Itron Support Services personnel are available through the Itron Service Desk, which is available worldwide. Itron provides a customer support hotline for questions, problem reporting, and service requests. Itron's customer support hotline is staffed during local business hours at 877.487.6602.
- **Email:** Itron customers can also correspond with Itron support services via e-mail to request assistance with support-related issues (support@itron.com). Various support services teams monitor this mailbox and distribute service requests to Itron product teams with knowledge and skills in the specific topic.
- **Itron Customer Center:** Registered customers can visit the Itron Customer Center, our 24x7 online service and support centers compatible with iPhones and Android devices. The Itron Customer Center includes a full line of support services and online resources. Users can search FAQs and a knowledge base for detailed product information; submit, revise, and monitor service requests; monitor purchase order information; and sign up for industry events, including Itron Utility Week.
- **Training and knowledge transfer:** Itron is committed to training and empowering our customers, so they are equipped to efficiently operate, manage, and maintain their Itron business solutions. Training is available through all project-based implementations and is also available as a supplemental service offering at Itron's current rates.

As part of the proposed SaaS Services, Itron GMS will manage, operate, maintain, and monitor the IT environment, applications, and networks twenty-four (24) hours per day, every day of the

year. When an incident triggers an alert, Itron will track the incident, troubleshoot the problem, and escalate it to Itron's subject matter experts and PNM as needed. We will also provide all system and application management and will perform maintenance on back-office hardware and software during scheduled maintenance windows. Furthermore, we will maintain the database for proper performance and functionality.

**38. Provide a description of your standard guidelines for post-implementation support.**

See *Appendix A.14 - Software License and Software Maintenance Agreement* below for Itron's description of post-implementation support practices.

**39. How much is spent annually on developing enhancements, new functionality, and modernization to your Utility product(s)?**

Itron invests approximately $200 million in research and development of new product enhancements, functionality, and modernization annually, which represents about 9% of total annual revenues.

## Services

**14. Describe your proposed Project Team: include titles, resumes, and experience.**

See *Appendix A.7 – Project Team* below for more information regarding our proposed team. Our team's resumes are included in a separate attachment included with this proposal response.

**15. Has the proposed team worked together on other projects?**

Itron professional services team members, and the team proposed, have multiple years of experience and multiple highly similar projects of size, scope, and complexity delivered. The Eversource project team proposed have worked on multiple projects together over the years. Itron's in-house implementation services team members are experienced in working together in a mature professional services organization delivering market leading projects including 5/15 minute near real-time AMI data collection at large scale. Itron's professional services team has expertise in field proven network optimization approaches with experienced field engineering and RF design services to successfully deliver Eversource's "no meter left behind" requirements.

**16. How will you maintain resource continuity for the length of the project?**

Itron makes every effort to keep key personnel on projects throughout their duration. However, if a key resource becomes unavailable, Itron will provide a suitably trained and skilled resource for services to be provided and will provide the necessary cross-training needed to minimize any schedule delay or impact due to resource transitions.

When needed, we can also take advantage of technical experts throughout our company to address specific issues. Itron maintains a large global resource pool with the appropriate expertise to draw from. Itron's Solution Delivery organization has team members focused solely on the project management and technical support of our utility solutions. Itron's delivery teams consist of dedicated Program Managers, Business and Technical Consultants, Field Engineers, Network Designers, and Trainers specializing in all aspects of project design, management, and implementation. Thus, we are confident that we can mitigate the unavailability of key personnel.

**17. Will you be providing senior level resources that will not have to be trained?**

The Itron services team is comprised of multiple senior level resources, including a Sr. Program Manager, Sr. Solution Architects, Sr. Business Consultants, Sr. Integration Consultants, and Technical Consultants. Itron resources are experts in the proposed AMI solution and do not require additional training.

**18. What are your team members experience with implementing systems at a Utility?**

A significant number of large AMI systems have been delivered for utilities. All team members have delivered both on-premises and hybrid SaaS implementations. Many of the larger AMI projects are implemented in combination with an upgraded/new MDM and CIS system, such as SAP. The Itron team has experience in large scale field deployment installations like the Eversource implementation. See *Appendix A.6 – Prior Experience* below for more information regarding large AMI system integration successfully completed by our team members.

**19. Describe your teams experience with integration with Eversource's identified systems?**

The Itron AMI and proposed Eversource team members have previously integrated with the upstream/downstream systems being proposed. This team has implemented multiple large AMI implementations and also provided deep technical training to various customer resources. Implementing the Gen5 platform is a specialty of this proposed Itron services team.

**20. What is your team members experience with OCM?**

Regarding organizational change management (OCM), Itron AMI operations are set up with role-based user groups in mind. These roles are established with a clear focus on duties and responsibilities within Eversource. Overall system and high-level training will be given to all user groups to better understand the areas of 24 clock operations, navigation, and general work functions. Itron will then provide specific training to each identified Eversource user group and will tailor day-in-the-life training and transactional walk-throughs. As an optional component, Itron will create detailed SOP workflow training specific to Eversource business operations and user groups.

**21. What resources will be involved in data conversion and what experience do they have?**

The Itron project team has multiple years of experience in metering. Itron's Sr. Program Manager, Sr. Solution Architects, Sr. Business Consultants, Technical Consultants, and Sr. Integration Consultants have many years of collective experience in AMI and MV-90 read meters along with gas and water endpoints with multiple head-end systems (HES) experience. Itron assumes that data is to be interrogated from the endpoints after installation or retrieved from the meter's data storage.

**22. Provide the work locations of each team member (onsite, offsite office location). For onsite team, provide number of day's onsite / week.**

Itron will work with Eversource to provide the optimal mix of on-prem and remote resources to meet collaboration, productivity, and cost expectations. Itron resources are primary US based. Some customers prefer all resources in the utility's own time zone, and some may request the Itron services team spread from EST to PST in order to extend the coverage period. Itron will work with Eversource to optimize the mix of on-premise and remote resources and the covered time period spread to ensure project success.

**23. What hours do your consultants work during the week? Monday through Friday 8-5?**

Usually Monday – Friday and 8-5 EST for our core team, although many customers do prefer an Itron technical resource 8-5 PST to extend the coverage period, as noted above.

**24. Identify your key resources that will be onsite on a weekly basis for the duration of the project?**

Itron is proposing the Sr. Program Manager and Technical Consultants to be the primary onsite full-time resource. The Sr. Solution Architects and Sr. Business Consultants will be brought onsite for key interactive activities such as workshops, training, and pre and post go-live activities. Field Engineers are onsite field activities.

**25. What resources will be onsite during critical phases of the project?**

During critical phases of the project, Itron will ensure all key resource roles will be onsite if desired from Eversource. Field Engineers are planned to be onsite for the start through end of the project starting with site surveys through optimization and network tuning and "no meter left behind" mitigation services.

**26. Provide a proposed organizational structure, including third parties and the Eversource team.**

Itron has worked on many large AMI installations with customer and 3rd party vendors. The Program Manager will have daily interactions with the Eversource PMO organization to provide status, progress, and all the interactions needed to move any dependency forward. The Itron Program Manager will be paired with an Eversource Program Manager for optimum alignment. For more information regarding our organizational structure, see *Appendix A.7 - Project Team* below.

**27. Will your proposed project team be exclusively dedicated to the Eversource Project?**

Yes. The core Itron project team will be dedicated to the Eversource Project.

**28. Provide a summary of the unique skills your team provides.**

Itron's AMR, AMI, and Smart Grid deployment experience cannot be replicated by any other vendor. With over 82 million endpoints deployed and 8,000+ customers globally, our deployments range from tens of thousands to millions across electric, gas, water, streetlights, and DI.

This depth and breadth of experience allows our team to bring a wealth of knowledge to the project to the benefit of Eversource. This includes a deep understanding of network design and deployment, metering and metering configuration, and back-office integrations as well as detailed knowledge of non-metering applications such as DA, DERMS, Pre-Pay, and Smart Cities.

Specific to two key Eversource requirements, near real-time data collection and no meter left behind Itron brings very specific skills. Itron is the market leader for 5/15 minute real time data streaming at large scale with our system deployed at scale delivering on this requirement. Additionally, Itron has field proven network optimization approaches with experienced field engineering and RF design services to deliver to Eversource's "no meter left behind" requirements.

**29. What resources should Eversource provide? Describe roles and responsibilities.**

A detailed RASCI will be provided under Statement of Work (SOW) activities, with high-level resources required from Eversource being:

- Metering resource detailing out the desired metering channels, events and set point thresholds of meter alarms.
- MDM Integrator to collaborate on endpoint data channel mapping to ensure full alignment.
- MDM Integrator to discuss endpoint provisioning requirements from MDM to HES.
- MDM Integrator to discuss two-way meter communication protocols requirements from MDM to the HES.

# APPENDIX A.2. SOLUTION SUMMARY

## EVERSOURCE SOLUTION NEEDS AND REQUIREMENTS

Itron understands the needs Eversource articulated in the RFP. Eversource is committed to safety, reliability, superior customer service, and environmental leadership. Further, Eversource supports the clean energy initiatives and public policy goals that spur modernizing the electric grid, including goals designed to promote energy affordability, energy efficiency, clean transportation, energy storage deployments and renewable energy resources, among other initiatives.

At the same time, advancement in technology is driving fundamental changes in how power is generated, distributed, consumed, and produced. Eversource has a challenge to provide safe and reliable service while actively monitoring and managing the distribution system's two-way power flows driven by both unpredictable loads (such as EV charging) and intermittent generation (via DER). Furthermore, Eversource's AMR meters are rapidly approaching the end of their useful life; over 800K meters will be 20 years or older within five years.

The confluence of these factors requires Eversource to invest in transformational technologies, bringing sharp visibility to each endpoint on the grid. That will enable a broad range of grid-modernization solutions that can reduce peak demand, increase system efficiency, improve reliability, and support overall grid resiliency. Many of these capabilities extend beyond electricity to gas and water distribution with Itron's AMI platform. To meet Eversource's requirements, Itron is proposing an AMI solution that:

- ***Extends to readily integrate*** electricity, gas, and water services, distribution automation, analytics, load control, smart city applications, and more under one, secure network.
- ***Replaces Eversource's aging AMR meters*** with ***state-of-the-art networked smart meters***.
- ***Delivers DI to every meter***, bringing Eversource sharp **visibility** of its grid.
- ***Introduces Eversource to DI*** through our included comprehensive DI Starter Kit.
- ***Supports clean energy*** initiatives and public policy goals that spur modernizing the electric grid.
- ***Enables grid-modernization solutions*** that can reduce peak demand, increase system efficiency, improve grid reliability, and support overall grid resiliency.
- ***Enables managing fluctuating power flows*** driven by unpredictable loads (e.g., EV charging) and intermittent generation (e.g., DER).

### Solution Scenarios

At Eversource's request, Itron has prepared network designs for the following four scenarios:

- **Scenario 1:** Total Coverage Plan for Massachusetts and Connecticut (Electric Only)
- **Scenario 2:** Connecticut Extended Rollout (Electric Only)
- **Scenario 3:** Total Coverage Plan for Massachusetts and Connecticut (Electric and Gas)
- **Scenario 4:** Total Coverage Plan for Massachusetts and Connecticut (Electric, Gas, and Water)

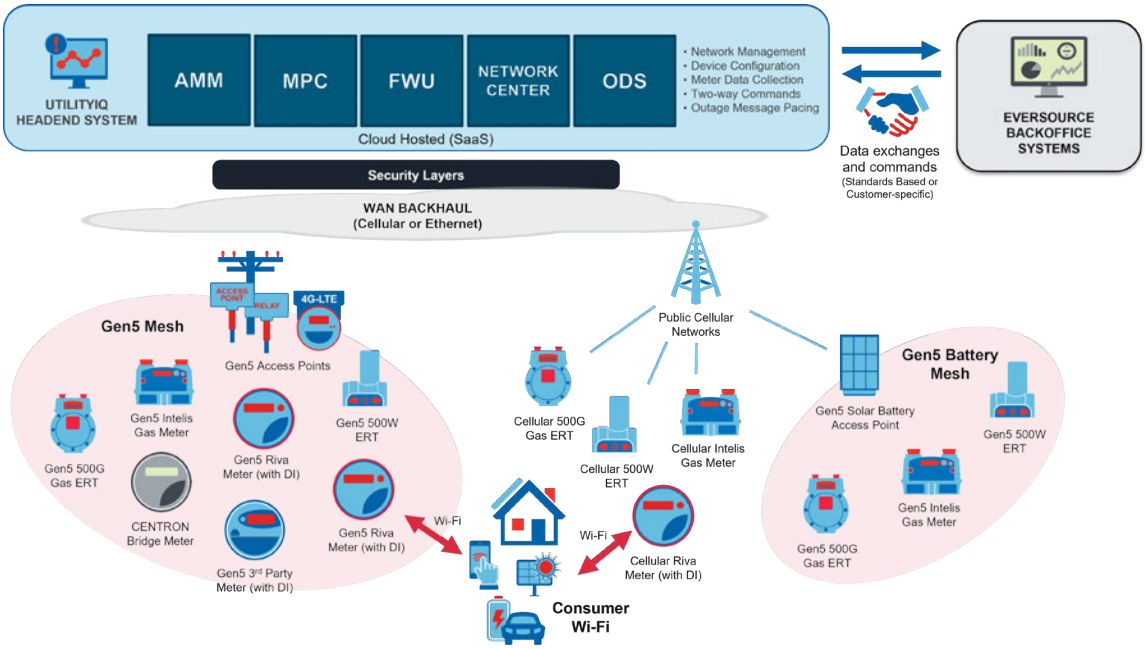
Furthermore, we have provided two meter deployment options for each Eversource design scenario:

- **Bridge Meter Utilization deployment:** All installed Bridge meters in MA and CT are utilized in accordance with the Bridge Meter Utilization approach described in *Appendix A.3 – Bridge Meter Utilization* of this response.

» **Greenfield Gen5 deployment:** All Eversource meters are replaced with new Gen5 Riva meters in accordance with the Bridge Meter Replacement approach described in *Appendix A.3 -Bridge Meter Utilization* below.

## GEN5 NETWORK PLATFORM FOR ELECTRICITY, GAS, AND WATER

The centerpiece of Itron's proposed solution is its proven, standards-based, multi-application **Gen5 Network Platform**. While this platform is designed to support AMI for electricity, gas, and water services, it is also optimized to support DI, DER integration, Demand-Side Management, Smart Streetlights, Smart Cities, and IoT solutions, all on the same network. Gen5 enables Eversource to continue adding valuable resources and services well into the future by providing an efficient, secure, resilient, and reliable platform for all your current and emerging smart grid needs.




**Itron's Gen5 platform features state-of-the-art smart meters and DI edge computing,**

### Itron Gen™5 Riva Meters



Itron is proposing our singlephase and polyphase Gen5 Riva meters with integrated DI and Gen5 communications.

The Gen5 Riva meter is the new standard in advanced grid communications and edge intelligence for smart meters. The Gen5 Riva meter supports bidirectional active and apparent energy registers and full four-quadrant reactive energy. The platform includes a Wi-Fi radio for in-home communications, a software-defined mesh network radio, a PLC coupler for high-precision sensing and meter location awareness, and a powerful, secure Linux-based software environment for running a host of ever-evolving DI applications.

The meter also features the robust data storage capacity needed to support load profile data, time-of-use pricing, and other data-intensive applications. Utilities can leverage these features to support time-based rates, demand response programs, home networking, and many other smart grid applications.

A feature that truly sets Gen5 Riva meters apart is Itron's DI platform, a powerful onboard Linux-based platform that runs a growing suite of DI apps. With real-time access to high-speed metrology data on each smart meter (4,000 samples per second combined current and voltage data for singlephase and 32,000 samples per second for each current and voltage on polyphase) coupled with and peer-to-peer connectivity with neighboring meters, Itron's DI apps support a growing list of innovative use cases previously impossible to deliver.

Each app runs directly on selected meters to monitor, report, and respond to specific grid conditions at the edge of the network more accurately, faster, and at less cost than most conventional approaches. Furthermore, Eversource can choose which apps are run on each meter, enabling the placement of each DI app exactly where it is needed.

## Solution Scope

| Category | Core Offer | Extended Offer (Example Options) |
|---|---|---|
| **Solution Software** | • UtilityIQ (UIQ) Headend Suite:<br>  o Network Center<br>  o Advanced Meter Manager<br>  o Meter Program Configurator<br>  o Firmware Upgrader<br>  o KeySafe Security<br>  o Critical Operations Protector<br>• Outage Detection System (ODS)<br>• Operations Optimizer Essentials<br>• MultiSpeak Adapter<br>• NodeSim<br>• Environments (Prod, DR, Dev, Test)<br>• Distributed Intelligence (DI) with DI Starter Kit for 50,000 Meters for 1 year:<br>  o Location Awareness<br>  o Transformer Monitoring Bundle with Virtual RTU Software<br>  o DI Safety Bundle | • DI Apps<br>• AMI Headend Software License for utility-hosted or hybrid SaaS options |
| **Network** | • Cellular Network Backhaul Offer<br>• Access Points (AP)<br>• SocketAPs<br>• Relays<br>• PMR (Bridge Utilization option only)<br>• Solar Battery APs<br>• Field Service Units (FSU) to support hardware<br>• Communications Tester software | • DI Network Interface Cards (NICs) for DA & DERMS |
| **Endpoints** | • Itron Gen5 Riva Electricity Meters (residential and C&I)<br>• Cellular Riva Electricity Meters | • Itron Intelis Gas Meters<br>• Itron 500G ERT® Gas modules<br>• Itron 500W ERT® Water modules<br>• DI Network Interface Cards (NICs) for Aclara meters |

| Category | Core Offer | Extended Offer (Example Options) |
|---|---|---|
| | | • Edge Gateway |
| **Professional Services** | • AMI Software Implementation Services with DI platform implementation and integration support to enterprise systems | |
| **Managed Services** | • AMI headend system setup services<br>• Managed SaaS (hosted IT and software systems with managed services)<br>• Ongoing technical support and maintenance of IT and software systems | |
| **Warranty** | • 6-year warranty for electricity meters and network devices | • 20-year warranty for gas and water endpoints |
| **Out of Scope** | • Network and meter device installation<br>• IEE MDM with implementation services (separate RFP) | |

### Solution Backhaul / Cellular Network Backhaul Offer

Per Eversource requirements, the solution uses Fiber and Cellular Backhaul (where available).

Itron is aware that Eversource has deployed private licensed point-to-multipoint systems in various parts of its service territory. The proposed Itron network design does not use that wireless point-to-multipoint system for backhaul from the Itron pole mounted cellular Access Points. If Eversource would like to leverage those wireless point-to-multipoint systems (for example, 4RF) for AMI backhaul, Itron will work with Eversource to reduce the quantity of public carrier wireless connections.

## BRIDGE METER MIGRATION

Eversource's Itron Bridge meters were originally designed to migrate to the Itron OpenWay network. As the manufacturer of these meters, Itron is uniquely positioned to provide flexible options to adapt these meters to the Gen5 network or to replace them. *Appendix A3 – Bridge Meter Utilization* outlines these approaches, which will achieve Eversource's desired AMI goals. To summarize each option:

» **Bridge Meter Utilization Approach:** To preserve Eversource's existing bridge meter investment, Itron proposes updating Bridge meters to be compatible with the Gen5 AMI network, enabling them to be collocated alongside new Gen5 Riva DI-enabled meters deployed in new build areas or as strategically placed grid sensors. After upgrade, the Bridge meters will not only be able to mesh with new Gen5 Riva meters but also will be able to actively participate in real-time edge intelligence applications and analysis. The proposed firmware update will enable Gen5 Riva meters to locally pull load and voltage data from nearby Bridge meters in near-real-time using peer-to-peer communications and to use that data in the analysis and computations performed by the Gen5 Riva meter for reporting to back-office applications. This firmware upgrade uniquely positions Itron to actively integrate existing Bridge meters with real-time edge processing. See *Appendix A.3 - Bridge Meter Utilization* below for additional details.

» **Bridge Meter Replacement Approach:** Itron is offering a meter replacement program that provides a fair market value buyback of the Bridge meters via credits toward Gen5 Riva

replacement meters. This option offers Eversource an AMI end-state consisting of a functionally homogenous population of next-generation AMI 2.0 electricity meters.

## SUPPORT FOR GAS AND WATER SERVICES

The proposed Itron gas and water modules interface with all common gas and water meters Eversource currently has in place. They also support common communications and data collection options, including RF mesh networks, point-to-point star networks, handheld and mobile (drive-by) automated meter reading, or any combination of these technologies.

For an RF-mesh network where electricity, gas, and water services overlap, the gas and water modules act as leaf nodes to neighboring electricity meters, allowing the modules to relay their data through the electricity meter.

Itron's gas AMI solution is ideally suited for Eversource as it allows for a single gas module type, the 500G, to be deployed in both Eversource's gas only Itron Mobile territories as well as the proposed AMI territory. Itron is also providing information and pricing on the Intelis ultrasonic meter with the same functionality as the 500G with additional advanced safety features. The most exciting feature of the Intelis Gas Meter is the integrated shut off valve actuated via the Gen5 network or configured to act autonomously based on high flow, high pressure, and high temperature; greatly increasing the safety for Eversource's customers and work force. In network mode, these actions are accompanied by alarms sent up to the headend. It should be noted that both the 500G and Intelis can be deployed in mobile mode and then transitioned to network mode via messaging from the Itron Mobile collector. Additionally, Itron plans to introduce the Solar Battery AP in 2024 that makes deploying the Gen5 network in gas only areas both commercially and technically feasible. Itron has shipped approximately 5 million 500G modules to date and is approaching our 1 millionth shipment of Intelis, and currently has more than 4 million meters under contract.

These modules also support mobile (drive-by) AMR data collection. This option supports data collection in gas- and water-only service areas that are outside of any network infrastructure. Should Eversource choose to later extend the network to these areas, you can later switch the modules to network data collection by way of a simple drive-by operation.

### Risks and Trade-Offs

There are several crucial reasons to implement gas and water modules with the electricity deployment:

- When deploying field crews, all devices can be installed concurrently.
- There is a single period of inconvenience to Eversource customers, rather than two or three.
- Concurrent deployment will improve customer satisfaction regarding service presence.
- Concurrent deployment facilitates upfront network optimization.
- Gas and water endpoints can be implemented whenever deemed convenient. They can later be switched to join the mesh network through a simple drive-by operation.

However, if Eversource chooses not to deploy gas and water at the same time as the electric, Itron recommends Eversource move to purchasing the 500G and 500W in lieu of the current 100G gas modules and whichever water technology is currently used. Both the 500G and 500W are fully compatible with your current Itron mobile system and can be migrated to the Gen5 network via a drive-by process. With the Solar Battery AP, these modules can be used to form a Gen5 mesh in gas and water-only areas as well. As an alternative to the 500G, Eversource should also consider the Itron

Intelis gas meter as it operates like a 500G in the Mobile and Gen5 systems while providing additional safety features, such as shut-off for high pressure and high flow. Note that the Eversource gas organization is working with Itron to gain approval of both the 500G and the Intelis meter.

## RELEVANT EXPERIENCE

Itron has deployed some of the largest and most innovative AMI solutions in the world. Our proven GenX AMI communications platform supports more than **140 active and pending GenX network deployments**, which collectively manage tens of millions of electricity, gas, and water meters, smart streetlight controllers, distribution automation devices, and smart city sensors. These networks support a variety of connectivity solutions. They include RF mesh, micromesh, and cellular connectivity for electricity meters. They also include various star- and leaf-node connectivity approaches to accommodate battery-powered gas and water modules.

For software hosting and maintenance, more than 1,400 global utility companies trust Itron Global Managed Services. Collectively, these systems perform more than **227 million network readings per day** from more than **64 million metering endpoints**.

## SUBCONTRACTORS

Itron does not intend to use subcontractors as a part of this effort.

## EXCEPTIONS TO REQUIREMENTS

Itron's solution fulfils or exceeds the requirements of RFP **Section 5.4** without exception as detailed in *Attachment – 5.4 Functional Requirements* included with this proposal response.

- For exceptions to functional and technical requirements, see: *Attachment A – Solution Compliance Matrix.*
- For pricing exceptions and clarifications, see Assumptions Tab within *Attachment B - AMI Technology and Services Pricing Matrix*.
- For legal exceptions, see the *Appendix C.2 – Exceptions to Eversource Master Services Contract*.

## WHY ITRON IS THE BEST CHOICE FOR EVERSOURCE

Eversource has been a valued Itron customer for decades, and we hope to strengthen this relationship for years to come. Our proven solution for Eversource focuses on forward-looking priorities while spanning the full depth and breadth of requirements. Our solution offers Eversource:

- **Bridge Meter migration:** As the Bridge meter manufacturer, Itron is uniquely positioned to provide flexible options to either adapt Eversource's Bridge meters to the Gen5 network or to replace them via credits toward new Gen5 Riva smart meters.
- **Near real-time network:** The proposed Eversource solution supports the required capture of near real-time 15-minute interval data every 15 minutes for 3 million meters, and 5-minute interval data every 15 minutes for 300,000 meters. The same Gen5 technology solution has proven these capabilities at Con Edison and Avangrid (NYSEG and RG&E). With far higher resolution capabilities supported by DI applications and events and alarms, this network is truly a critical IT/OT system for the utility and is designed and managed by Itron accordingly.
- **Best and most mature DI solution:** Itron's DI platform is on the vanguard of edge computing for the utility industry. We have the largest and most proven suite of applications, and we have a

Partner Enablement Program, product development tools, and third-party interest in place to quickly grow an exciting and diverse range of innovative new DI apps and solutions.

- **IEE MDM pre-integration (separate RFP):** UtilityIQ, the Gen5 network's headend software suite, comes pre-integrated with IEE MDM and Eversource's SAP back-office systems. IEE supports electricity, gas, and water services. With IEE's advanced rate modeling, Eversource can implement time-of-use rates that help incentivize off-peak energy usage. Such tools will be essential as electric vehicles are adopted throughout your service territory.

### Moving Beyond AMI: Possible Future States

With the Gen5 AMI platform in place, Eversource will be well positioned to continue improving the electricity grid's long-term resilience and reliability. Key additions to consider include:

- **Advanced analytics:** Itron's Operations Optimizer analytics suite helps optimize network-wide AMI operations and network operations, with modules designed to consume both AMI and DI data to improve grid optimization, revenue, and more.
- **Gas safety:** Operations Optimizers' **Gas Safety module** harnesses the alarms and functionality offered by Itron's Intelis solid-state gas meter, such as High-Flow Alarms, High-Temperature Alarms, High- and Low-Pressure Alarms, and Air-In-Pipe Alarms. The meter also reports remote valve status & actuation (Close/Arm). The module lists each alarm and displays its location on a map. And as alarms arrive, Eversource can assess them and then route them to utility field crews and/or emergency first responders, such as local fire or police departments.
- **Proven DI Solutions at Scale:** Itron has several utility customers that are advanced in their DI solution journey and even has made it possible for older GenX customers to take advantage of this platform using a combination of legacy meters with a surgical deployment of DI-capable Riva meters. Our DI customers have put the DI ecosystem to the test and have grown to modify some of their business processes to take advantage of the value provided by DI applications. Further, no other vendor has more DI capable assets in the field, or more active applications running at the edge, and/or more ecosystem partners with published apps or more apps in active development.

# APPENDIX A.3. BRIDGE METER UTILIZATION

## BRIDGE METER OVERVIEW

The electricity meter populations in both Connecticut and Massachusetts contain populations of Itron bridge meters. These meters currently operate Eversource's existing Itron AMR data collection system with the ability to transition to AMI operations via drive-by activation following the deployment of an OpenWay network canopy. Eversource has approximately 798,000 Bridge meters installed or in inventory in MA and CT.

Itron, as the current meter vendor for Eversource's bridge meter population, is uniquely positioned to offer options for both bridge meter utilization and replacement. In preparing this response, Itron evaluated a number of alternatives and hybrid approaches for the bridge meter population, including in-field local upgrades, back-office upgrade stations to build inventory in support of a Bridge-for-Bridge swap out effort, and a full over-the-air migration procedure. After considering cost, project timelines, business needs, success criteria, and customer impact, Itron is recommending one approach in this response for each of the two options (Utilization and Replacement). While Itron is willing to discuss any of the options that were evaluated, the remainder of this document will focus on Itron's recommended approaches.

The first approach, Bridge Meter Utilization, leverages existing bridge meter assets and extends the return on Eversource's investment by creating and executing a firmware upgrade to make these Bridge meters fully functional AMI meters, compatible with the Gen5 network, and active participants in certain DI use cases. This utilization approach includes a migration process to transition existing bridge meters first from AMR to an "AMI 1.0" networked state followed by a subsequent GenX firmware download to those meters to achieve full interoperability with Gen5 Riva AMI 2.0 meters on a single mesh network. While the Gen5 Riva meter will support the full suite of advanced AMI applications, the Bridge meters, upon upgrade, will support certain DI use cases via a proxy or "spokesmeter" that can provide in-field edge intelligence on the Bridge meters' behalf. See the table below, specifically columns 4 and 5, for more detail.

The second approach, Bridge Meter Replacement, consists of a full meter replacement program with a buyback offer for existing Bridge meters. Under this approach, Eversource would deploy new, next generation Gen5 Riva AMI 2.0 meters across the entire service territory, resulting in a functionally homogenous and fully capable population of next generation AMI electric meters operating on a single network. See column 5 in the table below.

The following table illustrates the functional capabilities of a full AMI 2.0 solution (inclusive of traditional "AMI 1.0" and AMR functions) and provides a functional assessment for every option (from current Bridge AMR solution through to full AMI 2.0 solution with a Bridge Replacement strategy.)

| | | | Bridge Meter Utilization | Bridge Replacement |
|---|---|---|---|---|
| **Functionality** | **Bridge Meter** Current AMR Functionality | **Bridge Meter** Current AMR Functionality | **Bridge Meter** Current AMR Functionality | **Bridge Meter** Current AMR Functionality |
| | **AMR** | **AMI 1.0** | **AMI 1.5** | **AMI 2.0** |
| Remote Connect/Disconnect | Local Command | On Demand OTA | On Demand OTA | On Demand OTA |
| Automated Meter Reading (Register Billing) | Monthly | 3 x Daily | Every 15 min | Every 15 min |
| Automated Meter Reading (Interval Billing) | Limited | 15m Granularity | 5m Granularity | 5m Granularity |
| Outage Notification | Not Supported | 15s Last Gasp | 15s Last Gasp | 75s Last Gasp |
| Location Awareness | Not Supported | Not Supported | Limited (via Proxy) | Fully Supported |

| | | | | |
|---|---|---|---|---|
| Bellwether Monitoring (via Proxy) | Not Supported | Not Supported | 5m Granularity + Reporting by Exception | 1m Granularity + Reporting by Exception |
| Aggregated Transformer Monitoring | Not Supported | Not Supported | Supported (via Proxy) | Fully Supported |
| Nested Outage Alarms | Not Supported | Not Supported | Supported (via Proxy) | Fully Supported |
| DER Monitoring | Not Supported | Not Supported | Limited (via Proxy) | Fully Supported |
| DER Control | Not Supported | Not Supported | Limited (via Proxy) | Fully Supported |
| Vegetation Management | Not Supported | Not Supported | Limited (via Proxy) | Fully Supported |
| Waveform Data | Not Supported | Not Supported | Not Supported | Fully Supported |
| Load Disaggregation | Not Supported | Not Supported | Not Supported | Fully Supported |
| Power Quality Monitoring | Not Supported | Not Supported | Not Supported | Fully Supported |
| EV Awareness | Not Supported | Not Supported | Not Supported | Fully Supported |
| Solar Awareness | Not Supported | Not Supported | Not Supported | Fully Supported |
| Local Monitoring & Control of DER | Not Supported | Not Supported | Not Supported | Fully Supported |
| Active Temperature Monitoring | Not Supported | Not Supported | Not Supported | Fully Supported |
| High Impedance Detection | Not Supported | Not Supported | Not Supported | Fully Supported |

As detailed below, Itron provides viable paths in both the utilization and replacement options and allows Eversource to transition to AMI 2.0 as business needs and timelines dictate. Due to the security key material present in existing Bridge meters and given our understanding of and ability to update firmware in the devices, Itron alone has the ability to change Bridge meter behavior and thus enable Eversource to derive the most possible value out of existing Bridge meter assets.

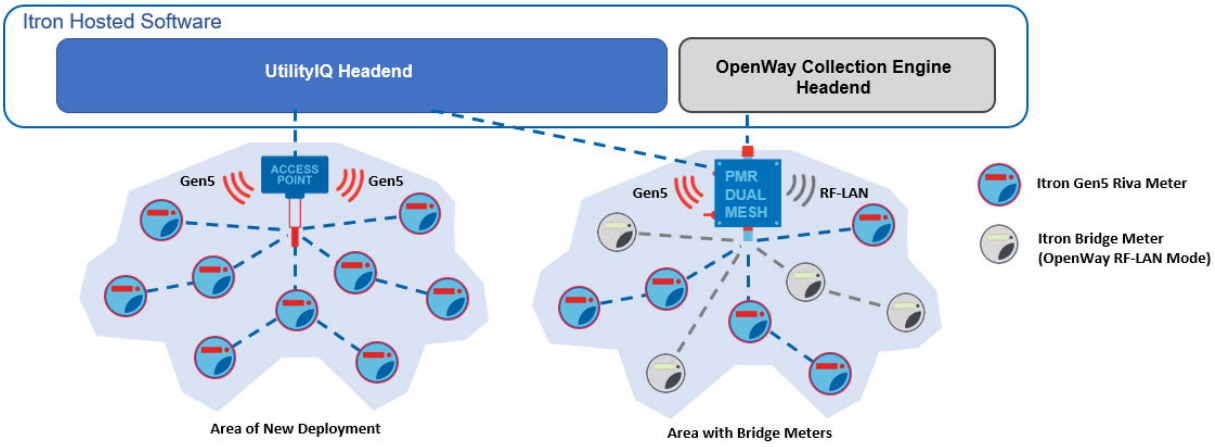
## BRIDGE METER UTILIZATION

The Bridge Meter Utilization approach is a multifaceted process that will leverage Eversource's existing bridge meter assets through a multistep upgrade path to make them Gen5 compatible AMI meters. This upgrade path is chronologically outlined below and can be executed in parallel with the deployment of new Itron Gen5 Riva DI-capable electric meters in both strategic locations as well as "new build" AMI areas.

**Step 1: Deploy the back-office AMI software and infrastructure** – Prior to any bridge meter migration activities or any Gen5 Riva meter installations, the headend software applications must be deployed. This software includes the OpenWay Collection Engine application to manage the existing bridge meter assets and UtilityIQ to manage the new Gen5 Riva devices, both of which would be quickly deployed by Itron in a hosted environment with secure accessibility. The two applications will be required during the bridge meter migration process. Once completed, the OpenWay headend would be decommissioned, and UtilityIQ would act as the single headend application for all endpoints going forward.

**Step 2: Deploy the OpenWay network devices** – Itron AMI solutions require network gear to manage the mesh and provide backhaul connectivity between the field area network (FAN) and back-office applications. Itron offers numerous network products to meet this need in the form of APs and routers providing flexible backhaul choices (cellular, ethernet, and fiber) and installation options. One such device is the dual mesh router which has two radios to support RF Mesh for both OpenWay and Gen5 networks. This router would provide Eversource the most flexibility in deployment, allowing existing bridge meters and new Gen5 Riva meters to be geographically collocated. The dual mesh router was purpose-built for this specific network transition use case to prevent the need to install temporary network equipment. The device is an established Itron product and is currently deployed and in use at other utilities. In areas where bridge meters are deployed, these dual mesh routers would be preferred to support both networks. Gen5 APs could be installed in areas of new deployment where only new Gen5 Riva meters would be deployed.

**Step 3: AMR to AMI Transition** – Once the OpenWay headend is in place and the network gear is deployed, bridge meters can be transitioned from mobile AMR mode to AMI network mode via a command sent over-the-air using the Itron mobile drive-by solution. Using FCS, an "AMI Transition" command will be securely signed and loaded onto mobile devices to be distributed to the target meter population on a per migration route basis. The command will instruct the meters to transition to AMI at a designated future time, ensuring the action is done in coordinated fashion across the target population. Upon receiving the command, meters will respond with a positive acknowledgment, allowing the driver to determine when the route is completed. At the designated time the meter will reset and pivot to AMI comms firmware and upon restart will begin operating in AMI mode. Once in AMI mode, the bridge meters will initiate network discovery, complete the registration process with the headend, and form a mesh with surrounding bridge meters. From that point, bridge meters will provide their data back through the dual mesh routers to the OpenWay Collection Engine. These bridge meters can coexist with Gen5 Riva meters under the same dual mesh routers, however, at this point in the process, bridge meters will only be able to mesh with other bridge meters, and Gen5 Riva meters will only be able to mesh with other Gen5 Riva meters. At the conclusion of this step, the state of the network will be as depicted in the figure below.




**Bridge Meter Utilization: Network State after Step 3**

**Step 4: Network Monitoring and Stabilization** – In order to maximize the success rate of *Step 5* below, it is important to assess bridge meter network performance following the transition to AMI and proactively address any areas of weakness. *Step 5* is dependent on bridge meters receiving the complete firmware image over-the-air, as areas with sub-par network performance could be prone to incomplete transitions. Therefore, it is important to identify these areas and stabilize them prior to any firmware downloads. Stabilization options include additional mesh meter build-out, adding network gear to boost resiliency, and preemptive Gen5 meter replacements. From previous Itron experience on similar network migration efforts, AMI systems that boast a 99+% data collection rate can expect to see a 1% or less miss rate in *Step 5*.

**Step 5: GenX Firmware and Security Key Upgrade Process** – Converting bridge meters to GenX is enabled through the activation of a new firmware set on the electric meters. This step, while similar to *Step 3* in overall concept, is more complex and network dependent. The AMR to AMI transition in *Step 3* is achieved via firmware change, however, bridge meters were manufactured with the firmware image already on the device, and the activation was triggered via a local drive-by command that could be retried indefinitely. This new firmware must be pushed in its entirety over the air to each and every bridge meter deployed. Any bridge meter that does not receive the entire firmware set or fails to receive the activation command will require in-field mitigation (replacement or optical firmware download). Fortunately, this is an area where Itron has a wealth of prior experience, having performed similar migrations in the past on several large-scale systems with great success. With an adequate

amount of planning and the right tracking and reporting, Itron Professional Services can assist Eversource to maximize the success of the migration process.

The OpenWay firmware download process uses a multi-phased approach to download and activate firmware, all of which are managed in the OpenWay Collection Engine.

- *Build target group* – This step establishes the target meters to which firmware images will be sent.
- *Enter firmware download mode* – This step instructs the target meters to securely enter a mode which allows them to receive firmware blocks.
- *Download firmware image* – Each firmware image is divided up into smaller sized blocks to allow them to be sent over the network. The Collection Engine will send this image, block-by-block, over the network in a broadcast fashion, allowing all the target endpoints to receive the blocks concurrently at scale. Users can monitor the progress of the download and the meters' successful receipt of the image. Follow up actions could include a resend of the image or point-to-point sending of individual blocks to individual meters that may be missing a handful of the blocks. Meters will continue receiving and assembling the firmware image during the download process until the complete image is received.
- *Firmware activation* – Once an acceptable number of meters has received the entire image, the firmware activation process can begin. Firmware activation will instruct the meters to reassemble the blocks, validate the image, and begin operating using the new firmware. This process can be executed in a calculated, "crawl-walk-run" approach, starting with a small, manageable number of activations and growing to a larger volume as the business dictates. Note: Entering this phase, the operational team will have a very clear picture of what received the entire firmware image. Activations should progress at a speed where any missed meters can be expeditiously upgraded in the field or replaced with new Gen5 Riva meters (see *Step 6* below). For best results, the activation command should target entire cells (meters grouped under a single router) and be sent with a future activation time so meters can activate in a coordinated fashion, similar to what was done in *Step 3*.

Prior to *Step 5*, Eversource could continue to deploy bridge meters and still have them complete the network migration process. However, once the downloading of firmware starts in *Step 5*, new installations of bridge meters in the targeted area should not take place. From *Step 5* onward, any bridge meter inventory should be segregated and optically upgraded.

Also included in this step is a security key update providing bridge meters with new key material needed to security authenticate on the GenX network. This is an automatable per-meter, over-the-air (OTA) process managed through the OpenWay Collection Engine headend application. This is designed to run in the background without impacting daily data collection to push keys in a controlled fashion to each bridge meter prior to migration.

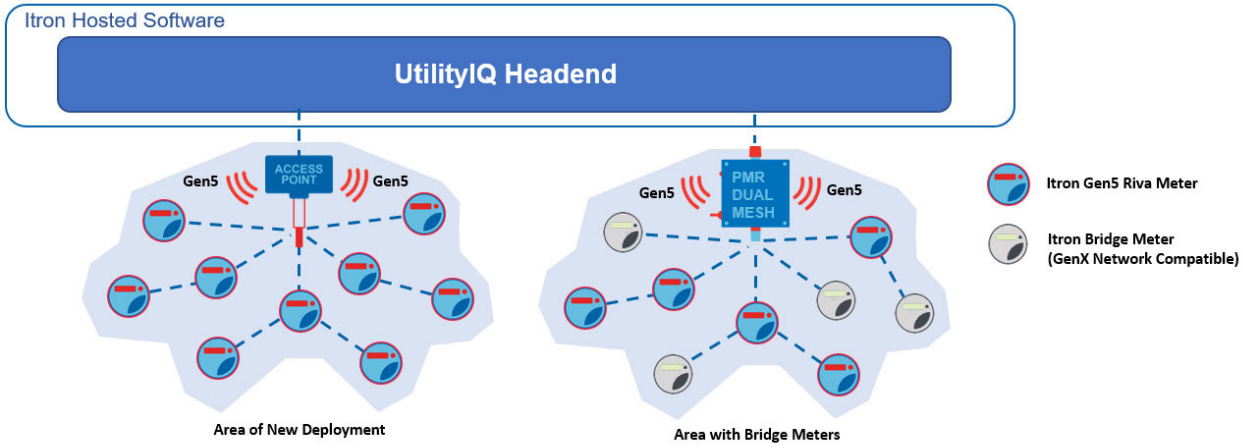
After the firmware upgrade and network migration process is complete, the bridge meters will be fully compatible with the GenX AMI network and can mesh directly with both Gen5 Riva meters as well as other Gen5 bridge meters also successfully migrated. In addition to network compatibility, upgraded bridge meters will also be able to participate in certain DI use cases using proxy "spokesmeters" to support advanced edge processing requirements. Refer to *Appendix A.12 – AMI Technology Distributed Intelligence* for more detailed information on this capability.

**Step 6: Addressing Fallout** – As stated earlier, any bridge meter that does not receive the entire firmware image or fails to receive the activation command will not connect to the AMI network if not closely positioned to a dual mesh router. Such meters will need to be visited and either have their firmware upgraded optically or be replaced with a Gen5 Riva meter. It is recommended that this step be performed iteratively with *Step 5* following each individual activation so these meters can be incrementally handled in an ongoing fashion rather than all at once. The speed and volume of the

activation iterations can be planned based on the number of available field technicians and the number of expected misses in a given area of activation.

**Step 7: Decommissioning** – Once all the areas of bridge meters have been activated and upgraded to Gen5, the OpenWay Collection Engine headend can be shut down as all meters in the field will be on the GenX network and managed through the UtilityIQ headend software application.

Once all these steps have been completed, the end state for Eversource will be a single AMI network (Gen5), a single AMI headend software application (UtilityIQ) to manage the endpoints, and an electric meter population ~800,000 of which support AMI 1.5 (DI via "Spokesmeter" proxy) and the remaining ~2,100,000 which support AMI 2.0 with full Distributed Intelligence capabilities. At the conclusion of this Bridge meter migration process, the state of the network will be as depicted in the figure below.




**Bridge Meter Utilization: Network State after Step 7**

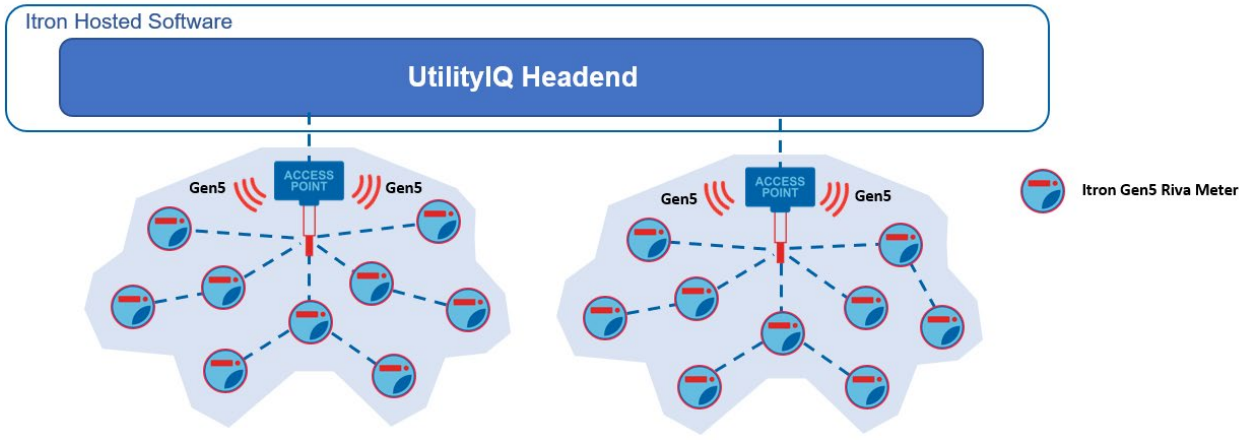
The process described above could be executed in its entirety either by Eversource operational resources or in cooperation with Itron Professional Services, as we have included in this proposal. Itron brings a wealth of experience in running AMI systems and in successfully executing firmware downloads and activations, especially ones that involve AMR-to-AMI and mesh network migrations. Bottom line: Itron has done this before with great success and could point to 8 different large investor-owned utilities as reference customers.

### Advantages of the Bridge Meter Utilization Approach

This approach makes use of the existing 798,000+ electric bridge meter assets deployed in the field or in inventory and maximizes their value and return on investment (ROI) by making them Gen5 network compatible and DI participants.

## BRIDGE METER REPLACEMENT

The Bridge Meter Replacement (also referred to as Greenfield Gen5) approach provides Eversource with a commercially viable alternative to the above-described migration program. In this replacement program, Eversource would be offered credits for the existing bridge meter population based on remaining life and residual value. These credits could subsequently be used toward the purchase of new next generation AMI Gen5 Riva meters, allowing Eversource to achieve an end state AMI system consisting of a fully functional, DI-capable, homogenous population of new next generation AMI 2.0 electric meters. This approach allows Eversource to avoid any of the AMR to AMI transition steps including the deployment of the dual-network solution components (network gear and software) and the series of firmware and security key update activities to migrate the bridge meters.




**Bridge Meter Replacement: Network State**

As part of a mutually agreed upon meter buyback program, Itron would buy back Eversource's OpenWay Bridge meters. Itron would take ownership of the meters, and in return, issue a per-meter credit based on an estimated residual value of each meter. These credits could be applied toward the purchase of new Itron products.

The pricing summary in *Attachment B – AMI Technology and Services Pricing Matrix*, specifically in Meter Pricing Tables 1-c (for both MA and CT), reflects the buyback credit as discounted meter prices for each of the forms and listed volumes to accommodate the provided pricing sheet format. However, in practice, these discounts would be issued as per meter credits upon delivery of removed bridge assets and purchase of replacement next generation AMI meters. Bridge replacement credits would be applied on a per meter basis up to a total volume of 691,773 meters as listed in *Attachment B* (341,587 for MA and 350,186 for CT,) and not to exceed an agreed-to aggregate. Per meter credit and aggregate are dependent upon Total Population Replacement. The total aggregate cap would be reduced if the total number of meters purchased during deployment period is less than 100% of the listed volumes or if alternative meter vendor options selected. All process details and logistics will be agreed upon during contract negotiations.

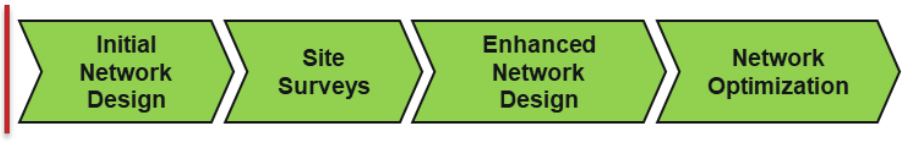
## ADVANTAGES OF THE BRIDGE METER REPLACEMENT APPROACH

- This approach leaves Eversource will a fully functional and homogenous population of electric meters that all fully support DI. This will allow Eversource to maximize the value of the AMI investment through the enablement of all available AMI 2.0 advanced use cases.
- With bridge meters ranging in age up to 13 years, this approach addresses end-of-life concerns for bridge meters.
- This approach, when compared to the Bridge Meter Utilization approach, would greatly simplify *Steps 1 and 2* of the migration (deploying back-office software and network devices) and completely eliminate *Steps 3* through *7*. There are resource and cost savings realized by eliminating the multistep migration of bridge meters, first from AMR to AMI and subsequently from OpenWay to GenX.

# APPENDIX A.4. NETWORK COVERAGE PLANS

## NETWORK DESIGN PROCESS OVERVIEW

Itron's process for the Eversource initial network design study ensures the Itron smart grid network will meet your stringent requirements for performance and efficiency. This stage is completed for Eversource in four main phases, as shown in the figure below.




The **Initial Network Design** phase starts with the customer-supplied meter location database. Using industry standard mapping and RF propagation software tools, the number and location of supporting network devices is determined. The software tools include MapInfo Professional, EDX Signal Pro and Google Earth Pro, and are used by the Itron design team to evaluate the placement and loading of devices for the end states of the deployment. Deliverables from this phase include:

- Network node count.
- Validated meter and endpoint locations.
- Latitude and longitude coordinates for the recommended network devices.
- Endpoint and network device location and coverage maps.

The **Site Survey** requires a field crew to go onsite and evaluate actual field conditions and determine the initial network equipment locations. Utilizing the Initial Network Design, the site survey physically identifies and records suitable network node mounting locations and potential problem areas such as underground power (no power poles), barricaded meters, and other in-area RF devices. The site survey also verifies WAN connectivity for each designated carrier if cellular backhaul is required.

The **Enhanced Network Design** phase delivers the "to-be-built" design resulting from the site survey and further network analysis. Final network device location selection is determined by:

- Distance between meters and approved network device mounting locations.
- Network node coverage based on clutter model conditions.
- Network redundancy to ensure alternate paths from endpoint to an Access Point (AP).
- Challenging conditions identified during site survey including optimal coverage to meter rooms, underground service areas, heavy foliage areas, and limited network device mounting locations.

The **Network Optimization** phase is the final step of the network deployment and involves monitoring and optimizing the network during the later stages of deployment. This ongoing process determines if nodes should be relocated or if additional networking equipment is needed for optimal network performance. The network analysis that drives this phase is focused on endpoint parameters – unreachable meters, hop count, number of re-queues, and AP loading, and AP and Relay utilization. Any nodes added or moved will undergo a more thorough site analysis and testing to maximize placement and performance. Network optimization is only possible once all endpoints are installed.

## COVERAGE PLAN OVERVIEW

### Eversource Preliminary Network Design

Itron utilizes several software tools for producing the different stages of the network design. The primary tool is EDX Signal Pro with the "Megamesh" option. This state-of-the-art RF propagation software application uses high-resolution terrain and land use (clutter) data to evaluate each RF link.

***Key Network Design Assumptions***

- Network has been sized to account for the load of 798,511 Bridge meters, however only 578,833 Bridge meters had location data and were included in the RF model. The missing ~220k Bridge meters are assumed to be located in the same footprint as the known locations.
- Network device quantities quoted for the RFP are based on the successfully geocoded meter locations. Given the missing ~220k Bridge meters without location data, Itron assumed they occupy the same footprint as the successfully geocoded meters and adjusted network device quantities to reflect the expected load. Any potential coverage guarantee applies only to these successfully geocoded endpoints. Pending data clarification, Itron cannot guarantee coverage at this time for "no meter left behind" requirement in all Eversource territories.
- Cellular electric meters recommended for all end state electric meter densities of 10 or less per square mile.
- All electric meters are assumed to be outdoor at 5' above ground level.
- There is sufficient data coverage at all designed cellular AP, socket AP, and cellular meter locations.
- All Eversource substations and fiber locations (excluding out-of-service substations) are able to support ethernet AP installation.
- There is a viable overhead asset at all designed AP, pole-mountable router, and relay locations.
- Additional tactical Access Points, Relays or Socket APs will be required to optimize the network.
- Any meter can serve as a candidate Socket AP location.
- RF design was propagated in the 902-928 MHz band for all devices.
- APs/relays employ 3-dbi antennas at approximately seven (8) meters above ground.
- APs and Relays operate at + 30 dBm.
- Communications modules in the electric meters operate at +30 dBm EIRP (1-Watt).
- Gas meters operate at +27dbm EIRP (0.5-Watt) and pair with a nearby electric meter, Relay or AP for its read by proxy.
- Total hop count to an AP for any electric meter is limited to 13.

The initial network design process started by evaluating the provided Eversource location data – customer electric meter locations, customer gas and water meter locations, Eversource-owned communications infrastructure, and poles available for mounting network devices. All data was plotted in mapping software for verification.

The next step in the design process was to place the APs on Eversource pole assets based upon meter density. The software then propagated the devices using the AP RF coverage and the meter-to-meter connections to create the mesh. Conservative settings were used to account for indoor and basement meter rooms. After AP placement and propagation, relays were added on Eversource pole assets to connect isolated groups of meters.

### Dense Urban Environments

Within large cities, such as Boston, MA and Hartford, CT, Itron was unable to determine and thereby quote network devices for any of the following scenarios:

- Indoor meters
- Inside cabinets
- Underground
- Hard to hear meter rooms

Note that given the lack of information regarding the meter location types listed above, the total number of Socket APs and/or cellular meters quoted in our design may not reflect the total needed., Itron recommends Eversource work with us to clearly define the location, number, and nature of these scenarios to further enhance our quoted network design.

Itron is very willing to re-evaluate these specific urban areas with the goal of producing a network design covering every meter installation scenario with no meter left behind. Itron has successfully

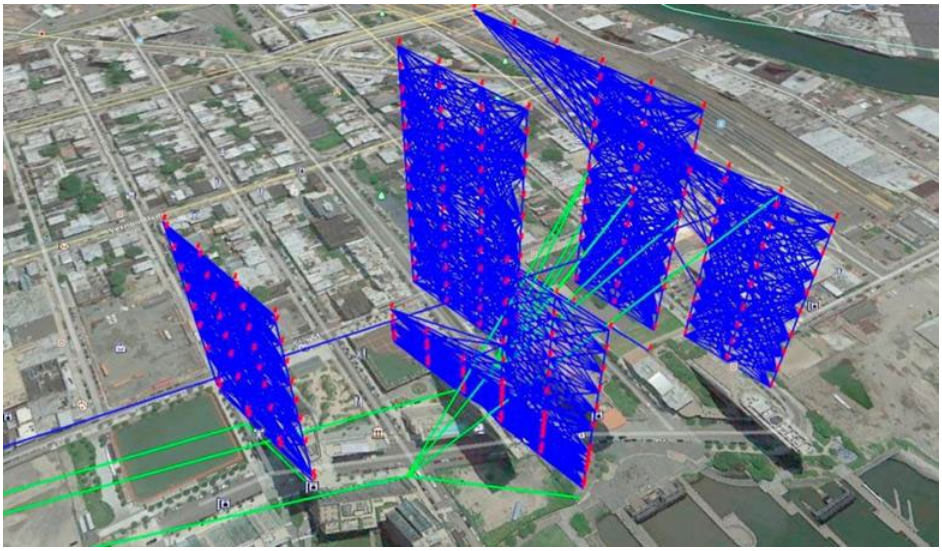
installed high performing AMI networks in dense urban environments. One example is the borough of Manhattan in New York City (Con Edison service territory) where a network topology comprised of Socket APs was designed to bring back meter readings every 15 minutes from every high rise in the city.

As a matter of fact, Itron's as-proposed network technology has the greatest experience with AMI network deployments in highly complex dense urban environments with a mixed use of commercial and residential metering environments in high-rise neighborhoods across the United States. The Itron AMI network has been successfully deployed in high density urban and suburban environments including Manhattan, Chicago, Washington DC, San Francisco, Miami, and Singapore. Each location has posed challenges which included inter-floor high rise connectivity, building penetration, underground meter and network infrastructure locations, limited external network gear mounting locations, etc., all of which were addressed with Itron network remediation options.

Illustrated below are several reference snapshots of these Itron AMI deployments. Itron can produce many more detailed examples upon request to assure Eversource of Itron capability to deliver successful meter reads from high rise buildings in urban areas with limited network gear mounting assets.

## HIGH-RISE BUILDINGS WITH DEEP INDOORS METER LOCATIONS EXAMPLES

**Example 1: Long Island City (ConEd):** Five high-rise buildings with approximately 3,000 customers.



*Resultant network paths into the high-rise buildings following deployment of three Relays*



*Access Point installed in service entrance room (far right). This basement meter location is similar to those found in Boston, such as South Station Terminal*

Performance: Fully deployed GenX network in New York City is reading meters every 15 minutes in accordance with read performance requirements

**Example 2: Miami, FL (Florida Power and Light):** 4059 meters in this portion of downtown Miami are contained in a high rise building similar to those found on Water St in Boston.




*Location of Downtown Miami Highrise Buildings*

Performance: A read success rate of 99.88% was achieved.

**Example 3: Washington DC (Pepco)**: 2063 meters in this portion of Washington, D.C. are contained in a high rise building similar to those found in Boston and Hartford.




Performance: A read success rate of 99.9% was achieved.

## NETWORK DESIGN SCENARIOS

At the request of Eversource within the RFP, Itron has designed the requested four scenarios:

- **Scenario 1** – Total Coverage Plan for MA and CT – Electric Only
- **Scenario 2** – CT Extended Rollout – Electric Only
- **Scenario 3** – Total Coverage Plan for MA and CT – Electric and Gas
- **Scenario 4** – Total Coverage Plan for MA and CT – Electric, Gas, and Water

Each design scenario was performed for two meter deployment options:

- **Greenfield Gen 5 deployment** — All Eversource meters, including bridge meters, are replaced with new Gen 5 Riva meters in accordance with the Bridge Meter Replacement approach described in *Appendix A.3 – Bridge Meter Utilization*.
- **Bridge Meter Utilization deployment** — All installed bridge meters in MA and CT are utilized in accordance with the Bridge Meter Utilization approach described in *Appendix A.3 – Bridge Meter Utilization*.

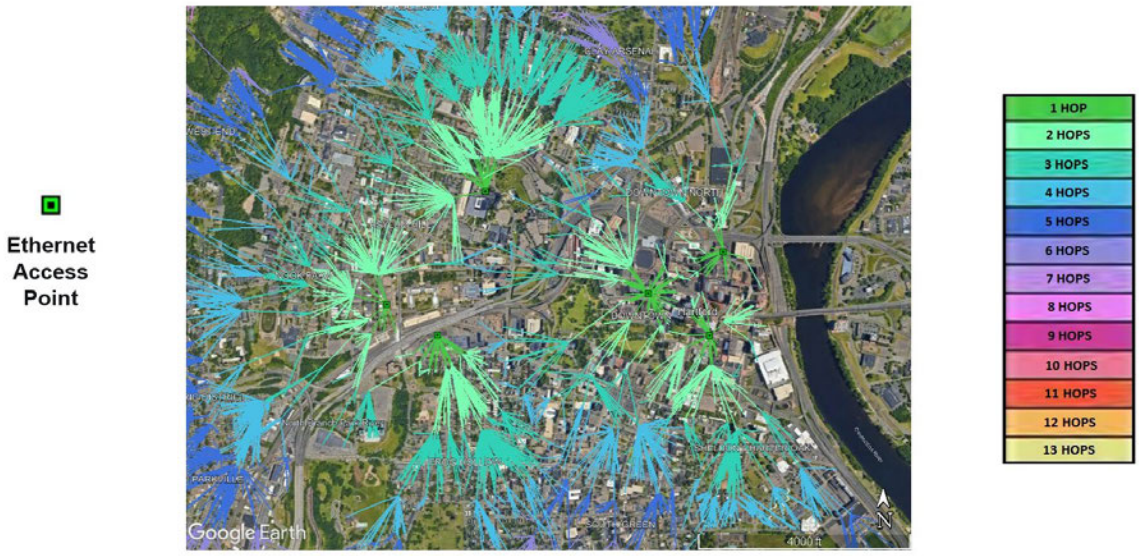
For the most part, the design results between the two deployments differ by the quantity of APs and pole-mountable routers, as these devices regulate the interface between the NAN mesh and the HES.

### Scenario 1 - Total Coverage Plan for MA and CT – Electric Only

**Greenfield Gen 5 Deployment Network Design Option**
For this option the network was designed with the assumption that every bridge meter would be replaced with Gen 5 Riva meter.

Careful considerations have been taken by the Itron network design engineers to maximize the use of Eversource existing communication infrastructure such as substation locations, radio sites, and fiber splice locations. Itron Ethernet APs would be used in such locations. One example of Ethernet AP location, coverage, and hop count is shown below for the Hartford, CT area.

## Connecticut Predicted Mesh Links (Example)




Hartford, CT

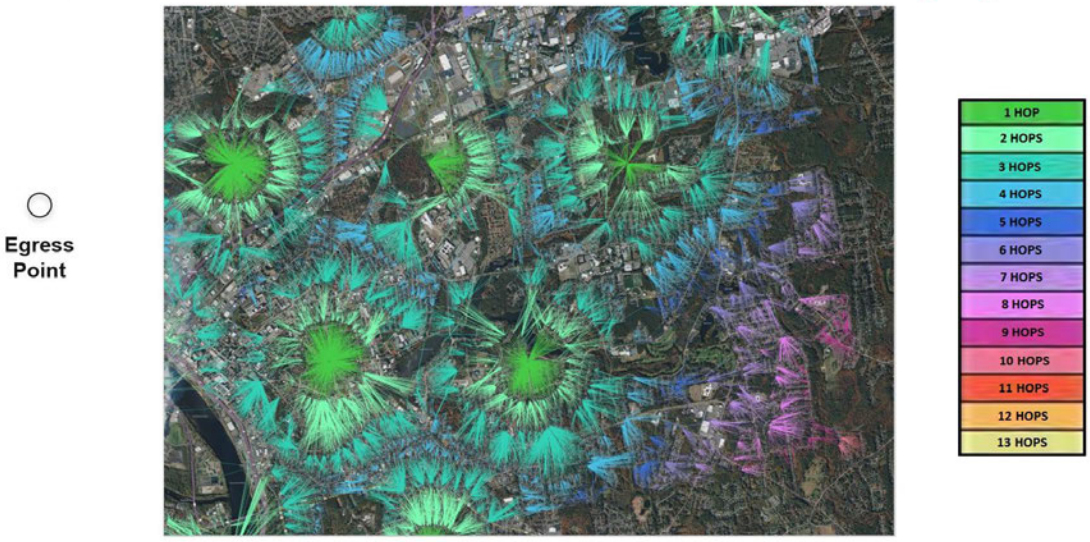
In the locations where Eversource communication infrastructure is not available for adequate coverage of the meters, Itron is proposing the use of cellular APs. Additional examples of predicted mesh links in Waterbury area in Connecticut and Springfield area in Massachusetts are shown next.

## Connecticut Predicted Mesh Links (Example)




Waterbury, CT

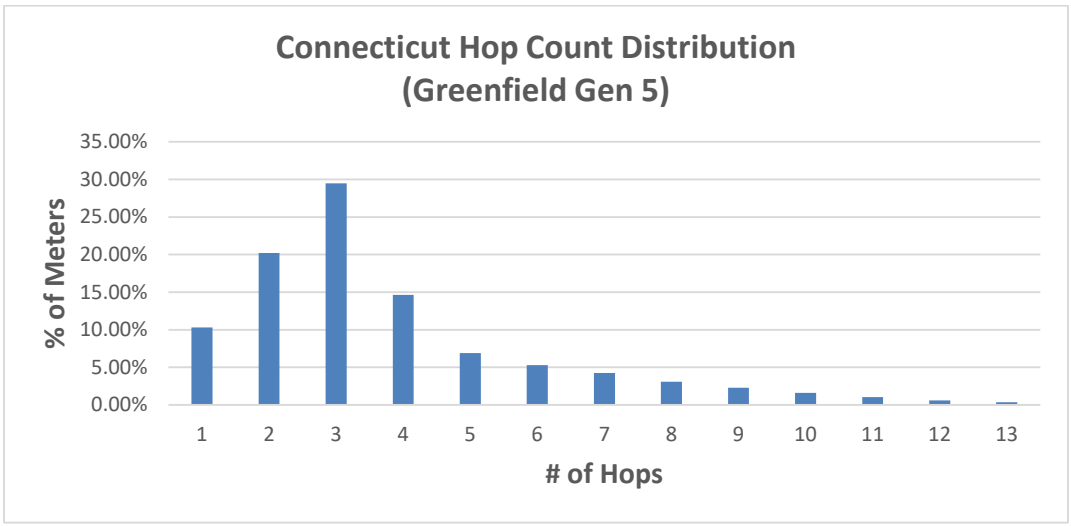
## Massachusetts Predicted Mesh Links (Example)

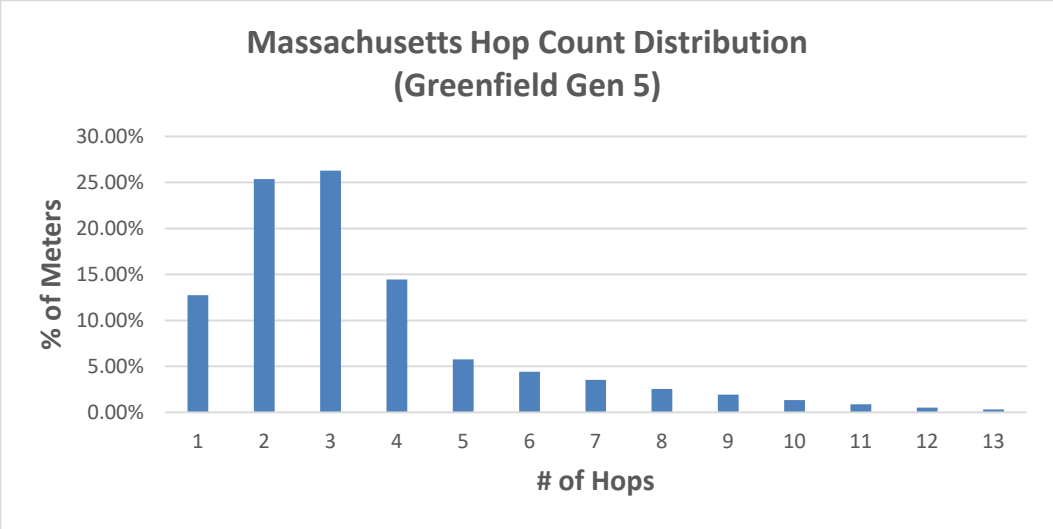



Springfield, MA

APs and relays can be mounted in several different fashions, including on utility owned poles, streetlights with a photocell power adaptor, within substations with a remote antenna, or even at pad mounted transformers.

The network has been built with a tremendous amount of headroom. For the majority of existing customers, Itron designed for a meter to AP ratio of 5000:1. For Eversource, this ratio has been limited to 1500:1 and in most cases below 1000:1. This low AP to meter ratio enables near real-time reading of electric meters, robust DI capabilities, gas metering options, very low average hop counts to ensure last gasps find battery backed relays and APs, and the ability to easily add future applications like DA, Distributed Energy Management, and many more. The predicted hop distribution for Massachusetts and Connecticut is shown below:






With low hop counts as per the proposed network design, Eversource can expect that the information from most endpoints will reach APs in under 1 second. This is especially important for alarms such as last gasp messages.

***Sparse and Rural networking in Western MA and select CT Areas***

To remediate the most remote rural of endpoints in the Eversource territory such as Western Massachusetts, Western Connecticut, and select areas of Eastern Connecticut, Itron's socket AP offers a very high-performance solution at a very low cost. Rural locations like the remote northwest corner of Connecticut (South Pond) shown below can easily be networked by socket APs.

**Socket AP Predicted Micro Mesh (Example)**




The Itron socket AP is a unique implementation of cellular connectivity for meters. Unlike any other point-to point cellular device, the Itron socket AP communications module supports cellular and RF mesh communications simultaneously. Designed to reside at any residential and/or commercial metering endpoints, a socket AP leverages cellular communications for backhaul connectivity and can

use the 900 MHz RF mesh communications to connect with other nearby Itron devices. These devices are battery backed, and since the endpoints in these networking locations are typically within a single hop of takeout, last gasps are easily received at the headend.



Socket AP

For meter densities of 10 or less where it may be cost prohibitive to place a full-size AP or even a socket AP, Itron recommends the use of stand-alone cellular meters. If this design approach is not suitable to Eversource, Itron would be happy to augment the design of such areas with socket APs. Note that given the substantial number of non-geocoded meters there is a good likelihood that some of these environments will have bridge meters that could support the mesh once they are converted to GenX. However, based on the data provided areas with 10 meters per square mile or less will be exchanged with a cellular metering endpoint.

Based on the network design approach and assumptions described for the Greenfield Gen 5 Deployment Network Design Option, the following table illustrates the recommended quantities of network gear required.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Greenfield Gen 5 | Connecticut | 0 | 405 | 1112 | 1315 | 401 | 2858 |
| | Massachusetts | 0 | 990 | 590 | 1225 | 410 | 2874 |
| | Total | 0 | 1395 | 1702 | 2540 | 811 | 5732 |

With the predicted device counts above, the entire Eversource territory can be read in approximately 15 minutes.

**Bridge Meter Utilization Network Design Option**

As previously stated, this design option primarily differs from the Greenfield Gen X network design by the quantity of APs and PMRs. PMRs are designed to be placed in strategic locations across MA and CT to provide sufficient coverage for bridge meters and to ensure successful transition of these meters to Gen X network in accordance with Bridge Meter Utilization approach described in *Appendix A.3 – Bridge Meter Utilization*. The PMRs will provide coverage for new Gen 5 Riva meters and existing bridge meters prior and post the transition period.

Itron was only able to identify 578,833 known bridge meter locations in the data provided by Eversource. For this reason, additional design assumptions are in place for the location of PMRs, PMR loading, and coverage plan provisions. These assumptions are listed in the table below.

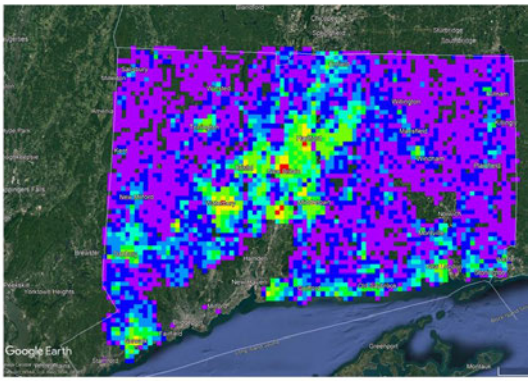
***Additional Bridge Meter Utilization Network Design Assumptions***

- For Connecticut, it is assumed the ~220k missing bridge meters will follow the density levels of known Bridge meter locations.
- Bridge meters will be replaced with Gen 5 Riva meters in areas with bridge meter density of 25 or less meters per square mile.
- Low density areas (e.g. 10 or less per sq. mile) used to identify potential bridge meters to transition to Gen5 from the outset of the project are based on 578,833 known locations.
- PMR maximum loading is 1500 total endpoints (inclusive of Gen 5 Riva and Bridge meters).
- Bridge meters prior to conversion will not mesh with Gen 5 Riva meters.
- Near real-time data collection and performance requirements guarantee will take effect upon full transition of Bridge meters to Gen X network when full RF meshing capacity is in place.

Bridge meter location density maps used for identification of PMR locations are shown below. These maps are based on 578,833 known bridge meter locations.

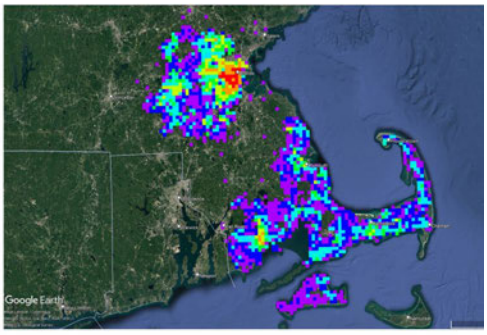
## CONNECTICUT BRIDGE METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 1915 | 9248 |
| 10 to 25 | 1050 | 17496 |
| 25 to 50 | 518 | 18334 |
| 50 to 100 | 298 | 21342 |
| 100 to 250 | 214 | 33976 |
| 250 to 1000 | 177 | 84093 |
| 1000 to 2500 | 42 | 63510 |
| 2500 to 5000+ | 8 | 26389 |



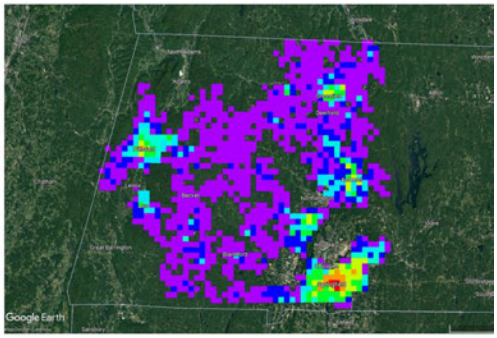

## EAST MASSACHUSETTS BRIDGE METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 613 | 2995 |
| 10 to 25 | 477 | 8024 |
| 25 to 50 | 265 | 9436 |
| 50 to 100 | 151 | 10704 |
| 100 to 250 | 128 | 21001 |
| 250 to 1000 | 95 | 49818 |
| 1000 to 2500 | 36 | 54277 |
| 2500 to 5000+ | 18 | 86271 |

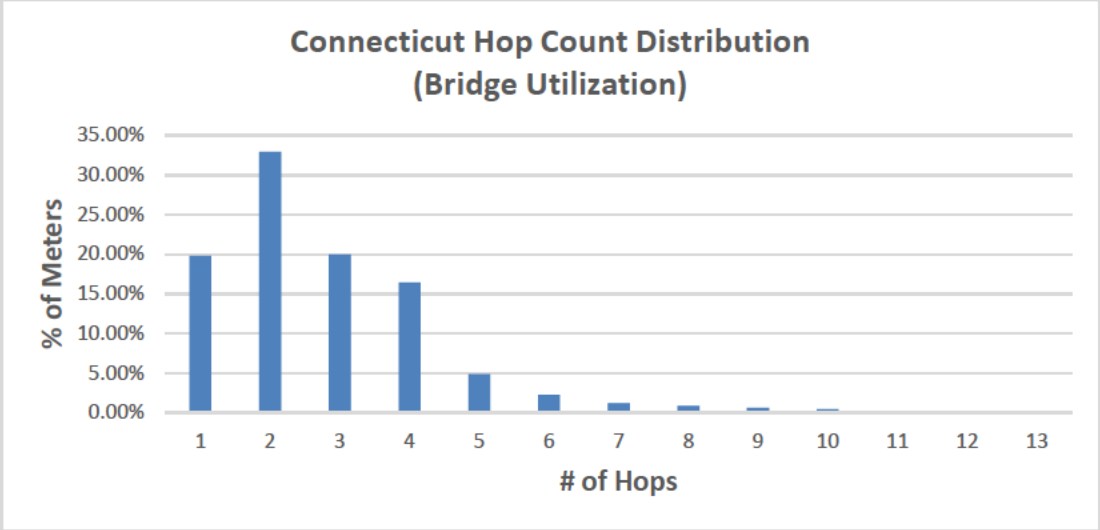



## WEST MASSACHUSETTS BRIDGE METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 787 | 3005 |
| 10 to 25 | 165 | 2568 |
| 25 to 50 | 74 | 2631 |
| 50 to 100 | 43 | 3101 |
| 100 to 250 | 49 | 7925 |
| 250 to 1000 | 35 | 16914 |
| 1000 to 2500 | 11 | 16709 |
| 2500 to 5000+ | 3 | 9066 |



The predicted hop distribution for Massachusetts and Connecticut is shown below:




It can be noticed that the hop count is lower in the Bridge Meter Utilization network design. This means that after the full transition to Gen X network, the overall performance of the new network will be at least as good, if not better, than the Greenfield Gen 5 network design.

Based on the network design approach and assumptions described for the Bridge Meter Utilization Network Design Option, the following table illustrates the recommended quantities of network gear required.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Bridge Meter Utilization | Connecticut | 2105 | 303 | 549 | 1605 | 401 | 2858 |
| | Massachusetts | 1272 | 721 | 222 | 1405 | 410 | 2874 |
| | Total | 3377 | 1024 | 771 | 3010 | 811 | 5732 |

| Scenario 1 - Total Coverage Plan for MA and CT (Electric Only) | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *The use of Eversource's existing communication infrastructures should be optimized in the proposed design. Proposed design should focus on optimizing cost and operational capability by leveraging the optimal mix of Eversource's existing communication infrastructure and that of public carriers only where required.* | The design criteria used to design every Eversource territory includes placing Access Points at Company owned asset when appropriate. For pockets of terrain that did not have access to Eversource infrastructure, cellular backhaul was used. | Same as Greenfield Gen 5 |

| Scenario 1 - Total Coverage Plan for MA and CT (Electric Only) | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *Describe the number of network devices requiring third party (e.g., cellular) communications services.* | 1702 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. | 3377 Cellular PMRs and 771 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. |
| *Include any installation requirements, such as antenna heights, third party locations (e.g. buildings, streetlights, etc.) and equipment installation standards that are assumed in the plan* | In areas where Eversource private backhaul was not provided, network infrastructure was designed to reside on Eversource pole assets, 8 meters above ground. For additional mounting assumptions, please see the design assumption in the Coverage Plan Overview. | Same as Greenfield Gen 5 |
| *Include loading of various components (e.g., meters per network device) and bandwidth utilization information to demonstrate the capacity of the network plan to support the steady state load as well as any additional traffic.* | Itron has conservatively designed the network for Eversource to meet the "near real time" data read requirement at a ratio not to exceed 1500 metering endpoints to 1 AP. On average, the loading of APs will vary between 500 and 800 meters. The loading of Socket APs will be approximately 15 meters. The average hop count from a metering endpoint to an AP across all territories will be 4 or less. Each hop will average approximately 10-20ms and the network will read all electric metering endpoints in less than 15 minutes continually, while retaining in excess of 50% available capacity. | Same as Greenfield Gen 5<br><br>Average loading of PMRs is expected to vary between 400 and 600 meters. |

| Scenario 1 - Total Coverage Plan for MA and CT (Electric Only) | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *For any backhaul communications link not utilizing the Eversource's communications network, identify the capacity and quality of service requirements for any third-party communications and the annual communications costs associated with such third-party communications services.* | Backhaul locations not utilizing Eversource private facilities will leverage a cellular connection from a Eversource preferred provider such as Verizon. There are no particular quality of service parameters required. It is suggested that a pooled data plan covering all cell assets be leveraged, and costs negotiated directly with the cell carrier of choice.<br><br>Based on the preliminary network design in this RFP response, the backhaul data requirements are estimated. These estimates may vary depending on the network device-specific loading within the network in each state. They represent the estimated averages for the various access point types listed (PMRs, AP5s, SocketAP5s, and sBAPs) in both Massachusetts and Connecticut. For completeness, the optimal data plans for the direct connect cellular AMI 2.0 electric meters and gas and water devices are provided in response to *Attachment A – Solution Compliance Matrix, Question Comm-VA-8* | Same as Greenfield Gen 5. |
| *The coverage plans should indicate the bandwidth utilization percentage based on the data requirements specified in section 4.6.2 and section 5.* | The available capacity found within the network design provided to Eversource includes substantial available bandwidth to support the data read requirements for electric, gas, and water meters. Excess bandwidth can be used for additional use cases such as DI, DA, Streetlights, DEM and many other with minor augmentations to the network design. | Same as Greenfield Gen 5 |
| *Each individual design must include sufficient information to understand the communications network installation requirements and locations.* | Comply. | Comply. |
| *Each design should provide complete coverage for the target meter set with no meter left behind.* | Itron generally complies with this requirement based on the **successfully geocoded devices** from the location data provided by Eversource. Please see exceptions specified in Key Network Design Assumptions. Certain areas may need to be re-evaluated based on the complete location data set from Eversource. | Same as Greenfield Gen 5 |

## Scenario 2 - CT Extended Rollout – Electric Only

### Massachusetts

For this scenario, the network design for all Massachusetts territories is the same as in Scenario 1 for both Greenfield Gen 5 Deployment and Bridge Meter Utilization Network Design Options. The same assumptions also apply. The recommended network gear device counts are presented below.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Greenfield Gen5 | Massachusetts | 0 | 990 | 590 | 1225 | 410 | 2874 |
| Bridge Meter Utilization | Massachusetts | 1272 | 721 | 222 | 1405 | 410 | 2874 |

### Connecticut

Where the core strategy between Scenario 1 and Scenario 2 from a 900 MHz network design standpoint is the same, the core deployment strategy may require surgical placement of meters to drive both enhanced outage and grid monitoring capabilities as well as gap fill for network coverage. This can be any DI NIC enabled device starting with meters, and/or DI NIC integrated devices, streetlights load management devices, DER access points via Edge Gateway etc.

Itron expects that the final network gear counts will be the same as in Scenario 1 for Connecticut. Based on the incremental deployment of meters and completion of certain geographical areas, Itron will work with Eversource on specifics of network gear deployment and switching all cellular meters to 900Mhz mesh.

Itron does not currently offer a single device that supports both RF Mesh and cellular communications for connecting with the back-office. However, Itron understands the need for potential incremental and strategic deployment of meters throughout Eversource's service territories, especially in Connecticut. The scenarios that make up this type of deployment are spot and sparse in nature (meters aging out, single bellwether deployments, meter failures, and single customer opt-in). In an effort to appropriately match the connectivity need to the use case without overburdening with additional cost, Itron recommends the deployment of a cellular DI Riva meter for these cases. With this approach, single meters can still be immediately replaced without requiring additional meters to be deployed in the same area in order to make the network functional. Should the surrounding mesh network build out at a later time, that cellular meter could be swapped out for a mesh meter or left in the field continuing to use the cellular backhaul. This gives Eversource the ability to make the choice based on economics and performance requirements.

The incremental cost of a dual-NIC endpoint over a standard mesh or cellular meter would likely not be cost justified for these cases at this time. Itron is actively working with multiple cellular chipset providers to bring a cost-optimized single cellular and mesh electric meter to market. We are targeting a 2026 release for that product.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Greenfield Gen5 | Connecticut | 0 | 405 | 1112 | 1315 | 401 | TBD |
| Bridge Meter Utilization | Connecticut | 2105 | 303 | 549 | 1605 | 401 | 2874 |

| Scenario 2 - CT Extended Rollout – Electric Only | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *The use of Eversource's existing communication infrastructures should be optimized in the proposed design. Proposed design should focus on optimizing cost and operational capability by leveraging the optimal mix of Eversource's existing communication infrastructure and that of public carriers only where required.* | The design criteria used to design every Eversource territory includes placing APs at Company owned asset when appropriate. For pockets of terrain that did not have access to Eversource infrastructure, cellular backhaul was used. | Initially, cellular meters are in place in incremental areas. After full deployment of meters, the design criteria used to design network gear includes placing APs at Company owned asset when appropriate. For pockets of terrain that did not have access to Eversource infrastructure, cellular backhaul was used. |
| *Describe the number of network devices requiring third party (e.g., cellular) communications services.* | **Massachusetts:**<br>590 Cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 410 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 2874 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less.<br><br>**Connecticut:**<br>After the full deployment of meters and network gear,<br>1112 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 401 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. Additionally, cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. The final count of cellular meters may depend on specifics of extended rollout. | **Massachusetts:**<br>1272 Cellular PMRs and 222 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 410 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 2874 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less.<br><br>**Connecticut:**<br>2105 Cellular PMRs 549 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 401 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. Additionally, cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. The final count of cellular meters may depend on specifics of extended rollout. |

| Scenario 2 - CT Extended Rollout – Electric Only | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *Include any installation requirements, such as antenna heights, third party locations (e.g. buildings, streetlights, etc.) and equipment installation standards that are assumed in the plan* | In areas where Eversource private backhaul was not provided, network infrastructure was designed to reside on Eversource pole assets, 8 meters above ground. For additional mounting assumptions, please see the design assumption in the Coverage Plan Overview. | In areas where Eversource private backhaul was not provided, network infrastructure was designed to reside on Eversource pole assets, 8 meters above ground. For additional mounting assumptions, please see the design assumption in the Coverage Plan Overview. |
| *Include loading of various components (e.g., meters per network device) and bandwidth utilization information to demonstrate the capacity of the network plan to support the steady state load as well as any additional traffic.* | Itron has conservatively designed the network for Eversource to meet the "near real time" data read requirement at a ratio not to exceed 1500 metering endpoints to 1 AP. On average, the loading of APs will vary between 500 and 800 meters. The loading of Socket APs will be approximately 15 meters. The average hop count from a metering endpoint to an AP across all territories will be 4 or less. Each hop will average approximately 10-20ms and the network will read all electric metering endpoints in less than 15 minutes continually, while retaining in excess of 50% available capacity. | Same as Greenfield Gen 5<br><br>Average loading of PMRs is expected to vary between 400 and 600 meters. |
| *For any backhaul communications link not utilizing the Eversource's communications network, identify the capacity and quality of service requirements for any third-party communications and the annual communications costs associated with such third-party communications services.* | Backhaul locations not utilizing Eversource private facilities will leverage a cellular connection from an Eversource preferred provider such as Verizon. There are no particular quality of service parameters required. It is suggested that a pooled data plan covering all cell assets be leveraged, and costs negotiated directly with the cell carrier of choice.<br><br>Based on the preliminary network design in this RFP response, the backhaul data requirements are estimated. These estimates may vary depending on the network device-specific loading within the network in each state. They represent the estimated averages for the various access point types listed (PMRs, AP5s, SocketAP5s, and sBAPs) in both Massachusetts and Connecticut. For completeness, the optimal data plans for the direct connect cellular AMI 2.0 electric meters and gas and water devices are provided in response to *Attachment A – Solution Compliance Matrix, Answer Comm-VA-8.* | Same as Greenfield Gen 5 |

| Scenario 2 - CT Extended Rollout – Electric Only | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *The coverage plans should indicate the bandwidth utilization percentage based on the data requirements specified in section 4.6.2 and section 5.* | The available capacity found within the network design provided to Eversource includes substantial available bandwidth to support the data read requirements for electric, gas, and water meters. Excess bandwidth can be used for additional use cases such as DI, DA, Streetlights, DEM and many other with minor augmentations to the network design. | Same as Greenfield Gen 5. |
| *Each individual design must include sufficient information to understand the communications network installation requirements and locations.* | Comply. | Comply. |
| *Each design should provide complete coverage for the target meter set with no meter left behind.* | Itron generally complies with this requirement based on the **successfully geocoded devices** from the location data provided by Eversource. Please see exceptions specified in Key Network Design Assumptions. Certain areas may need to be re-evaluated based on the complete location data set from Eversource. | Same as Greenfield Gen 5. |

## Scenario 3 – Total Coverage Plan for MA and CT – Electric and Gas

For the nearly 900,000 gas metering endpoints across Massachusetts and Connecticut, Itron is proposing its family of 500G gas modules.

**Electricity and Gas Overlap Areas**
For a mesh network where electricity and gas services overlap, the gas and water modules act as leaf nodes to a neighboring electricity meter, allowing the modules to relay their data through the electricity meter.

The network gear designed for Scenario 1 will also support communication to approximately 490,000 successfully geocoded gas meters in these service overlapping territories.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Greenfield Gen5 | Connecticut | 0 | 405 | 1112 | 1315 | 401 | 2858 |
| | Massachusetts | 0 | 990 | 590 | 1225 | 410 | 2874 |
| | Total | 0 | 1395 | 1702 | 2540 | 811 | 5732 |

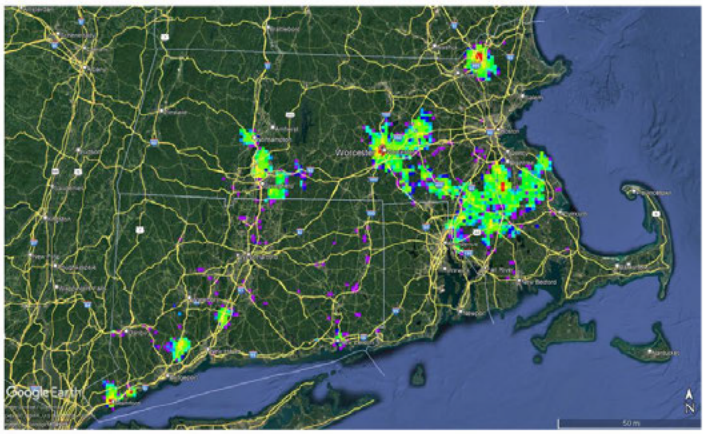
| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Bridge Meter Utilization | Connecticut | 2105 | 303 | 549 | 1605 | 401 | 2858 |
| | Massachusetts | 1272 | 721 | 222 | 1405 | 410 | 2874 |
| | Total | 3377 | 1024 | 771 | 3010 | 811 | 5732 |

**Gas-only Areas**

For gas-only service areas, such as the territories in Connecticut and Massachusetts shown below, the 500G gas modules also support a star network topology where the modules communicate directly with the network's APs or relays.

## GAS ONLY METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 255 | 906 |
| 10 to 25 | 101 | 1761 |
| 25 to 50 | 103 | 3940 |
| 50 to 100 | 169 | 12843 |
| 100 to 250 | 345 | 57862 |
| 250 to 1000 | 341 | 159868 |
| 1000 to 2500 | 57 | 87569 |
| 2500 to 5000+ | 16 | 56921 |



However, in these areas Eversource will be faced with a challenge finding pole-mounted space for network gear devices. Itron understands this challenge and is proposing to use Solar Battery APs in gas-only areas to eliminate any potential costs associated with pole leasing.

***Solar Battery Access Point***



Solar Battery AP

Itron is bringing to market a key innovation with a solar battery-powered AP to provide the data collection for the field area network, addressing the industry challenge utilities have procuring overhead assets to attach network devices and the annual costs to lease that space. The Solar Battery AP eliminates these challenges and high O&M costs. The solar battery AP is built off the linage of five generations of access points coupled with Itron's battery powered expertise, and the latest evolution of the LTE-M cellular standards to deliver a solution that provides a cost-effective takeout point for a neighborhood of endpoints without the need to acquire real estate for mounting and a power drop required for historical AMI networks. The Solar Battery AP is designed to support a neighborhood area mesh for 500G endpoints, Intelis meters and sensors employing an advanced mesh protocol for battery powered devices. This architectural improvement delivers a highly performant field area network, enabling Eversource to spot deploy an area at a time or automate your full territory. The solar battery AP is currently under development and road mapped for release in 2024.

The Solar Battery AP is designed to run off solar power with a flexible mounting bracket that can be mounted on pipes or walls. The whole intent with the Solar Battery AP is to utilize the assets that the

utility already owns, so that no 3rd party lease arrangements or power requirements are needed to support the device. The default installation is intended to mount on the gas meter set piping. Both the cellular modem and RF communications and associated antennas are self-contained within the device and do not require external antennas or wiring. A picture of an installation is shown here for reference.



An example of solar battery AP mesh links is shown in the figure below.




Itron was able to successfully geocode 381,670 gas meters in these gas-only territories. Based on this information, the following quantities of solar battery APs are included in our network design for these territories. In very low gas meter density areas, where installation of solar battery APs are cost prohibitive to Eversource, Itron network design includes Cellular 500G modules.

| Design Scenario | States | SBAP | Cellular 500G |
|---|---|---|---|
| Gas-Only Areas | Connecticut | 2444 | 1213 |
| | Massachusetts | 12610 | 8156 |
| | Total | 15054 | 9369 |

| Scenario 3 - Total Coverage Plan for MA and CT Electric and Gas | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *The use of Eversource's existing communication infrastructures should be optimized in the proposed design. Proposed design should focus on optimizing cost and operational capability by leveraging the optimal mix of Eversource's existing communication infrastructure and that of public carriers only where required.* | The design criteria used to design every Eversource territory includes placing APs at Company owned asset when appropriate. For pockets of terrain that did not have access to Eversource infrastructure, cellular backhaul was used. | Same as Greenfield Gen 5. |
| *Describe the number of network devices requiring third party (e.g., cellular) communications services.* | 1702 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. Gas-only territories include 15054 solar B=battery APs and 9369 Cellular 500G gas modules | 3377 Cellular PMRs and 771 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. Gas-only territories include 15054 Solar Battery Access Points and 9369 Cellular 500G gas modules |
| *Include any installation requirements, such as antenna heights, third party locations (e.g. buildings, streetlights, etc.) and equipment installation standards that are assumed in the plan* | In areas where Eversource private backhaul was not provided, network infrastructure was designed to reside on Eversource pole assets, 8 meters above ground. For additional mounting assumptions, please see the design assumption in the Coverage Plan Overview. For the gas meter network design, it is assumed that all gas meters are outdoors at 1.5' above ground level. Sufficient cellular coverage is assumed at all SBAP locations and potential cellular gas endpoints. | Same as Greenfield Gen 5 |

| | | |
|---|---|---|
| *Include loading of various components (e.g., meters per network device) and bandwidth utilization information to demonstrate the capacity of the network plan to support the steady state load as well as any additional traffic.* | Itron has conservatively designed the network for Eversource to meet the "near real time" data read requirement at a ratio not to exceed 1500 metering endpoints to 1 AP. On average, the loading of APs will vary between 500 and 800 meters. The loading of Socket APs will be approximately 15 meters. The average hop count from a metering endpoint to an APs across all territories will be 4 or less. Each hop will average approximately 10-20ms and the network will read all electric metering endpoints in less than 15 minutes continually, while retaining in excess of 50% available capacity. | Same as Greenfield Gen 5.<br><br>Average loading of PMRs is expected to vary between 400 and 600 meters. |
| *For any backhaul communications link not utilizing the Eversource's communications network, identify the capacity and quality of service requirements for any third-party communications and the annual communications costs associated with such third-party communications services.* | Backhaul locations not utilizing Eversource private facilities will leverage a cellular connection from an Eversource preferred provider such as Verizon. There is no particular quality of service parameters required. It is suggested that a pooled data plan covering all cell assets be leveraged, and costs negotiated directly with the cell carrier of choice.<br><br>Based on the preliminary network design in this RFP response, the backhaul data requirements are estimated. These estimates may vary depending on the network device-specific loading within the network in each state. They represent the estimated averages for the various access point types listed (PMRs, AP5s, SocketAP5s, and sBAPs) in both Massachusetts and Connecticut. For completeness, the optimal data plans for the direct connect cellular AMI 2.0 electric meters and gas and water *devices are provided in response to Attachment A – Solution Compliance Matrix, Question Comm-VA-8.* | Same as Greenfield Gen 5. |

| | | |
|---|---|---|
| *The coverage plans should indicate the bandwidth utilization percentage based on the data requirements specified in section 4.6.2 and section 5.* | The available capacity found within the network design provided to Eversource includes substantial available bandwidth to support the data read requirements for electric, gas, and water meters. Excess bandwidth can be used for additional use cases such as DI, DA, Streetlights, DEM and many other with minor augmentations to the network design. | Same as Greenfield Gen 5. |
| *Each individual design must include sufficient information to understand the communications network installation requirements and locations.* | Comply. | Comply. |
| *Each design should provide complete coverage for the target meter set with no meter left behind.* | Itron generally complies with this requirement based on the **successfully geocoded devices** from the location data provided by Eversource. Please see exceptions specified in Key Network Design Assumptions. Certain areas may need to be re-evaluated based on the complete location data set from Eversource. | Same as Greenfield Gen 5. |

## Scenario 4 – Total Coverage Plan for MA and CT – Electric, Gas, and Water

The network design for this scenario is very similar to the approach taken in Scenario 3 above with the difference in water-only service territories. For approximately 220,000 water metering endpoints across Massachusetts and Connecticut, Itron is proposing its family of 500W water modules. The network operation of 500W modules is very similar to that of 500G gas modules described in Scenario 3.

### Electricity and Water Overlap Areas

The network gear designed for Scenario 1 will also support communication to approximately 78,000 successfully geocoded water meters in these service overlapping territories.

| Design Scenario | States | PMR | AP (Ethernet) | AP (Cellular) | Relay | Socket AP | Cellular Electric Meter |
|---|---|---|---|---|---|---|---|
| Greenfield Gen5 | Connecticut | 0 | 405 | 1112 | 1315 | 401 | 2858 |
| | Massachusetts | 0 | 990 | 590 | 1225 | 410 | 2874 |
| | Total | 0 | 1395 | 1702 | 2540 | 811 | 5732 |

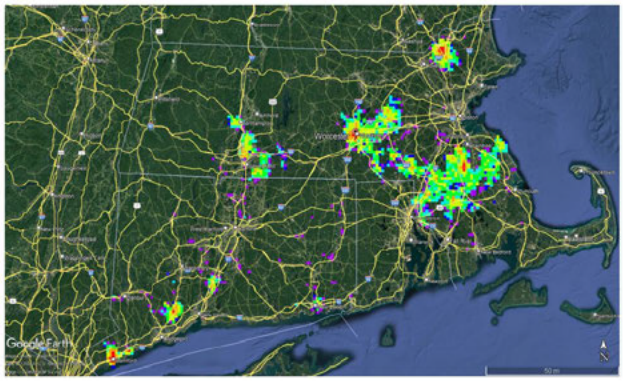
### Gas and Water Overlap Areas

There are approximately 27,000 water meters located in the areas where gas and water services overlap without existing Eversource electric customers. These areas are indicated on the map below.

The total number of Gas and Water meters in these areas is close to 400,000 endpoints. Similar to Scenario 3, Itron is proposing to use solar battery APs for reading both gas and water meters. Cellular 500W modules will be used in very low water meter density areas.

# GAS + CO-LOCATED WATER METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 253 | 927 |
| 10 to 25 | 97 | 1653 |
| 25 to 50 | 102 | 3884 |
| 50 to 100 | 163 | 12213 |
| 100 to 250 | 354 | 59674 |
| 250 to 1000 | 333 | 155582 |
| 1000 to 2500 | 66 | 97631 |
| 2500 to 5000+ | 21 | 77613 |

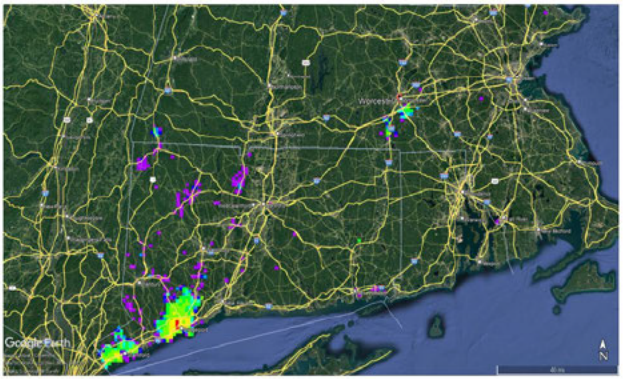


**Water-only Areas**

Water-only service territories contain 114,930 water meters. Since the use of network gear mounting assets is very limited in these parts of the service territories, Itron is proposing to use Cellular 500W modules. However, Itron would be happy to re-evaluate this proposal if Eversource can secure attachment fees on assets such as third-party utility poles, streetlights, etc.

# ISOLATED WATER METERS DENSITY

| Meters Per. Sq. Mile | Number of Sq. Miles | # of Meters |
|---|---|---|
| 1 to 10 | 188 | 493 |
| 10 to 25 | 39 | 663 |
| 25 to 50 | 28 | 999 |
| 50 to 100 | 37 | 2631 |
| 100 to 250 | 66 | 10780 |
| 250 to 1000 | 84 | 42586 |
| 1000 to 2500 | 32 | 48327 |
| 2500 to 5000+ | 3 | 8142 |



| Design Scenario | States | SBAP | Cellular 500G | Cellular 500W |
|---|---|---|---|---|
| Gas/Water Overlap Water Only | Connecticut | 2642 | 1213 | 110395 |
| | Massachusetts | 12644 | 8156 | 4535 |
| | Total | 15286 | 9369 | 114930 |

| Scenario 3 - Total Coverage Plan for MA and CT Electric and Gas | Greenfield Gen 5 | Bridge Meter Utilization |
|---|---|---|
| ***For each plan, please provide or consider the following:*** | | |
| *The use of Eversource's existing communication infrastructures should be* | The design criteria used to design every Eversource | Same as Greenfield Gen 5. |

| | | |
|---|---|---|
| *optimized in the proposed design. Proposed design should focus on optimizing cost and operational capability by leveraging the optimal mix of Eversource's existing communication infrastructure and that of public carriers only where required.* | territory includes placing APs at Company owned assets when appropriate. For pockets of terrain that did not have access to Eversource infrastructure, cellular backhaul was used. | |
| *Describe the number of network devices requiring third party (e.g., cellular) communications services.* | 1702 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. Gas/Water overlap territories include 15286 Solar Battery Access Points and 9369 Cellular 500G gas modules. Water-only territories include 114930 Cellular 500W gas modules. | 3377 Cellular PMRs and 771 cellular APs have been designed to augment the corporate owned network ingress points in the Eversource territory. In addition, 811 cellular Socket APs have been designed within the sparse and rural territories to backhaul all AMI traffic. These devices were chosen to avoid expensive pole mounted APs and Relays in less dense meter areas. 5732 cellular meters are recommended in place of Socket APs for meter density clusters of 10 or less. Gas/Water overlap territories include 15286 solar battery APs and 9369 Cellular 500G gas modules. Water-only territories include 114930 Cellular 500W gas modules |
| *Include any installation requirements, such as antenna heights, third party locations (e.g. buildings, streetlights, etc.) and equipment installation standards that are assumed in the plan* | In areas where Eversource private backhaul was not provided, network infrastructure was designed to reside on Eversource pole assets, 8 meters above ground. For additional mounting assumptions, please see the design assumption in the Coverage Plan Overview. For the gas meter network design, it is assumed that all gas meters are outdoors at 1.5' above ground level. Sufficient cellular coverage is assumed at all solar battery AP locations and potential cellular gas and water endpoints. | Same as Greenfield Gen 5. |

| | | |
|---|---|---|
| *Include loading of various components (e.g., meters per network device) and bandwidth utilization information to demonstrate the capacity of the network plan to support the steady state load as well as any additional traffic.* | Itron has conservatively designed the network for Eversource to meet the "near real time" data read requirement at a ratio not to exceed 1500 metering endpoints to 1 AP. On average, the loading of APs will vary between 500 and 800 meters. The loading of Socket APs will be approximately 15 meters. The loading of SBAPs will be approximately 28 meters.<br>The average hop count from a metering endpoint to an Access Point across all territories will be 4 or less. Each hop will average approximately 10-20ms and the network will read all electric metering endpoints in less than 15 minutes continually, while retaining in excess of 50% available capacity. | Same as Greenfield Gen 5.<br>Average loading of PMRs is expected to vary between 400 and 600 meters. |
| *For any backhaul communications link not utilizing the Eversource's communications network, identify the capacity and quality of service requirements for any third-party communications and the annual communications costs associated with such third-party communications services.* | Backhaul locations not utilizing Eversource private facilities will leverage a cellular connection from an Eversource preferred provider such as Verizon. There is no particular quality of service parameters required. It is suggested that a pooled data plan covering all cell assets be leveraged, and costs negotiated directly with the cell carrier of choice.<br>Based on the preliminary network design in this RFP response, the backhaul data requirements are estimated. These estimates may vary depending on the network device-specific loading within the network in each state. They represent the estimated averages for the various access point types listed (PMRs, AP5s, SocketAP5s, and sBAPs) in both Massachusetts and Connecticut. For completeness, the optimal data plans for the direct connect cellular AMI 2.0 electric meters and gas and water devices are provided in response to *Attachment A – Solution Compliance Matrix, Question Comm-VA-8*. | Same as Greenfield Gen 5. |

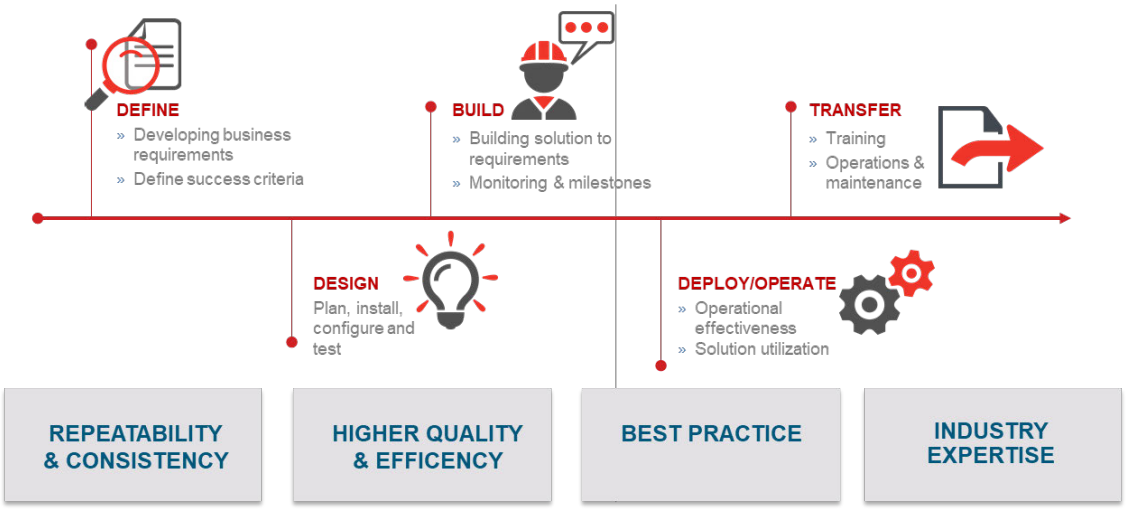
| | | |
|---|---|---|
| *The coverage plans should indicate the bandwidth utilization percentage based on the data requirements specified in section 4.6.2 and section 5*. | The available capacity found within the network design provided to Eversource includes substantial available bandwidth to support the data read requirements for electric, gas, and water meters. Excess bandwidth can be used for additional use cases such as DI, DA, Streetlights, DEM and many others with minor augmentations to the network design. | Same as Greenfield Gen 5 |
| *Each individual design must include sufficient information to understand the communications network installation requirements and locations.* | Comply. | Comply. |
| *Each design should provide complete coverage for the target meter set with no meter left behind.* | Itron generally complies with this requirement based on the **successfully geocoded devices** from the location data provided by Eversource. Please see exceptions specified in Key Network Design Assumptions. Certain areas may need to be re-evaluated based on the complete location data set from Eversource. | Same as Greenfield Gen 5. |

# APPENDIX A.5. PROJECT APPROACH AND SCHEDULE

Implementing an AMI solution requires strong project management and a project team with knowledge of the customer's energy management needs, both from a technical and a functional perspective. By managing thousands of implementation projects, Itron has gained the experience and the expertise needed to manage complex and large-scale AMI solution implementations. Itron has broad experience successfully deploying our Gen5 solution and integrating it with third-party headend systems and other utility business systems. Itron has the organization, project management, technical expertise, training resources, and tools needed to ensure successful project execution on schedule and within budget.

## ITRON ADVANTAGE

Itron's project management methodology, called Itron Advantage, follows industry best practices for implementation methodologies. It is a measurable approach based on the PMI Project Management Body of Knowledge (PMBOK) and PRINCE2. It is designed to focus on the requirements of the utility industry, while mitigating project risk and ensuring its quality.




Itron Advantage Project Methodology

### Itron Advantage Project Methodology

Itron Advantage employs a multi-phased structure that is consistent across all Itron solutions. This structure provides controlled, measured, and effective quality control throughout the project. Itron Advantage ensures effective project quality control from start to finish and is a proven framework for managing project deployments that are successful, on-time, and on-budget.

Itron Advantage allows the project team to achieve mutual understanding of what will be delivered. With this understanding, the methodology ensures that all the numerous tasks and deliverables are identified, documented, tracked, and accomplished to a successful conclusion and that appropriate resources are available as needed throughout the project.

Itron Advantage ensures that project requirements are fully defined and understood by all stakeholders, and that all tasks and dependencies are identified, assigned, and managed. Itron

Advantage processes also include risk identification and mitigation, scope management, schedule management, communications, reporting, change management, and issue resolution.

### Project Requirements

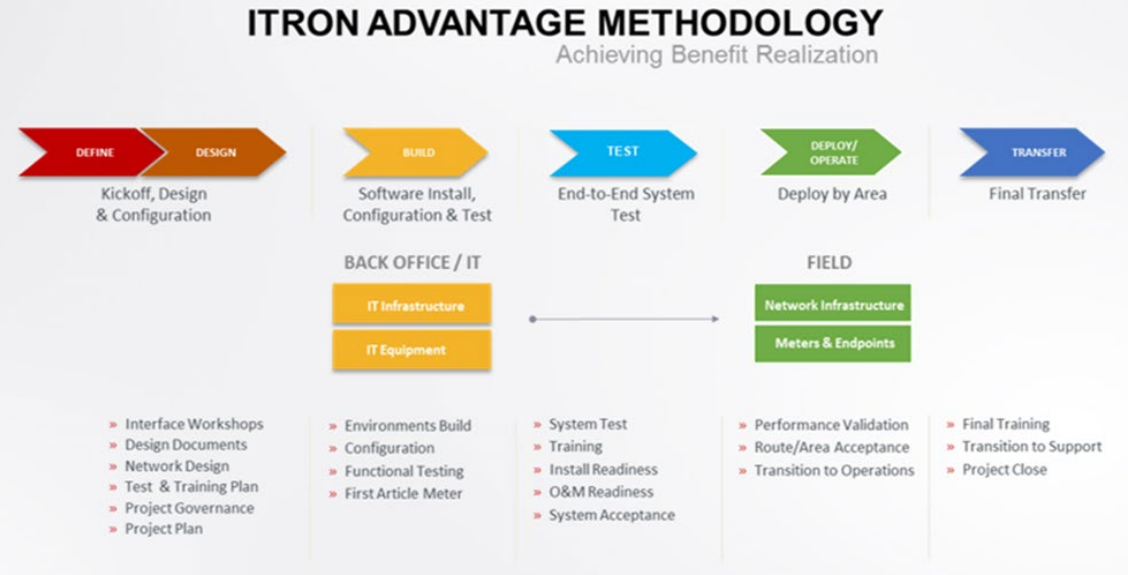
Itron places importance on clear definition of the utility's requirements, understanding the utility's goals, and reaching consensus before beginning the project. To that end, Itron Advantage ensures that project requirements are fully defined and understood by all stakeholders, and that all tasks and dependencies are identified, understood, and assigned. Itron then fully defines each project deliverable in a SOW. A Project Plan then documents all project tasks and timelines. Itron scrupulously adheres to this plan, and any changes are controlled through our change management process.

### Risk Mitigation

Itron Advantage mitigates the risks associated with large-scale projects by tightly controlling project tasks, deliverables, and variables. It ensures that each task and deliverable is identified, documented, assigned, tracked, and managed to a successful conclusion, and that appropriate resources are made available as needed throughout the project. Focus remains on mitigating risk, stakeholder communication, task execution and accountability, and closely managing change.

Finally, Itron provides lessons learned from previous projects. This is the most important knowledge a resource can have, as a smart grid implementation touches so many organizations, operations, processes, and day-to-day tasks. Itron Advantage is project-proven to deliver on time and within budget.

### Project Phases




**Itron Advantage's five project phases have been refined over many projects to ensure success**

The following table summarizes each phase of the Itron Advantage methodology.

| Phase | Summary |
|---|---|
| **Define** | The project team gathers information to initiate and manage the project. Key activities include a project kickoff, identifying team members, a solution capabilities overview (Itron solution presentations) and workshops (meetings to gather/validate solution requirements). A key deliverable at the end of this phase is the *Business Solution Requirements* (BSR). The BSR defines the Itron solution requirements. |
| **Design** | The project team prepares design specifications and plans required to meet the project objectives. Key design specifications include the *Business Solution Design* (BSD) and the *Technical Architecture Design* (TAD). This phase also includes the plans required to build, test, train, and deploy the solution. |
| **Build** | The team installs, configures, and tests the solution according to the plans and designs and begins training people in the system's use. |
| **Deploy/Operate** | The team performs act vities to deploy, manage, run, and optimize the solution. |
| **Transfer** | The final phase in the methodology, the Transfer Phase involves transitioning the full operations and maintenance of the solution to Eversource and closing out the project. This phase also includes transitioning Eversource's ongoing support needs from the Itron project team to Itron Support Services. |

### Key Implementation Activities

**Note:** This document describes a typical project implementation and is intended to serve as a baseline reference. The Itron Advantage methodology is inherently flexible, allowing for customization as appropriate. While this template version of the Itron Advantage methodology reflects the best practices and lessons learned from our extensive global experience, our expectation is that, early in the project, we will adapt this baseline template into a set of detailed plans that are specific to the Eversource AMI project and its unique requirements. As such, the content here should be viewed to represent Itron's experience and expertise and is not intended to be prescriptive or to conflict with Eversource's requirements as expressed elsewhere in the RFP. The following are key activities that help ensure successful project implementation:

- Reviewing solution capabilities with Eversource
- Discussing the process for solution implementation
- Capturing Eversource requirements
- Building the systems
- Performing any required system integration
- Performing testing and training
- Bringing the system online and going live

### Supply Chain Risk Mitigation

In response to the global, industry-wide, supply chain and shortage issues, Itron has implemented several supply chain mitigation strategies starting in Q1 of 2020. These include:

- Extending 52-week and rolling Purchase Order (PO) coverage on all semiconductor suppliers.
- Creating a Dedicated Strategic Sourcing Team focused on the continuity of supply actions.
- Daily SNR-level supplier escalation calls.

- Monthly CEO-to-CEO calls to maintain cohesiveness.
- Expanded distribution channel partnerships.
- Expanding the second-sourcing and alternate supplier approval process.

Itron is closely monitoring the developing global component shortage. This situation is changing rapidly with new information becoming available in real-time. Our dedicated material management team continues to actively work to assess and mitigate temporal disruptions and risks to our global supply chain created by the global component shortage. Our Sales, Sales Operations, Supply Chain, and Business Operations teams are coordinating on a daily, weekly, and monthly basis to make sure we deliver contracted goods. Itron is committed to being transparent and to working with you to identify the best solution possible. In addition, Itron works closely with its customers to understand the full contract rollout plan to create a 12-month rolling forecast in production to ensure that the product arrives when required.

### **Scheduling** and Cost Control

Itron Project Managers are seasoned veterans who have years of experience with industry best practices used to deploy Itron systems and control project costs. Most Itron Project Managers are trained and certified by both the PMI and Stanford Institute to employ their respective project management methodologies.

Due to each project's uniqueness, costs are estimated based on customer requirements as listed in the RFP. Itron costs as quoted in the RFP are then validated during the detailed scoping sessions at the project kickoff. Itron uses a well-defined change order process to control costs should project scope change during deployment subsequent to the final SOW. The Change Order describes the change requested, the rationale for the change, the estimated price, and the effect the change will have on the project. All change orders must be approved by the Utility. Itron has a long history of successfully providing quality services for AMI system deployments. Itron works with each utility to ensure that the necessary organizational project management, operating staff, training, and tools are in place to support the new system. Itron will provide additional details when developing the Project Governance document, which will be prepared by the combined project management team at the start of the project.

### Services Provided

Itron has proposed the following services. Upon selection, we will work with Eversource to create a scope of work document to define in detail these services.

- Project Management – Project management is provided for all phases of the project. The Project Manager is responsible for coordinating Itron-related tasks with Eversource to ensure the project is delivered on time and on budget. The Project Manager works with Eversource to fully understand the desired project timelines, set milestones, and define deliverables.
- Network Design – The network design is based on location data provided by Eversource as well as the information obtained during site surveys. The network design determines the location of APs, relays, and socket APs taking into consideration endpoint locations, RF signal propagation, physical topography, and network device site restrictions.
- System Testing – End-to-end testing of the functionality of the AMI system is provided. These tests are a mix of lab and field tests and consist of:

- Field Network Deployment Support – During the deployment (Build) phase, training is provided to Eversource on field deployment and troubleshooting procedures.
- Network Optimization – The optimization process involves remote analysis of network performance, including routing, bandwidth, resiliency diagnostics and on-the-ground troubleshooting to address any hard to hear locations. Optimization is performed after meter deployment is complete. Upon completion of Network Optimization, compliance to performance requirements will be demonstrated.
- AMI System Deployment – The Itron Services Team works with Eversource to plan all aspects of the AMI system deployment including the number and type of environments, backhaul network planning, security planning, remote access, storage and backup and optional disaster recovery. Itron provides the infrastructure and provisions the application in the Itron data center, then installs, configures and tests the hosted UtilityIQ application(s) as well as any back-office network and external connections as required.
- Integration and Configuration Assistance – UtilityIQ will be configured to meet Eversource's requirements. Additionally, during a comprehensive workshop, Itron Solution Architects work with Eversource to determine the data exchange required between UtilityIQ and existing systems of record and scope the effort required to enable this integration. Itron does not perform the actual system integration on Eversource back-office systems. The Services Team instead acts as the UtilityIQ expert in defining data flows and formats as well as configuring the AMI system. Finally, Itron works with Eversource and/or third-party integrators to test and troubleshoot the customer environment during the Plan Phase of the project.
- Application Training – Includes a single on-site session over four days with a classroom size of six students. Training courses are provided as a consultative-style training session(s), live/hands-on demonstrations with the Itron applications and "Question and Answer" interaction with an experienced instructor. The following structured courseware is included: AMM, Network Center, MPC, FWU and Field Service Unit Tools.
- Technical Support and Maintenance – Provided that annual maintenance fees are current, Itron provides ongoing support to ensure customers have access to technical support; software and firmware upgrades; and hardware replacements needed for optimal performance of its AMI solution.

### Project Preparation

Our experience has taught us that performing some important logistics and planning effort before kicking off a project sets a strong foundation for project success.

One of the most important aspects is selecting the core project team and engaging them in the project as early as possible. For example, they may take part in contract negotiations or final selection meetings prior to initiating the project. Such early exposure introduces the team to the Eversource project team and provides a solid introduction to the project and its key deliverables.

Allowing sufficient time for the team to review the proposal, SOW, and other documentation provided from the project bid team is of significant value. This provides the team with the details needed to begin the planning process for project implementation. Internal reviews from lessons learned on past projects can also help identify possible risks for the project early on so the teams can actively plan to mitigate such risks.

It is also valuable to bring both Itron and Eversource management teams together before the formal project kickoff. This allows the teams to review the SOW and ensures all managers understand the work, deliverables, roles, and responsibilities of each team. Identifying gaps or risks early as a combined management team minimizes surprises later and gets the teams working together immediately.

A meeting to set the first phase's project kickoff time and agenda items also helps ensure the project starts on the right path with a strong and cooperative message.

### Network Design

Itron will provide an initial, enhanced, and final Network Design. The Network Design is based on location data provided by Eversource and the information obtained during Site Surveys. The Network Design determines the location of network infrastructure (APs, relays, and socket APs) based on endpoint locations, RF signal propagation, physical topography, and network device site restrictions. The following table describes each phase of the network design process.

| Phase | Description |
|---|---|
| **Initial Network Design** | The Initial Network Design phase uses Eversource's endpoint location data to validate and update network node counts and endpoint locations, to generate LAT/LONG coordinates for recommended network devices, and to produce coverage maps. |
| **Site Survey** | Next, in the Site Survey phase, the field crew goes onsite and evaluates actual field conditions and network equipment locations. Itron Field Engineers will verify that each site has backhaul connectivity and proposes eligible site locations and make ready work effort such as secondary line power. |
| **Enhanced Network Design** | With Site Survey input and further network analysis, the Enhanced Network Design phase delivers the "to-be-built" network design. |
| **Final Network Design** | Lastly, once all Network Equipment and endpoints are deployed, a final design shows the "as-built" design. |

### Network Deployment Support

Network Deployment Support prepares and assists Eversource and/or installation contractors for the proper deployment of field area network gear (APs, relays, and socket APs) and metering endpoints throughout the deployment period.

This phase offers a high level of support. The aim is to build the installation team's skills and confidence with installing and troubleshooting the field network devices and meters, and to ensure the successful connectivity of all network elements. This support service assumes that installation personnel are unfamiliar with the Itron equipment and trains them accordingly.

During the Field Deployment phase, the Deployment Team will provide the following Field Deployment Support and assistance to Eversource and/or contracted installation personnel:

- **Training:** Provide training to installation technicians, field personnel, and contractors regarding the specific aspects of installing Itron field network equipment, meters, and communication modules. This training can be completed within a two-day timeframe.

» **Audit:** Provide field audits for a sample of early network, meter, and module installations. Provide feedback and guidance to installation technicians to rectify observed installation problems or issues.

» **Troubleshooting Assistance:** Provide the following training and assistance:

- Troubleshooting procedures for meters and modules and training on the use of endpoint field service tools.
- Field troubleshooting of installed network devices during the initial phase, including remote diagnostics and onsite field technicians, if necessary.

## AMI SOLUTION SCHEDULE

We have provided a preliminary high-level project implementation schedule with milestones, checkpoints, and deliverables for the delivery of the Itron solution. Itron's Eversource solution schedule is outlined in the table below for AMI.

| Phase | Function | Resource | Onsite / Remote | Start Month | End Month | Start Month | End Month |
|---|---|---|---|---|---|---|---|
| **Program Management and Solution Implementation** | Start Up | Program Manager/Solution Architect | 25% Onsite/ 75% Remote | 1 | 1 | 9/23 | 9/23 |
| | Workshops | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration, Business Consultants | 75% Onsite/ 25% Remote | 2 | 5 | 10/23 | 1/24 |
| | Install / Configure / Build | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration | 50% Onsite/ 50% Remote | 6 | 9 | 2/24 | 5/24 |
| **System Integration and Acceptance** | Functional Test | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration/ Technical Consultants - Testing / Technical Consultants - Training | 50% Onsite /50% Remote | 10 | 12 | 6/24 | 8/24 |

| Phase | Function | Resource | Onsite / Remote | Start Month | End Month | Start Month | End Month |
|---|---|---|---|---|---|---|---|
| **System Acceptance Testing** | SIT Phase (multiple phases) | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration/ Technical Consultants - Testing | 50% Onsite/ 50% Remote | 13 | 18 | 9/24 | 1/25 |
| | UAT Phases | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration/ Technical Consultants - Testing/ Technical Consultants - Training | 50% Onsite/ 50% Remote | 18 | 19 | 2/25 | 3/25 |
| **Go-Live and Production Support** | Go-Live (Deploy) | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration/ Technical Consultants - Testing | 75% Onsite/ 25% Remote | 20 | 20 | 4/25 | 4/25 |
| | Support | Program Manager/Solution Architect/ Technical Consultants-Configure/ Technical Consultants-Integration/ Technical Consultants -Testing | 75% Onsite/ 25% Remote | 21 | 22 | 5/25 | 6/25 |
| **System and Network Analysis (RF Planning)** | RF Planning/ Network Mitigation Services | Program Manager/Technical Consultants- RF Labs | 100% Remote | 2 | 40 | 10/23 | 12/26 |
| **Network Surveys** | Field Effort for Network Surveys of Itron Network Devices | Program Manager/ Field Engineer Lead/ Multiple Field Engineers | 100% Onsite | 1 | 30 | 9/23 | 2/26 |

| Phase | Function | Resource | Onsite / Remote | Start Month | End Month | Start Month | End Month |
|---|---|---|---|---|---|---|---|
| **Network Tuning** | Field and Back Office Network Tuning for Optimization and "No Meter Left Behind" services | Program Manager/ Field Engineer Lead/ Field Engineers / Technical Consultant - RF Labs | 100% Onsite Field Resources a | 20 | 64 | 4/25 | 12/28 |

### Project Milestone Summary

The following table lists the key activities and milestones for each phase of the Itron Advantage Methodology for AMI projects. Each phase of the project proceeds to the next phase upon reaching each of its milestones and approval of its deliverables

| Phase | Project Milestone Summary |
|---|---|
| **Define** | • Kickoff Meeting and Materials<br>• As-Is Business Process Diagrams<br>• Roles & Responsibilities Matrix<br>• To-Be System Architecture<br>• Business Solution Requirements (BSR) Document<br>• **Milestone:** Requirements Analysis Complete |
| **Design** | • Data Migration Strategy /Training Document<br>• Data Migration Design Document (N/A)<br>• Prod & DR Environment Install (Servers, OS, App Server & DB)<br>• Application Install and Base Configuration in Prod and DR<br>• Deployment Readiness Plan<br>• Test and Training Plans<br>• Train Technical Team<br>• **Milestone:** Design Activities Complete |
| **Build and System Testing** | • Dev/Test Environ Installs (Servers, OS, App Serv, DB)<br>• Business Solution Design (BSD) Document<br>• Product Configuration Design Document<br>• Transition to Support Plan<br>• Test Case Development<br>• Functional / System Testing<br>• **Milestone:** Build and System Testing Complete |
| **Integration Testing** | • Custom Interface Development - (If applicable)<br>• Legacy Data Migration – (NA)<br>• Training Materials Development<br>• Integration Testing<br>• **Milestone:** Integration Testing Complete |

| Phase | Project Milestone Summary |
|---|---|
| **User Acceptance Testing (UAT)** | • Train Users<br>• Solution Test Complete & Signed Off (UAT)<br>• **Milestone:** Ready for Transition to Production |
| **Operate / Transfer** | • Production Availability of the Solution<br>• Transition to Support Plan Executed<br>• Project Completion Sign-Off<br>• **Milestone:** Production Go Live |

# APPENDIX A.6. PRIOR EXPERIENCE

We are proud to present three AMI references to Eversource in Avangrid, Tampa Electric Company (TECO), and Consolidated Edison (ConEd). These references demonstrate how Itron works with our customers to address the ever new and changing needs faced by utilities today. **These references comply with requirements in *Section 5.3* of the RFP** regarding AMI functional requirements through our implementation of our proven Gen5 AMI solution in each project presented. Our compliance with RFP *Section 5.3* is included in the following section. As shown in our Solution Summary in *Appendix A.2 – Solution Summary*, our AMI inherent functionality includes all minimum requirements outlined in *Section 5.5* of the RFP with little exception.

1. **Proposer shall have been providing AMI solutions for at least 5 years in the US/Canada.**

As shown in *Appendix A.1 - Proposer Company Profile*, Itron has been providing AMI solutions in the United States and Canada since 1977. In the early 1980s, Itron pioneered and developed the first broadly adopted automatic meter reading (AMR) systems, which consisted of utility field workers using portable, radio-equipped computers—running dedicated application software—to collect data from meters remotely via wireless radio signal. Itron has been a committed technology supplier to the utility industry for over 44 years, Itron's Gen5 AMI network platform has more than 30 million devices deployed across more than 50 utility customers in North America supporting a breadth of applications.

2. **Proposer shall have been providing the proposed technology (meters, network devices, etc.) for at least 2 years in the US and/or Canada. Proposer shall list the utility or utilities using the proposed technology along with quantities deployed.**

Itron is proposing our latest generation Gen5 Riva meter with DI edge computing. The Gen5 Riva meter is currently deployed at numerous customers worldwide for well over two years. The table below shows a representative sample:

| Customer | Quantities Deployed |
|---|---|
| Florida Power & Light | 4,502,378 meters, 600,000 Streetlights, 5000 DA, 1,896 Access Points (using 3 different cell carriers - ATT, Verizon, T-Mobile) |
| Commonwealth Edison | 4,260,772 meters, 152,087 streetlights, 6,000 DA, 1,721 Access Points, 7,924 Relays |
| Avangrid | 1.3 million meters and 600,000 gas endpoints, 893 Access Point 5.0 (Ethernet, USA), 2,635 Relay 5.0 (USA, Verizon), 3,655 SocketAP (Gen5 Verizon) |
| Tampa Electric Company | 806,000 meters, 270,000 streetlights, 363 routers for 820k meters, 70 Access Points for 266k streetlights, 300 total devices for all endpoints being designed |

3. **Proposer has at least one AMI implementation in US/Canada with greater than 1,500,000 electric meters and currently billing for all meters.**

As shown in the table above, Itron's Commonwealth Edison project consisted of 4,260,772 meters deployed and billing. This also includes 1,721 APs, 7,924 relays as part of the solution.

4. **Proposer's AMI solution must describe the interoperability of proposed communication network with electric, gas and water meters – currently/on the roadmap for the next 5 years.**

Itron has a rich history of providing interoperability and meter choice via supporting third party meters on the Itron Network. These third-party meters operate on Itron's network with full AMI use case

support and function and are equal citizens of the network. For electric metering, Itron supports the Gen5 Riva Meter and Gen5 CENTRON II/CP3 platforms. In addition, the following is an approximate breakdown between third party meter vendors supported on the GenX network in North America:

- Aclara (includes I-210+c and kV2c platforms) ~26M
- Landis+Gyr (includes Focus AX and S4 platforms) ~6M
- Honeywell (A3 and A4 platforms) ~4M

Itron also sees the importance of offering DI on third party meters, and as seen in our proposal we are committed to developing a DI NIC for the Aclara I-210+c meter as part of our roadmap. Similarly, with gas metering, Itron has delivered connectivity to tens of millions of 3rd party gas meters for decades. Our Gen5 500 series ERTs are integrated with the four "families" of residential and C&I gas meters (including a wide range of generations from each): Honeywell / Elster / American Meter; Sensus / Invensys / Equimeter / Rockwell; National / Lancaster; Itron / Actaris / Schlumberger / Sprague.

Additionally, we support the rotary gas meter from the following vendors: GE / Dresser; LMMA; B3; Romet; Honeywell / Elster. We can also network more than 30 meter models from 14 different water meter vendors using the Gen5 500W series water module.

5. **Proposer's AMI solution must be complete in that it provides all the capabilities and functionality requested. No partial proposals will be considered.**

Itron's AMI solution fully complies with RFP *Section 5.4 - Functional Requirements* in addition to compliance with *Sections 5.3 - Minimum Requirements* and *Sections 5.5 - 5.8* of the RFP. Itron is confident our proposed AMI solution meets and often exceeds all the capabilities and functionality requested by Eversource. Itron will only submit a full proposal response.

6. **The meter hardware as quoted in this proposal must be capable of supporting Distributed Intelligence (DI) either currently or within the next 3 years.**

Itron's initiative to bring Riva DI to market began more than 5 years ago and has been a focus of continuous investment and evolution through today. To date, there are more than 6 million Itron Riva Distributed Intelligence meters contracted, more than 2 million deployed in the field, and more than 12 million apps contracted. See *Appendix A.12 - AMI Technology Distributed Intelligence Support* for more information regarding Itron's DI capabilities.

7. **Proposer must provide satisfactory responses to the Cybersecurity sections of the proposal to indicate that the solution will meet appropriate standards.**

Please see *Attachment J - Vendor Security Questionnaire* included with this proposal response in addition to our cybersecurity portions of *Attachment A – Section 3.0 Security* for our full responses. Itron is confident these cybersecurity responses will meet and often exceed standards set by Eversource.

## PRIOR EXPERIENCE REFERENCES

The proposed Itron technology has over 48 million IPv6 communications devices installed across 50+ utility customers supporting a wide breadth of applications. World-class smart energy, gas and water deployments based on this platform include Florida Power & Light, Commonwealth Edison (Chicago), Consolidated Edison (New York City), Singapore Power, and DEWA (Dubai); municipal and cooperative utilities such as CPS Energy, City of Seaford, City Utilities of Springfield, and Choptank Electric Coop; and iconic smart streetlight/smart city projects in Halifax, Richmond Hill, Vancouver, Paris, London, Chicago, and Copenhagen. TECO has extensively deployed Riva meter based Distributed Intelligence capabilities. Avangrid's New York affiliates, NYSEG and RG&E, are actively deploying Gen5 Riva meters and 550G gas ERT modules in a project differentiated by full scale DI

and near real-time AMI data collection. The table below shows our references and how they satisfy requirements for selection of each of our prior experience projects below.

| | Avangrid | TECO | ConEd |
|---|---|---|---|
| New Customer (less than two yrs.) | X | | |
| Long-Term Customer (more than three yrs.) | | X | X |

## REFERENCE 1: AVANGRID NETWORKS

| | |
|---|---|
| **Company Name** | **Avangrid Networks, Inc.** |
| **Company Contact** | Name: [redacted]<br>Address: [redacted]<br>Phone: [redacted]<br>Email: [redacted] |
| **Company Website** | www.avangrid.com |

**Relevant Project Information**

In 2020, Itron was selected to provide the AMI and MDM solution for 1.9 million endpoints for Avangrid's New York operating companies, New York State Electric & Gas and Rochester Gas & Electric. The solution comprises implementation of Itron's AMI headend system, Itron's meter data management system, field network equipment, electricity meters, gas modules, and comprehensive project implementation services. Central Maine Power (CMP), a subsidiary of

Itron's solution includes the UtilityIQ AMI headend system, Itron IEE MDM system, field network equipment, electricity meters, gas modules, and comprehensive project implementation services. Avangrid accesses the solution's software (headend system, analytics, and IEE MDM) via software-as-a-service (SaaS).

**Start and end of AMI Implementation**

2021 - 2025

**Number of electric and, if appropriate, gas and water AMI meters installed and communicating**

**Total number of endpoints: 1,950,000 comprised of:**

- 1.3M Itron Gen5 Riva electricity meters
- 91K (7%) T&D/C&I meters
- 600K Itron 500G gas modules

**Number and version of network devices installed and operating**

- 893 Access Points 5.0 (Ethernet, USA)
- 2,635 Relay 5.0 (USA, Verizon),
- 3,655 SocketAP (Gen5 Verizon)

### Typical data collected from each AMI meter and frequency of data delivery

Data collection for electricity streams in near real time. Every 15 minutes, data flows from the meter to the headend system and into IEE MDM. The data then immediately becomes available on the Customer Portal, enabling consumers with near real-time visibility into their energy usage. The solution also collects 60-minute gas interval data once per day.

### Outsourced/Managed Services or utility owned implementation of AMI HES

UtilityIQ suite software runs on an Itron-provided Managed Appliance installed at Avangrid's data center.

### AMI functionality in production (e.g. AMI Billing, Prepayment, Outage management, Demand response, Theft detection, etc.) and the information systems integrated with AMI

UtilityIQ AMI headend system suite. Itron IEE MDM with AMI Interval Data Billing Module, SAP AMI Integration module. NodeSim software for device simulation and volume test data creation and management. Avangrid also has the Itron MV-90 data collection system for their T&D/C&I meters.

Distributed Intelligence: The solution also features distributed computing power throughout the network, enabling real-time analysis of data and peer-to-peer communication among intelligent devices at the edge of the network. These analytic capabilities at the edge of the network enable Avangrid to monitor and manage rapidly changing grid conditions and to deliver new services and value to NYSEG customers.

### The hardware, software, and firmware versions presently in production and compare these versions to the versions being proposed to Eversource.

Eversource will receive the most up-to-date firmware, software, and hardware versions as being proposed. As Itron continually updates our product offerings, Eversource can be assured they will receive the best versions possible. Avangrid uses the current version of UtilityIQ and hardware and firmware versions currently being proposed to Eversource for this AMI implementation.

### First try (without gap filling) data communications daily success rate and last 6 months of overall monthly data retrieval and delivery performance

See the chart below for Itron's GenX register read rates and SLA compliance for our MSaaS customers in a wide variety of deployment sizes. Read rates vary per customer based on multiple factors like neighborhood area network (NAN) characteristics. Read rate SLAs also vary per customer and contractual obligation.

| Deployment Size: | 6M-8M | 2M-6M | 500K-1M | 100K-200K | 10K-100K |
|---|---|---|---|---|---|
| System Availability | 100.00% | 100.00% | 100.00% | 99.97% | 100.00% |
| Meter Register Read Rate | 99.80% | 99.91% | 99.94% | 99.87% | 99.37% |
| Meter Interval Read Rate | 99.88% | 99.89% | 99.74% | 99.96% | 99.73% |
| SLA Compliance | Yes | Yes | Yes | Yes | Yes |

## REFERENCE 2: TAMPA ELECTRIC COMPANY

| | |
|---|---|
| **Company Name** | **Tampa Electric Company (TECO)** |
| **Company Contact** | Name: [redacted] AMI-CRB Integration<br>Address: [redacted]<br>Phone: [redacted]<br>Email: [redacted] |
| **Company Website** | https://www.tampaelectric.com |

### Relevant Project Information

Since 1899, Tampa Electric Company (TECO) has supplied West Central Florida with electricity. TECO has a service area covering 2,000 square miles, serving an estimated population of over one million people. The utility has more than 5,000 megawatts of generation capacity, with 500 megawatts of AC solar generation.

TECO recently embarked on a multi-year transformation investment to improve their customer experience and operational programs with supporting projects that include AMI, MDM, Analytics, Advanced Distribution Management, DI, Volt/VAR optimization, Smart Streetlights, and Smart Cities applications.

**Start and end of AMI Implementation**

2017 - 2019

**Number of electric and, if appropriate, gas and water AMI meters installed and communicating**

- 806,000 meters,
- 270,000 streetlights

**Number and version of network devices installed and operating**

- 363 routers for 820k meters
- 70 Access Points for 266k street lights
- 300 total devices for all endpoints being designed now
- 266,000 SELC (now Itron-SELC) networked lighting controllers (NLC)

**Typical data collected from each AMI meter and frequency of data delivery**

The solution's headend system is configured to collect 15-minute interval data from each electric meter every 15 minutes and to collect 60-minute gas interval data once per day.

**Outsourced/Managed Services or utility owned implementation of AMI HES**

Itron GMS provides a SaaS offering for a number of Itron products (IEE MDM, AMI Headend and Streetlight.Vision).

**AMI functionality in production (e.g. AMI Billing, Prepayment, Outage management, Demand response, Theft detection, etc.) and the information systems integrated with AMI**

TECO recently (2022) performed lab and field testing for DI applications against cloud-based analytics. They discovered DI far surpassed traditional methods and revealed other valuable, real-world applications for data collected throughout the distribution system. The DI apps they are piloting include Volt/VAR Optimization.

**The hardware, software, and firmware versions presently in production and compare these versions to the versions being proposed to Eversource.**

Eversource will receive the most up-to-date firmware, software, and hardware versions as being proposed. As Itron continually updates our product offerings, Eversource can be assured they will receive the best versions possible.

**First try (without gap filling) data communications daily success rate and last 6 months of overall monthly data retrieval and delivery performance**

See the chart below for Itron's GenX register read rates and SLA compliance for our MSaaS customers in a wide variety of deployment sizes. Read rates vary per customer based on multiple factors like neighborhood area network (NAN) characteristics. Read rate SLAs also vary per customer and contractual obligation.

| Deployment Size: | 6M-8M | 2M-6M | 500K-1M | 100K-200K | 10K-100K |
|---|---|---|---|---|---|
| System Availability | 100.00% | 100.00% | 100.00% | 99.97% | 100.00% |
| Meter Register Read Rate | 99.80% | 99.91% | 99.94% | 99.87% | 99.37% |
| Meter Interval Read Rate | 99.88% | 99.89% | 99.74% | 99.96% | 99.73% |
| SLA Compliance | Yes | Yes | Yes | Yes | Yes |

## REFERENCE 3: CONSOLIDATED EDISON

| | |
|---|---|
| **Company Name** | **Consolidated Edison (ConEd)** |
| **Company Contact** | Per customer specific security requirements, we cannot provide any employee names or contact information for ConEd, without providing a specific company and name of the individual that will be reaching out for the reference information. ConEd is happy to support this request, but we will need to get specific information of who will be reaching out to them regarding the AMI program. |
| **Company Website** | www.coned.com |

### Relevant Project Information

Con Edison and Orange & Rockland Utilities are currently deploying an Itron network solution, with completion slated for 2022. Both utilities are regulated operating companies of Consolidated Edison, Inc. (ConEd), and plan to connect 3.9 million electricity and 1.3 million gas customers as part of their AMI plan. The project utilizes Itron's Gen5 platform, a high-performance Industrial IoT network that features multi-application networking, data, and control.

Using the Itron solution, ConEd has already improved outage detection and restoration, and reduced energy consumption and greenhouse gas emissions by ensuring their grid operates at optimum voltage levels. ConEd reads its entire installed base of electricity meters every 15 minutes, resulting in more than 375 million meter reads each day. And by taking advantage of Itron's comprehensive set of managed hosting, operational, and analytics services, Con Edison is equipped to maximize its operations and enhance customer service.

Con Edison has also improved the safety of their natural gas delivery with New Cosmos' award-winning battery-powered natural gas detectors. These devices incorporate Itron's Milli™ 5 battery-optimized communications module, enabling them to seamlessly connect to Con Edison's high-performance Industrial IoT network.

#### Start and end of AMI Implementation

2016 - 2022

#### Number of electric and, if appropriate, gas and water AMI meters installed and communicating

**Deployed to date:** 4 million endpoints (electricity, gas, and methane detectors)
**Contracted:** 3.9M electricity and 1.3M gas endpoints (upon completion slated in 2022).

#### Number and version of network devices installed and operating

The solution's network infrastructure includes the following hardware:

- 4,256,719 Gen5 NICs with support for home area networks (HAN)
- 23,275 Gen5 Socket APs (with 8950 in Manhattan)
- 4892 Gen5 APs
- 1252 Gen5 Relays

#### Typical data collected from each AMI meter and frequency of data delivery

Con Edison placed a high priority on retrieving metering data every 15 minutes.

**Outsourced/Managed Services or utility owned implementation of AMI HES**

Project management; Field Network Management (includes preliminary and final network design, and site survey through optimization); Application Management and Data Center Management Services; Training; and Customer Support.

**AMI functionality in production (e.g. AMI Billing, Prepayment, Outage management, Demand response, Theft detection, etc.) and the information systems integrated with AMI**

Advanced Metering Manager (AMM), Meter Program Configurator (MPC), Network Element Manager (NEM), Outage Detection System (ODS), Firmware Upgrader (FWU), and GridScape.

**The hardware, software, and firmware versions presently in production and compare these versions to the versions being proposed to Eversource.**

Eversource will receive the most up-to-date firmware, software, and hardware versions as being proposed. As Itron continually updates our product offerings, Eversource can be assured they will receive the best versions possible.

**First try (without gap filling) data communications daily success rate last 6 months of overall monthly data retrieval and delivery performance**

See the chart below for Itron's GenX register read rates and SLA compliance for our MSaaS customers in a wide variety of deployment sizes. Read rates vary per customer based on multiple factors like neighborhood area network (NAN) characteristics. Read rate SLAs also vary per customer and contractual obligation.

| Deployment Size: | 6M-8M | 2M-6M | 500K-1M | 100K-200K | 10K-100K |
|---|---|---|---|---|---|
| System Availability | 100.00% | 100.00% | 100.00% | 99.97% | 100.00% |
| Meter Register Read Rate | 99.80% | 99.91% | 99.94% | 99.87% | 99.37% |
| Meter Interval Read Rate | 99.88% | 99.89% | 99.74% | 99.96% | 99.73% |
| SLA Compliance | Yes | Yes | Yes | Yes | Yes |

# APPENDIX A.7. PROJECT TEAM

## ITRON SOLUTION DELIVERY ORGANIZATION

It takes a qualified and cohesive team to deliver an integrated AMI solution. Itron's Solution Delivery organization has more than 185 team members focused on the project management and technical support of our utility solutions. Itron's delivery teams consist of dedicated program managers, business and technical consultants, field engineers, network designers, and trainers specializing in all aspects of project design, management, and implementation.

Itron will assign a formal project team upon completing a SOW and a Project Plan. The SOW provides detailed information on the specific tasks and deliverables associated with each role. Together, these documents identify resources required for the project and the timeframe each will be required.

Itron will then schedule the appropriate available resources from our Solution Delivery organization. The Itron Project Manager assigned to this project is responsible for managing all Itron resources and the associated project work schedule. The designated Itron team resources are thoroughly trained on our products—both at a business and technical level—to effectively implement and deliver solutions and services to our customers.

Itron's proposal for the project team is presented below, followed by resumes for key personnel. Itron anticipates that Eversource would provide resources that would be similarly aligned on accountability to make this structure truly successful. For both parties, a person may play multiple roles within the project organization.

### Itron Project Team Structure

Itron has planned the following project team for this implementation.

- Project Sponsor
- Sr. Program Manager
- Sr. Solution Architect
- Sr. Business Consultant (Workshop Gathering Requirements)
- Sr. Technical Consultant (HES Back Office Configuration)
- Sr. Technical Consultant (Device Endpoint Configuration)
- Sr. Technical Consultant (HES Integration)
- Technical Consultant – Testing
- Sr. Technical Trainer
- Sr. Technical Consultant – RF Design Services (Net Labs)
- Lead Field Engineer / Field Engineers (Surveys/Optimization/Mitigation)

While Itron understands that continuity of personnel is paramount for project success, Itron does retain the right to substitute named personnel with equally qualified resources. All resources will be presented to Eversource for approval prior to commencement and various stages of the engagement. Itron will assign personnel to all the roles listed prior to the onset of the project.

### Itron Roles and Responsibilities

The following table describes each of the Itron Project Team roles associated with implementing AMI projects, and their responsibilities. Itron will assign a formal project team following completion of a

detailed SOW and Project Plan. The SOW provides detailed information on the specific tasks and deliverables associated with each role.

| Role | Responsibilities |
|---|---|
| **Project Sponsor** | Responsible for project strategy, planning, staffing and financials:<br>• Provides project sponsorship at executive level<br>• Overall project accountability<br>• Overall executive communications<br>• Attends Customer-specific executive meetings<br>• Point of escalation for issue/risk resolution<br>• Supports Itron PM with internal activity requirements |
| **Program / Delivery Manager** | Responsible for overall project delivery, including:<br>• Executive-level support<br>• Coordinates project activity based on the input of functional team members, the System Engineer, and the Test Coordinator<br>• Initiates, plans, executes, monitors, controls, and closes out the project |
| **Project Manager (PM)** | The PM acts as Eversource's project primary delivery contact and is responsible for overall onsite Itron project delivery management as it relates to the Itron deliverables and responsibilities described in the SOW:<br>• Manages and schedules Itron project resources.<br>• Secures Itron resources for work.<br>• Manages project scope and planning.<br>• Manages project financials.<br>• Manages project reporting.<br>• Manages issues and risks.<br>• Manages the Change Order Process.<br>• Manages the contract/SOW.<br>• Manages Itron internal management tasks.<br>• Manages Itron project resources. |
| **Solution Architect (SA)** | The SA is responsible for the end-to-end AMI solution design, including its architecture, scalability, security, and integration with the other systems. The SA becomes involved with a project at the time its inception and remains involved through development of the initial requirements on through to customer acceptance.<br>• Guides program and project managers in the design, planning, and governance of implementation projects.<br>• Works closely with the system owner during the definition of the business requirements, and decides, in consultation with Eversource, which technologies to use.<br>• Transforms the business requirements into a set of architecture and design documents for the project.<br>• Organizes the development effort of the system solution and works closely with Itron developers to ensure proper implementation.<br>• Assesses and manages the effects of changes to the AMI Solution. |
| **Business Consultant (BC)** | The BC is responsible for integrating the Itron solution into Eversource's current operation and business processes by providing expertise in industry best practices, business processes, and project documentation requirements.<br>• Provides Solution Capabilities Overview (introductory product overview). |

| Role | Responsibilities |
|---|---|
| | • Facilitates business requirements gathering through Define and Design phase workshops.<br>• Designs processes and workflows.<br>• Develops Business Solution Requirements (BSR) and Business Solution Design (BSD).<br>• Verifies Business Solution Requirements and reviews functionality changes between releases.<br>• Develops functional test cases<br>• Supports Eversource in their development of test cases (integration, end-to-end, etc.).<br>• Supports Eversource in developing a Software Cutover Plan and its evaluation prior to Go-Live.<br>• Provides Itron Training Plan and training support materials. |
| **Technical Consultant (TC)** | The TC is responsible for installing, configuring, and testing the Itron solution, and performing associated training activities:<br>• Supports technical requirements gathering.<br>• Provides technical evaluation/architecture input.<br>• Installs system software.<br>• Designs product configuration.<br>• Provides build assistance on environments.<br>• Provides system integration and data workflow support.<br>• Supports Test Plan review and input.<br>• Testing solution components (unit and system testing).<br>• Provides technical issue evaluation/resolution.<br>• Works with Itron Engineering to resolve technical issues.<br>• Supports technical training activities.<br>• Supports operational readiness.<br>• Leads Production cutover.<br>• Provides "Go-Live" technical support.<br>• Provides Tier 2 support for technical issues until transitioned to Itron support services. |
| **Integration Technical Consultant** | Responsible for managing integration requirements with utility legacy systems:<br>• Gathers the technical requirements for interface and integration activities.<br>• Performs technical integration, testing, and other integration support functions. |
| **Technical Consultant: E2E Testing** | Responsible for assessing and designing end-to-end solution testing:<br>• Develops test strategy and test cases.<br>• Performs and supports test execution. |
| **Test Lead** | • Responsible for the overall test strategy for the effort.<br>• Monitors and controls execution of Itron policies/procedures and ensures that any non-compliance is successfully resolved.<br>• Ensures that the quality requirements are provided and incorporated into the project. |
| **Support Specialists (As Needed)** | Support specialists include any of the following, as needed:<br>• Meter and endpoint specialists<br>• Security specialists<br>• DBAs |

| Role | Responsibilities |
|---|---|
| **Installation Manager** | Responsibilities include:<br>• Managing client acceptance of hardware<br>• Inventory control<br>• Managing installation contractors<br>• Itron liaison to Utility for installation issues |
| **Field Engineer (FE)** | Itron Field Engineer duties include:<br>• Performing Field Site Surveys of Itron Networking Equipment<br>• RF Optimization Services (Network and Meter)<br>• RF Mitigation Services (Network and Meter) |
| **Trainer** | • Responsible for coordinating and ensuring the delivery of onsite classroom training and in-field instruction designed specifically for this deployment.<br>• Supports customers by supporting training on changes in workflows, operations processes, and business processes. |

### Experience / Résumés / CVs

We have provisionally assigned Itron personnel to key positions on the Itron Project Team. The personnel we have assigned are highly qualified individuals. We have included **actual résumés** that summarize each member's qualifications, capabilities, and experience as they pertain to this project. Team members have typically been with Itron for more than five years and have been involved with multiple AMI and MDM implementations.

Actual assignments may change based on resource availability at the time of award. However, the qualifications and résumés provided here represent the caliber, credentials, and level of experience of personnel who will be assigned to this important project. Resumes are included in ***Attachment - Itron Resumes*** accompanying this proposal response.

# APPENDIX A.8. EVERSOURCE STAFFING FOR IMPLEMENTATION AND OPERATIONS

## Key Eversource Team Personnel

Itron has deployed many environments for utility clients. Due to the unique requirements at each utility, no two deployments are alike. Required resources can differ due to the knowledge and versatility of the utility's staff, subcontractors, governing mandates, scope and solution requirements, and other factors. Itron strongly recommends meeting with members of the utility's staff for a pre-deployment assessment of current staff to develop a specific support staffing plan.

Required roles to support the proposed AMI system at may include System, Database, SAN/Storage, Backup and Application Administrators, Technical Project Manager, Tools Developer, Security and Compliance Engineers, Business Analyst, and Data Center and AMI Business Operations. Please note that most of these roles would shift to Itron if Eversource elects the Managed SaaS deployment option.

| Role | Key Task Description |
|---|---|
| **Network Engineer** | • Design, install, and configure data center network equipment (routers, switches, terminal servers, load balancers, etc.) including Disaster Recovery. |
| **System Administrator** | • Design, install and configure server platform, including Disaster Recovery.<br>• Perform hardware maintenance, operating system upgrades and patches and SAN/Storage configuration and maintenance. |
| **Database Administrator** | • Design, install, configure, and tune databases for all Itron software environments, including Disaster Recovery.<br>• Perform weekly/monthly database maintenance, including applying retention policies, archiving data, purging data, and adding and monitoring partitions. |
| **SAN/Storage Administrator** | • Design, install, and configure SAN, including Disaster Recovery. |
| **Backup Administrator** | • Design and configure backup software.<br>• Install and configure backup agents on servers. |
| **Application Administrator** | • Install and configure AMM, including Disaster Recovery.<br>• Perform AMM upgrades and patches |
| **Network Operator** | • Monitor the Itron RF-mesh network of APs, Relays, IMUs, and meters.<br>• Configure and manage backbone devices (APs and Relays). |
| **Technical Project Manager** | • Coordinate change and problem management for all Itron software environments and associated RF-mesh networks across business units and within IT organization.<br>• Serve as primary contact for change management and issue resolution. |
| **Tools Developer** | • Configuration and maintenance of monitoring systems, including integration with upstream management systems.<br>• Work with Subject Matter Experts to develop and test new monitors and associated run books. |

| Role | Key Task Description |
|---|---|
| **Security Engineer** | • Manage security-related upgrades and patches for operating system, database, and applications.<br>• Manage Intrusion Detection System (IDS), and vulnerability scans, Log Monitoring, User Authentication.<br>• Reviews regulatory compliance requirements (SOX, NERC, ISO) and recommends policies and procedures to meet requirements. |
| **Business Analyst** | • Reports on performance to be used to guide capacity planning efforts, as well as to assess the efficacy of the system in meeting business requirements. |
| **Data Center Operations** | • Manage data center logistics and planning associated with building new infrastructure (servers, routers, storage) equipment and telecommunications circuits. |

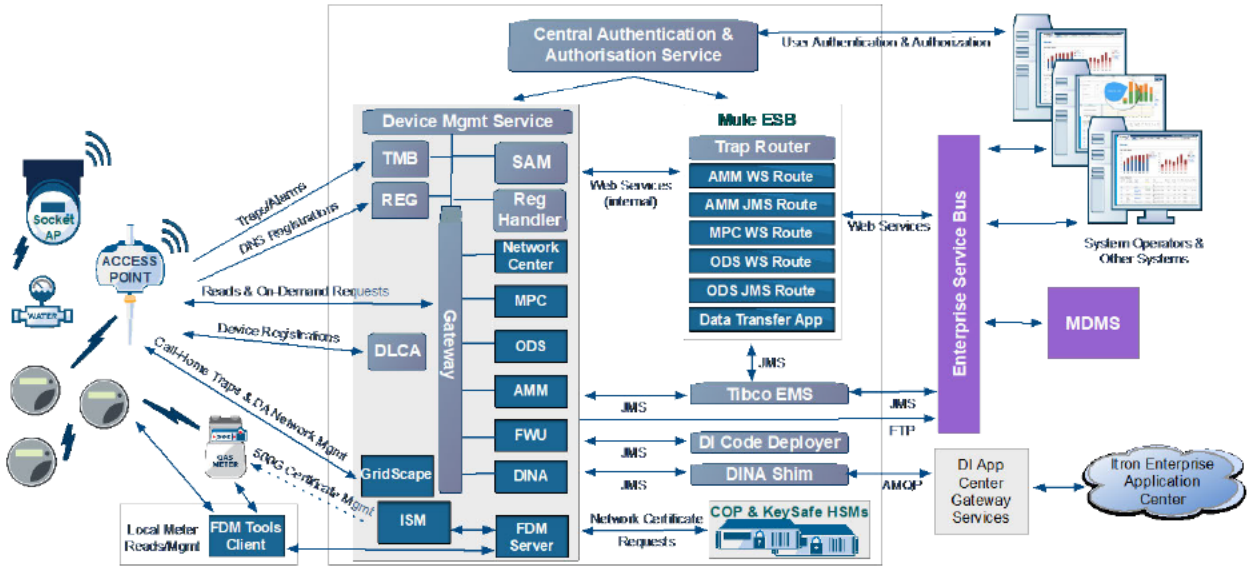
Although many of the IT roles listed here may currently exist within the utility, it is important to note that the amount of workload introduced by any smart grid deployment is significant. Careful consideration should be taken when allocating this work to existing groups without adding properly skilled resources, as this increases risk to the project.

# APPENDIX A.9. SYSTEM REQUIREMENTS

The software and hardware recommendations listed in this Appendix are for an Eversource-hosted HES implementation. These recommendations supported the stated requirements described in **Section 5.0** of the RFP.

## SOFTWARE REQUIREMENTS

The Itron Application Suite is comprised of software components that communicate with each other using Java Message Service (JMS) and web services. The licensed software products, shown in dark blue in the diagram below, are supported by additional (core) software components (shown in pale blue) that support the solution.




**Headend Software Architecture**

## APPLICATION COMPONENTS

A suite of applications is used to support the AMI system. This suite of applications is made available to Eversource as a set of separate software releases that broadly consist of the following high-level software bundles:

| Component | Description |
|---|---|
| **AMI** | The AMI bundle provides all the metering-specific services that are key to managing meter data. This bundle includes Advanced Metering Manager (AMM) which provides core functionality for meter data reads and exports, Firmware Upgrader (FWU) for remote firmware upgrades and Meter Program Configurator (MPC) for remote meter reprograms. |
| **SSC** | The SSC (Shared Services Component) bundle provides a number of underlying software components that support network communications and provide common capabilities shared by higher-level applications (e.g., a JMS application for sharing data between applications). |

| Component | Description |
|---|---|
| **Network Center** | Network Center serves as the Network Management System (NMS) for monitoring and managing devices on the network and reporting on network status. |
| **GridScape Configuration Server** | GridScape Configuration Server is used for bootstrapping and configuring Gen 5 APs and socket APs in the network. |
| **Gateway** | A proxy and API service that authenticates applications and manages network-bound traffic, providing a common interface to the network that allows for traffic management controls such as bandwidth prioritization. |
| **ODS** | Outage Detection System (ODS) provides advanced filtering functionality and intelligence for processing incoming last gasps (traps sent from devices when they lose power) and power restore messages from the network. Accurate outage status is then communicated via JMS to an upstream Outage Management System (OMS). |
| **ISM** | Itron Security Manager (ISM) manages encryption, authentication, decryption and validation of data and commands to and from the planned deployment of Itron gas and water meters. |
| **FDM Server** | Field Deployment Manager - Along with ISM, FDM performs the "take-over" process that updates a build-to-stock item with utility specific configuration and security material. Additionally, FDM provides the individual device security information and configurable device settings for local access via the FDM Tools client and, optionally for 500S devices, an Itron Mobile Radio. |
| **KeySafe** | A hardware and software solution that protects cryptographic material such as private keys and certificates. KeySafe consists of a firmware module that resides on a hardware security module (HSM) as well as a collection of command line tools for managing certificate material in the HSM. The protected memory of the HSM stores the private keys that are required by various applications to securely communicate with devices on the network. |
| **COP** | Critical Operations Protector for Advanced Metering Infrastructure (COP for AMI) is a security platform utilizing Hardware Security Modules (HSMs) and software controls to ensure the stability of the power grid by limiting the number of critical commands such as remote disconnect that users can issue within a given period of time. |
| **DINA** | DI Network Adapter communicates with the DI agent management system on DI-capable meters. DINA enables the scheduling of recurring and on- demand reads of all DI Data and DI information from the Itron Enterprise Application Center as well as acting as a pass-through for alarms. |

## SERVER INFRASTRUCTURE & STORAGE – PRELIMINARY HARDWARE SIZING

System sizing is primarily based on empirical observation of several production environments and is further enhanced through monitoring and measurements of QA environments within Itron labs, utilizing node simulation software to emulate various sized environments. The recommended configuration below is for an AMI application stack supporting 2,850,000 electric meters and 1,300,000 gas and 230,000 water meters. Data retention is assumed to be 45 days and 15-min intervals are assumed for all meters. Different usage profiles may require hardware augmentation to add additional capacity.

At a high level, the compute BOM recommended by Itron Networked Solutions consists of the following elements:

- Compute: any x86_64, depending on final CPU & ram requirements & redundancy requirements based on the tables below; INS standard for the managed appliance is Cisco UCS Blades.
- Storage: Typically, SSD array of some sort or size, depending on overall IO and storage requirements and available budget. The use of SSD drives for database storage is an important consideration for improved system performance.
- Backups: INS current standard is a Datadomain that has enough capacity to service backups and expected deduplication and stay under 85% capacity.
- Sizing for the Disaster Recovery environment uses the same guidelines provided for Production but does not include a HA design.

It is important to assign dedicated memory to each of the VMs – i.e., overcommitting memory will degrade system performance and must therefore be avoided.

| Production/DR/UAT Environment - 2.85M Endpoints + Water + Gas | | | | | |
|---|---|---|---|---|---|
| Purpose | OS | CPU | RAM (GB) | Disk (GB) | IOPS |
| Management Host | RHEL 8.6 | 2 | 8 | 100 | 10 |
| AMI Application Server 01 | RHEL 8.6 | 8 | 48 | 500 | 800 |
| AMI Application Server 02 | RHEL 8.6 | 8 | 72 | 500 | 800 |
| AMI Application Server 03 | RHEL 8.6 | 8 | 72 | 500 | 800 |
| AMI Application Server 04 | RHEL 8.6 | 8 | 72 | 500 | 800 |
| AMI Application Server 05 | RHEL 8.6 | 8 | 72 | 500 | 800 |
| AMI Application Server 06 | RHEL 8.6 | 4 | 32 | 300 | 150 |
| AMI Application Server 07 | RHEL 8.6 | 4 | 22 | 200 | 150 |
| AMI Application Server 08 | RHEL 8.6 | 8 | 32 | 300 | 2000 |
| AMI Application Server 09 | RHEL 8.6 | 8 | 48 | 300 | 200 |
| DI Application Server 01 | RHEL 8.6 | 8 | 64 | 300 | 100 |
| DI Application Server 02 | RHEL 8.6 | 8 | 64 | 200 | 100 |
| DI Application Server 03 | RHEL 8.6 | 8 | 64 | 200 | 100 |
| Network Management Server 01 | RHEL 8.6 | 8 | 72 | 300 | 100 |
| Network Management Server 02 | RHEL 8.6 | 8 | 48 | 1,000 | 2,000 |
| Network Management Server 03 | RHEL 8.6 | 8 | 32 | 200 | 100 |
| Network Management Server 04 | RHEL 8.6 | 8 | 32 | 200 | 100 |
| Network Management Server 05 | RHEL 8.6 | 8 | 32 | 200 | 100 |
| Network Management Server 06 | RHEL 8.6 | 8 | 32 | 200 | 100 |
| AMI Database Server - 2.85M | OEL 8.x | 24 | 256 | 28,000 | 20,000 |
| Gas Increment | | | | 2,500 | |
| Water Increment | | | | 500 | |

| DEV/TEST | | | | | |
|---|---|---|---|---|---|
| **Purpose** | **OS** | **CPU** | **RAM (GB)** | **Disk (GB)** | **IOPS** |
| Management Host | RHEL 8.6 | 2 | 8 | 100 | 10 |
| AMI Application Server | RHEL 8.6 | 4 | 48 | 300 | 400 |
| Network Management Server | RHEL 8.6 | 4 | 48 | 300 | 400 |
| DI Application Server | RHEL 8.6 | 4 | 32 | 300 | 100 |
| AMI Database Server | OEL 8.x | 2 | 32 | 200 | 100 |

This sizing in the tables above assumes volume estimates based on a common usage and application load profile. Storage numbers are primarily based on the number of meters and data retention, however, there are other variables such as the number of scheduled jobs, number of remote connects and disconnects, etc., that can impact system performance. The sizing information above is indicative and intended to guide a more informed assessment of system performance capability.

## THIRD-PARTY SOFTWARE

| Server Type | Software |
|---|---|
| Application Server | • 64-bit Red Hat Linux Enterprise version 8.6<br>• Oracle Database 19c Client Release for Linux x86-64<br>• Tibco EMS 8.5.1 (license supplied by Itron)<br>• License for Google Maps API<br>• Azul Zulu / Zing JDK (license supplied by Itron) |
| Desktop | • Microsoft Windows 2016 Standard<br>• Microsoft Edge or Mozilla Firefox 15.0 or later |
| Oracle Database | • Oracle 19c RDBMS Enterprise Edition with Partitioning Option<br>• Oracle Data Guard (for replication to Disaster Recovery Environment)<br>• Oracle Diagnostic Pack<br>• Oracle Tuning Pack (optional, recommended)<br>• Oracle ASM 19.x (optional, recommended) |
| Hypervisor | • VMware vCenter 6.7 or later, Standard License<br>• VMware Site Recovery Manager, vMotion, etc. (optional, recommended) |

## HARDWARE SECURITY MODULES (HSMS)

| Production Environment | | |
|---|---|---|
| **Description** | **Quantity** | **Itron Security Module** |
| Utimaco HSM | 2 | KeySafe |
| | 2 | Critical Operations Protector |
| **Disaster Recovery** | | |
| SAME AS PRODUCTION | | |
| **FSTE, DEV & TEST Environments** | | |
| Utimaco HSM | 2 | KeySafe |
| | 2 | Critical Operations Protector |

Note: Total of 12 HSMs are proposed. The two COP and two KeySafe HSMs for the TEST environment will be used for all non-production environments.

## NETWORK INFRASTRUCTURE

At a high level, the network BOM comprises the following items **at each data center** – the primary element in the network BOM is the tunnel router that terminates the 6-in-4 IPsec tunnels to the APs and therefore a detailed spec is provided for this element:

**2 x core routers**

- Used for core routing within the solution; serves as the main egress point to the customer's corporate network.
- L2/L3 switches are acceptable; Itron standard for the managed appliance is Cisco ISR 4K; Cisco 6800 series is also suitable.

**2 x Switches (vendor/model depends on port density, connectivity requirements, and size of solution)**

- 1-2 x WAN routers
  - for external private connections to cellular carriers.
  - whether one or two are used depends on whether local redundancy or cross-site redundancy is preferred.
  - Cisco ISR or Cisco ASR are suitable candidates, depending on Eversource's WAN requirements
- 1 x RFC2893 tunnel routers (see detailed spec below)
  - High availability between the RFC2893 tunnel routers is achieved across the primary and secondary data centers.
- 1 x console server (to support out of band system control if there are issues)
  - E.g., Opengear IM7K series.

**RFC2893 Tunnel Router – Detailed BOM**

| Part Number | Description |
|---|---|
| C8300-1N1S-6T | Cisco Catalyst C8300-1N1S-6T Router |
| CON-SSSNT-C830IN6T | SOLN SUPP 8X5XNBD Cisco Catalyst C8300 |
| MEM-C8300-8GB | Cisco Catalyst 8300 Edge 8GB memory |
| M2USB-16G | Cisco Catalyst 8000 Edge M.2 USB 16GB |
| C-RFID-1R | Cisco Catalyst 8000 Edge RFID - 1RU |
| C8000-HSEC | U.S. Export Restriction Compliance license for C8000 series |
| C8300-RM-19-1R | Cisco Catalyst 8300 Rack mount kit - 19" 1R |
| C8300-NIM-BLANK | Cisco Catalyst 8300 Edge NIM Blank |
| C8300-SM-BLANK | Cisco Catalyst 8300 Edge SM Blank |
| C8300-PIM-BLANK | Cisco Catalyst 8300 Edge PIM Blank |
| NETWORK-PNP-LIC | Network Plug-n-Play Connect for zero-touch device deployment |
| IOSXE-AUTO-MODE | IOS XE Autonomous boot up mode for Unified image |
| SC8KBEUK9-173 | UNIVERSAL |
| PWR-CC1-250WAC | Cisco C8300 1RU 250W AC Power supply |
| DNA-P-T1-A-3Y | Cisco DNA Advantage On-Prem Lic 3Y - upto 200M (Aggr, 400M) |

# APPENDIX A.10. AMI SOLUTION REQUIREMENTS COMPLIANCE

Itron has reviewed and acknowledges all the AMI technical solution requirements outlined in **Section 5.6** of the Eversource RFP and has not identified any exceptions. Please see Itron's complete answer to the compliance matrix (*Attachment A – Solution Compliance Matrix*), included with this proposal response as a separate attachment. Itron has also included our compliance with **Section 5.4** of the RFP in *Attachment – 5.4 – AMI Functional Requirements*.

# APPENDIX A.11. AMI SOLUTION REQUIREMENTS COMPLIANCE REFERENCE

N/A – No shaded areas designated for inclusion in this section were noted.

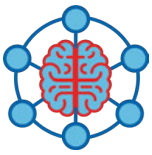
# APPENDIX A.12. AMI TECHNOLOGY DISTRIBUTED INTELLIGENCE SUPPORT

## ITRON'S DISTRIBUTED INTELLIGENCE (EDGE COMPUTING) PLATFORM

**Note:** Itron's proposal includes a **Distributed Intelligence Starter Kit**, which includes the Safety Bundle, the Active Transformer Monitoring Bundle, and Location Awareness for up to 50,000 devices. Our offer also includes the core integration required for Eversource to drive value from these applications and to fully test their functionality for a period of one year.

**Note:** For a high-level diagram of the overall DI solution that places these systems in context, please see *Attachment DI-1: Simplified DI Solution Architecture*.

### What is Distributed Intelligence?



Itron's **Distributed Intelligence** platform allows multiple single-purpose applications (*apps*) to be distributed to and run directly on targeted AMI network endpoints, such as smart meters, network interface cards, and gateways. DI apps provide high-resolution data, real-time analysis, decision making, and action on and across endpoints at the very edge of the distribution grid—right where and when the action happens. Itron launched its DI program in North America in 2017, with initial meter and app deployments in 2018. Itron refers to this innovation as *Distributed Intelligence (DI). Edge computing* and *edge processing* are other industry terms commonly used to describe this concept.

Downloading new apps is simple, rapid, and inexpensive. Each app can be managed separately and acts independently of other apps, just like the apps on your smart phone. Current customers manage multiple apps per meter, which are deployed in production across their full meter populations, with different apps on different meters based on need and use cases. For centralized reporting and decision-making, Itron's DI apps return near-real-time alerts and other data to back-office applications that further process and summarize results to execute centrally driven operational/business processes.

Itron takes a unique system approach to Edge Computing, from the meter to the network to the analytics and the related operational infrastructure. This applies across all end-applications, be it safety, grid management, DER management, or consumer engagement. Therefore, purchasing Itron's DI apps is not just procuring the agent on the meter—it includes infrastructure to download and manage applications, as well as related back-office analytics to ensure Itron delivers the desired outcome.

### How It Works

DI apps are implemented inside **Linux containers** to isolate and manage app resources on the device. Apps installed on the Itron Gen5 Riva meter (Itron's DI-capable meter) have real-time access to the meter's metrology data (including 1-second data, 2 cycle data, and waveform data), and implement data analysis algorithms directly on the device. Results of local analysis can trigger decision making and action directly on the device or a collection of local devices, or they can trigger alerts and results to be delivered to the back office for further analysis, decision making/action, or both.

The Linux containers, using LXC technology, isolate the apps from the device's metrology, billing register code, and operating system. This enables new app deployment at any time without the extensive regression testing of all functions on the meter that was traditionally required when

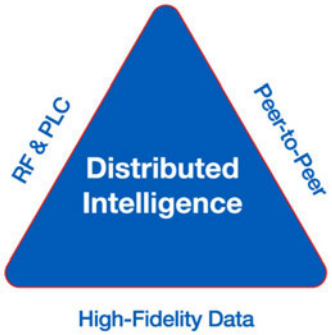
implementing new functions directly on core device firmware. As a proof point, one of our utility customers with extensive experience with Itron DI technology now only requires 3 weeks of system testing before deploying a new app because they have learned while a given app may have defects, as with any software, it cannot affect other device functions.

### Real-Time Analysis

*• Description of how the proposed DI application may use multiple events or data to derive potential grid edge failures or events.*

DI apps have access to three real-time data feeds on the meter:

- 1-second integrations (voltages, currents, real/reactive/apparent power, etc.)
- 2-cycle integrations
- Raw waveforms (4 kHz single phase, 32 kHz polyphase)




The apps can subscribe to any or all these data feeds, as appropriate for the given analysis or use case. The DI apps then operate in real time, making use of the meter's onboard Linux processor and data feeds, and peer-to-peer communications with neighboring meters and DI-enabled devices to identify specific grid edge failures or events. For peer-to-peer communications, DI-enabled devices support RF, PLC, and W-Fi network communications—standard on every device.

For example, apps currently in full production continually analyze and identify poor connections in the Low Voltage (LV) grid with >90% accuracy, can provide real-time notification of voltage and ANSI voltage excursions, and can identify meter electrical grid connectivity topology with >99% accuracy as meters are installed or grid topology changes.

### Extending DI to Include Bridge Meters

Itron proposes mixing Gen5 Riva DI-enabled meters with Eversource's existing bridge meters, allowing the bridge meters to actively participate in real-time edge intelligence applications and analysis. This approach utilizes the Gen5 Riva DI meter as a brain and "Spokesmeter" for local intermixed meter data collection. The Gen5 Riva meter communicates in real time with the other meters behind the distribution transformer to aggregate overall transformer bi-directional load and LV voltage conditions. This approach allows DI applications such as Active Transformer Load and Voltage Monitoring (ATM) to operate in mixed Gen5 Riva and Bridge meter environments and to deliver actual aggregated transformer load and voltage data (from *all* meters) to the ADMS in near real-time (such as once per minute).

To enable this capability, Itron proposes updating the firmware on the existing bridge meters. This update will allow Gen5 Riva meters to locally pull load and voltage data from bridge meters in near real-time using peer-to-peer communications and to use that data in the analysis and computations performed by the Gen5 Riva meter.

In the ATM example, the Gen5 Riva DI spokesmeter can include voltages and loads from services served by bridge meters in its aggregated results for the transformer, which are then provided to the ADMS and other applications. This same capability extends to other mixed-meter use cases, such as EV monitoring and management and DER monitoring and management.

This firmware upgrade will uniquely position Itron to actively integrate existing bridge meters with real-time edge processing.

### What Sets DI Apart from Standard Analytics?

*Description of any DI related analytics capability and why the DI application is best suited for the proposed analytics.*

Itron's DI platform creates a dedicated infrastructure and ecosystem for developers to create, test, and certify applications that can be deployed directly on meters and devices in a distributed computing model where analysis, decision making, and action can be distributed across devices locally as well as across combinations of edge and back-office processing and action.

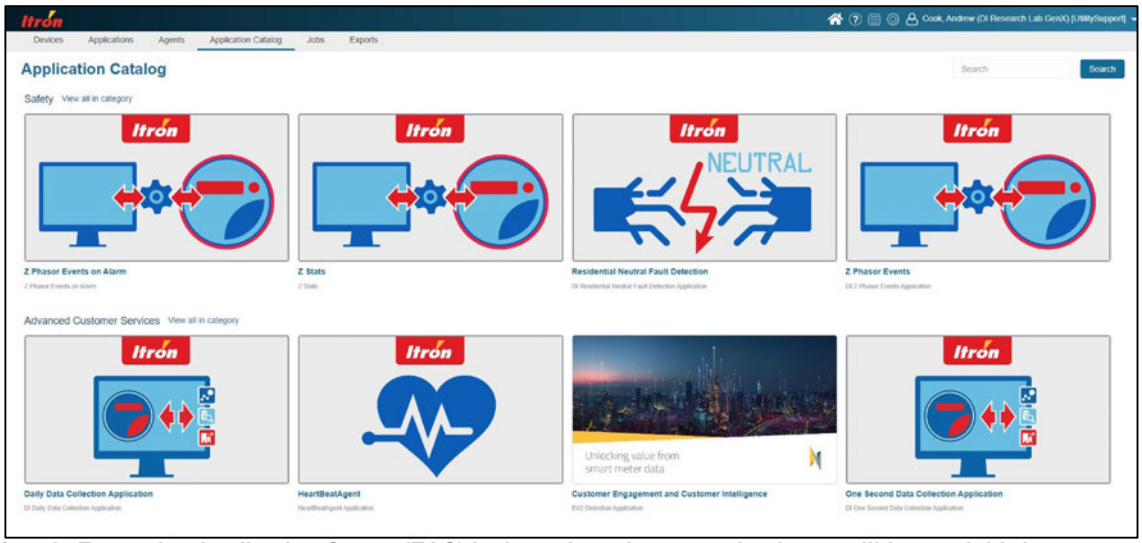
DI apps analyze high-resolution meter data (1-second, 2-cycle, waveform) in real time and send resulting data, analysis, or alarms to back-office systems for processing, presentation, and action. The apps' real-time, high-resolution access to data yields higher accuracy and lower latency results and information than traditional back-office analytic models.

DI apps also minimize data transport, processing, and storage cost and complexity by processing the high-resolution data locally and delivering only useful data and information for centralized management.

## DISTRIBUTED INTELLIGENCE APPLICATIONS (DI APPS)

### About the Enterprise Application Center

Itron's **Enterprise Application Center (EAC)** is the DI platform tool for utility management of selection, testing, download, and update, resource utilization monitoring, and execution monitoring and control for DI apps.




**Itron's Enterprise Application Center (EAC) is the web environment that Itron, utilities, and third-party app developers use to manage their DI apps.**

The EAC also provides a central location for our technology partners to:

- Submit new DI apps for testing, approval, and certification.
- Expose apps to utilities.
- Manage DI app license allocations to utilities.
- Distribute DI apps to targeted groups of meters or devices.
- Receive alarms and notifications for app fail/restarts and apps exceeding resource thresholds.
- Submit new versions of DI apps for testing, approval, and certification.

### Itron DataHub: A Data Marketplace (Optional)

The Itron DataHub, powered by Microsoft Azure, provides a secure, scalable, cloud-based platform for utilities and their customers to authorize data sharing—including DI data—with third parties through a simple, automated "1-click" authorization and authentication process.

DataHub can offer utility data from any metering system at any resolution. Examples of data include metering data (including **Green Button** data), DI application data, DER data, low voltage network data, and DI data pushed from meters over the customer's Wi-Fi network and public internet connection from apps that support that functionality.

DataHub also provides a **marketplace** where utilities and third parties offer data products for free or for purchase. Interested data customers use DataHub to explore, discover, and subscribe to data products, or to post their own data-based products and services.

### Available DI Apps

*• At a minimum, the DI solution must have the capability to monitor and act upon endpoint;*

*O Power Quality issues*
*O Events and Alerts*
*O Voltage and temperature related events*
*O Solar, battery and EV resources (remote asset management)*
*O Consumption dis-aggregation*

The DI solution's local access to 1-second, 2-cycle, and waveform data and processing power on each device, in conjunction with the ability to locally share information via peer-to-peer and to communicate alarms and data both in real time and in batch processes to the back office inherently enables multiple use cases in all of these areas.

Itron currently has DI apps supporting distribution grid optimization and remote asset management (such as DER assets). By their nature, all DI apps issue event and alarm data that are pertinent to their areas of focus.

The following Itron DI apps are currently available, and **the apps marked with (*) are included in the proposed 50,000 endpoint DI Starter Kit**:

Grid Optimization apps:

1. Active Temperature Monitoring (*)
2. Active Transformer Load Monitoring (*)
3. Active Transformer Voltage Monitoring (*)
4. Active Transformer Load Management
5. Enhanced Outage and Restoration

Remote Asset (DER) Management apps:

1. Electric Vehicle Awareness
2. Electric Vehicle Readiness
3. Solar Awareness

6. High-Impedance Detection (*)
7. Location Awareness (*)
8. Meter Bypass (Theft) Detection (*)

For a description of each Itron app, please see *Attachment - DI-2: Available DI Apps* included with this proposal response.

### Consumption Disaggregation Apps (Optional)

Itron partners with vendors such as **Sense**, **Bidgely**, **NET2GRID**, **Powerley**, and others who provide DI applications that perform load disaggregation and related services to provide detailed information about energy production and consumption from various devices within the home. Each vendor offers a unique approach that both utilities and consumers can leverage, giving utility companies options to find the right mix of partners to serve their market needs. These apps can identify loads from such items as HVAC, hot water heaters, washers, dryers, refrigerators, pool pumps, EVs, EV equipment, PV solar systems, etc.

For details about these partner applications, please see *Attachment - DI-Partner DI Apps*.

### Installing DI Apps

*• Description of the typical process for downloading a DI application to a single meter or a group of 100,000 meters including timings of the process. What tools and interfaces are available to assist Eversource in the selection and download of a DI application to a group of meters?*

Before a utility can install an app, it must meet the following conditions:

» The app must be available and licensed by the utility.
» A utility tester must have approved the app and version for use by that utility.

To install a DI app, a utility operator uses the Enterprise Application Center (EAC) to do the following:

1. Select an application and version.
2. Select a target device or target group of devices.
3. Executes the download.
4. Use the EAC's standard tools to monitor the download process and remedy any discrepancies.

Note that EAC app deployment functions are also exposed through an API for automated integration with utility business systems.

### DI App Activation Time

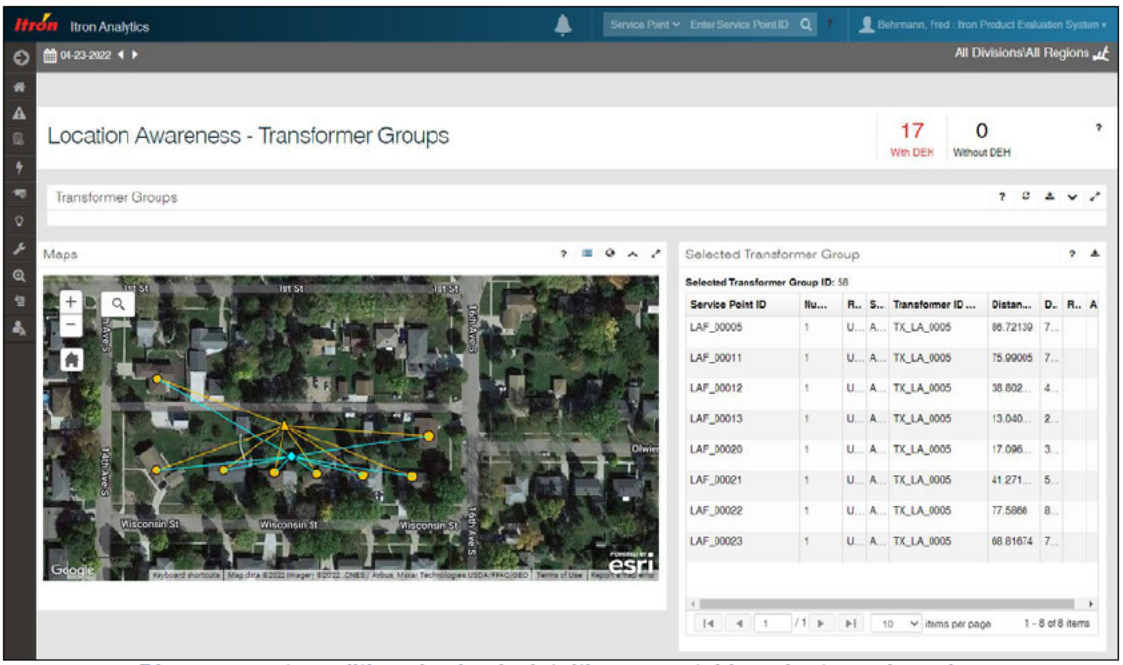
DI app activation times depend on several factors and specific utility goals. The network is optimized to support pushing DI apps to the targeted endpoints without impacting high-priority network traffic and associated capacity. Therefore, the network's QoS model places a low propriety when pushing DI agents relative to high-priority AMI data, alarms, and events, and DA traffic. When deploying DI apps to only a handful of devices, the apps can be operational within a few hours. If deploying a full-scale delivery (that is, multiple apps over your entire meter population), the system-wide deployment can be fully operational in as little as 4 weeks.

## DI User Interface: DI App Monitoring and Reporting

*• The DI solution must have Software applications to support and utilize chosen edge devices in support of a real-time dashboard or analytical application capable of DI monitoring, control and reporting endpoint related grid events.*

*• Description of DI dashboards or reporting capability.*

The solution displays Itron DI app-specific analytics within a standard user interface that uses simple maps, tables, charts, and graphs to present its findings. The contents of the interface vary with each app, based on its area of focus. The interface features zoom-in/out, hovering (for pop-up details), and clicking to "drill down" to detailed data about a specific item. For a slide deck with examples of DI app user interfaces and reporting capabilities, please see *Attachment DI-3: DI App Reporting (Overview)*.




**DI apps report conditions in simple, intuitive maps, tables, charts, and graphs.**

## DI Apps Currently Deployed

*• List of applications currently deployed*

| Utility | Profile | DI Apps |
|---|---|---|
| **CenterPoint Energy** | • Customers: 155,000<br>• Devices w/ DI: 146,320 | • Active Temperature Monitoring<br>• Meter Bypass Theft<br>• High Impedance |
| **Tampa Electric (TECO)** | • Customers: 840,000<br>• Devices w/ DI: 750,971 | In full production deployment:<br>• Active Temperature Monitoring<br>• Bellwether Voltage<br>• High Impedance |

| Utility | Profile | DI Apps |
|---|---|---|
| | | • Location Awareness<br>• Meter Bypass/Theft Detection<br><br>Five more DI apps are to be piloted in 2023:<br>(2 Transformer, 2 EV, and 1 Solar) |
| **Xcel Energy (Operates in 8 U.S Sates)** | • Customers: 3.7M<br>• Devices w/ DI: 1,920 (field trials) | • IEEE 2030.5 HAN<br>• Contracted to deploy 3+ additional DI apps in 2023. |
| **Other Companies Currently Piloting DI Apps** | • ComEd<br>• Exelon<br>• Measurement Canada | • PDI<br>• PEA (Thailand) |

Several other utilities are in the early stages of full production deployments of Gen 5 Riva DI meters that will utilize DI apps. These include Avangrid (New York operating companies), Hydro One, Alectra, TNMP, and El Paso Electric.

### Meter Recovery

*Description of any remote recovery/reset process in the meter that would allow remote recovery of a meter that might have been rendered non-functional due to a DI application.*

DI apps run in isolated Containers on the meter (or device) and have no ability to render the core operating system or device inoperable. If an app inside a Container exceeds the resource utilization limits set in the policy for each app, the app management functionality on the device will automatically restart the application within the container. If the application is restarted more than a preset number of times for this reason, it is terminated. In all cases, alerts are generated and delivered to the EAC for the utility and for the app vendor. The utility can also use the EAC to remotely (over the air) stop and start an app on an individual meter, a group of meters, or all instances of the app.

## PARTNER ENABLEMENT AND APPLICATION DEVELOPMENT

### Itron Partner Enablement Program

*Description of any developer certification and support processes for 3rd parties to build new applications or modify/improve application. This should include defect reporting and management processes. / • Description of any DI user's group or application sharing forum that the Proposer may be facilitating.*

From the beginning, to encourage innovation, a key strategy for the DI platform was to enable an **ecosystem** of third-party vendors to create applications for the DI platform. Itron's **Partner Enablement Program** provides a framework for utilities and third-party companies to independently develop and deploy DI apps.

The program's resources to support DI product developers and other technology partners include:

» An assigned Itron Partner Manager (primary contact)
» An assigned Itron Technical Enablement Manager (technical product development support)
» Collaboration Center Portal (for ongoing Itron/Partner communications)

- DI Getting Started Guide
- Hardware Development Kit (HDK)
- DI Software Development Kit (SDK)
- DI SDK integration
- Dataset integration
- Cloud-based development environment
- Structured product testing, review, and certification process
- Developer account creation and management
- Containerized virtual model of Itron DI computation platform
- Developer tutorial videos
- Detailed Documentation (user guides, integration guides, API references, etc.)
- Development process validation
- Access to the Enterprise Application Center for app certification, publishing, license allocation, license tracking, and app execution error reporting.

There are currently 18 third-party vendors developing applications for the Itron DI platform, with several in the Load Disaggregation space noted in this document. Click here for details about Itron's developer program.

### DI Development Environment and Tools

*Application platform on which DI is based (operating system, development environment, etc.)*

*Description development toolkits allowing Eversource, and 3rd parties, to develop and test new applications*

Itron's DI Software Development Kit (SDK) enables DI App Developers to develop their own apps for the DI platform. With the SKD, they can develop their applications in a standard PC Linux environment. These apps then run on DI-enabled devices within an environment called an *agent*. The Itron DI SDK is available at no charge.

DI app developers can include Itron, utility, and third-party developers. The same development process applies whether an app is created by Itron or any other DI app developer. The development environment offers all the components and data needed to develop the app, and allows DI app developers to:

- Develop applications using DI data on the meter, in the back office, in the cloud, or on other devices local to the premises.
- Access, analyze, and act on data at any resolution and latency.
- Use the communications pathway appropriate for their use case.
- Extend the value of their applications by sharing analyzed data with third parties through subscription services.

After developing and testing the application on a PC Linux system, developers can cross-compile the code and test the application on a real meter. When the application is ready, the utility company can remotely install it on deployed meters via over-the-air downloads. The SDK ensures that apps run in a controlled metering environment so that they do not adversely affect the normal functioning of the meter or other apps.

Itron also offers Hardware Development Kits (HDK) so that third parties can develop their own networked hardware devices and take full advantage of the powerful Itron Riva DI Technology.

### Defect Management

***Itron DI Apps***

Itron Development and QA teams use Azure DevOps Services (ADS) and Microsoft Test Manager for requirements management, defect reporting, and defect resolution. System level requirements are decomposed and assigned to releases in ADS and defect resolution is tracked in Test Manager. These tools are accessible to all employees associated with the project.

Once the product is released, customers can contact Itron Technical Support Services to submit any software feature requests or to report incidents. All Itron Product Line Managers use ADS to prioritize features and to monitor progress for upcoming releases.

***Third-Party DI Apps***

To test and evaluate third-party DI apps, Itron and DI App Developers must collaborate to establish an agreed upon a standard defect management process. Both parties must follow this process when evaluating the app to ensure consistency and efficiency. This process includes:

- Agreed upon quality standards.
- Roles and responsibilities.
- Escalation matrix.
- Communication channels.
- Process for identifying, documenting, and tracking defects.

The DI App Developer conducts regular testing throughout the product's development cycle to catch defects early and to ensure that the final product meets required quality standards. They use quality assurance tools, such as code reviews, automated testing, and user acceptance testing to help identify and manage defects.

The DI App Developer is also to use a centralized defect tracking system, such as Azure DevOps Services (ADS) or Jira, which allows all parties to view and update the status of defects in real-time. DI App developers and Itron work closely to prioritize defects based on severity, impact, and urgency. This ensures that the most critical issues are addressed first.

Once the DI app is available and installed, app users (utility customers, Itron, etc.) can identify and report run-time defects. Itron communicates such defects to DI App Developers via the established communication channels and per the Escalation Matrix. For example, Level 1 Initial Technical Support services, Level 2 In-Depth Technical Support, Level 3 Senior/Expert Product Support, etc.). After reporting defects, Itron regularly monitors the progress toward defect resolution to ensure that the DI App Developer meets expectations and promptly addresses the defects.

### Security

All DI App Developers must follow standard security practices and must ensure that their app meets Itron's security guidelines before submitting the app for review via the Enterprise Application Center (EAC). The vetting process includes submitting the app for review, providing detailed privacy policies, and following any other security-related requirements.

DI App Developers must:

- Follow standard secure coding practices (NIST or OWASP)

- Used a secured cloud environment
- Scan for vulnerabilities
- Continuously track vulnerabilities
- Keep their apps updated with security patches after publishing the apps

When the developer submits the agent for the final production signature, together with the security scan artifacts, Itron uses specialized tools to scan all agent binary files. If scans detect any new high or critical vulnerabilities, Itron provides the developer with details of the vulnerabilities. The developer is required to fix them prior to resubmitting the agent binary file. Itron then re-runs the scans to confirm that the issues have been fixed and that no high or critical vulnerabilities can be found prior to signing the agent binary with its production keys.

### Securing Applications that Use the Customer Wi-Fi Network and Public Internet for Data Delivery

One important security consideration with DI is use of the meter's Wi-Fi radio to deliver high-volume data over the customer's Wi-Fi network and public internet connection to customers directly or to third-party vendors who provide services to customers on behalf of the utility.

- The benefit is a low cost, very high bandwidth data path to vendors who can provide transformational services to customers using the high-resolution data and local processing offered by DI.
- The risk is an open connection over public internet between a third party, that sits outside the utility's security monitoring and control zone, and the meter, which is connected via its AMI network directly to the utility's OT environment, the most highly secured environment used for operation of the utility grid.

To enable the benefits without incurring the risk of a direct connection over public internet with third parties, the Iron DI platform implements a proxy service, whereby the meter is enabled to establish only a single, predefined connection over Wi-Fi and public internet to a highly secured receiver in the utility's vetted and monitored hosting environment. Data destined for external third-party cloud services is delivered from the meter to the secured receiver, and then distributed from the utility's secure hosting environment to customers or third parties using standard cloud-to-cloud technologies and security practices. With this model, no third party ever establishes a direct connection with the meter over public internet; yet still achieves the benefit of low cost, high-bandwidth data delivery to third parties.

On the meter, DI apps deliver data they wish to distribute via Wi-Fi/public internet to a queue on the meter. The meter's independent proxy service then pulls data from the queue and delivers it to the secure cloud receiver, again so that third parties never establish a direct connection with the meter over public internet.

To ensure that the meter only ever establishes a connection with the true receiver and that only legitimate meters ever establish connections with the true receiver, multi-factor authentication is used, utilizing the AMI network as a secure back channel. When the meter attempts to establish a connection with the receiver over Wi-Fi/public internet, it shares a secret with the receiver independently over the AMI network. If the receiver cannot present the secret shared over the AMI network, the meter refuses to connect. This ensures that the meter can only ever establish a connection with the legitimate receiver. The same process also happens in reverse (secret from

receiver to meter over AMI back-channel network) to ensure that only legitimate meters ever establish connections with the receiver. This model ensures that:

- A rogue application cannot establish connection with an unintended or unvetted external target to enable attack vectors to the grid via the meter or to expose unauthorized consumer data from the meter.
- A poorly formed application cannot establish a poorly secured connection with an external target and inadvertently enable attack vectors or expose consumer data.
- A rogue application on the meter cannot attempt to discover or connect with unauthorized devices and applications on the utility OT network or the consumer's Wi-Fi network.
- A rogue application cannot generate high volumes of message traffic to create denial-of-service attacks on the utility or consumer networks.
- A poorly formed application cannot inadvertently generate high volumes of message traffic to create denial-of-service conditions on the utility or consumer networks.

### App Testing and Certification Process

*• Description of any application certification or testing process that is provided to validate that the application is not harmful to overall operation or security.*

Apps and agents developed using the Software Development Kit (SDK) environment are jointly tested by both the DI App developers and the Itron App Review Team. DI app developers perform the regression analysis, functional analysis, and security analysis before submitting the agents' binaries to the Enterprise Application Center (EAC). After developing and testing the app on a PC Linux system, developers can cross-compile the code and test the app on a real meter.

Once tested and verified, the DI App Developer uploads the binaries to the EAC along with the test reports as part of the Submission Review process. After that, the Itron App Review team performs additional testing using manual and test automation frameworks. As part of the review process, the Itron App Review team verifies that the partner agent is cross compiled correctly with the SDK, validates that the required manifest elements are included in the agent package (binary, version info, description, logo for App Store, feature IDs), scans for any vulnerabilities, performs the security audit, and verifies the security reports submitted by the app developer.

Upon completing their review and verification process, the Itron App Review team uploads the agent to the meter hardware and runs the agent for the defined review period. During this period, the team checks for crashing apps, determines if the agent performs well or must be restarted frequently, performs automated monitoring of the memory footprint to ensure the agent works within container constraints, and monitors network utilization to ensure the agent works within expected limits.

After thorough testing and fixing critical issues, the Itron App Review team finally signs the binaries with the Production signatures and certifies that the agent is safe to deploy on meters. After that, the Itron App Review team publishes the agent to the EAC, making it available for use by utility customers.

To learn more about the overall process please visit Itron Distributed Intelligence Developer Portal.

## SUPPORTED PLATFORMS

*• Current electric meter platforms (both Proposer manufactured meters and alternate supplier meters) that support DI.*

### Supported Itron Electricity Meters and Devices

Itron's DI platform currently comes standard on the following devices:

1. Itron Gen5 Riva Singlephase and Polyphase Electricity Meters
2. Itron DI NIC, which supports third-party meters and other devices. For example, Itron is currently working with Aclara and some other devices, like communicating Fault Circuit Identicators (cFCI) vendors.
3. Itron Edge Gateway, which enables DI applications to support distribution automation.

To date, Itron has shipped more than **10 million** DI-enabled smart endpoints.

### Support for Third-Party Devices



Itron's **DI network interface card (NIC)** enables DI to operate on third-party meters and devices. The DI NIC extends the reach of Itron's DI platform beyond AMI metering to support a wide range of devices, such as smart electric panels, load control switches, electric vehicle charging (EV) management, solar inverters, third-party meter manufacturers, and more.

## DI DATA MANAGEMENT

### Endpoint DI Management Architecture

**Note:** See **Attachment DI-4: Endpoint App Management Architecture** for a diagram that illustrates the following discussion.

Itron's Container Management subsystem enables Itron and third-party application developers to run DI applications on the system. These applications execute within Linux LXC Containers, which isolate the applications from the rest of the system and serve to manage and limit resource use. The system supports two containers—one for Itron DI apps and one for third-party application developers.

The DI platform behaves as follows:

- The code running on a meter that performs DI operations is technically called a *DI agent*. These are often generically referred to as DI "apps."
- Agents inside the container are limited to interacting with security specified data and resources. An Agent API within the container facilitates all communications across the container boundary with a dedicated API outside the container.
- DI agents implement one or more "Features" represented by unique Feature IDs (assigned by Itron) that couple loosely with specific agent capabilities.
- A DI application, as deployed and licensed from the Enterprise Application Center, is a collection of metadata and policies, which effectively licenses a specific set of agent Feature IDs. As such, a single DI application license may enable the use of one or more of an agent's Feature IDs.
- For Itron DI apps, end users interact with the DI App Platform's user interface. Third-party DI apps send their respective agent data to their supporting third-party system for ingestion and to populate their respective user-facing application.

### ContainerManager

The ContainerManager application is a process on the host system that controls the lifecycle of all containers in the system. It has the following responsibilities:

- Create containers as specified by agent developers
- Manage non-responsive containers
- Impose backstop resource constraints
- Remove overlays as requested
- Stop and start containers as requested

The ContainerManager also provides each container with a unique D-Bus service that is independent of other containers and independent from the rest of the system. This prevents them from accessing or interacting with other containers or processes outside the container, except through allocated API functions.

During runtime, the DI agent may make calls to an Itron-provided Agent API. This API uses the unique D-Bus service set up by the ContainerManager to send requests and commands to ApplicationServices, which serves the requests and is the main arbiter between DI agents and the rest of the system. The unique D-Bus service only allows DI agents to communicate with ApplicationServices.

### Regulating Data

*Description of any safeguards the overall solution has to prohibit network saturation.*

One of AppServ's functions is to govern the amount of data passed from the agent to the endpoint's database. It does this via a policy file included with each agent package. Policy files are scrutinized and validated during the agent certification process. All installed agents either use data values from their policy file, or if no policy file is included, use default data limits of 15 kB and 10 alarms per 24-hour period. The intent of the policy file is to prevent a single agent from consuming the endpoint's entire data allowance and flooding the network with data.

The policy file stipulates how much data an agent is likely to produce and transmit within any given 24-hour period. The policy file includes all communication channels, (Mesh, P2P, etc.), and each channel has independent daily limits. During normal operation, AppServ passes all agent event data into the meter's database for later retrieval via interrogation reads. However, if an agent meets its daily data limit, App Serv no longer passes the data into the database, and instead responds to the agent with a data limit error and rejects the data. Individual agent logic determines how to handle rejected data.

The utility controls interrogation reads. At the time of an interrogation read request that includes DI data, the endpoint tags all agent event data as "DI Data" and includes it within the interrogation read response. After sending the data, the meter's database flags it as sent, and it is not included in future interrogation read responses. However, it can still be accessed locally and via contingency reads.

### DI Alarms

Agent alarms also pass through AppServ. AppServ recognizes these as real-time agent alarms and immediately forwards them to the endpoint communication module for transmission. The policy file also includes a daily limit for agent alarms. Upon meeting this limit, App Serv no longer forwards alarm data to the communications module. The intent of limiting alarms is to prevent rogue or "runaway"

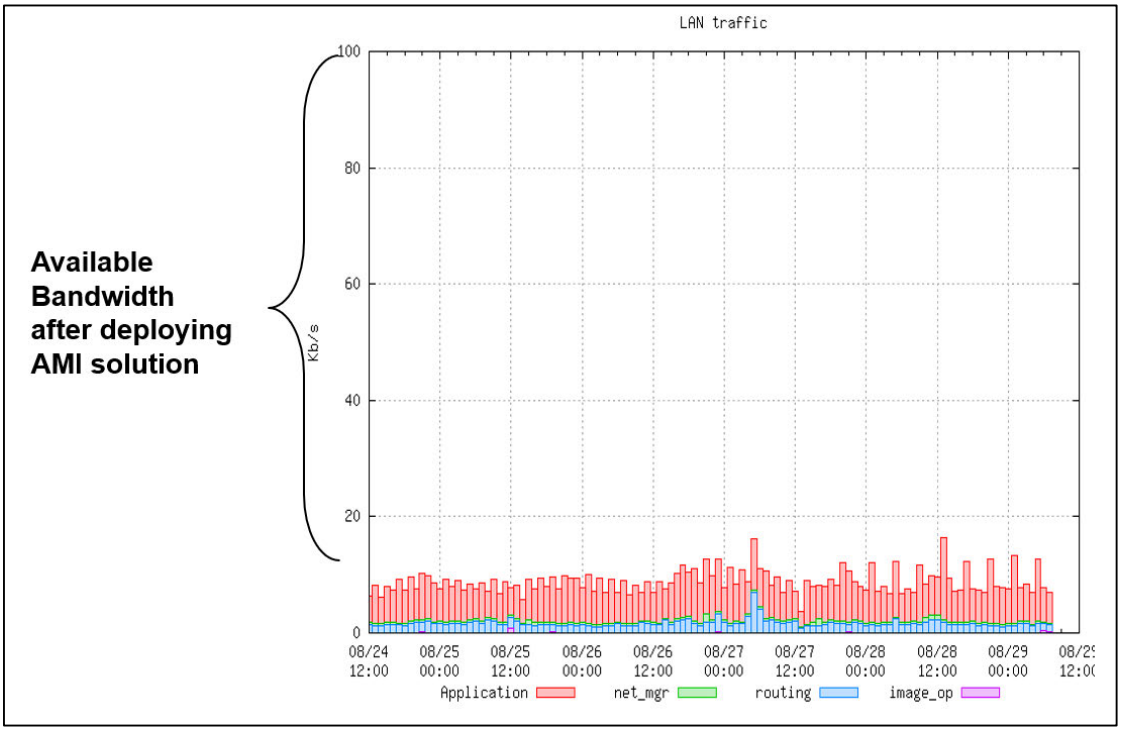
agents from flooding the network with alarms. As with rejected agent data, it is the responsibility of the individual agents to handle rejected alarms.

### Network Data Management

*Description of how the deployment of DI applications can impact the overall bandwidth of the AMI network and potentially impair regular data collection and what control mechanisms are in place to reduce or eliminate any bandwidth contention.*

Each DI app on the meter has an accompanying policy that limits the app's network utilization to a specified burst-rate and daily total volume. Apps have no direct access to network resources but must go through proxy services on the meter to access network resources. There are two limit types in the policy: **warning** and **terminate**. If a warning limit is exceeded, the proxy service generates alerts to the Enterprise Application Center (EAC) to notify the utility and the app vendor that app data delivery requests are approaching the allowable limit. If the terminate limit is exceeded, the proxy service rejects the message and any subsequent messages until a reset period has expired. In this case, the proxy service also generates an alert to the EAC to notify the utility and app vendor. The proxy services on the meter also have default enforced limit levels in case an app policy is inadvertently set to a level that might compromise network capacity.

In addition, the latest Itron Gen5 RF mesh technology offered to Eversource raises the bar on best-in-class bandwidth, scalability, endpoint processing power, and memory to enable new functionality and applications such as DI.




**Average available bandwidth for a typical Gen5 AMI network.**

The raw throughput in the network's RF NAN is 600 kbps (with 1.2 Mbps and 2.4 Mbps options). The actual throughput is approximately 85% of this value. On average, the amount of advanced metering

traffic is relatively low with respect to the amount of available bandwidth. The following diagram illustrates data collected from a live customer network over a period of one week. As shown, the average bandwidth consumed by advanced metering traffic is approximately 15 Kbps or 15%, leaving 85% for other smart grid solutions, such as DI, DA functions, or demand response (DR) programs.

The AP is the point of ingress/egress from the NAN to the WAN. Since advanced metering reads are usually spread across the desired read interval, other applications may be layered upon a single AP to utilize remaining capacity. Available capacity also depends on the ratio of meters to APs in the final deployment.

Itron has conservatively designed the Eversource network to meet the “near real-time” data read requirement at a ratio not to exceed 1500 metering endpoints to 1 AP. On average, the loading of APs will vary between 500 and 800 meters. The loading of Socket APs will be approximately 15 meters. The average hop count from a metering endpoint to an AP across all territories will be 4 or less. Each hop will average approximately 10-20 ms, and the network will read all electric metering endpoints in less than 15 minutes continually, while retaining more than 50% available capacity.

The available capacity for each network design option we have prepared for Eversource includes substantial available bandwidth to support all required use cases and future DI application traffic.

### DI Data Collection and Distribution

*Description of how data created by DI applications is incorporated into regular data collection and delivery activities including the possible utilization of data channels or custom events and alarms.*

DI apps create two types of data:

» **Periodic Data** is collected from the meter by the headend as part of a scheduled read.
» **Alarm Data** is immediately pushed from the meter to the back office in real time.

Each app includes a globally unique Feature ID with each data type, which allows back-office processes to subscribe to and interpret the data. With this model, any custom events, alarms, and data types can be defined and delivered to back-office applications without requiring modifications to the core platform.

In the back office, data from DI applications is published using the **DI Subscription Service** over an Azure Service Bus and applications subscribe to data from there. All DI application data is published via the Service Bus regardless of whether it is received via periodic read or as real-time alarms.

The Itron DataHub, powered by Microsoft Azure, provides a secure, scalable, cloud-based platform for utilities and their customers to authorize data sharing—including DI data—with third parties outside the utility. This includes DI data pushed from meters over the customer’s Wi-Fi network and public internet connection from apps that support that functionality. A detailed description of how the Wi-Fi data channel is secured is provided later in this document.

### Headend DI Data Management

*Description of how applications are managed in the HES.*

Applications are managed using the Enterprise Application Center (EAC) described earlier in this document. The EAC accesses the AMI network for delivery and management of DI applications via a service called DINA (DI Network Adapter), which connects to the Utility IQ (Headend) Gateway and effectively treats it as a proxy, providing credentials to the Gateway for proxy access.

The Gateway asserts traffic controls based on the policy in place for the client credentials that DINA is using. To control the rate of network traffic and to manage bandwidth, for each client account, policies can be set that specify limits on packets-in-flight (PIF), device access, packet priority levels, and rate of requests. If a policy rule is violated, it can enforce the following actions: Accept, Demote, or Reject.

### DI Alarm Data

DI Alarm Data is pushed immediately through the network to the back office up to the limits set in the app policy, as previously described.

### DI Periodic Data

The headend system collects DI Periodic Data as a scheduled read, according to collection schedules configured by the utility. Agents can submit data to the periodic data queue on the meter for collection during a scheduled read up to the limits set in the app policy, as previously described.

## DATA AND DEVICE INTEGRATION

*The AMI HES must have APIs and functionality to support the management of DI applications across any and all electric meters. / • Description of HES APIs for external applications to manage the applications.*

### DI Data Integration APIs

The Enterprise Application Center (EAC) provides an API for management of DI applications across all devices, in addition to the EAC user interface. This allows other business systems to manage and monitor DI apps, such as a customer service web portal initiating an app download such as Load Disaggregation based on customer request via the utility web portal.

The API functions for app management include:

- Create target group of devices
- Initiate app download to target group
- Monitor app download to target group (status)
- License app on target group
- Unlicense app from target group
- Utility web experience

For all functions above, the “target group” can be an individual meter.

Standard report (exports) in the EAC also include:

- App and version, status, install and license dates for all apps on a device or list of devices
- List of all devices on which a given app and version is installed, including status and license dates
- Installed device counts by app and version
- Resource utilization by app and version
- Total available and utilized licenses by app
- App Execution alerts
- Multiple other management functions

### Operationalization of DI Data

To simplify integration into the utility's control systems, the solution can aggregate DI relative to distribution infrastructure within definable groups, such as distribution transformer, protection control zones (such as lateral feeder segments), and voltage control zones. This is supported by the Virtual Remote Terminal Units (VRTU) software gateway, which aggregates data points into single device profiles and supports the following operational protocols: DNP 3.0, Modbus, SunSpec2 (IEEE 2030.5), and ICCP.

## DI PLATFORM ROADMAP

### Near-Term Roadmap for DI Applications

*Five-year technology roadmap for the DI capability and applications.*

| 2022 | 2023 | 2024+ |
|---|---|---|
| Delivered | Under Development / Committed | Strategic Initiatives / Directional |
| **DI Apps Available:**<br>• Active Temperature Monitoring<br>• High Impedance Detection<br>• Meter Bypass Detection<br>• Voltage Bellwether<br>• Location Awareness – meter to transformer + Phase-ID + Feeder mapping<br>• EV (Electric Vehicles) Awareness | **1H**<br>• Active Transformer Load Monitoring<br>• Active Transformer Voltage Monitoring<br>• EV Readiness (as a service)<br>• DNP3 Interface to ADMS - Virtual RTU to OT (partner)<br><br>**2H**<br>• Solar Awareness<br>• IEEE 2030.5 (partner)<br>• Power Quality (4kHz)<br>• Power Quality (32kHz)<br>• Anomaly Detection<br>• Active Premise Load Shedding<br>• MV Open Conductor / Phase Detection | **2024:**<br>• EV Readiness – DI app<br>• Brownfield Active Transformer Load & Voltage Monitoring<br>• Under Frequency Load Shedding<br>• Cold Load Pickup<br>• Vegetation Contact Detection<br><br>**2025:**<br>• MV Fault Location<br>• Voltage Statistics Outcome<br>• Secondary Theft Detection<br>• MV Voltage Management (via partner devices)<br>• Active Transformer Load Management |

### Electric Meter Platforms Planned to Support DI

*Future electric meter platforms that are planned to support DI, and the development roadmap for these*

Itron has a long history of integrating third-party meters (M2) into our AMI network solutions with leading manufacturers, such as Aclara, Honeywell, and Landis+Gyr. We are treating our DI platform the same way. To illustrate, Itron is currently engaged in planning with Aclara to integrate the Gen5 DI NIC (described above) into their Residential and C&I meters. Please *Attachment DI-5 Itron-Aclara Joint Statement to our Customers Regarding DI Integration*.

## New Communication and Network Strategies

*Description of any new communication or network strategies, such as NB IoT, in development or required for future DI capability. Including any plans for backwards compatibility to the proposed network. i.e. multiple network support from a single chip set solution.*

DI is enabled using multiple communications technologies, including the Gen5 RF mesh network, cellular networks, Wi-Fi, and PLC. Itron has developed a DI NIC platform to enable DI on Itron and non-Itron products using the same core processors and firmware. The DI NIC platform will leverage mesh or cellular communications between the endpoint and the utility headend servers. The DI NIC can also leverage PLC and Wi-Fi to support specific applications and their requirements.

That the DI meter can provide multiple communications paths is a key advantage. Using local PLC and/or alterative communication paths supports peer-to-peer sharing of data to enable various edge use cases. Today Itron is the only vendor that has meters in the field carrier three communication media (900Mhz, PLC, and Wi-Fi) deployed at scale.

Itron is currently developing and rolling out our second-generation cellular IoT chipset as part of our Cellular Platform solution. Our solution is built on 5G compliant cellular chipsets from Sierra Wireless and Sequans. The solution supports both LTE-M and NB-IoT network operation. However, due to DI network speed, latency, and capacity dependencies, we have focused our product and DI strategy on LTE-M Cat-M1 operation.

The solution is both backwards- and forward-compatible to the latest versions of 3GPP specifications, including future compatibility with new 5G and 6G releases. Our solution is defined as a global offering with support for both Public Tier 1 cellular carriers across NAM, EMEA, Asia Pacific, and LAM, as well as 3GPP-based Private LTE cellular networks, including future scope for Anterix, CBRS, FirstNet, Dish, and satellite networks.

As DI solutions continue to evolve, Itron's DI platform is future-enabled to introduce third generation Cat-1 and Cat-4 cellular operation with higher speed, higher capacity, and near real-time data processing. Our second-generation devices launch in 2024 2H with DI support in our Cellular Platform release for electricity. Our third-generation products are targeted for later 2026.

## Invitation for Eversource to Visit Itron's DI Lab

Itron has invested significantly in building a comprehensive DI Laboratory that includes a 1/500 scale physical version of two distribution feeders, paired with 150 fully instrumented residential and commercial representative loads to provide an environment for rapid application development and testing. This provides Itron's third-party development partners (vendors and utilities) access to test conditions that would otherwise be unsafe or intrusive to customers in the field. We welcome the opportunity to have Eversource visit our office in Raleigh, NC, to tour the DI Laboratory and learn more about Itron's DI capabilities.

# APPENDIX A.13. STANDARD HARDWARE WARRANTY

## EQUIPMENT ADDENDUM

**Relationship to General Terms and Conditions.**
This Addendum is governed by the General Terms and Conditions and applicable Order Documents.

**Additional Definitions.**
The following defined terms are in addition to those defined in the General Terms and Conditions:

**Equipment** means Itron Equipment and Third Party Equipment.

**Firmware** means the object code version of software embedded in Equipment.

**Itron Equipment** means equipment listed on an Order Document for sale to Customer under this Agreement that is manufactured by or on behalf of Itron.

**Third-Party Equipment** means equipment listed on an Order Document for sale to Customer under this Agreement that is not manufactured by or on behalf of Itron.

**Warranty Period** means the Itron Equipment warranty period specified on the attached Itron Equipment Warranty Table, if no other applicable Warranty Period is specified in the Order Document, or the Warranty period set forth in the Order Document, if the Order Document specifies the applicable Warranty Period.

**Ordering Equipment.**
Customer shall order Equipment by issuing a Purchase Order to Itron in accordance with this Agreement.

**Invoicing.**
Itron will invoice Customer for Equipment, any related surcharges, and reimbursable shipping-related expenses, on or after the date of shipment.

**Ordering, Lead Time & Ship Date.**
Scheduled shipping dates will be assigned by Itron as close as possible to Customer's requested date based on Itron's then-current lead times for the Equipment. Upon Customer's request, Itron will communicate current lead times. Itron will also communicate scheduled shipping dates in the order acknowledgment or on Itron's customer portal.

**Order Cancellation & Rescheduling.**
Purchase Orders for Equipment may not be canceled or rescheduled by Customer, unless agreed to by Itron.

**Forecasts.**
Each month Customer will provide Itron with a rolling, nonbinding, minimum 12-month forecast of Customer's anticipated Equipment demand.

**Shipment, Title & Risk of Loss.**
Itron will ship Equipment to the location specified in the applicable Purchase Order. Unless otherwise provided in a Pricing Summary to this Agreement, Customer is responsible for reimbursing Itron's freight, insurance, and other shipping expenses, which will be invoiced to and paid by Customer. At Customer's request, Itron will make shipping arrangements with Customer's designated carrier to ship Equipment

from the production facility to the final delivery destination on Customer's account, if Customer provides Itron with account and other information required by Itron to make such arrangements. Otherwise, Itron will select the carrier. Risk of loss and title to Equipment shall transfer to Customer upon shipment. Itron may charge Customer reasonable storage fees if Customer's designated carrier fails to take delivery of Equipment within five (5) business days of the date Itron makes such Equipment available for shipment.

Unless otherwise provided in an Order Document or Pricing Summary to this Agreement, Itron will ship Equipment to Customer DDP delivery location specified in the applicable Purchase Order (Incoterms 2020), Customer is responsible for reimbursing Itron's freight, insurance, and other shipping expenses, which will be added to the invoice and paid by Customer, and title and risk of loss to Equipment shall pass to Customer once Equipment is delivered to the delivery location specified in the applicable Purchase Order.

Itron will deliver Activated Itron Equipment to the Point of Delivery (the "Delivery Point") using Itron's or manufacturer's standard methods for packaging and shipping the Itron Activated Equipment. All prices are Incoterm (the "Incoterm 2020"). Title and risk of loss passes to Sales Channel PartnerCustomer upon delivery of the Activated Itron Equipment at the Delivery Point.

**Documentation.**
Itron will make its standard Documentation for Itron Equipment available via download. Itron will provide Customer with download instructions.

**Equipment Firmware.**
The purchase of Itron Equipment includes a nonexclusive license under Itron copyrights to use Firmware in Itron Equipment. The license to any Firmware in Third-Party Equipment purchased by Customer through Itron shall be between Customer and the manufacturer of the Third-Party Equipment.

**Returns.**
Except as provided in Section 12 below, Itron does not accept returns unless: (i) Itron shipped a product other than as specified in the Purchase Order, (ii) such product is unopened, and (ii) the product is returned in accordance with Itron's then current RMA policy and procedures.

**Itron Equipment Warranty.**
Itron warrants solely to Customer that, during the Warranty Period, Itron Equipment will be free from defects in materials and workmanship and will conform in all material respects to the applicable Itron published specifications. As Customer's sole and exclusive remedy for a breach of the foregoing warranty, Itron will, at its option and expense: (i) repair or replace faulty Itron Equipment under warranty after it has been returned to an Itron-designated repair facility during the Warranty Period in accordance with Itron's then current RMA policy and procedures, (ii) provide Customer with a Firmware or software fix to correct the nonconformity, or (iii) if Itron determines (in its reasonable judgment) that it is unable to provide a remedy specified in item (i) or (ii) of this section, Itron will provide Customer with a depreciated refund of the purchase price for the applicable Itron Equipment. Customer will pay the cost of returning Itron Equipment to the Itron designated repair facility and Itron will pay the cost of returned repaired or replacement Itron Equipment to Customer. Customer is responsible for any labor costs associated with removal or reinstallation of Itron Equipment. Repaired and replacement Itron Equipment will be warranted for the remainder of the Warranty Period, or sixty (60) days from the ship date of the repaired or replaced Itron Equipment, whichever is longer. Additional warranty terms for specific Itron Equipment may be specified in the attached Itron Equipment Warranty Table.

**Itron Equipment Warranty Exclusions.**
The above warranty and additional warranty terms in the attached Itron Equipment Warranty Table do not cover Itron Equipment in poor operating condition due to: (a) changes made to Itron Equipment without Itron's prior written consent; (b) use with cables, mounting kits, antennas, battery backups and other devices, third party software or firmware that Itron has not provided to Customer or approved in writing for use with Itron Equipment; (c) Customer's or a third party's misuse, abuse, negligence, or failure to install, test, handle or operate Itron Equipment in accordance with its Documentation; (d) a Force Majeure event; or (e) incorrect data, or data entry or output by Customer or a third party not under Itron's control. Additional warranty exclusions for specific Itron Equipment may be specified in the attached Itron Equipment Warranty Table. Customer may request that Itron repair Itron Equipment damaged by any of the foregoing; if Itron agrees to make such repairs, Customer may be charged additional Fees.

**Integration of Itron Equipment.**
If Customer purchases Itron Equipment for integration into third-party devices or other third-party hardware, Customer must obtain warranty service for the Itron Equipment from the third-party integrated device provider.

**Equipment End of Sale.**

**Notice.** During the applicable pricing period, Itron will provide Customer with no less than one hundred and eighty (180) days' notice before discontinuing the sale of any Itron Equipment set forth in an Order Document, provided that Customer has purchased such Itron Equipment within the three hundred and sixty-five (365) day period preceding the date upon which notice is to be given. During the foregoing notice period, Customer may place non-cancellable non-returnable "last time buy" Purchase Orders for any Itron Equipment identified in the end of sale notice, unless such discontinued sale is due to a Force Majeure Event in which case the last time buy will be governed by the Force Majeure Event notification. Customer must take delivery of all such Itron Equipment ordered within one hundred and eighty (180) days of the Purchase Order acceptance date or within thirty (30) days from shipment availability, whichever is longer. Itron's sole obligation with respect to the discontinuance of Third-Party Equipment is to provide Customer with any end of sale notice that Itron receives from the Third-Party Equipment manufacturer.

**Replacement Itron Equipment.** Itron will not end of sale any Itron Equipment during the pricing period without making functionally equivalent replacement equipment available for purchase by Customer, provided such functionality is listed in the Itron Documentation for such Itron Equipment in use by Customer. Any such replacement equipment will be backwards compatible and interoperable with other Itron Equipment to the same extent as the Itron Equipment it was designed to replace. Itron may either (i) disable any new functionality or features provided by the replacement equipment, or (ii) if Itron is unable to disable any new functionality or features in the replacement equipment, or Customer elects to purchase such new functionality or features, charge Customer the applicable fees for such new functionality or features.

**Third-Party Equipment Warranty.**
Itron is not the manufacturer of the Third Party Equipment and makes no representations or warranties whatsoever, directly or indirectly, express or implied, as to the suitability, durability, fitness for use, merchantability, condition, quality, performance or non-infringement of Third-Party Equipment. Third Party Equipment shall be subject to any warranties provided by the Third Party Equipment manufacturer. Itron will pass through to Customer, or make commercially reasonable efforts to enforce on Customer's behalf, any warranties and remedies received from the Third Party Equipment manufacturer.

**Survival.**
The following sections of this Addendum shall survive termination or expiration of this Agreement or any Order Document or Statement of Work: 1 (Relationship to General Terms and Conditions), 2 (Additional Definitions), 4 (Invoicing), 6 (Order Cancellation & Rescheduling), 8 (Shipment, Title & Risk of Loss), 10 (Equipment Firmware), 11 (Returns), 12 (Limited Itron Equipment Warranty), 13 (Itron Equipment Warranty Exclusions), 14 (Integration of Itron Equipment), 15 (Third-Party Equipment) and 16 (Survival).

# Itron Equipment Warranty Table

<table>
<tr><th>Itron Equipment or Repair Service</th><th>Warranty Period and Additional Warranty Terms</th></tr>
<tr><td>100W+ series water module (including battery)<br><br>500W series water module (including battery)</td><td>Each 100W+ and 500W series water module (including battery) (each, a "Water Module" and collectively, the "Water Modules") receives a 20-year warranty consisting of 10 years of warranty coverage under Section 12 ("Itron Equipment Warranty") followed by 10 years of discounts against replacement products, as described below:<br><br>Warranty Period: 10 years from date of shipment.<br><br>Discount Period: If a Water Module (including battery) fails during the ten-year period following expiration of the applicable Warranty Period (the "Discount Period"), subject to applicable warranty exclusions under Section 13 ("Itron Equipment Warranty Exclusions"), Itron will provide Customer with a discount off Itron's then-current list price for any available Itron water module to replace the failed Water Module (including battery) per the discounts set forth below:<br><br><table><tr><th>Discount Period</th><th>Discount</th></tr><tr><td>Years 1 through 5</td><td>50%</td></tr><tr><td>Years 6 through 10</td><td>25%</td></tr></table><br>Itron does not guarantee that replacement Water Modules will be backwards compatible.<br><br>Warranties on the applicable Water Modules shall be void if (a) such Water Module is used in connection with a third-party reading system that has not been approved by Itron in writing; or (b) Customer utilizes the two (2) battery version of such 500W Water Module in mobile mode for more than two (2) consecutive years.</td></tr>
<tr><td>CGR ACT Module (CAM)<br>Itron Leak Sensor</td><td>Warranty Period: 5 years from date of shipment.</td></tr>
<tr><td>CENTRON Electric Meter<br>Intellis Gas Meter<br>SENTINEL Electric Meter</td><td>Warranty Period: 3 years from date of shipment.</td></tr>
<tr><td>QUANTOMETER (MZ) Gas Meter<br>ROTARY (DELTA) Meter<br>TURBINE (FLUXI) Gas Meter</td><td>Warranty Period: 2 years from date of shipment.</td></tr>
<tr><td>Repairs or updates for out-of-warranty electricity meters</td><td>Additional Warranty Terms: Itron shall perform the repairs or updates with reasonable care and in a diligent and competent manner. Itron's sole obligation in connection with repair or update failures shall be, at its option, to correct or re perform repairs/updates or refund to Customer the amount paid for the repairs/updates. Customer must report any deficiencies in repair work to Itron in writing within 90 days of shipment to receive the remedies described herein.</td></tr>
<tr><td>Repairs or updates for out-of-warranty Socket Based Routers,</td><td>Additional Warranty Terms: Itron shall perform the repairs or updates with reasonable care and in a diligent and competent</td></tr>
</table>

| Itron Equipment or Repair Service | Warranty Period and Additional Warranty Terms |
|---|---|
| Pole Mounted Routers and Routing Nodes | manner. Itron's sole obligation in connection with repair or update failures shall be, at its option, to correct or re perform repairs/updates or refund to Customer the amount paid for the repairs/updates. Customer must report any deficiencies in repair work to Itron in writing within 90 days of shipment to receive the remedies described herein. |
| All other Itron Equipment not listed above. | Warranty Period: 1 year from date of shipment. |

# APPENDIX A.14. STANDARD SOFTWARE LICENSE AND SOFTWARE MAINTENANCE AGREEMENT

## SOFTWARE ADDENDUM

**1 Relationship to General Terms and Conditions.**

This Addendum is subject to the General Terms and Conditions and applicable Order Documents.

**2 Additional Definitions.**

The following defined terms are in addition to those defined in the General Terms and Conditions:

**Authorized Installations** means installations of Itron Software only on one production environment and one test environment on Customer premises.

**Endpoints** means a physical device (e.g., a meter, encoder-receiver-transmitter module, or other measuring, monitoring or sensing device) capable of being used in connection with Itron Software.

**Itron Software** means the machine readable (object code) version of computer programs listed on an Order Document to be licensed to Customer under this Agreement that are developed by or on behalf of Itron.

**License Term** means the duration of the Itron Software license granted by Itron to Customer under this Addendum.

**Software** means Itron Software and Third-Party Software.

**Software Warranty** Period means a period of 90 days from the date of delivery, unless otherwise specified in the applicable Order Document.

**Third-Party Software** means the machine readable (object code) version of computer programs listed on an Order Document to be licensed to Customer by a third-party and that are not developed by or on Itron's behalf.

**3 Ordering Software.**

Customer shall order Software by issuing a Purchase Order to Itron in accordance with this Agreement.

**4 Invoicing.**

Itron will invoice Customer for Fees due for Software upon the date of delivery.

**5 Itron Software License.**

Subject to Customer's payment of all applicable Fees and compliance with this Agreement, Itron hereby grants to Customer a non-exclusive and non-transferable license during the License Term to use Authorized Installations of Itron Software and related Documentation for Customer's internal business purposes solely i) within the Territory ii)in connection with the number of Endpoints or other devices specified on the applicable Order Document; and iii) in accordance with any other restrictions specified on the applicable Order Document. Customer is not permitted to copy Itron Software other than to make one machine readable copy for disaster recovery or archival purposes.

**6 Third-Party Software.**

All Third-Party Software and related documentation is separately licensed to customer by the applicable third-party, and Customer's rights and responsibilities with respect to such software or documentation shall be governed in accordance with the third-party licensor's applicable software license. If Customer chooses to order Third Party Software, Customer shall enter into or accept one or more separate third-party agreements as part of the ordering, fulfilment, installation and/or download processes for such Third Party Software.

**7 Documentation.**

Itron will make its standard Documentation for Itron Software available via download. Itron will provide Customer with download instructions.

**8 Itron Software License Restrictions.**

Customer is not permitted to (i) modify or create any derivative works from Itron Software, (ii) distribute the Itron Software, (iii) include or combine Itron Software with any software, equipment, or hardware other than as expressly authorized in writing by Itron, (iv) use Itron Software to provide services to third-parties, (v) reverse assemble, decompile, reverse engineer Itron Software or otherwise attempt to derive its source code except as may be permitted by applicable law, (vi) export Itron Software out of the Territory, or (vii) use any Itron Software to create products or services that compete with any of Itron's products or services. Customer's breach of these restrictions or use of Itron Software or Documentation other than as licensed hereunder shall constitute a material breach of this Agreement and shall result in revocation and immediate termination of all rights and licenses granted under this Agreement. Revocation does not preclude Itron from pursuing any legal and equitable remedies for Customer's breach of these restrictions.

**9 U.S. Government Contracts Only.**

If a Software license is acquired under a United States government contract, Customer acknowledges that Software, Updates and associated Documentation (i) are "Commercial Computer Software" as defined in 48 C.F.R. 12.212 of the Federal Acquisition Regulations (FAR) and in 48 C.F.R. 227.7014(a)(i) of the Department of Defense Federal Acquisition Regulations Supplement (DFARS), and (ii) are provided with only the commercial rights and subject to the restrictions described in this Agreement.

**10 Limited Itron Software Warranty.**

For the Software Warranty Period, Itron warrants solely to Customer that the Itron Software will substantially conform in all material respects to the applicable Itron published specifications. As Customer's sole and exclusive remedy for any breach of this warranty, Itron will, at its option, during the warranty period set forth in this section, repair or replace non-conforming Itron Software to substantially conform to the foregoing warranty, provided that Itron will have no obligation to repair or replace any non-conforming Itron Software if this Agreement or applicable Order Document has terminated or expired. The foregoing warranty does not apply to non-conformities in Itron Software due to: (i) modifications not made or approved by Itron in writing; (ii) Customer's or any third party's negligence or intentional acts; (iii) misuse or abuse, including the failure to use or install Itron Software in accordance with the Documentation; (iv) incorrect data, or data entry or output, as applicable, by Customer or a third party; (v) use with third party software, hardware or firmware not provided or authorized by Itron in writing; (vi) a Force Majeure event; or (vii) viruses or security vulnerabilities introduced into the Itron Software or Customer's systems through no fault of Itron. After the ninety (90) day period described above, any Itron Software errors will be addressed under maintenance and support terms.

**11 Effect of Expiration or Termination for Cause.**

Upon termination of an Itron Software license for cause or expiration of a License Term, whichever occurs first, Customer shall immediately discontinue use of the applicable Itron Software and related Documentation, and Customer will destroy or return to Itron any and all copies. Upon Itron's request, Customer will confirm in writing that Customer has destroyed or has returned Itron Software and related Documentation in compliance with this section. This requirement applies to copies in all forms, partial and complete, in all types of media and computer memory, and whether or not modified or merged into other files or materials. Termination of an Itron Software license for cause will not restrict Itron from pursuing any other remedies available to it, including injunctive relief, nor will it relieve Customer of its obligation to pay all fees that accrued prior to such termination.

**12 Third-Party Software Warranty.**

Itron is not the owner of Third-Party Software and makes no representations or warranties whatsoever, directly or indirectly, express or implied, as to the suitability, durability, and fitness for use, merchantability, condition, quality, performance or non-infringement of any Third-Party Software. Third-Party Software shall be subject to any warranties provided by the Third-Party Software provider. Itron will pass through to Customer, or make commercially reasonable efforts to enforce on Customer's behalf, any warranties and remedies received from the Third Party Software provider.

**13 License Use Verification & Audit.**

**13.1 License Use Verification.**

Promptly upon Itron's written request, and no more than once annually, Customer must furnish Itron with a letter signed by an officer of Customer, verifying that Itron Software is being used by Customer in compliance with the licenses granted, and confirming the number, identification, type and location of Endpoints and other devices being managed by Customer using Itron Software.

**13.2 Audit.**

Itron has the right to audit Customer records to verify the number of Endpoints and other devices being managed by Customer using Itron Software and otherwise confirm Customer's compliance with license restrictions and Fee obligations of this Agreement. Itron must provide Customer with at least thirty (30) days prior written notice of the audit. The audit must be conducted during Customer's normal business hours at a mutually agreeable location. Itron's right to conduct an audit under this section is limited to one time per year, unless Itron has reason to believe that Customer is out of compliance with the license restrictions and Fee obligations of this Agreement. Itron has the right to use an independent auditor to conduct the audit. The audit shall be at Itron's sole cost and expense, unless the audit identifies a deficiency in Fees or other amounts owed or reimbursable by Customer during the audited period that is greater than five percent (5%) of the total amounts payable by Customer – in which case Customer must reimburse Itron for all reasonable costs of the audit. All amounts found to be owed by Customer under this Section will be payable within thirty (30) days after receipt of invoice from Itron.

**14 Survival.**

The following sections of this Addendum shall survive termination or expiration of this Agreement or any Order Document or Statement of Work: 1 (Relationship to General Terms and Conditions), 2 (Additional Definitions), 4 (Invoicing), 5 (Itron Software License) except to the extent applicable license rights expire or are terminated in accordance with this Agreement, 6 (Third-Party Software), 8 (Itron Software License Restrictions), 9 (U.S. Government Contracts Only), 10

(Limited Itron Software Warranty), 11 (Effect of Termination for Cause), 12 (Itron Disclaimer of Third-Party Software Warranty), 13 (License Use Verification & Audit) and 14 (Survival).

# MAINTENANCE AND SUPPORT SERVICES ADDENDUM

## 1. Relationship to General Terms and Conditions.

This Addendum is governed by the General Terms and Conditions and applicable Order Documents.

## 2. Additional Definitions.

The following defined terms are in addition to those defined in the General Terms and Conditions:

**Annual Adjustment** means Itron's annual price increase.

**Annual Fees** means the annual fees identified in an Order Document for each category of Covered Product, plus the Annual Adjustment, if any.

**Client Services Guidelines Documents** means the following documents as they may be updated by Itron from time to time: "Product Contact Information Sheet", "After Hours Support", "Itron Equipment Repair Center Locations", and "Working Effectively with Itron Global Services". Copies of the Client Services Guidelines Documents may be obtained by calling (877) 487-6602 or such other number or process provided by Itron to Customer.

**Covered Equipment** means Itron equipment identified as "Covered Equipment" in an Order Document.

**Covered Firmware** means Itron's network and application firmware embedded within a communicating device identified in an Order Document (e.g., network interface cards, meters, endpoints, network equipment, etc.) for which Customer has purchased firmware Maintenance Services.

**Covered Products** mean Covered Firmware, Covered Software, Covered Equipment and Third Party Covered Products.

**Covered Software** means Itron software identified as "Covered Software" in an Order Document.

**Error** means a material failure of Covered Firmware or Covered Software to comply with applicable published Itron specifications.

**Fix** means a correction or workaround for an Error.

**Global Support Services** means those support services provided by Itron technical representatives via telephone, email, website or other means to assist Customer's Primary Service Contacts with questions or issues related to the operation of Covered Products.

**Improvement** means an update, modification, enhancement and/or extension to Covered Software functionality that is included in a Release.

**M&S Commencement Date** means the date upon and after which a Covered Product will be entitled to receive Maintenance Services, which unless otherwise provided in the applicable Order Document, will be as follows:

| Covered Product | M&S Commencement Date |
|---|---|
| On premise Covered Software | First day of month following date Covered Software is made available to Customer |
| Covered Firmware | Date of shipment of the applicable communicating device |
| Covered Software provided as Software-as-a-Service or Hybrid SaaS subscription | The earlier of (1) validation of Software-as-a-Service implementation by Itron pursuant to the applicable Statement of Work, or (2) sixty (60) days after completing application system setup |
| Covered Equipment | End of warranty period |
| Third Party Covered Products | Per applicable third-party service provider terms and conditions |

**Maintenance Billing Cycle** means a period of one year beginning on the Effective Date or any anniversary thereof.

**Maintenance Services** means services provided under this Addendum.

**Operating Condition** means performance in accordance with applicable published Itron specifications.

**Primary Services Contacts** means Customer's primary support staff who provides internal support to Customer's operations personnel and who are key interface to Itron for all Maintenance Services.

**Release** means a collection of Fixes and / or Improvements made available by Itron to Customer.

**Service Levels** means the defined level of impact and associated response time, effort level, and escalation path procedures and guidelines described in Attachment A-1 to this Addendum.

**Service Request** means an Itron tracked Customer request for Global Support Services.

**Third Party Covered Products** means third-party equipment and third-party software identified as "Third Party Covered Products" in an Order Document.

### 3. End of Support.

Itron may discontinue Maintenance Services for any Covered Equipment, Covered Firmware or Covered Software, effective as of the end of the applicable Maintenance

Billing Cycle, by giving Customer written notice of such discontinuance no less than one hundred eighty (180) days prior to the end of such Maintenance Billing Cycle. The end of support date for a Third Party Covered Product shall be the date specified by the applicable third-party service provider, which date will be promptly communicated by Itron to Customer following the date of receipt.

If the end of support date is scheduled within a subsequent Maintenance Billing Cycle, Annual Fees for that subsequent Maintenance Billing Cycle will be pro-rated through the end of support date. At Customer's request, or as defined in a related SaaS addendum / Order Document, Itron may elect to provide custom support for products for which Maintenance Services have been discontinued at Itron's then-current rates. Unless otherwise agreed by the Parties in accordance with the foregoing sentence, Itron shall have no obligation to provide Maintenance Services with respect to Covered Products for which Itron has discontinued Maintenance Services.

Periodically, Itron will make available product plan publications, including product information letters (PIL), product newsletters or written technology roadmaps which outline Itron's general plans for continued support and end of support of applicable Covered Products. Product publications are used as general guidelines for Customer communications and planning, which may be updated from time to time.

**4. Principal Services Contacts.**

a. **Designation by Customer.**

Customer shall designate a minimum of one and not more than two Primary Services Contacts for each Covered Product line, to serve as administrative liaisons for all matters pertaining to Maintenance Services for such Covered Product line and shall provide their contact information to Itron's customer account representative. Primary Services Contacts shall promptly report problems with Covered Products by submitting a Service Request for entry into Itron's support tracking system. Although it is Customer's sole right to choose its Primary Services Contacts, Customer and Itron acknowledge that each Primary Services Contact must have the appropriate technical skills and training for the position. If Customer replaces a Primary Services Contact, Customer will provide updated contact information to Itron's customer account representative, and the new Primary Services Contact will be properly trained prior to interfacing with Itron support personnel.

b. **Training of Principal Services Contacts.**

Before a Primary Services Contact interfaces with Itron support personnel, he/she will attend training sessions offered by Itron, an Itron-approved trainer, or Customer's training program approved by Itron to ensure that the Primary Services Contact is (i) knowledgeable about operation of the applicable Covered Products, and (ii) qualified to perform problem determination and remedial functions with respect to such Covered Products. Customer may perform Itron-approved training or may engage Itron to perform training of Primary Services Contacts at Itron's then current rates. Itron will

make training sessions available by remote video conference or training will be made available at a location or in a manner mutually agreed by the Parties. Customer shall be responsible for all Customer's associated travel-related expenses and, if the Parties agree that training will be provided at a location other than an Itron-designated facility (e.g., at a Customer-proposed facility), Customer will also reimburse Itron's travel-related expenses. The Primary Services Contacts must have the skills and capabilities to train other Customer personnel on Covered Products. Itron may update Covered Product training from time to time and, upon receiving notice of such updates from Itron, Customer shall promptly provide such training to its Primary Services Contacts in accordance with this Section.

**5. Global Support Services & Service Requests.**

**a. Global Support Services.**

Itron will make support representatives available to provide technical support during its then current normal business hours as set forth in the Product Contact Information Sheet included within the Client Services Guidelines Document. Global Support Services include troubleshooting & problem diagnosis relating to Covered Products; release or system management consulting; and recommendations for fully utilizing Covered Products. Customer acknowledges and agrees that Global Support Services are not intended as a substitute for training of Customer personnel, field support, or Itron professional services. Nor will Customer use Global Support Services in lieu of having qualified and trained support personnel of its own.

b. **Service Request Process.**

Customer shall submit Service Requests in the manner required by the Client Services Guidelines Documents and Service Levels. Customer may submit Service Requests on a 24/7/365 basis and Itron will respond to such Service Requests in accordance with the Service Levels. When Customer submits a Service Request, Customer will reasonably assess its urgency according to the appropriate Severity Level in Attachment A-1 to this Addendum. Itron will designate the initial Severity Level and the Parties will resolve any perceived gap regarding the Severity Level designation as soon as is reasonably practical.

**c. Field Support.**

At Customer's request, and Itron's approval, Itron will dispatch support personnel to Customer's location to provide onsite Global Support Services ("*Requested Field Support*") related to a reported problem which cannot be addressed remotely. Requested Field Support will be billed at Itron's then-current rates, and Customer will reimburse Itron's travel-related expenses, unless the cause of the reported problem is found to be the fault of Itron.

**6. Itron Firmware and Software Maintenance.**

**a. Scope.**

Firmware Maintenance Services covers its associated Covered Firmware embedded within the applicable communicating device. Software Maintenance Services covers its

associated Covered Software sold as any of the following: (i) on premise software license, and (ii) Software-as-a-Service or SaaS Hybrid subscription for software residing in the Itron cloud.

**b. Modifications.**

Itron may modify or replace Covered Firmware and Covered Software so long as such modifications or replacements do not eliminate key, documented functionality provided by the most current System Release.

c. **Fixes.**

Itron shall provide Fixes in accordance with the Service Levels. Itron's obligations with respect to Service Levels are contingent upon Customer (i) devoting the same level of effort to resolving the Error as is required of Itron, (ii) responding to requests made by Itron within the applicable Response Time, (iii) assigning only qualified personnel to help Itron address the Error, and (iv) providing all information, access, and assistance reasonably requested by Itron to address the Error.

d. **Improvements.**

Itron shall provide Improvements, if any, at no charge to Customer if such Improvements are made within the current product specifications and are made available to Itron customers generally at no charge. Improvements released as new add-on modules/features and not part of the products original specifications, may require additional licensing and support fees and will be made available at Itron's then current rates.

**e. Software Releases.**

**i. Release Numbering Convention.**

Upgrades, Fixes and/or Improvements are made available to customers through periodic Software Releases. For informational purposes, Itron's current practice (which may be changed by product, at any time in Itron's discretion) is to provide Software Releases using the numbering guideline, "X.X.X.X"

ii. The first place, "**X**.X.X.X", in Itron's numbering convention refers to a "Major Release", or "System Release", which consists of a new version of Covered Software. A Major Release may include architectural changes, Improvements, Fixes and / or interfaces to new functional modules or platforms. A Major release may require infrastructure or component updates which affect compatibility with previous release versions.

iii. The second place, "X.**X**.X.X", in Itron's numbering convention refers to a "Minor Release, which is an update to a current Major Release. A Minor Release may include consolidation of previous Service Packs, Improvements, Fixes, platform / 3rd party updates. Minor Release are provided to Itron customers on a regularly scheduled basis.

iv. The third place "X.X.**X**.X", in Itron's numbering convention refers to a "Service Pack, which is an update to specific modules found in a current Major Release. A Service Pack may include Fixes to Severity 1 - Severity 4 issues for a specified Minor or Major Release.

v. The fourth place, "X.X.X.**X**", in Itron's numbering convention refers to a "Hot Fix," which is an un-scheduled release provided to one or more customers as a short-term, temporary fix to a critical Severity Level 1 Error. While not utilized by all Itron software product lines, Hot Fix releases are not made available to Itron customers generally but may be included in the next scheduled Minor Release or Service Pack for general release.

**f. Support for Covered Firmware.**

Itron will only provide Maintenance Services for Covered Firmware if Customer: (i) is current on all applicable fees for such Maintenance Services, (ii) tests and installs the latest Covered Firmware Fix within twelve (12) months of being made available to Customer, and (ii) tests and installs the latest Covered Firmware Improvement within twenty-four (24) months of being made available by Itron.

**g. Support for On Premise Itron Enterprise Edition and OpenWay Software.**

Itron will only provide Maintenance Services for on premise Itron Enterprise Edition and OpenWay software if Customer: (i) pays the applicable fees for such Maintenance Services, (ii) tests and installs Service Pack Releases associated with the Major or Minor Release in use by Customer within twelve (12) months of such Service Pack Releases being made available to Customer, and (iii) tests and installs the latest Major or Minor Releases within twenty-four (24) months to thirty-six (36) months of such Software Release being made available by Itron.

**h. Support for Other On Premise Covered Software.**

Itron will only provide Maintenance Services for other on premise Covered Software if Customer: (i) pays the applicable fees for such Maintenance Services, and (ii) tests and

installs Major, Minor and Service Pack Releases within twelve (12) months of such Software Releases being made available by Itron.

**i. Support for SaaS or IaaS.**

Itron will only provide Maintenance Services for Covered Software sold as a Software-as-a-Service or Hybrid SaaS subscription if Customer: (i) is current on all applicable fees for such Software-as-a-Service or SaaS Hybrid subscription and related Maintenance Services, and (ii) tests a Release as installed by Itron either in Customer's production Software-as-a-Service or Hybrid SaaS environment, or in Customer's funded non-production Software-as-a-Service or Hybrid SaaS environment, prior to Customer's full production use of the Release.

**j. Support for Unsupported Itron Software and Firmware.**

At Customer's request, Itron may elect to provide Maintenance Services for an unsupported Release at its then-current rates.

**k. Mandatory Revisions.**

Customer must install all software and firmware updates, patches, and service packages provided by, or as directed by, Itron from time to time and which may be required to correct errors, vulnerabilities, third-party concerns, or as otherwise necessary to ensure proper functioning of the Covered Software or to protect the interests of the Parties ("**Mandatory Revisions**"). ITRON IS NOT LIABILE FOR ANY CUSTOMER OR THIRD-PARTY DAMAGES RESULTING FROM CUSTOMER'S FAILURE TO INSTALL ANY MANDATORY REVISION IN A TIMELY MANNER.

**l. Installation Services for On Premise Releases.**

Maintenance Services for on premise Covered Software and Covered Firmware includes the following Release installation services: limited, remote consulting support, during standard business hours, for Covered Software and Covered Firmware on Itron-approved server configurations for one production server and one non-production server (test, training, or back-up – for example) owned / operated by Customer. At Customer's request, Itron may provide on premise Software Release installation services for System Releases or Service Packs on current certified production servers, additional production servers or nonproduction servers, at its then-current rates. Itron will install Releases to Covered Software sold as a Software-as-a-Service or Infrastructure-as-Service subscription in accordance with the applicable terms and conditions for such services.

**m. Restoring Firmware or Software to Maintenance Services.**

If Customer declines or discontinues Maintenance Services for Covered Firmware or Covered Software and thereafter wishes to resume such Maintenance Services for the most recent Release of that Covered Firmware or Covered Software, Customer shall, prior to receiving Maintenance Services, notify Itron in writing of its request for Maintenance Services and pay Itron's then-current re-initiation fee, which shall not exceed an amount equal to all Annual Fees that would have been invoiced for the applicable Covered Firmware or Covered Software if Customer had not elected to decline or discontinue Maintenance Services for that Covered Firmware or Covered Software, plus

a five percent (5%) markup, in addition to prorated Annual Fees for the then-current Maintenance Billing Cycle.

**n. Exclusions.**

Itron shall have no obligation to provide Maintenance Services for, or liability to Customer for Covered Software adversely affected by (i) use of Covered Firmware or Covered Software by anyone other than Itron in combination with software, equipment, or communications networks not referenced in the Documentation as being compatible with the Covered Firmware or Covered Software; (ii) modification or recompiling of Covered Firmware or Covered Software or Covered Software installation instructions / installation scripts or database schema scripts, or improper installation of a Release, by anyone other than Itron, (iii) failure to perform customer responsibilities describe in this Addendum, (iv) use of an unsupported version of Covered Firmware or Covered Software by anyone other than Itron; (v) Customer's failure to implement a Mandatory Revision; (vi) maintenance and/or support of Covered Firmware or Covered Products other than by Itron; or (vii) viruses introduced through no fault of Itron.

**o. Documentation and Backup.**

Itron will make an electronic copy of the Documentation available to Customer at no additional charge via physical media or download access. Itron will also maintain a copy of its most recent supported version of executable Covered Firmware and on premise Covered Software to be made available to Customer or installed by Itron as necessary in the event of corrupted or inoperative Covered Firmware or on premise Covered Software. Said copy of executable Covered Firmware or on premise Covered Software or Third-Party software does not relieve Customer of its responsibility to backup and managed its Covered Firmware or on-premise software installation as part of ongoing system operation.

**p. Customer Responsibilities.**

The provision of Maintenance Services for Covered Firmware or Covered Software by Itron assumes that Customer will facilitate such services as follows:

**i. Service Requests.**

Customer will support Itron investigation and restoration efforts as defined in the Service Level table and will act upon / implement support solutions and workarounds recommended by Itron in a timely fashion. When escalating a Service Request with Itron, Customer's Primary Service Contact shall collect and provide all data logs, findings, analysis, and any relevant forensic information pertaining to the issue as outlined in Client Services Guideline Documents.

**ii. Data Review.**

If Itron determines that it is necessary to evaluate Customer data to reproduce error conditions not reproducible with Itron's standard test data sets, Customer will provide Itron with reasonable access to such data. Itron shall not be liable for any delay or failure to resolve the problem if access to such Customer data is denied to Itron.

**iii. Installation and Upgrades.**

Customer will engage Itron Global Support Services or their Itron account team for any Covered Firmware or on premise Covered Software installations and upgrades which require support beyond that provided herein.

**iv. Remote Access.**

Customer is responsible for supporting necessary remote access to Covered Firmware or on premise Covered Software by Itron support personnel assigned to provide Maintenance Services for purposes of remote diagnosis and troubleshooting of Covered Firmware or on premise Covered Software. Itron shall not be liable for any delay or failure to resolve a problem if remote access to Covered Firmware or on premise Covered Software is denied to Itron.

**v. System Configuration,**

**Operation and Maintenance.** Customer is responsible for the configuration, operation, and maintenance of equipment, system peripherals, operating system, and data communications environment associated with on premise Covered Software. These activities include but are not limited to checking audit logs, clearing discovered exceptions, and performing daily, weekly, and monthly operational tasks and systems responsibilities. Customer is responsible for any change made to Customer's software system, operating system, database or network configuration or any change to installation procedures, scripts, or any other provisions that materially affect the usability or operation of on premise Covered Software. Customer will consult with Itron prior to making any material changes that may affect the installation or operation of on premise Covered Software.

**vi. Network Administration.**

Customer is responsible to monitor and maintain, repair, replace and upgrade its local, and wide area network components (if any)—including network servers, network clients, network hubs, routers, modems, and other software components necessary for efficient and reliable network operations associated with Covered Firmware or on premise Covered Software—to ensure continued conformance with the applicable published Itron specifications. In addition, Customer is responsible to administer related host names, Internet Protocol addresses, network interfaces, access, security, communications, and equipment and software version control.

**vii. Database Administration.**

Customer is responsible to administer the agreed upon database(s) associated with on premise Covered Software, including hardware and software components, in accordance with the Documentation, which administration shall include, monitoring the database server, backing up electrical power sources, and configuring and administering of database schema, application interfaces, networking operating system, communications, and file transfer software. Customer is responsible to maintain database files (e.g., truncate, cleanup, and delete files consistent with industry standard practices) and perform regular data backup and data archiving.

**7. Itron Equipment Maintenance.**

**a. Preventive and Corrective Maintenance.**

Upon receipt of an item of Covered Equipment, Itron shall (i) perform preventative Maintenance Services necessary to maintain the Covered Equipment in Operating Condition, and (ii) diagnose and correct any failure in the Covered Equipment as necessary to meet Operating Condition, excluding minor cosmetic deficiencies such as blemishes, dents or scratches.

**b. Maintenance Procedures.**

Customer shall initiate a request for Maintenance Services for Covered Equipment by delivering the Covered Equipment to the applicable Itron Certified Repair Center identified on the Itron Equipment Repair Table. Return of Covered Equipment shall be at Customer's expense and in accordance with Itron's then-current Return Material Authorization ("RMA") procedures. Upon receipt of Covered Equipment (with the required information) under Itron's RMA procedures, Itron shall assess the item to determine (a) whether it is in fact Covered Equipment and (b) whether the maintenance requested is included within the Maintenance Services ordered by Customer and not otherwise excluded from coverage. If the returned equipment is determined to be Covered Equipment and the maintenance requested is included in the Maintenance Services ordered by Customer, Itron shall provide the applicable Maintenance Services and return the item of Covered Itron Equipment to Customer at Itron's expense within the applicable turnaround time identified on the Itron Equipment Repair Table. If Itron determines that returned equipment is not Covered Equipment or is excluded from the Maintenance Services ordered by Customer, then Itron will proceed in accordance with the estimation fees section below.

**c. Exclusions.**

Covered Equipment Maintenance Services do not include repairs related to: (i) damage due to accident, abuse, misuse, inadequate maintenance, problems caused by electrical power surges or acts of God outside of the tolerances set forth in the applicable published Itron specifications; (ii) service or repair processes (including installation or de-installation of equipment, parts, or firmware/software) not performed or authorized by Itron; (iii) use of parts, configurations or repair depots not certified or authorized by Itron; or (iv) Customer's failure to perform material Customer responsibilities in accordance with this Addendum, including caring for Covered Equipment in accordance with applicable Documentation.

**d. Estimation Fees.**

Itron will provide Customer with a price quote for the estimated cost (including current inspection fees), including labor, materials and shipping, for any repairs to equipment that are requested, which Itron determines are excluded from or not included within the Maintenance Services ordered by Customer. If Customer elects not to proceed with the requested repair, Itron will return the item of equipment at Customer's expense and Itron may charge Customer its then-current inspection fee.

**e. Adding/Restoring Equipment to Maintenance Services.**

Following the Effective Date, additional Covered Equipment purchased by Customer, of a similar type and model already covered under this Addendum, shall automatically be deemed to be Covered Equipment following the M&S Commencement Date. If Customer declines or discontinues Maintenance Services for any Covered Equipment and thereafter wishes to add or restore such equipment as Covered Equipment, Itron may, prior to such equipment being included as Covered Equipment, inspect such equipment at Itron's then current rates to determine whether it is in Operating Condition and/or charge Itron's then current re-certification fee, in addition to prorated Annual Fees for the then-current Maintenance Billing Cycle (the "Re-initiation Costs"). At Customer's request, Itron will provide Customer with a quote for estimated Re-initiation Costs for equipment that Customer wishes to add or restore as Covered Equipment under this section.

**f. Equipment Responsibilities.**

Itron shall make available, and Customer shall obtain, a copy of the Documentation for Covered Equipment and Customer will be responsible to perform preventive maintenance for each such item in accordance with such Documentation. Customer shall also keep accurate records of Covered Equipment serial numbers and locations to assist Itron with performing Maintenance Services

**8. Fees and Invoicing.**

As compensation for the Maintenance Services, Customer shall, in advance, pay to Itron Annual Fees for each Maintenance Billing Cycle in which it receives Maintenance Services. Itron shall invoice Customer for Maintenance Services to be provided during the first Maintenance Billing Cycle as soon as practicable following the Effective Date. For Maintenance Services provided during any subsequent Maintenance Billing Cycle, including Maintenance Services for newly purchased or licensed Covered Products, Itron shall provide Customer with a renewal notice at least 120 days prior to the commencement of each Maintenance Billing Cycle. Customer may discontinue Maintenance Services for any Covered Product(s) by providing Itron with written notice of non-renewal for such Covered Product(s) no less than 90 days prior to the commencement of any subsequent Maintenance Billing Cycle. Otherwise, approximately 20 days prior to the commencement of each subsequent Maintenance Billing Cycle, Itron shall provide Customer with an invoice for Annual Fees payable by Customer for the forthcoming Maintenance Billing Cycle. Itron may, in its discretion, invoice Customer for Maintenance Services for a Covered Product that is added during any Maintenance Billing Cycle as soon as such Maintenance Services have been added (at a prorated amount) or at the beginning of the next Maintenance Billing Cycle. The Annual Fee for any partial Maintenance Billing Cycle (i.e., for Covered Products with a Maintenance Commencement Date or an increase in the applicable Annual Fees that falls after the beginning of the Maintenance Billing Cycle) shall be prorated based on the applicable M&S Commencement Date or Annual Fee increase date and the remaining number of months Customer is to receive Maintenance Services during such Maintenance Billing Cycle.

**9. Support for Third Party Products.**

Itron shall provide first tier Global Support Services for Third Party Covered Products by handling all Customer inquiries, attempting to identify the component involved in the problem and obtaining appropriate documentation of such inquiry or problem. In addition, Itron shall make commercially reasonable efforts to facilitate Customer's receipt of maintenance and support for such Third-Party Covered Products consistent with the third-party maintenance terms identified on the applicable Order Document. Notwithstanding anything else to the contrary, Itron's sole obligation under this Addendum with respect to Third Party Covered Products shall be as set forth in this section.

**10.Survival.**

The following sections of this Addendum shall survive termination or expiration of this Agreement or any Order Document or Statement of Work: Section 3 (End of Support), 6.14 (Exclusions), 7.3 (Exclusions), Section 8 (Fees and Invoicing) and 10 (Survival).

**Attachment 1 to Maintenance & Support Services Addendum**
– Software Maintenance & Support Service Levels –

| Severity Level | Response Times | Effort Level and Restoration | Escalation |
|---|---|---|---|
| **Severity Level 1***<br><br>**Business Impact: Critical Impact / System Down.** A Production System Error for which there is no work-around, which causes Covered Firmware or Covered Software Product or a critical business function / process of said product to be unavailable such that system operation cannot continue.<br><br>**Example:** a) Billing cannot be completed, b) Major documented function not working, c) System hung or completely down | During regular business-hours Itron will begin the Service Request process during Customer's initial call.<br><br>During after-hour periods, Itron will respond to a critical support voice messages within 15 minutes by a return call to Customer, to validate receipt of the critical support call and begin the Service Request process.<br><br>Following the start of the Service Request process Itron will respond to Customer's Service Request within two (2) business hours with an investigation response.<br><br>Itron will update Customer at three (3) hour intervals during each day the Service Request remains unresolved, or as otherwise agreed by the Parties.<br><br>Customer will respond to an Itron inquiry or request within three (3) hours. | Itron will make diligent efforts on a 24x7 basis, or as otherwise agreed by the Parties, to:<br><br>i) restore Covered Firmware or Covered Software with a change to eliminate root cause, ii) provide a workaround which restores Covered Firmware or Covered Software and downgrades the Severity Level to S2, S3, S4.<br><br>Customer Support Staff must be available 24x7 to work cooperatively with Itron continuously until such time restoration is achieved. | An unresolved Service Request shall be escalated to Itron management as follows:<br><br>**After 30 minutes:** Technical Customer Support Team Lead<br><br>**After 8 hours**: Manager, Technical Client Services<br><br>**After 16 hours**: Director, Global Support Services<br><br>**After 48 hours**: Service Request. Vice President, Services and Delivery<br><br>**After 72 hours**: President, Itron |

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|---|---|---|---|
| **Severity Level 2***<br><br>**Business Impact: Major impact, degraded Operation**. An Error other than a Severity Level 1 Error, for which there is no work-around, which degrades or limits operation of major system functions causing Covered Firmware or Covered Software to miss required business interface or deadlines. Covered Firmware or Covered Software remains available for operation but in a highly restricted fashion.<br><br>**Example:** a) Billing cannot be completed on time, b) Major function is operating outside documented timing / term, c) Covered Firmware or Covered Software operating slow, missing data, data delivery, daily mission. | During regular business-hours Itron will respond to Customer regarding Service Request within one (1) business day.<br><br>While Service Request remains unresolved, Itron will update the Customer and the Service Request at least every other business day, or as otherwise agreed by the parties.<br><br>Customer will respond to an Itron inquiry or request within one (1) business day. | Itron will make diligent efforts during normal business hours to:<br><br>i) restore Covered Firmware or Covered Software with a change to eliminate root cause, ii) a workaround which restores Covered Firmware or Covered Software and downgrade the Severity Level to S3, S4. | An unresolved Service Request shall be escalated to Itron management as follows:<br><br>**After 1 hours:** Technical Customer Support Team Lead<br><br>**After 8 hours**: Manager, Technical Client Services<br><br>**After 24 hours**: Director, Global Support Services<br><br>**After 30 Days**: Vice President, Services and Delivery |

| Severity Level | Response Times | Effort Level and Restoration | Escalation |
|---|---|---|---|
| **Severity Level 3****<br><br>**Business Impact: Minor Business Impact, compromised operations.** An Error other than a Severity Level 1 or Severity Level 2 Error that has moderate impact on use of or access, with low business impact, but not preventing Customer from performing daily activities.<br><br>Example: The Service Request affects use by Covered Firmware or Covered Software users, allowing Customer's functions to continue to meet daily business needs. | During regular business-hours Itron will respond to Customer regarding Service Request within two (2) business days.<br><br>While Service Request remains unresolved, Itron will update the Service Request weekly, or as otherwise agreed by the parties.<br><br>Customer will respond to an Itron inquiry or request within two (2) business days. | Itron will work during normal business hours to:<br><br>i) restore Covered Firmware or Covered Software with a change to eliminate root cause, ii) a workaround which restores Covered Firmware or Covered Software and downgrades the Severity Level to S4. | |

| Severity Level | Response Times | Effort Level and Restoration | Escalation |
|---|---|---|---|
| **Severity Level 4**<br><br>**Business Impact: Standard Operations intact.** A low or no-impact Error other than a Severity Level 1, Severity Level 2 or Severity Level 3 Error, or a request for enhancement / new functionality<br><br>Example:<br><br>Generally, a cosmetic Error or an Error which does not degrade Customer's use of the product or system. | During regular business-hours Itron will respond to Customer regarding Service Request within three (3) business days. | Itron GSS Management Team will make commercially reasonable efforts during normal business hours to understand the Service Request and provide applicable recommendations as to when a Fix may be schedule in a future release, or how to proceed with a formal enhancement request to Itron's product and delivery teams. | |

* Severity Level 1 and Severity Level 2 must be reported by phone to insure they are addressed under the appropriate severity level response process. Service Requests entered by email or Web access are generally addressed as a Severity Level 3.

** Service Request opened on Non-production servers / environments are entered as a Severity Level 3.

# APPENDIX A.15. OUTSOURCED, OR MANAGED, SERVICES PROPOSAL

Itron offers multiple deployment options to accommodate a variety of customer needs. Each option contains unique features and benefits designed to accommodate different ownership requirements, capitalization needs, skill levels, and risk profiles.

For Eversource, Itron recommends our **Managed SaaS** option deployment model. With Managed SaaS, Eversource leverages Itron's significant experience to reduce deployment time and project risk while maintaining the benefits of long-term ownership and capitalization.

With Managed SaaS, Eversource purchases a license for the software applications needed to support network endpoints. In turn, Itron builds, owns, maintains, and manages the back-office headend system software and supports the IT infrastructure at a secure Itron data center. This design includes a buffer to support growth. Eversource owns and maintains the solution's meters and network devices.

Eversource will then pay Itron a monthly SaaS fee to provide the IT infrastructure for the environments they have contracted. As part of this fee, Itron monitors the network's access points, relays, and bridge devices. Itron sends notices via a remedy ticket to Eversource when a device is outside of monitoring thresholds so Eversource can easily investigate and resolve as needed.

This flexible deployment model shifts the solution's IT risk and skill requirements to Itron. By leveraging existing infrastructure at Itron data centers, we can rapidly deploy client environments, which significantly reduces one of the largest operational risks in any smart grid deployment. Shared infrastructure (i.e., routers, storage, database, servers, backups, etc.) also allows Eversource to avoid additional costs and delays associated with acquiring dedicated hardware without sacrificing data integrity and security.

Software licenses (and associated software maintenance) are unbundled from the monthly SaaS fee, leaving only an ongoing managed services fee for hosting and maintaining the applications. Although Itron collects the data, Eversource fully retains its ownership.

Itron recommends hosting the headend system in the Switch Las Vegas data center with the disaster recovery environment geographically separated and hosted in our Switch Atlanta data center. Both are tier IV data centers and meet the stringent power, cooling, and connectivity requirements set forth by Itron to ensure customer SLAs are being met. Itron currently hosts 22 Production (large scale and not pilot) environments, 12 disaster recovery (DR) environments, and 27 lower-tiered environments within the Switch Las Vegas and Atlanta data centers with another 9 Production, 5 DR, and 12 lower-tiered environments under management.

The UIQ application stack was developed with hosting in mind and Itron has incorporated years of product maturity and hosted experience into a refined and comprehensive service management program to ensure that hosting SLAs are met and that Itron is providing a positive hosting experience for our customers.

While UIQ has been hosted in our data centers for many years, hosting UIQ in the public cloud space, specifically Azure, is relatively new. Itron is currently focused on scale testing UIQ in Azure as well as developing additional monitoring capabilities based off Azure micro-services to reduce case management duration.

*Appendix C.4 – Proposed Agreement for MSaaS* below outlines our standard Managed Services Addendum modified for Eversource's SLAs.

# APPENDIX A.16. NETWORK AS A SERVICE PROPOSAL

Itron is not including a quote for this network maintenance service. We are open to more detailed discussion about Eversource's requirements if there is specific interest in an Itron offering in this area.

# APPENDIX B.1. SUBMITTAL FORMAT AND WORKSHEET

See Itron's pricing workbooks in **Attachment B – AMI Software and Services Pricing Matrix** included with this proposal response.

# APPENDIX C.1. SECURITY REQUIREMENTS AND QUESTIONAIRRE

As outlined in the Eversource RFP instructions, Itron provides responses to the following statements below:

**a) Confirm that it has reviewed these security requirements included in Attachment I.**

Itron confirms we have fully reviewed the security requirements included in Attachment I included with the Eversource RFP documents.

**b) Certify that it will comply with these requirements if awarded a contract.**

Itron will comply with the requirements as defined and understood through the contract negotiation process.

**c) Identify any exceptions Proposer may have to these requirements.**

Itron has not identified any exceptions to the security responses.

Additionally, Itron has provided our answers in their entirety in *Attachment J – Vendor Security Questionnaire* provided with this proposal response.

# APPENDIX C.2. EXCEPTIONS TO EVERSOURCE MASTER SERVICES CONTRACT

Itron is pleased to submit this proposal to Eversource ("Customer") in response to the Advanced Metering Infrastructure (AMI) Solution (the "RFP"). We believe, however, that certain of the provisions included in the RFP should be modified or clarified for this project and have therefore set forth our comments below.

Our experience has indicated that we have been able to reach agreement with each of our customers that has awarded us a project. In the vast majority of these cases, we have had some concerns over the customer's proposed terms and conditions. We are confident that our experience with Customer will be no different. We believe that the basis for this success lies in the benefit of the negotiation process which allows each party to understand the other's reasonable concerns. Itron reserves the right to negotiate clarifications, exceptions and additional provisions to meet the circumstances of the project as finally awarded.

Our proposal is being made subject to the condition that Itron and Customer subsequently reach and enter into a mutually agreeable definitive written agreement for the proposed project. The Itron Master Sales Agreement is included with Itron's proposal as an example of Itron's standard approach to transactions such as the one contemplated by Customer. If we are awarded this project, we intend to negotiate in good faith with Customer to reach such an agreement as expeditiously as possible.

| Section | Itron Comment |
|---|---|
| 5. Contractor Personnel | While Itron agrees in principle with the background check requirements, such requirements including, but not limited to, fingerprinting requirements and provision of personally identifiable information, shall be subject to further clarification by the parties during negotiations based upon the circumstances of the engagement as awarded.<br><br>Itron proposes that Customer's to approve Itron personnel be limited to specific key personnel identified in the statement of work and such approval not be unreasonably withheld, conditioned or delayed.<br><br>Itron is agreeable to removing Itron personnel at Customer's request who violate the terms of the parties' definitive agreement and/or Customer policies and fail to correct such failure within a reasonable time under the circumstances after Itron receives notice of the failure.<br><br>Itron requests that this Section be limited to certain, agreed upon key subcontractors who will be responsible for performing on-site services on behalf of Itron. Itron would like to identify potential subcontractors (and obtain Customer's approval – not to be unreasonably withheld, conditioned, or delayed) prior to execution of the parties' agreement. |
| 6. Performance | Itron will agree to make commercially reasonable efforts to comply with a reasonable, mutually agreed upon work schedule.<br><br>Itron respectfully requests that any disclosure of Itron technology to a third party at the request of Customer be subject to Itron and the applicable third party entering into a mutually agreed upon licensing agreement, and that Itron be permitted, in its reasonable discretion, to decline to enter into such an agreement with a competitor.<br><br>Itron requests any applicable reporting be subject to mutual agreement by the parties within the SOW.<br><br>Itron would like to work with Customer to more clearly define Itron's obligation to provide transition assistance. Itron will agree to provide mutually agreed upon termination services. The scope and pricing for such services may be agreed upon at the time of contracting or at the time of termination.<br><br>Itron will agree to perform work in accordance with all laws, rules and regulations as applicable to the circumstances of the parties' definitive agreement in effect upon the |

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| | date of contract execution at no additional cost. However, to the extent a change in such laws, rules or regulations occurring after the date of contract increases Itron's costs of performing the work, Itron respectfully requests the right to adjust applicable pricing in accordance with a mutually agreed upon change order.<br><br>All material financial information related to Itron are disclosed in our quarterly and annual filings with the US Securities and Exchange Commission and can be found on our website at www.itron.com by clicking About Itron, Investors, and Financial Information. |
| 7. Delivery and Installation | Itron proposes that Customer have the right to cancel unshipped products based on late delivery, or cancelled installation due to late delivery, by providing Itron with reasonable notice of cancellation after a mutually agreed upon time following the scheduled delivery date. The Customer's ability to cancel deliveries of third party equipment will be subject to the third party vendor's terms of sale.<br>Itron proposes that title and risk of loss/damage to the equipment transfer to Customer upon shipment. |
| 8. Product Acceptance | Itron proposes that Customer have the right to reject Itron equipment within a mutually agreed upon inspection period following delivery based on failure to comply with applicable specifications. Any Itron equipment not rejected within the inspection period would be deemed accepted. Customer would retain risk to any rejected equipment until such equipment is returned to Itron. Customer's right to reject third party equipment will be subject to the third party vendor's terms of sale. |
| 9. Documentation and Training | Itron proposes any applicable Documentation and Training be specified within the Statement of Work. |
| 10. Product License | Itron offers a nonexclusive object code license to use licensed Itron software in connection with the applicable number of endpoints, subject to standard terms and conditions. Third party software provided by Itron will be subject to the applicable third party licensor terms and conditions. |
| 11. Payment | Itron generally invoices 100% upon shipment (without a right of offset or retention) for equipment, upon delivery for software, monthly for professional services performed on a time and materials basis, per the applicable statement of work for professional services performed on a fixed fee basis, annually for other services (e.g., cloud services, maintenance services, managed services) and as incurred for reimbursable expenses, with payment due within 30 days of the invoice date. Itron looks forward to the development of mutually acceptable invoicing and payment terms process during negotiations based upon the circumstances of the engagement as finally awarded.<br><br>Itron takes exception to Most Favored Customer.<br>Itron is agreeable to maintaining records pertaining to Itron charges to Customer for services, products, and expenses and Customer's payment thereof in accordance with Itron's then-existing records retention policy or as otherwise required by applicable law. Itron is also agreeable to allowing Customer to conduct no more than a mutually agreed upon number of annual onsite audits of these records at its expense during normal business through an approved third-party auditor following reasonable notice, in accordance with Itron's standard security/confidentiality requirements, and without interrupting Itron's business operations, as necessary to verify the accuracy of Itron's invoices. Itron's ability to include subcontractors within the scope of Customer's audit rights is subject to agreement of the subcontractors. |
| 12. Representations, Warranties and Covenants | Itron's products and services are subject to specific warranty terms, which define the scope of the applicable warranty, as well as warranty duration, remedies and exclusions. With respect to third party products, Itron will provide the applicable third-party vendor warranties on a pass-through basis. See the Itron Master Sales Agreement for details. The warranty terms proposed by Itron meet or exceed general industry requirements for a project like Customer's proposed project. |
| 13. Confidential Information | Itron will agree to return or destroy (with certification of destruction) any Customer-provided documents at the request of Customer, as opposed to automatically upon contract termination, provided Itron is able to retain copies of such materials solely for archival purposes. |

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| 14. Intellectual Property rights | Itron does not expect to develop any new technology in connection with the contemplated project and therefore Itron will retain full ownership of all intellectual property related to its products, services and other deliverables. Customer will have a nonexclusive license to use Itron deliverables for internal business purposes in connection with the contemplated project and in accordance with the parties' mutually agreed upon confidentiality obligations and license terms and conditions. Customer will also retain full ownership of any Customer confidential information that is incorporated into any project documentation. Itron will agree to use Customer confidential information only in connection with the contemplated project. |
| 15. Insurance and Exhibit 1 | Please see Itron's Master Sales Agreement for Itron's insurance commitments. |
| 16. Term and Termination | Termination for convenience rights present revenue recognition issues under 606 accounting standards. Assuming these issues can be addressed in the parties' definitive agreement, Itron would also request that Customer pay for outstanding invoices, equipment ordered or in process, services performed, breaks fees w/r/t certain reoccurring services (SaaS, IaaS, and managed services, if applicable) to recoup Itron's setup costs and related capital investments, any unpaid software license fees and reasonable wind-down costs in connection with a termination for convenience. Itron would also request that Customer provide reasonable advance written notice of a termination for convenience. Itron will make commercially reasonable efforts to minimize wind-down costs.<br>Additional termination rights to be negotiated by the parties. |
| 17. Indemnification | Itron is agreeable to defending Customer against third party claims for personal injury and property damages, and paying any resulting judgements or settlements, to the extent caused by Itron's negligence, so long as Customer provides Itron with prompt notice, control over defense and/or settlement, and claim assistance. See the Itron Master Sales and Solution Agreement for details. Indemnification by its nature acts as a risk-shifting device, and Itron's proposed indemnification provides a reasonable and customary allocation of risk between the parties with respect to covered third party claims. |
| 18. Infringement | Itron is agreeable to defending Customer against third party infringement claims relating to Itron-branded products, and paying any resulting judgements or settlements, subject to certain conditions and exceptions, so long as Customer provides Itron will prompt notice, control over defense and/or settlement, and claim assistance. See the Itron Master Sales Agreement for details. Indemnification by its nature acts as a risk-shifting device, and Itron's proposed indemnification provides a reasonable and customary allocation of risk between the parties with respect to covered third party claims. |
| 19. Limitation of Liability | Please refer to Itron Master Sales Agreement for proposed limitations of liability. |
| 20. Business Continuity Plan | Parties to negotiate terms. |
| 21. Software Customization Services, Ownership of Deliverables | Itron does not expect to develop any new technology in connection with the contemplated project and therefore Itron will retain full ownership of all intellectual property related to its products, services and other deliverables. Customer will have a nonexclusive license to use Itron deliverables for internal business purposes in connection with the contemplated project and in accordance with the parties' mutually agreed upon confidentiality obligations and license terms and conditions. Customer will also retain full ownership of any Customer confidential information that is incorporated into any project documentation. Itron will agree to use Customer confidential information only in connection with the contemplated project. |
| 22. Product Maintenance and Escrow Materials | Itron is willing to place the source code for the Itron-owned software (excluding embedded third-party code) and any related documentation into a third-party escrow for the benefit of Customer at Customer's expense, so long as Customer purchases maintenance and support services from Itron for the applicable software. Itron proposes that the deposit be subject to release to Customer upon the occurrence of certain mutually agreed upon release conditions. |

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| | Itron would prefer to deposit escrow materials pursuant to its existing escrow arrangement with EscrowTech. |

In addition to the foregoing, Itron requests that the following “Additional Terms” also be included in any definitive agreement(s) between the parties.

**WARRANTY DISCLAIMER.**

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, ITRON DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES, CONDITIONS OR REPRESENTATIONS INCLUDING, WITHOUT LIMITATION, (I) IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, (II) WARRANTIES OF TITLE AND AGAINST INFRINGEMENT AND (III) WARRANTIES ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE. TO THE EXTENT ANY IMPLIED WARRANTY CANNOT BE EXCLUDED, SUCH WARRANTY IS LIMITED IN DURATION TO THE EXPRESS WARRANTY PERIOD.

**WAIVER OF CONSEQUENTIAL DAMAGES.**

NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT, IN NO EVENT WILL EITHER PARTY BE LIABLE UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY FOR COVER OR FOR INCIDENTAL, SPECIAL, CONSEQUENTIAL (INCLUDING LOSS OR CORRUPTION OF DATA OR LOSS OF REVENUE, SAVINGS OR PROFITS) OR EXEMPLARY DAMAGES, EVEN IF THE PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. ITRON'S PRICING REFLECTS THIS ALLOCATION OF RISKS AND LIMITATION OF LIABILITY.

**CAP ON LIABILITY.**

NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT, EXCEPT FOR A BREACH BY CUSTOMER OF (I) ANY INTELLECTUAL PROPERTY RIGHT OF ITRON OR (II) ANY LICENSE GRANTED BY ITRON HEREUNDER, THE AGGREGATE LIABILITY OF EACH PARTY AND ITS AFFILIATES AND ITS AND THEIR OFFICERS, DIRECTORS, EMPLOYEES OR OTHER REPRESENTATIVES, ARISING IN ANY WAY IN CONNECTION WITH THIS AGREEMENT—WHETHER UNDER CONTRACT LAW, TORT LAW, WARRANTY OR OTHERWISE—SHALL NOT EXCEED FIFTY PERCENT (50%) OF THE TOTAL AMOUNT PAID IN THE TWLEVE (12) MONTHS PRECEDING THE CLAIM. ITRON SHALL NOT BE LIABLE FOR ANY CLAIM MADE THE SUBJECT OF A LEGAL PROCEEDING MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION ASSERTED IN SUCH CLAIM AROSE. ITRON'S PRICING REFLECTS THIS ALLOCATION OF RISKS AND LIMITATION OF LIABILITY.

**FORCE MAJEURE**

Except for monetary obligations hereunder, neither Party will be responsible for any failure or delay in performing any obligation hereunder if such failure or delay is due to a cause beyond the Party’s reasonable control, including, but not limited to acts of God, flood, fire, volcano, war, terrorist threats or actions, third-party suppliers, labor disputes or governmental acts.

# APPENDIX C.3. EXCEPTIONS TO AMI SOFTWARE AND SERVICES SOW

Itron has carefully reviewed the SOW and is in alignment with Eversource's approach. Itron has carefully scoped our services to support the project requirements identified in the SOW. We are aligned with the structure and content of the proposed SOW.

Prior to SOW execution, Itron recommends conducting a requirements workshop to jointly review the proposed SOW to ensure both Eversource and Itron have a mutual and clear understanding of the entire project scope. Modification to the SOW language might be required depending on the outcome of these discussions. Itron will negotiate in good faith with the goal of ensuring successful delivery and execution of the project while meeting all Eversource's requirements.

# APPENDIX C.4. PROPOSED AGREEMENT FOR MSaaS

**SOFTWARE-AS-A-SERVICE ADDENDUM**

**General SaaS Terms and Conditions**

**Relationship to General Terms and Conditions.** This Software-as-a-Service Addendum (this "**Addendum**") is governed by the General Terms and Conditions of this Agreement and applicable Order Documents.

**Entire Addendum.** This Addendum consists of these General SaaS Terms and Conditions, which generally apply to all Service Offerings, and any attached Special Terms and Conditions, which apply to specific Service Offerings. Unless otherwise provided, references to this Addendum shall be deemed to encompass these General SaaS Terms and Conditions and any attached Special Terms and Conditions.

**Order of Precedence.** In the event of any inconsistencies, ambiguities or conflicts between these General SaaS Terms and Conditions and the Special Terms and Conditions, the Special Terms and Conditions shall prevail, but only with respect to the applicable Service Offering.

**Definitions.** The following defined terms are in addition to those defined in the General Terms and Conditions of this Agreement:

**Annual Adjustment** means Itron's annual price increase.

**Endpoint** means an electric meter, gas or water endpoint receiver-transmitter, battery-powered device, or any other device that Itron has agreed to monitor as part of a Service Offering which Endpoints are identified in the Order Document or Pricing Summary.

**General SaaS Terms and Conditions** means the terms and conditions set forth in the main body of this Addendum comprised of Sections 1 ("Relationship to General Terms and Conditions") through 19 ("Roles and Responsibilities").

**Maintenance Services** means services provided under the Maintenance and Support Services Addendum.

**Minimum Subscription Term** means the minimum number of SaaS Billing Cycles during which Customer is required to subscribe for each Service Offering, which shall be three (3) SaaS Billing Cycles following the applicable Service Offering Commencement Date, unless otherwise stated in the applicable Order Document or Pricing Summary.

**One-Time Setup Fee** means the one-time setup fee for each Service Offering identified in the applicable Order Document or Pricing Summary.

**Recovery Point Objective** or **RPO** means the maximum tolerable time period which data might be lost from production Software due to a service interruption event.

**Recovery Time Objective** or **RTO** means the duration of time allowing for the execution of all failover processes required to return access, connectivity, functionality, and operation of production Software to Customer following declaration of a disaster event.

**SaaS** means software-as-a-service whereby Itron or its designated provider hosts and provides Customer with access to Software on Servers via the internet.

**SaaS Billing Cycle** means a period of one year beginning on the Effective Date or any anniversary thereof.

**SaaS Application Availability** means the total number of minutes in a calendar month that the applicable Software is available via (a) a web browser client, (b) web services interface and (c) thin

client. Scheduled downtime is excluded from this calculation. A determination of availability will be based on 24x7 accessibility, less any exclusions set forth in this Addendum.

**Servers** means the physical computer hardware owned by Itron or its designated provider on which Software will be installed, operated, and maintained.

**Service Offering** means SaaS, plus any services that are additional or supplemental to SaaS, as described in the applicable Special Terms and Conditions.

**Service Offering Commencement Date** means, with respect to each Service Offering, the earlier of (a) validation of such Service Offering implementation by Itron pursuant to the applicable Statement of Work, or (b) seven (7) days after completing application system setup and the Customer has been provided valid access credentials for such Service Offering.

**Software** means each machine readable (object code) versions of computer program identified on the applicable Order Document or Pricing Summary for which Customer has purchased a Service Offering.

**Special Terms and Conditions** means Service Offering-specific terms and conditions set forth on Attachment A to this Addendum.

**Subscription Fees** means annual fees identified in the applicable Order Document or Pricing Summary for each Service Offering, plus the Annual Adjustment, if any. Where Customer has purchased an object code license to Software pursuant to the terms of the Software Addendum and wishes to purchase a Service Offering for such Software ("**Hybrid SaaS**"), license fees and fees for applicable Maintenance Services are not included within the Subscription Fees and must be paid separately. Where Customer is not purchasing Hybrid SaaS, fees for applicable Maintenance Services are included within the Subscription Fees.

**Subscription Term** means the subscription term purchased by Customer for each Service Offering, which begins upon the applicable Service Offering Commencement Date.

**Access Rights and Restrictions.**

1.1. **Access Rights.** SaaS is only available for Itron Software identified in the table set forth in this Section 5.1 below for which Customer has purchased a Service Offering and paid all applicable fees. Subject to Customer's compliance with the Agreement (including payment of all applicable fees which, in the case of Hybrid SaaS, shall include Software licensing fees and Maintenance Services support fees), Itron hereby grants to Customer, for the Subscription Term(s) purchased, a non-exclusive, non-transferable, non-assignable, limited right to access and use the Service Offerings, with respect to Endpoints owned or otherwise controlled by Customer, for its internal business purposes in the Territory (as defined in the General Terms and Conditions of the Agreement).

| Itron Software Eligible to Receive SaaS |
|---|
| UIQ: Advanced Metering Manager, Meter Program Configurator, Control Platform, Outage Detection and SensorIQ |

1.2. **Restrictions on Use**. Customer and its authorized users may not: (a) modify, translate or create derivative works of any Service Offering or related Documentation; (b) copy, reproduce, distribute, republish, download, display, post or transmit any portion of a Service Offering or related Documentation in any form or by any means; (c) sell, assign, transfer, lease or sublicense any Service Offering; (d) allow any third party, other than authorized users, to access any Service Offering or related Documentation without Itron's prior written consent; (e)

use any Service Offering or related Documentation to provide services to third parties, or otherwise use any Service Offering on a "service bureau" or "timesharing" or subscription basis including, in connection with devices or equipment not owned or otherwise controlled by Customer; (f) reverse engineer, disassemble, decrypt, extract or otherwise reduce any Service Offering to a human perceivable form or otherwise attempt to determine the source code or algorithms of any Service Offering (except to the extent the foregoing restriction is expressly prohibited by applicable law); (g) infringe any of Itron's or its providers' Intellectual Property Rights; (h) publicly publish the results of any benchmark tests run on any Service Offering; (i) use any Service Offering or related Documentation to engage in any fraudulent, illegal or unauthorized act; (j) introduce into or transmit through any Service Offering any material containing software viruses, worms, trap doors, back doors, Trojan horses or other harmful or malicious computer code, files, scripts, agents or programs; (k) remove, alter or obscure any titles, product logo or brand name, trademarks, copyright notices, proprietary notices or other indications of Itron's or its providers' Intellectual Property Rights, whether such notice or indications are affixed on, contained in or otherwise connected to a Service Offering; (l) attempt to gain unauthorized access to a Service Offering or Itron's or its providers' systems or networks; (m) merge any Service Offering with any other product or service without Itron's prior written consent and the payment of any additional fees; or (n) access or use any Service Offering or related Documentation to build or support, and/or assist a third-party in building or supporting, products or services competitive to Itron or its providers.

1.3. **Content Restrictions**. Customer may not distribute, download, or place on any Itron or its providers' website or Server, or use with any Service Offering, any content that: (a) Customer knows or has reason to believe infringes the Intellectual Property Rights of any third party or violates any rights of publicity or privacy; (b) violates any applicable law, statute, ordinance; (c) is defamatory, trade libelous, unlawfully threatening or unlawfully harassing; or (d) is obscene, pornographic or indecent (items (a) – (d) are collectively referred to as "**Prohibited Content**"). Itron reserves the right to remove any Prohibited Content from the Server without prior notice to Customer. Customer will indemnify, defend and hold Itron and its providers harmless for any claims, liabilities, losses, causes of action, damages, settlements, and costs and expenses (including, without limitation attorneys' fees and costs) arising from any third-party claims related to or generated by any Prohibited Content distributed, downloaded, or placed on any Itron or its providers' website or Server or used with any Service Offering by Customer.

1.4. **Breach of Restrictions.** Customer's breach of the restrictions set forth in Section 5.2 ("Restrictions on Use") or Section 5.3 ("Content Restrictions) shall constitute a material breach of the Agreement and shall result in revocation and immediate suspension or termination, as determined by Itron in its sole discretion, of all rights and licenses granted under this Addendum with respect to the Service Offerings. Revocation does not preclude Itron from pursuing any legal and equitable remedies for Customer's breach of these restrictions.

**Invoicing and Payment.** Customer shall pay Subscription Fees in advance for each SaaS Billing Cycle for which it has purchased a Service Offering. Itron will invoice Customer for the One-Time Setup Fee and initial Subscription Fees for each Service Offering upon the Service Offering Commencement Date. Initial Subscription Fees shall be prorated based on the number of months remaining in the current SaaS Billing Cycle following the Service Offering Commencement Date. Itron may discontinue a Service Offering by providing Customer with written notice of discontinuance no less than 180 days prior to the commencement of a SaaS Billing Cycle. Otherwise, Itron will

provide Customer with a renewal notice for the Service Offering at least 120 days prior to the commencement of each SaaS Billing Cycle. Customer may discontinue a Service Offering by providing Itron with written notice of non-renewal no less than 90 days prior to the commencement of a SaaS Billing Cycle. Otherwise, approximately 20 days prior to the commencement of each SaaS Billing Cycle, Itron will provide Customer with an invoice for Subscription Fees payable by Customer for the forthcoming SaaS Billing Cycle. If Customer discontinues a Service Offering prior to expiration of the Minimum Subscription Term for that Service Offering, Itron will invoice Customer, and Customer will pay, for any unpaid Subscription Fees for the respective Service Offering through the end of the applicable Minimum Subscription Term. Maintenance Services fees and license fees relating to Hybrid SaaS will be invoiced in accordance with the Maintenance and Support Services Addendum and Software Addendum, as applicable. Itron has the right to adjust Subscription Fees at any time if Customer's use of a Service Offering exceeds the applicable tier set forth in the respective Order Document or Pricing Summary. Subscription Fees adjusted as a result of Customer exceeding the applicable tier are typically invoiced within thirty (30) to sixty (60) days after provisioning of each respective Endpoint occurs.

**Monthly Application Availability Service Level.**

1.5. **Service Level.** Provided Customer has paid all applicable fees (including all Subscription Fees and, in the case of Hybrid SaaS, all maintenance and license fees) SaaS Application Availability with respect to each production environment Service Offering will be at least 99.5%, measured and reported monthly beginning in the first full calendar month following the respective Service Offering Commencement Date ("**Monthly SaaS Application Availability Service Level**"). The Monthly SaaS Application Availability Service Level will be measured and calculated separately for each Service Offering. Itron records and data will be the sole basis for all SaaS Application Availability Service Level measurements and calculations.

1.6. **Service Level Credits.** As Customer's sole and exclusive remedy for Itron's failure to meet the foregoing Monthly SaaS Application Availability Service Level, subject to the service level exclusions in Section 8.1 (Service Level Exclusions) below, Customer will be entitled to credits as follows:

| SaaS Application Availability (production environments only) | |
|---|---|
| Monthly SaaS Application Availability performance | Credit (% of monthly Subscription Fee for applicable SaaS Application) |
| ≥99.5% and <99.9% | 2% |
| ≥98.5% and <99.5% | 4% |
| ≥96.0% and <98.5% | 10% |
| ≥94.5% and <96.0% | 12.5% |
| <94.5% | 30% |

**Service Level Exclusions; Disclaimers.**

1.7. **Service Level Exclusions.** Itron shall not be liable for failing to meet any service level commitment set forth in this Addendum (including any Special Terms and Conditions) or any Order Document to the extent such failure is attributable to any one or more of the following: (a) planned maintenance, ~~unplanned maintenance~~, or scheduled upgrades; (b) an event triggering a disaster recovery and for a twenty-four (24) hour period after the resumption of

service following such an event to allow the system to return to normal operating ranges; (c) suspension or restriction of service under Section 11 ("Suspension or Restriction of Service") of this Addendum; and (d) conditions beyond Itron's reasonable control, including but not limited to (i) failure of any backhaul between the Service Offering and the Endpoints; (iii) failures in external Internet or VPN configurations not managed by Itron; (iv) a Force Majeure event; (v) false reports of unavailability as a result of outages or errors of any Itron measurement system; (vi) an act or omission of Customer or third parties (other than Itron's contractors, subcontractors or suppliers), including security incidents caused by such act or omission; (vii) incident investigation or computer failures that could not reasonable have been prevented by Itron; (viii) failures of third-party equipment, hardware, software, or services not provided by Itron; and (ix) Customer's delay in performing tasks designated as its responsibility in this Agreement.

1.8. **Disclaimers.**

**(a) Third-Party Content Disclaimer.** Itron is not the owner of third-party Software or third-party Service Offerings that Customer purchases through Itron (collectively "**Third-Party Content**") and makes no representations or warranties whatsoever, directly or indirectly, express or implied, as to the suitability, durability, and fitness for use, merchantability, condition, quality, performance or non-infringement of any Third-Party Content. Third-Party Content shall be subject to any service levels or warranties provided by the third-party provider. Itron will pass through to Customer, or make commercially reasonable efforts to enforce on Customer's behalf, any service levels, warranties and remedies received from such third-party provider.

**(b) Use of SaaS with Third-Party Devices**. Customer may use a Service Offering to collect data from Endpoints equipped with radio communication devices not manufactured or provided by Itron ("**Third-Party Radio Device**"). Itron makes no representations or warranties whatsoever, directly or indirectly, express or implied, as to the suitability, durability, and fitness for use, merchantability, condition, quality, performance or non-infringement of, and disclaims all liability with respect to, Third-Party Radio Devices. In particular, Itron shall have no liability (a) if a Third-Party Radio Device is not responding or communicating or (b) for unread endpoints due to defective or unreachable attachment Radio Devices. Customer shall contact the supplier of such device for support.

**Sizing of Software-as-a-Service.** Itron will size Service Offerings, Servers, and systems for Customer's specific deployment. System sizing depends upon the Service Offering and types of devices and sensors and may be a factor in determining Subscription Fees. Sizing criteria may include number of system endpoints, number of network devices, residential meter configuration, commercial and industrial meter configuration, desired data collection intervals, storage duration for historical data, and the number of concurrent and total users of the application. Any sizing changes during a Subscription Term will require a Change Order and may result in a change in Subscription Fees.

**Conditions on Use of Service.** Customer will use the Service Offerings only in accordance with Itron user guides, the Agreement (including, this Addendum, the General Terms and Conditions, applicable Order Documents), and laws and government regulations. The rights of any user to access and use the Service Offerings cannot be shared or used by more than one individual (unless such license is reassigned in its entirety to another authorized user), and Customer shall make every reasonable effort to prevent unauthorized third parties from accessing the Service Offerings.

**Suspension or Restriction of Service.** Itron may suspend or restrict all or part of the Service Offerings at any time to protect the integrity and functionality of the Software, Servers, platforms, and systems,

or for a breach of Section 5.2 (“Restrictions on Use”), Section 5.3 (“Content Restrictions”) or Section 10 (“Conditions on Use of Service”), until such breach is cured.

**Incident Management.** Itron will provide Customer support and incident and problem management services, which include responding to alerts, tracking the issue, troubleshooting the problem and escalating to Itron subject matter experts or third-party providers, in accordance with the Maintenance and Support Services Addendum.

**Customer Technical Responsibilities.** Customer is responsible for selecting, acquiring, securing and maintaining all equipment and ancillary services needed to connect to, access, or otherwise use and maintain compatibility with the Service Offerings, at Customer’s sole expense.

**User IDs and Passwords.** Itron shall provide Customer with user identifications and passwords (“**User IDs**”) to access the Service Offerings. Customer shall be solely responsible for all use of Customer’s subscriptions and accounts. Customer shall maintain the confidentiality of all User IDs assigned to Customer. User IDs may not be shared or used by more than one user.

**Planned Maintenance.** Planned maintenance, whenever reasonably practicable, will be performed during off-business hours between 6:00 p.m. to 12:00 a.m. Customer’s local time, with as little disruption to Customer’s use of the Service Offerings as possible. Unplanned maintenance, whenever reasonably practicable, shall also be performed during off-business hours between 6:00 p.m. and 12:00 a.m., Customer’s local time.

**Unplanned Maintenance.** Itron will provide Customer with notice of unplanned maintenance as soon as reasonably practical. Itron will minimize Service Offering disruptions to the extent reasonably practical.

**Business Continuity.**

1.9. Itron has architected and operates a high availability and scalable infrastructure to facilitate virtualized customer environments with various fault tolerant components. Fault tolerance and failover methodologies allow Itron to maximize system availability and confidently uphold the Monthly SaaS Application Availability Service Level and Monthly File Delivery Percentage Service Level. Itron will conduct daily backups of back office application configuration files and associated data. These backups are for operational purposes only and are not a disaster recovery solution or a solution to be used by the Customer for testing or analysis purposes. Itron will periodically test the restore capability of its business continuity solution. System and database backups are performed via a schedule to provide for a full weekly backup and daily differential backups. System backups and snapshots are also taken prior to any system change that has been approved via the Itron Global Managed Services Change Control Board. The system can be recovered from the backup in an event of a failure. Business continuity is designed to provide recovery for component failures within a datacenter, this does not provide coverage for the loss or connectivity to a data center. If a more robust mitigation solution is required by Customer, geo-diverse disaster recovery options can be discussed and priced as a more fault tolerant solution.

1.10. All incidents requiring system recovery will be required to adhere to Itron’s incident management policy and related standard operating procedures. BUSINESS CONTINUITY: RPO = 72 hours; RTO = 5 business days.

**Disaster Recovery.**

1.11. Disaster Recovery (“**DR**”) is an optional service that is offered by Itron to hosted customers who purchase DR for an additional fee. Upon Customer’s purchase of DR services and payment of applicable fees as set forth in the Order Document or Pricing Summary, Itron will

maintain DR services at a dedicated facility that is equipped to facilitate hosted operations, meter reading and interrogations, and Field Area Network ("**FAN**") communications in the event DR is needed. Upon mutual agreement, separate SOW and for identified cost, Itron can exercise the DR capabilities once per calendar year on Customer's production environments and provide the results of each such test to the Customer.

1.12. In the event of a Severity Level 1 Error (as defined in the Maintenance and Support Services Addendum), Itron will evaluate the scale of the incident, readily available mitigation plans, and the estimated time to recover. If it is apparent to Itron that an incident meeting the standards of a disaster as set forth in Itron's Disaster Recovery plan has occurred with no possibility of mitigation, Itron will declare a disaster and begin the notification process. Itron will notify the Customer of an any such event that will result in service interruption in excess of twelve (12) hours. Once a disaster has been declared, Itron's responsibilities for SLAs will be temporarily suspended until the time at which Customer's environment has been failed over and is operating in the secondary DR datacenter. The Recovery Point Objective (RPO) for DR is four (4) hours. The Recovery Time Objective (RTO) for DR is twelve (12) hours.

**Roles and Responsibilities.** The table below lists the respective responsibilities of Customer and Itron to ensure reliable operation of the Software-as-a-Service.

P=Primary responsibility
S=Support responsibility

| Description of service or deliverable | Itron | Customer |
|---|---|---|
| Submit user access requests for new users and deletion notifications for users no longer involved with the SaaS. | | P |
| Provide immediate notification in the event of a Customer employee termination for those with access to the SaaS. | | P |
| Provide immediate notification in the event of an Itron employee termination for those with access to the SaaS. | P | |
| Maintain skill sets necessary to properly support the SaaS. | P | |
| Administer and monitor Servers including but not limited to utilization of CPU, memory, IOPs, and disk space. | P | |
| Manage and troubleshoot the secure SaaS components and processes (if applicable). | P | |
| Administer associated Linux, Unix, and Windows operating systems. | P | |
| Apply operating system and other third-party security patches and critical updates as appropriate. | P | |
| Maintain and troubleshoot third-party software issues required for SaaS operations pursuant to this Addendum; work with third party to troubleshoot as required. | P | |
| Maintain anti-virus on all windows-based Servers if applicable to the SaaS platform. | P | |
| Monitor communications and support communications troubleshooting activities for the SaaS. | P | |

| Description of service or deliverable | Itron | Customer |
|---|---|---|
| Perform software upgrade activities. | P | |
| Maintain and administer the SaaS Server databases. | P | |
| Manage upload and submission of meter data files; work with Itron when problems are identified. | | P |
| Provide and maintain a Secure FTP or equivalent if included in the SOW. | P | |
| Perform regular system, database, and custom component backups in accordance with selected service level. | P | |
| Maintain the applicable standard operating procedures and run books to maintain, monitor and operate the hosted environment. | P | |

## ATTACHMENT A
## SPECIAL TERMS AND CONDITIONS

**Special Terms and Conditions – Managed Services.** The Special Terms and Conditions contained within this Section apply to Itron's Managed Services Service Offering.

**1. Managed Services – Descriptive Overview.**

**1.1.** When Customer subscribes to Managed Services, as part of the overall Service Offering Itron will provide SaaS for the applicable Software, plus Itron will also assume some of Customer's SaaS-related operational responsibilities, including management of reads from monitored and Available Endpoints or Provisioned and Optimized Endpoints (as applicable), collecting data, and delivering data files to Customer at agreed-upon intervals in agreed upon data formats. Itron will attempt to remotely diagnose and resolve Endpoint exceptions detected by Itron or reported by Customer. If the exception cannot be resolved remotely, or it is determined to impact an individual or small number of Endpoints, Itron will notify Customer that Customer must perform in-field investigation.

**1.2.** Managed Services are only available for Itron Software identified in the table set forth in this Section 1.2 below for which Customer has purchased such Managed Services and paid all applicable fees.

| Itron Software Eligible to Receive Managed Services |
|---|
| UIQ: Advanced Metering Manager, Meter Program Configurator, Control Platform, Outage Detection and SensorIQ |

**1.3. Managed Services – Definitions**. The following defined terms are applicable to these Special Terms and Conditions for Managed Services:

**Anchor Read** means the "register value" stored once daily in a register in the Communication Module as installed in the Endpoint (usually at midnight).

**Available Endpoint** is an OpenWay CE or OpenWay CM term defined as an Endpoint which meets the following criteria: (a) the Endpoint, if installed by Customer, has been properly installed, (b) Customer has provided all necessary and correct information for Itron to properly provision the Endpoint in Itron's data collection platform (c) the Endpoint is communicating with Itron's data collection platform and a register read has been received from the Endpoint for three (3) consecutive days. An Endpoint will not be considered an Available Endpoint if any of these conditions have not been met; or (a) if an exception is detected by Itron or reported by Customer, but the exception cannot be resolved remotely, (b) the Endpoint if it is under field investigation, or (c) cellular carrier outages.

**Communications Module** or **NIC** means Itron's network interface card that may be installed in Equipment.

**Cumulative File Delivery Delay Hours** means – for the purpose of determining Monthly File Delivery Performance % -- the sum of all Daily File Delivery Delay Hours in the Measurement Month.

**Daily File Delivery Delay Hours** means – for the purpose of determining Monthly File Delivery Performance % -- the number of hours that file delivery is delayed in a given day during the Measurement Month.

**Endpoint** has the meaning set forth in the General SaaS Terms and Conditions.

**Equipment** has the meaning set forth in the Equipment Addendum.

**Managed Services** means SaaS, plus the additional services to be provided by Itron as set forth in these Special Terms and Conditions for Managed Services.

**Optimization** is a UIQ term which means the procedure by which the layout of the network Equipment configuration and implementation have been validated ("**Optimized**") by performing active and passive tests to confirm that performance and redundancy meet the design specifications and other requirements of the Agreement. Optimization is to be executed on an area-by-area basis (or specified portion thereof), after all network Equipment is installed and a minimum of 98% of the metering Endpoints have been deployed to achieve the required level of saturation of the area.

**Provisioned** means an Endpoint that is located in an area of the NAN and which is in any of the following operational states within the UIQ System: "active," "inactive," or "disconnected," and which has been Optimized, but which is not: (i) in a "new," "discovered," "installed," "initializing," "unreachable" or "init failed" state; or (ii) considered to be in the process of being deployed or being repaired under warranty. Endpoint operational states are defined in the Meter Lifecycle Reference document.

**Service Level Trigger** means satisfaction of the particular condition(s) noted in these Special Terms and Conditions below upon which the applicable service level will start to be enforceable and reported on.

2. **Managed Services – Daily Operational Roles & Responsibilities.** Daily operations, Endpoint data collection activities, delivery of daily data export files, and event exception notification require that activities be performed by both Itron and Customer to ensure effective delivery of Managed Services. The table below lists the respective responsibilities of Customer and Itron for such daily activities. Itron's obligation to provide Managed Services are expressly contingent upon Customer's full performance of all responsibilities assigned to Customer.
   P=Primary responsibility
   S=Support responsibility

| Description of Service or Deliverable | Itron | Customer |
|---|---|---|
| Create, monitor, and manage interrogation schedules. | P | |
| Ensure any input files are received and processed and output files are delivered to Customer by posting to a SFTP folder, or equivalent, where it can be retrieved by Customer as needed. | P | |
| Manage files on the SFTP server where any export files are delivered. If the SFTP server is Itron's, files should be downloaded nightly and files that have been successfully downloaded and processed are to be removed from the SFTP location within 7 days. | P | S |
| Perform read rate monitoring and reporting. | P | |
| Perform remote investigation for specific groups of non-communicating Endpoints affected by a common network issue and coordinate field order with Customer as needed. | P | S |

| Description of Service or Deliverable | Itron | Customer |
|---|---|---|
| Perform scheduling of Endpoint interrogations including file delivery and delivery of Data Collection Platform standard reports. | P | |
| Notify Itron in advance when additional devices are planned to be installed. Perform Meter field maintenance; close work orders with Itron. | | P |
| Perform Network Device and Endpoint repair, replacement, or relocation as required. | | P |
| Perform RMA, Processing, Tracking and Performance Reporting for Endpoints and Network devices. | S | P |
| Administration of the Managed Services platform applications to Service Levels. | P | |

3. **Managed Services – Environmental Management Roles & Responsibilities.** In addition to the daily operational tasks, Customer and Itron each have responsibilities for monitoring and managing the operating environment of the Managed Services platform and applications. The table below lists the respective responsibilities of Customer and Itron for such activities. Itron's obligation to provide Managed Services are expressly contingent upon Customer's full performance of all responsibilities assigned to Customer.
   P=Primary responsibility
   S=Support responsibility

| Description of Service or Deliverable | Itron | Customer |
|---|---|---|
| Submit user access requests for new users and deletion notifications for users no longer involved with the managed system. | | P |
| Provide immediate notification in the event of a Customer employee termination for those with access to the managed system. | | P |
| Provide immediate notification in the event of an Itron employee termination for those with access to the SaaS. | P | |
| Maintain skill sets necessary to properly support the require Managed Services platform technologies. | P | |
| Maintain skill sets necessary to properly support the required Managed Services platform Field operations. | | P |
| Administer and monitor servers including but not limited to utilization of CPU, memory, IOPs, and disk space. | P | |
| Manage and troubleshoot the secure network infrastructure components and processes (if applicable). | P | |
| Administer associated Linux, Unix, and Windows operating systems. | P | |
| Apply Operating System and other 3rd party security patches and critical updates as appropriate. | P | |
| Update security appliances (if applicable) with new Endpoint related security files. | P | |
| Maintain and troubleshoot third party software issues required for Managed Services platform operations, work with third party to troubleshoot as required. | P | |

| Description of Service or Deliverable | Itron | Customer |
|---|---|---|
| Maintain anti-virus on all windows-based servers. | P | |
| Perform the initial Network Devices configuration. | P | |
| Monitor Network and Endpoint communications and support metering and communications troubleshooting activities for the Managed Services platform. | P | |
| Support solution upgrade activities. | P | |
| Maintain and administer the Managed Services platform server databases. | P | |
| Establish and manage the wireless backhaul contracts and accounts if applicable. | P | |
| Support Customer's technical operations department to handle Endpoint and Network field exceptions. | P | |
| Manage upload and submission of meter data files; work with Itron when problems are identified. | | P |
| Provide and maintain a Secure FTP. | P | |
| Perform regular system, database, and custom component backups in accordance with selected service level. | P | |
| Develop and maintain related standard operating procedures. | P | |
| Manage Endpoint firmware revisions, including coordination and scheduling of firmware downloads as necessary (for Itron manufactured devices only with Itron provided firmware). | P | |
| Monitor Endpoint communications, reporting, and troubleshoot Managed Services platform issues as necessary. | P | |
| Manage Endpoint manufacturing and security files for all necessary solution components, troubleshoot and coordinate with manufacturing as needed. | P | |
| Develop, maintain and utilize system operations clock, standard operations procedures, and daily checklists for Itron operators and administrators. | P | |

**4. Service Levels - Managed Services.** This Section 4 of the Special Terms and Conditions for Managed Services sets forth the service levels for Managed Services. Such service levels are only available for Itron Software identified in the tables set forth below for which Customer has purchased Managed Services and paid all applicable fees.

**4.1. Read Rate Service Levels.**

**4.1.1. Service Level Applicability.** The Read Rate Service Level set forth in this Section 4.2 apply to the Itron Software identified in the following table for which Customer has purchased Managed Services and paid all applicable fees:

**4.2. Read and Demand Service Level.**

**4.2.1. Service Level Applicability.** The Data Read Service Levels and On-Demand Read

Service Level (collectively, the "**Data and On-Demand Read Service Level**") set forth in this Section 4.3 apply to the Itron Software identified in the following table for which Customer has purchased Managed Services and paid all applicable fees:

| Itron Software Eligible to Receive Data and On-Demand Read Service Level | |
|---|---|
| UIQ: Advanced Metering Manager, Meter Program Configurator, Control Platform, Outage Detection and SensorIQ | |

**4.2.2. Data Read Service Level.**

**(a) Service Level Trigger**. The Service Level Trigger for the Data Read Service Level occurs when the applicable Endpoints are Provisioned and Optimized. As each additional area is Optimized, Itron will identify the Endpoints that will be added to the set of Provisioned and Optimized Endpoints subject to the Data Read Service Level.

**(b) Service Level.** For newly available data on the Communication Module, the UIQ System will gather and process Anchor Reads and interval reads from Provisioned and Optimized Endpoints and deliver, via the "export" mechanism of the UIQ System, at least ninety-nine percent (99.0%) of Anchor Reads captured at midnight and of interval reads captured each day, by 6:00 a.m. local time the next day, and at least ninety-nine percent (99.5%) of Anchor Reads captured at midnight and of interval reads captured each day, by 2:00 p.m. local time the next day ("**Data Read Service Level**").

**(c) Service Level Credits.** Subject to the service level exclusions set forth in Section 8.1 (Service Level Exclusions) of the General SaaS Terms and Conditions, Customer will be entitled to the following credits as its sole and exclusive remedy for Itron's failure to meet the foregoing Provisioned and Optimized Endpoint Data Read Service Level:

| Data Read Service Level Credits (production environments only) | |
|---|---|
| Number of Daily Failures in the Applicable Month | Credit (% of monthly Managed Services Subscription Fee with respect to the applicable Itron SaaS Application) |
| 1 – 3 | 0% |
| 4 – 10 | 4% |
| 11-15 | 10% |
| 16 – 20 | 20% |
| 21 + | 30% |

**4.2.3. On Demand Read Service Level.**

**(a) Service Level Trigger**. The Service Level Trigger for the On-Demand Read Service Level occurs when the applicable Endpoints are Provisioned and Optimized. As each additional area is Optimized, Itron will identify the Endpoints that will be added to the set of Provisioned and Optimized Endpoints subject to the On-Demand Read Service Level.

**(b) Service Level.** The UIQ System will successfully execute at least (98.0%) of all (i) on-demand read, (ii) on-demand remote connect and (c) on-demand remote disconnect requests made by Customer for Provisioned and Optimized Endpoints which are actively communicating ("**On-Demand Read Service Level**"). An on-demand request is a single transaction to a single Endpoint, initiated by a single user of the UIQ system. An on-demand read request does not include batch read jobs targeted at multiple Endpoints (e.g. "read all unread meters") or read operations used to detect scope of outages and/or determine whether an outage is over. For the purposes of calculating this Service Level, multiple attempts to connect with a single device within a twenty (24) hour period will count as one failed attempt; on-demand read requests (single or batch) targeted at an Endpoint which was not read in previous 24 hours will be excluded; and on-demand read jobs initiated by system-level accounts ("root" and "UIQ") will be excluded. Service level credits will apply only if there is a minimum of 2,000 on-demand requests in the applicable month.

**(c) Service Level Credits.** Subject to the service level exclusions set forth in Section 8.1 (Service Level Exclusions) of the General SaaS Terms and Conditions, and provided that the minimum number of on-demand Anchor Reads and interval meter read requests has been met pursuant to the table below, Customer will be entitled to the following credits as its sole and exclusive remedy for Itron's failure to meet the foregoing On-Demand Read Service Level:

| **On-Demand Read Service Level Credits (production environments only)** | |
|---|---|
| % of On-Demand Meter Read Requests Successfully Executed in the Applicable Month | Credit* (% of monthly Managed Services Subscription Fee with respect to the applicable Itron SaaS Application) |
| ≥98.0% and 100.0% | 0% |
| ≥95.0% and <98.0% | 5% |
| ≥90.0% and <95.0% | 20% |
| ≤90.0% | 30% |
| *Credits will apply only if there is a minimum of 2,000 on-demand requests in the applicable month. Multiple attempts to connect with a single device within a twenty-four (24) hour period will count as one failed attempt. | |

**END**

# Itron Advanced Metering Infrastructure (AMI): Electric Meters, Network and Software Contract Review & Approval

**NSTAR Electric Company**
Board of Directors
December 19, 2023
[redacted]

# Contents

- Executive Summary
- Background
- Contract Attributes
- Financial Summary
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# Executive Summary

**Scope**

- Eversource has selected Itron as its Advanced Metering Infrastructure (AMI) Equipment (Meters and Network), Software and Services partner to meet requirements of the approved Massachusetts AMI implementation plan, with the option to extend purchasing under the same terms to CT.
- Ten-year agreement for 1,537,000 electric meters and network devices (with option to extend beyond MA) supports 2025 start of meter deployment.
- Services include managed Software-as-a-Service (SaaS), design and deployment support services, configuration services, training, and on-going support services.
- $372M of capital spending was approved previously at the May 2023 NSTAR Electric Company Subsidiary Board; this request is for the vendor contract only which includes both capital and O&M.

**Justification**

- Itron offers the best supply chain mitigation efforts and shortest quoted lead times (20 weeks) among all bidders.
- Includes all Eversource-requested system performance Service Level Agreements (SLAs).
- Provides full requested functionality.
- Includes performance and warranty protections to support near- and long-term success of deployment.
- Includes letter of agreement with Aclara to offer second source electric meter (if necessary).
- Provides verifiable meter pricing discounts and lowest bid price.
- Lowest overall solution risk since performance capabilities are already demonstrated at scale (Con Ed) and has created deep supply chain management processes.

**Funding Request**

- Procurement is seeking NSTAR Electric Company Subsidiary Board approval of $368M ($324M capital / $44M O&M contract award (which represents a 10-year spend estimate with contingency).

# Background

**Background**

- Eversource is initiating a program in Massachusetts to deploy an AMI system that collects detailed usage and voltage data in 15-minute increments via a wireless mesh communications system.
- Through this program, Eversource will be able to establish a foundation for transformational customer and utility operating insights.
- Eversource is preparing to begin procurement of the critical components from various vendors for its AMI solution and expects to begin the deployment of meters in 1H 2025 and conclude by Q4 2027.

**RFP Process**

- Bidders: Itron, Honeywell, Landis+Gyr, Aclara, Trilliant, AT&T, and Sensus.
  - Itron, Honeywell, and Landis+Gyr were shortlisted as finalists based on closest adherence to specification/requirements.
- Technical scores were assigned on an array of criteria including Network Coverage, Cybersecurity Strategy, Project Experience, Advanced Meter Capabilities, and Professional Services/Support.
- Itron selected as the highest technical rating, lowest-price, and lowest risk out of 7 bidders in the RFP technical evaluation.

**Recommendation**

- Execute contract before December 31, 2023 to lock in contract terms and ensure available purchasing channel is in place to support the project schedule.

# Contract Attributes

- Existing Master Sales Agreement (MSA) with Itron used as governing Terms & Conditions.
- Pricing fixed until 12/31/2024, to be adjusted annually based on percentage variance to the Producer Price Index (PPI) for Final Demand Goods and Recurring Services, over the previous 12-month pricing period.
  - Per-meter credit of up to $40M for return of any existing meters.
  - **Protection against inflationary cost increases** during deployment period; cost sharing agreement for cases of extreme inflation.
  - Option for CT/NH electric AMI at current pricing w/ notice proceed by June 2025.
- Includes all network and meter hardware, professional services, and software and data support through 2034.
- Standard Net 30 payment terms.
- Supply Chain Benefits
  - 3-month inventory during deployment period (2025-2028).
  - Lead Time commitments with penalties for late delivery.
- **Unprecedented warranties**: 6-year full warranty on meters and network equipment (industry standard 1 year), with additional “excessive failure” coverage and obligations for at least 12 years.
- Network Coverage and Performance
  - **No Meter Left Behind** – guarantees network reads for 100% of MA Electric meters; unprecedented in the AMI industry.
  - Network optimization service for life of contract.
- Contractual Commitment and penalties for product roadmap items requested by Eversource.

# Contract Attributes (continued)

- Advanced functionality of meters supports current best-in-class and future use cases.
- **Functional Highlights**
  - 2-way communications for metering, configuration changes, and firmware updates.
  - Bi-directional metering for tracking of both delivered and received energy (e.g. Solar).
  - On-demand meter reading.
  - Real-Time Meter Event and Alarm Retrieval.
  - Remote Disconnection and Reconnection of electric service.
  - Power quality monitoring with high granularity data sampling.
  - Support for up to 48 channels of data programmable down to 5-minute intervals.
- **Distributed intelligence (DI) edge computing capability**
  - High Impedance Detection
  - Neutral Fault Detection
  - Meter Bypass Theft Detection
  - Active Temperature Monitoring
  - Transformer Location Awareness
  - Electric Vehicle Readiness
  - Electric Vehicle Awareness
  - Load Disaggregation
  - Solar Awareness
  - Home Area Network Enablement
  - Active Transformer Load Monitoring
  - Active Transformer Voltage Monitoring
  - Load Shedding
  - Underfrequency Contact Detection
  - Vegetation Contact Detection

This is just a sampling of currently available applications with more to come as the program progresses.

# Financial Summary

| | Sub Board Capital Approved (May-2023) | | Itron Contract Capital | Itron Contract O&M | Itron Contract Total | Notes |
|---|---|---|---|---|---|---|
| Meter | 313.9 | | [redacted] | | [redacted] | Meters and Professional Services |
| Powertrack | 3.0 | | [redacted] | | [redacted] | |
| Communications | 41.4 | | [redacted] | | [redacted] | Wireless data Service and Network Infrastructure |
| Head End (SaaS) | 1.5 | | [redacted] | [redacted] | [redacted] | Software-as-a-Service (SaaS) fees, capitalizing first year |
| PM / Cyber Costs | 12.3 | | [redacted] | | [redacted] | |
| **Subtotal** | **372.1** | | [redacted] | [redacted] | [redacted] | |
| Contingency 15% | | | [redacted] | [redacted] | [redacted] | |
| **Total Contract Approval Request** | | | [redacted] | [redacted] | [redacted] | |

- Vendor will provide 1.5M meters, network equipment, data service, support services, and software.
- Budget to be held by Customer Operations and Digital Strategy.
- $372M capital was approved in May 2023.
- $313.9M Meter category includes $76.8M in services from other vendors, including meter installation, not just the meters and services from Itron.
- Contract includes 10yrs of Software-as-a-Service (SaaS), with 15% contingency for scope revisions.
  - $1.9M capitalized for set-up and year one fees; $43.8M O&M for years nine through ten.
- O&M will be included in AMI Tracker through 2028.
  - 2025-2028 $15M Tracked O&M.
  - 2029-2033 $29M Non-Tracked O&M (assuming tracker ends after 2028).

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## Regulatory Background

- In November 2022, MA DPU approved the Company's AMI implementation plan of $668M and established two budget caps for Core and Support AMI programs for spending between 2022 and 2028.
- The Core budget cap is $535 million and covers the following programs.
  - Meters
  - Communications
  - Meter Data Management and Head End System
  - Customer Information System
  - Cybersecurity
  - Project Management
- The Support budget cap is $133 million and covers the following programs.
  - Customer Enablement
  - Analytics
  - Integrations
  - Customer Education
  - Contact Center
- Capital spending above budget caps is recovered through base capital subject to program prudence review.

# Executive Summary – AMI Program (from the 05/23/23 Sub Board approval)

## Scope

- The scope of the AMI Program consists of the following components:
  - AMI Operations which includes AMI meters, communications network, head-end system, installation services and meter asset management system *(previously approved).*
  - The Meter Data Management System (MDMS) software and implementation services *(previously approved).*
  - The OMNI project *(previously approved).*
  - The Customer Portal and Data Analytics projects *(previously approved).*
  - Future requests for two additional capital projects required to fully execute the AMI program for MA – OMS (to integrate with the MDMS to Report and Verify Power Outage and Power Restoration information) and Volt / VAR Optimization (integration to help achieve energy reduction).

## Justification

- The AMI program will replace aging drive-by meter infrastructure with limited functionality with updated technology that will provide customers with more detailed and timely insights about their usage data, enable time-varying rate options for customers, facilitate integration of distributed resources and electric vehicles, increase operational efficiency and improve storm restoration.
- AMI meters will collect granular usage data and will be capable of on-board computations to provide advanced features such as behind the meter load disaggregation.
- The MDMS will perform validation, estimation and editing functions for the high volume of interval data collected by AMI meters.
- The AMI Data Analytics platform will deliver and enable data insights to support improvements in system efficiency in the areas of Theft Detection, Transformer Load Management and Advanced Rate Design.
- The AMI Customer Portal will provide customers access to their detailed energy usage to gain insight into their energy use and turn those insights into actions.

# AMI DPU Approved Budget vs Project Estimate

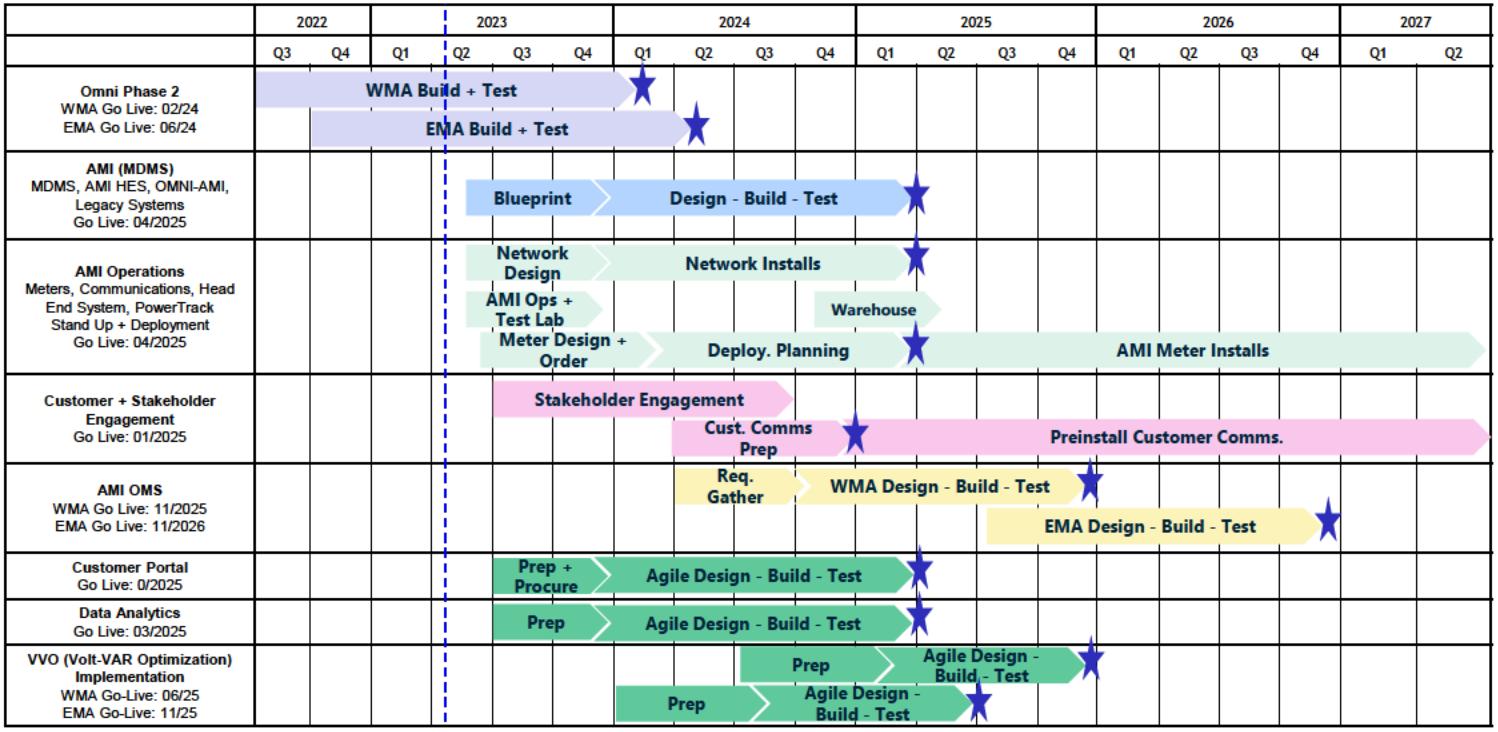
| Category | Type | DPU Budget | Sub Board Approved Amount - Capital | Estimated Project Amount - O&M | Total Project Estimate | Project Estimate vs DPU |
|---|---|---|---|---|---|---|
| Core | Ops AMI Project | 275.3 | 372.1 | 28.9 | 401.0 | 125.7 |
| Core | *Meters* | *232.1* | *329.2* | *15.8* | *345.0* | *112.9* |
| Core | *Communications* | *43.2* | *41.4* | *2.1* | *43.5* | *0.3* |
| Core | *Head End (HE)* | - | *1.5* | *11.0* | *12.5* | *12.5* |
| Core | Meter Data Management (MDM) | 48.2 | 76.1 | 1.2 | 77.3 | 29.1 |
| Core | Customer Information System (CIS) | 154.3 | 172.5 | 26.5 | 199.0 | 44.7 |
| Core | Cyber Security | 13.9 | | | - | (13.9) |
| Core | Project Management | 43.1 | | | - | (43.1) |
| **Total Core** | | **534.8** | **620.7** | **56.6** | **677.3** | **142.5** |
| | | | | | | |
| Support | Customer Enablement/Portal | 17 | 27.6 | 1.6 | 29.2 | 12.2 |
| Support | Analytics | 37.6 | 49.2 | 0.2 | 49.4 | 11.8 |
| Support | Integrations/OMS | 40 | | | | (40.0) |
| Support | Customer Education | 7.3 | | | | (7.3) |
| Support | Contact Center Theft | 31.2 | | | | (31.2) |
| **Total Support** | | **133.1** | **76.8** | **1.8** | **78.6** | **(54.5)** |
| | | | | | | |
| | **Total AMI Project** | **667.9** | **697.5** | **58.4** | **755.9** | **88.0** |

- DPU Budget includes both Capital and O&M spending.
- Cyber Security and Project Management costs are allocated to each project within each PAF.
- Portal and Analytics projects routing for approval in Powerplan.
- Meter O&M includes 2025-2028 Itron SAAS fees.

# Project Authorization Status (as of 12/11/2023)

| PAF | Description | Capital Request ($M) | Status |
|---|---|---|---|
| | **Prior Requests** | | |
| AMI Meter Data Management System (MDMS) for MA | Implementation of a new MDMS, that will fully support the advanced functionalities enabled by the new generation of AMI meters | $76.1M | Fully approved in PowerPlan. Charge codes created |
| AMI Metering - Meters, Communications, Head End System, PowerTrack, PMO<br><br>**Includes $320M Itron contract capital** | Procurement and deployment of MA electric meters, a Head End System, communications and networking infrastructure devices, integrating into the core MDMS to create an integrated end-to-end AMI solution. Includes the necessary upgrades to PowerTrack and associated Maximo integrations to support meter and network equipment asset management. | $372.5 | Fully approved in PowerPlan. Charge codes created |
| OMNI P2 | Implementation of industry standard SAP Customer Relations and Billing (CR&B) and Cloud for Customer (C4C) software for EMA Electric and Gas and WMA customers | $172.5 | Fully approved in PowerPlan. Charge codes created |
| Customer Portal | Implement an enhanced digital experience via inbound channels, namely the Eversource website and mobile application, that will provide access to detailed energy usage data in a visual format. This will enable customers to interact with usage information to gain insights about their energy use. | $27.6 | Final PAF approvals in progress. |
| Data Analytics | Implementation of a Data Analytics platform to deliver enhanced data and analysis generated by the MDMS in the areas of Theft/Fraud Detection, Transformer Load Management, Conservation Voltage Reduction and Vol/VAR Optimization, Advanced Rate Design and Outage Prediction / Vegetation Management. | $49.2 | Final PAF approvals in progress. |
| | **Future Requests (to be started in H2-2024)** | | |
| OMS | This project will integrate with the MDMS to Report and Verify Power Outage and Power Restoration information | $7.8 | |
| AMI-2 Operations - AMI to VVO (Volt/VAR Optimization) | Integration to help achieve energy reduction by providing insights for advanced voltage control and management (such as through CVR (Conservation Voltage Reduction)/VVO techniques) to adjust service voltage to customers and thus reducing line losses and energy consumption. Includes Capacitor Bank costs for CVR/VVO. | $29.6 | |
| **Total Capital Request** | | **$724.7M** | |

# Eversource MA AMI Program Schedule



# Financial Evaluation - AMI Metering

**Annual Total Capital Project Costs: As presented in 5/23/23 Sub board meeting**

| Capital Costs | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | Total |
|---|---|---|---|---|---|---|---|
| **Direct Capital Costs** | | | | | | | |
| Internal Labor and Construction Equipment | $345 | $1,985 | $2,531 | $2,946 | $2,804 | $451 | $11,061 |
| Outside Services | $1,903 | $8,122 | $18,519 | $37,677 | $23,906 | $727 | $90,854 |
| Materials | $1,000 | $4,662 | $24,069 | $86,087 | $58,719 | $149 | $174,685 |
| Removals | $117 | $141 | $2,003 | $7,117 | $4,926 | $0 | $14,303 |
| Risk and Contingency | $336 | $1,496 | $9,037 | $28,932 | $20,064 | $442 | $60,308 |
| Other | $0 | $50 | $952 | $2,904 | $3,468 | $3,099 | $10,472 |
| Subtotal – Direct Costs | $3,701 | $16,416 | $57,111 | $165,663 | $113,887 | $4,868 | $361,683 |
| **Indirect Capital Costs** | | | | | | | |
| Indirect/Overheads (including benefits) | $359 | $1,517 | $2,185 | $3,562 | $2,768 | $400 | $10,790 |
| Capitalized interest or AFUDC, if any | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Subtotal – Indirect Costs | $359 | $1,517 | $2,185 | $3,562 | $2,768 | $400 | $10,790 |
| **Total Gross Capital Costs** | $4,061 | $17,971 | $59,295 | $169,225 | $116,654 | $5,267 | $372,473 |
| Customer Contribution | | | | | | | |
| **Total Net Capital Project Costs** | **$4,061** | **$17,971** | **$59,295** | **$169,225** | **$116,654** | **$5,267** | **$372,473** |

| Costs by Entity | Eastern MA | Western MA | Totals |
|---|---|---|---|
| Direct Capital | $282,463 | $49,083 | $331,546 |
| Indirect Capital | $9,474 | $1,316 | $10,792 |
| Contingency | $25,676 | $4,462 | $30,138 |
| **Total Capital Project Costs by Entity** | **$316,613** | **$66,861** | **$372,476** |

# Risk Assessment – AMI Metering (as presented in May 2023 sub board mtg)

| Risk Description | Risk Horizon | Impact | Risk Mitigation |
|---|---|---|---|
| Unforeseen interface problems with customer and field systems (OMS, OMNI, Click, etc.) or inaccurate data capture causes costs to increase and/or schedule delays | 2023-2027 | $15.0M | Establish dedicated capital projects for key integrations (OMNI, OMS) with dedicated teams to develop requirements and address issues as identified |
| Key business and IT resources not available when needed to support the project due to competing priorities on other projects or operational demands (e.g., Mass Market Billing System Project requires more analytics resources) | 2023-2027 | $14.8M | Conduct resource assessment for each project and augment internal resources as needed with additional internal and external resources. Time project implementations to address limited internal resources. |
| High level of complexity associated with the overall AMI project, requiring coordination between multiple external software and professional services vendors, external stakeholders and Eversource resources leads to a larger than anticipated effort and/or budget and schedule overruns | 2023-2027 | $12.6M | Stand up dedicated project management office (PMO) to develop a unified budget and schedule for all AMI program components. PMO will track progress and highlight emerging risks in support of timely issue resolution. |
| Metering and IT equipment delays (including workstations, servers, switches) result in project delays (long lead times/ global supply chain issues) | 2023-2027 | $10.4M | Ensure procurement decisions are executed with sufficient time to support long-lead material constraints. |
| Defects in MDMS project negatively impact the customer billing system causing customer concerns/potential regulatory concerns | 2023-2027 | $9.7M | Develop detailed requirements for MDMS project in coordination with OMNI project and conduct robust testing prior to go-live. |
| Loss of key internal personnel (business and/or IT) and/or external vendors over a multi-year project may result in implementation delays and cost increases | 2023-2027 | $9.5M | Cross-train internal resources to limit impact of employee attrition. Establish expectations with vendors for project resource consistency. |
| Costs (Equipment, software, installation, labor) are higher than current cost estimates | 2023-2027 | $9.4M | Complete assessment to determine if alternative suppliers for equipment and/or services is feasible. |

**Working with Enterprise Risk Management, the Project team identified top risks with a potential likelihood adjusted program impact of $81.4 million. The total Contingency allocated in the current PAF estimates is $85.0M**

# Vendor Technical Scores

| Item | Description | Section Weight | Honeywell Score | Itron Score | Landis+Gyr Score |
|---|---|---|---|---|---|
| C.1 | C.1 Cyber Security Requirements | Pass/Fail | Fail | Pass | Pass |
| A.1 | A.1 Company Profile | 2.00% | 7.0 | 7.8 | 7.3 |
| A.2 | A.2 Solution Summary | 2.00% | 5.3 | 8.1 | 6.7 |
| A.3 | A.3 Bridge Meter Utilization | 4.00% | 5.3 | 7.5 | 5.9 |
| A.4 | A.4 Network Coverage Plans | 10.00% | 6.2 | 8.8 | 6.5 |
| A.5 | A.5 Project Approach and Proposed Schedule | 3.00% | 4.8 | 7.8 | 6.4 |
| A.6 | A.6 Prior Experience | 3.00% | 5.0 | 8.1 | 7.1 |
| A.7 | A.7 Project Team | 5.00% | 5.9 | 7.1 | 6.5 |
| A.10/11 | A.10/11 Solution Requirements | 20.00% | 8.28 | 8.98 | 8.67 |
| A.12 | A.12 Distributed Intelligence Support | 2.00% | 2.0 | 7.7 | 6.3 |
| C.3 | C.3 Exceptions to AMI SW & Services SOW | 4.00% | 4.5 | 8.7 | 7.0 |
| C.4 | C.4 Proposed Agreement for MSaaS | 5.00% | 5.0 | 7.5 | 7.0 |
| | Total Score (Scaled to 60%) | 60.00% | 32.56% | 51.67% | 37.35% |

**Note: Technical Score was weighted at 60%.**

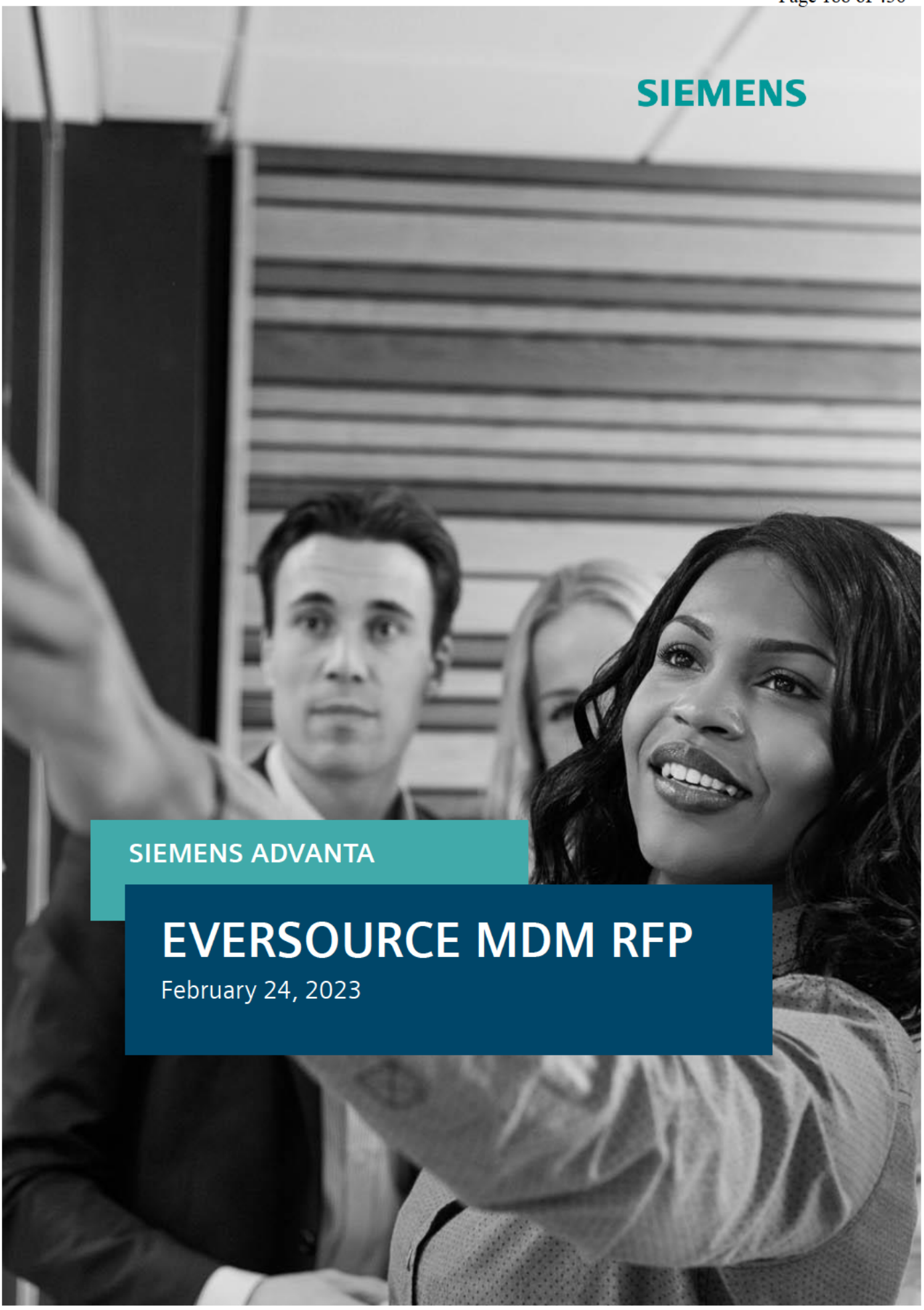
# Pricing & Final Scoring Comparison

| Description | Itron | L+G |
|---|---|---|
| Meters | [redacted] | |
| Network | | |
| Total | | |

| | Itron | L+G |
|---|---|---|
| Functional + Shortlist (scaled to 60%) | 51.67% | 37.35% |
| Commercial Score (scaled to 40%) | 39.56% | 39.40% |
| Final Score | 91.22% | 76.75% |

**Notes:**

- **Itron meters include upgraded processor speed and memory (best available).**
- **Itron network cost are higher due to the design (more devices deployed).**
- **Itron has guaranteed network communication to all meters (no meter left behind).**
- **Honeywell pricing was not included since they were not technically compliant.**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EVERSOURCE MDM RFP
February 24, 2023

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February 24th, 2023

To the EVERSOURCE Team,

Siemens is grateful for the opportunity to respond to the EVERSOURCE Request for Proposal for a new Meter Data Management System for AMI. We have done so with great care and significant consideration for your specific requirements, and we are uniquely qualified with our deep experience in the utility industry, our breadth of professionals for both MDM/AMI and EnergyIP resources, and our strong references which no other competitor can claim. Our prior experience with utility customers matches what EVERSOURCE has asked for in terms of multitenancy, as well as both short and long-term SAP integrations. Further, Siemens Advanta is the only bidder that has these verifiable experiences and deployments at scale.

We are responding to your RFP with both a Utility hosted option, comprised of licensing and implementation services, as well as a Vendor Hosted Solution leveraging a leading cloud platform where we will provide managed services. Both options utilize the Siemens Smart Grid Platform, EnergyIP, with the Meter Data Management (MDM) application and necessary add-on modules to meet your requirements and exceed your expectations.

Siemens Advanta is the IoT consultancy and solutions integration arm of Siemens, an international corporation with a market cap exceeding $122 Billion. We have unparalleled know how and depth for the implementation and integration of Siemens software, with an especially strong and deep expertise and resource pool with EnergyIP MDM. The EnergyIP segment of our business continues to grow, and we continue to hire and expand our capabilities in this area. Siemens Advanta is recognized as THE leader in IT and OT integration services for utilities according to the independent IDC MarketScape Vendor Assessment. Siemens Advanta is the only bidder who can claim this leadership position in this vital independent evaluation.

Siemens Advanta has implemented over 75% of the 100+ million smart meters contracted through EnergyIP®. As the market leader in Meter Data Management, the Siemens EnergyIP platform spans 250 individual utilities and over 100 million managed devices worldwide including more than 10 customers that each have over 1 million meters. No other system integrator vendor comes close to this depth of experience. EnergyIP MDM increases data reliability, reduces operating costs, and delivers faultless billing accuracy. Siemens Advanta has been the exclusive provider of implementation, integration, production support, and custom development services for 3 of some of the largest utilities in North America with similar scope, size, and scale as EVERSOURCE, which we have highlighted in our references. We will deliver the best MDM software product in combination with our market leading services to help EVERSOURCE achieve its business requirements and goals.

To address EVERSOURCE's requirements, Siemens is proposing to implement a robust Meter-to-Cash MDM Solution that will meet EVERSOURCE's immediate priorities and help manage the planned expansion. As EVERSOURCE begins the AMI journey, Siemens Advanta will minimize complexity and provide a platform that allows flexibility and scalability for the future. The Siemens Advanta solution is based on an open standards architecture that is multi-vendor compatible to AMI headend solutions and back-office systems. This solution delivers timely and actionable information that streamlines the EVERSOURCE utility business processes and reduces overall operating costs. The scope of our core Meter-to-Cash solution supports:

- A purpose-built AMI headend adapter, provisioning and commissioning, meter reading operations, validation, estimation, and editing (VEE), operational dashboards, reporting, and billing operations with your Customer Information System.
- Solution scope beyond the core meter-to-cash offer, including enhanced MDM features for billing and service orders, outage management, and analytics capabilities are also available.

- Optional functionality such as prepay, Demand Response (DRMS) through EnergyHub and a customer engagement portal through SEW - best in class solutions - can be delivered in future phases to enhance the operational value of the EnergyIP Platform.
- The extensibility of our solution allows significantly enhanced overall system capabilities as EVERSOURCE expands and continues to adapt to the changing market and environmental needs.

Siemens Advanta offers EVERSOURCE *THE* best choice – a combination of the most experienced integration service provider with the leading MDM. Our utility customer references will testify to the integrity and reliability of Siemens Advanta as a true partner for MDM implementation. By working with Siemens for the entire solution, implementation and, optionally, managed services, EVERSOURCE will receive a world class and seamless solution, the most experienced service provider, and the attention that the utility deserves in a partner for a project of this magnitude.

The Siemens Advanta team is proud to present our detailed proposal for EVERSOURCE's diligent consideration for this vital MDM implementation project. We encourage you to reach out to our project specific references to hear first-hand of the depth of our expertise and people for a project of the magnitude you are undertaking. Our team looks forward to operating as a key partner for years to come with EVERSOURCE.

We are excited about the opportunity to discuss and demonstrate our ability to meet all of EVERSOURCE's requirements in the next phase of the RFP process.

With warm regards,

[redacted]
CEO, Siemens Advanta USA

[redacted]
CFO, Siemens Advanta USA

## Executive Summary

For the MDM implementation at EVERSOURCE, Siemens Advanta (Siemens) will be the IT Services, Integration, and Implementation arm for the Siemens EnergyIP platform. The EnergyIP MDM is the best choice to support EVERSOURCE based on the following factors:

- Scalability and Flexibility. EnergyIP is used by over 250 individual utilities globally with meter counts ranging from 40,000 to deployments of over 5 million meters across multiple commodities.
- Utility Purpose Design. Siemens thoroughly understands the changes occurring in the modern US utility. Renewable penetration and electrification trends are driving utilities to consider factors like reliability and power flow with critical importance. EnergyIP will ease the strain of day-to-day meter-to-cash functionality and provide world class insight with the purpose-built suite of applications.
- Customer Benefit. EnergyIP improves AMI roll-out management and delivers immediate value from the data collected to the customer. EVERSOURCE customers will realize improvement in usage data and billing accuracy. Near real-time data processing enables EVERSOURCE and consumers' adoption of distributed energy resources by providing immediate insight on the AMI data.

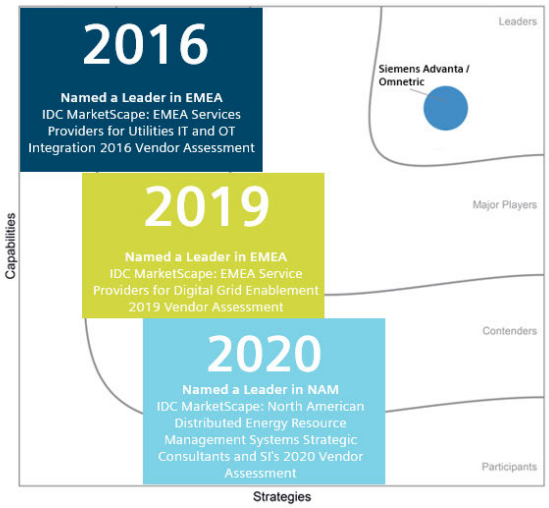
While EVERSOURCE is evaluating how to implement a new MDM Solution, there are some key points to consider:

- The Siemens Advanta organization has in-depth knowledge and the most experience globally with the EnergyIP platform having integrated more than 75% of the over 100 million smart meters contracted through EnergyIP.
- Siemens Advanta is the only system integrator for the EnergyIP platform which is owned by Siemens AG (ticker SIE:GR), a Fortune 100 company.
- Siemens Advanta is a leader in AMI operations solutions with 15+ years of collective experience in mastering utility & AMI ecosystems, 60+ SMEs and 100+ engineers.
- Siemens Advanta is the only officially sanctioned and authorized partner of Con Edison (ConEd) for their AMI/MDMS solution. ConEd will attest to the excellence of Siemens Advanta and its team in our ongoing partnership in AMI Implementation for 7 years now.
- Siemens Advanta has extensive, hands-on experience managing the integration of multiple Headend Systems and complex system architectures including multitenancy and legacy CIS to SAP conversions.
- Only Siemens Advanta has a combination of proven domain expertise (OT) paired with strong IT capabilities and state-of-the art consulting methodologies.

Siemens Advanta is the number one system integrator for the EnergyIP MDM solution in the market and is the lowest-risk choice as the EVERSOURCE partner in your AMI journey. Together with the EnergyIP MDM platform, Siemens Advanta will ensure a successful AMI program across Massachusetts, Connecticut, and New Hampshire for EVERSOURCE. As a trusted partner, Siemens Advanta will be with your team throughout the process to achieve an on-time delivery and exceed required expectations.

**Siemens Advanta with extensive integration experience and repeated Leader positioning by analyst IDC**




As you read our proposal, you will find that Siemens Advanta is uniquely positioned to support EVERSOURCE through the upcoming transformation and into your vision of the Utility of the Future.

## Appendix A

## A.1 Proposer Company Profile

**Main contractors:**
**MDMS Software provider**

**Siemens Industry, Inc. – Business Unit Smart Infrastructure Grid Software**

100 Technology Drive, Alpharetta, GA 30005

**Background**: Siemens Industry, Inc. was started in 1891. It has currently about 14,000 employees, who work in Smart Infrastructure delivering sustainable, connected, resilient and energy efficient technology, as well as in Digital Industries, driving the automation adoption and digital transformation of the U.S. industry.

**Nature**: Privately held, for-profit corporation. Part of the Siemens Group with the ultimate parent company Siemens AG, Germany (publicly held corporation).

**eMeter Corporation**

400 East Third Ave., Suite 400k, Foster City, CA 94404

**Background**: eMeter Corporation has been in business over 20 years. It currently employs approximately 200 individuals to support the business consisting of Solution Architects, Project Managers, Solution Engineers and Technical Support.

**Nature**: Privately held, for-profit corporation, that is 100% owned by Siemens Industry, Inc. Part of the Siemens Group with the ultimate parent company Siemens AG, Germany (publicly held corporation).

**MDMS Implementation Services provider**

**Siemens Advanta Solutions Corp.**

10900 Wayzata Blvd, Suite 400, Minnetonka, MN 55305

**Background**: Siemens Advanta Solutions Corp. is the Siemens implementation and integration services practice focused on implementations of the proposed EnergyIP MDM solution. It combines their extensive MDM domain expertise along with proven, world-class delivery methodology, to manage EnergyIP Customer implementations on time, in scope and on budget. Siemens Advanta employs approximately 50 specialists in the U.S. who manage and integrate technology solutions for utility clients. It is part of a global business unit with 10,000 employees who work in consulting, solutions, and development.

**Nature**: Privately held, for-profit corporation. Part of the Siemens Group with the ultimate parent company Siemens AG, Germany (publicly held corporation).

**Siemens subcontractor**

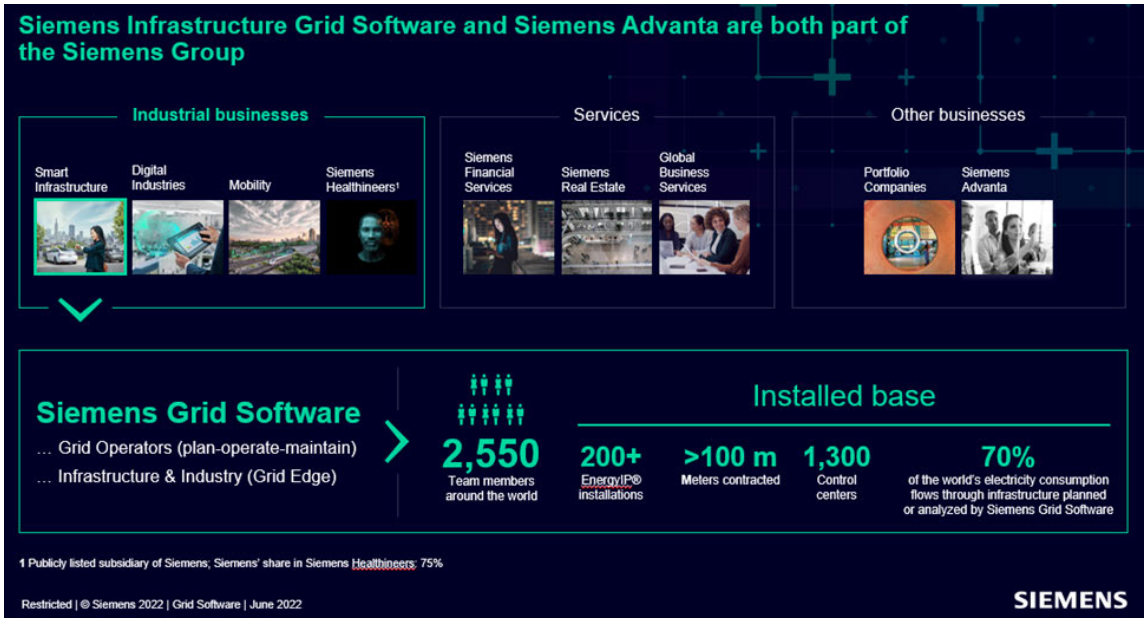
**Hosted cloud services provider**

**Siemens plc – Business Unit Smart Infrastructure Grid Software**

Sir William Siemens House, Princess Road, Manchester, M20 2UR, United Kingdom

**Background**: Siemens plc is engaged in the manufacture, installation, and sale of products in the area of industrial and building automation and drive technology. It has approximately 2,000 employees. Siemens plc is also the headquarters of Grid Software's cloud operations team.

**Nature**: Subcontractor to Siemens Advanta Solutions Corp. for hosted cloud services. Publicly held, for-profit corporation. Part of the Siemens Group with the ultimate parent company Siemens AG, Germany (publicly held corporation).



## A.2 Solution Summary

Siemens Advanta has developed a solution that is tailored to meet the requirements of the EVERSOURCE MDM project. We believe that the Siemens Smart Grid Platform will serve as a critical foundation for EVERSOURCE's key strategic plan of Grid Modernization. Our methodologies ensure that EVERSOURCE gets the most value from the AMI program and beyond, while minimizing risk during a period of complex business and operational changes. We also believe that Siemens Advanta is the partner of choice for this implementation due to our experience with projects and customers with similar scope, size and scale. Specifically, we have experience with large utilities managing a multi-tenant implementation as well as 5 active SAP implementations, including a specific reference involving legacy CIS to SAP conversion. We will leverage our experience, tools, methodology and proven results - unmatched in the industry - to deliver an MDM solution with maximum value that meets EVERSOURCE's business requirements.

The proposed MDM solution will focus on Meter-to-Cash functionality for over three million electric meters in three territories (CT, MA, NH) keeping in mind future scalability requirements. The overall implementation will be done in three phases. EVERSOURCE AMI program comprises of eight separate tenants (West MA Electric, East MA Electric, MA Gas, CT Electric, CT Gas, NH Electric, NH Gas and Water). Initially, EVERSOURCE plans to target the implementation for three tenants: West MA Electric, East MA Electric, CT Electric. EVERSOURCE is expected to integrate legacy CIS C2, MV90, SAP, OMS, Customer portal, Data Lake, FCS spread over these phases. NH Electric and other gas, water meters are planned for future phases.

For a comprehensive depiction and description of SIEMENS ADVANTA's proposed solution for EVERSOURCE, please refer to the Solution Architecture Diagram (SAD) on the following page, as well as the associated description of the components that follows.

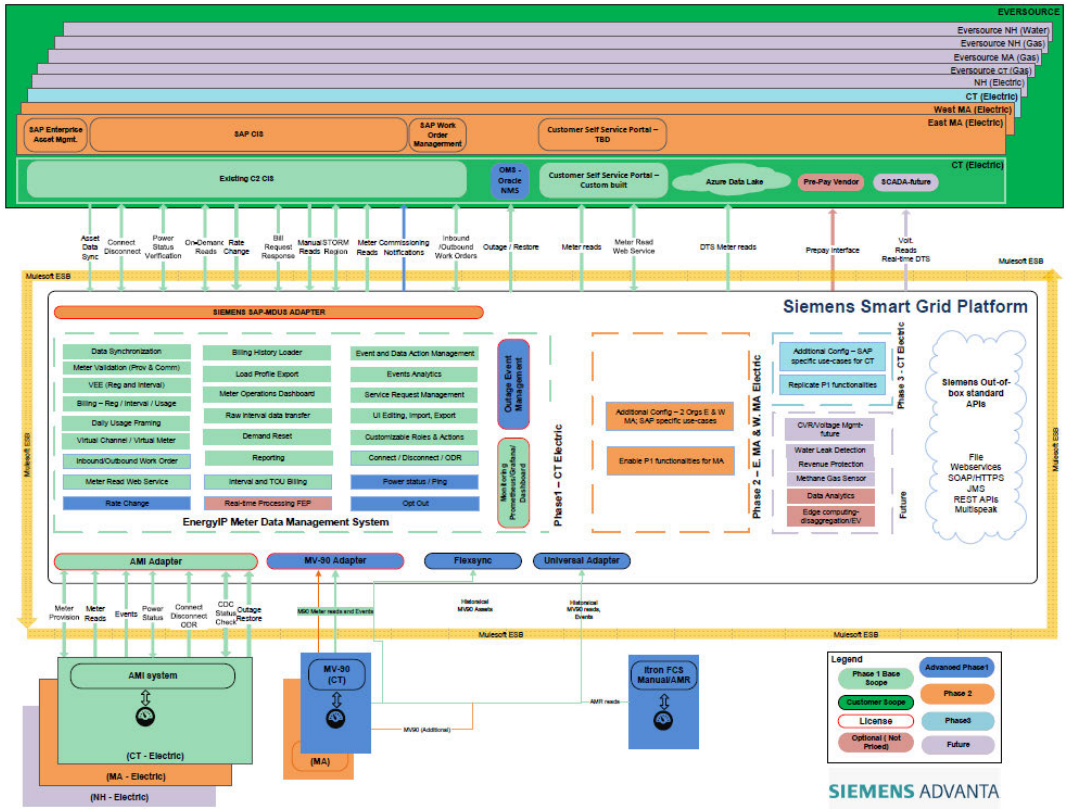



*Figure 1 Proposed Solution Architecture Diagram*

**Phase 1 Base Scope (Connecticut – Electric only)**

Systems interfacing with Siemens Advanta solution in this phase:

1. EVERSOURCE CIS C2
2. EVERSOURCE selected AMI system
3. Customer portal – Custom built
4. Azure Data-Lake

**EnergyIP Platform -** EnergyIP is the utility industry's leading smart grid integration platform and business process management system for Meter Data Management. The system delivers event-driven information and automation in real-time to integrate utility operations and enable a host of Siemens business applications delivering Meter-to-Cash, Consumer Engagement, and Operations Automation capabilities to the enterprise. In addition, EnergyIP out-of-box API's support several transport mechanisms such as Webservices, JMS, Multispeak, File based, etc.

**EnergyIP User Interface** – EnergyIP uses web-based thin client user interfaces (UI) to make data accessible to EVERSOURCE's personnel and other authorized users. With configurable roles and responsibilities, the screens and available actions can be tailored per user group. EVERSOURCE can use this framework to provide the CSRs with access to the EnergyIP user interface with permissions specific to their role. This will enable CSRs to be better informed when communicating with customers. The EnergyIP UI can be used as the portal for executing meter ping, on demand read and remote connect/disconnect. EnergyIP will send the request to the AMI system and track all requests and responses. EnergyIP user interface features My Dashboard personal configurable dashboard that you can configure to view reports or KPI, such as data collection KPIs. Also, EnergyIP Business Monitoring provides operational transparency to the MDM operators to enable them to prioritize error handling and business exception processing. It includes dashboards and out-of-the-box reports to monitor data collection and data quality metrics and analyze service point usage data anomalies from the UI.

**Business Monitoring** – This feature provides operational transparency to the MDM operators and enables them to prioritize error handling and business exception processing. It includes dashboards and out-of-the-box reports to monitor data collection, data quality metrics, and analyze service point usage data anomalies from the new UI.

**EnergyIP System Console** – EnergyIP provides a dashboard that shows the operational status of the EnergyIP applications in multiple ways. This dashboard includes trends screens which show the processing of meter reads, billing requests and synchronization transactions in a graphical format showing the number of transactions per hour and includes a reference to previous trends. The System Console is used for configuration and control, such as monitoring application status, starting, and stopping applications and log viewing.

**Monitoring and Visualization –** Siemens Advanta proposes proven monitoring and dashboard solution implemented with Consolidated Edison. In order to monitor your environments, we can use Prometheus and Grafana to collect and visualize environmental status. Prometheus, which is a database, scrapes the data of the different metrics exposed by Kafka and puts it into its own datastore periodically. The metrics for Kafka are the JMX metrics published by Kafka.

**Data Synchronization with C2 (Flexsync)**– As new meters enter the system or data on existing meters is modified, EnergyIP will be updated via the FlexSync module. The CIS will be the source system that sends all customer and meter information to EnergyIP. EnergyIP synchronizes this data and derives any additional information to support the data processing requirements. Additional source systems can also provide asset information to EnergyIP that may include Geographic Information Systems (GIS) which will provide meter to transformer relationships. For historical asset data load, Siemens assumes EVERSOURCE will provide data in acceptable formats via file based or webservice interface to the EnergyIP FlexSync module. Available API: Webservices, JMS, File based. Format: XML.

**Integration with Head End System (AMI Adapter)–** EnergyIP offers pre-built adapters to integrate with head-end systems. This "pre-wired" integration simplifies the integration costs and lowers implementation risk. EnergyIP will process and store interval and register meter reads and associated flags and events from the AMI system. EnergyIP will send provisioning messages to the AMI system as needed for meter installations, removals, and relevant changes. Two-way communications with the AMI system will also be implemented for On-Demand Reading and remote connect and disconnect. Available API : Webservices, Multispeak, SOAP, JMS, File based. Format: compliant with AMI system.

**Provisioning and Commissioning (Flexsync) -** EnergyIP provides business process management for all the activities involved in the activation, validation, exception handling, and cutover of AMI meter devices to ensure accurate data is provided to start billing from smart meters.

**Register / Interval VEE** - The EnergyIP VEE (Validation, Estimation and Editing) application performs real-time interval and register read data validation and estimation according to configurable rules. With EnergyIP's VEE functionality, EVERSOURCE can rapidly verify the accuracy of interval and register data for electric meters and make corrections in real-time. As part of base scope Siemens recommends EVERSOURCE to consider VEE design per our best practices. Scope includes tailored complex VEE service. Such VEE defined for individual service categories, meter types, customer type, rates, routes etc.

**Framing –** The EnergyIP framing module will frame interval reads into daily Time-of-Usage (TOU) and calculate peak demand. TOU schedules and demand computations are configurable. Different customers can have different configurations assigned to support a variety of rates. The framing module can also compute usage and demand values to support Critical Peak Pricing (CPP).

**Billing (Data Delivery Service)**– EnergyIP billing services will be configured to support register or interval-based billing for EVERSOURCE's electric customers. EnergyIP will perform configurable validations on all billing requests. EnergyIP supports billing requests from the CIS for off-cycle and on-cycle billing. EnergyIP will support push billing according to a calendar loaded with EVERSOURCE's billing cycles. Available API: Webservices, SOAP, JMS, File based. Format: XML.

**Complex Billing (Data Delivery Service)–** This includes delivery of billing determinants calculated from interval data such as CPP, and virtual channels used to calculate billing determinants. Billing configuration can be updated in subsequent phases to support EVERSOURCE as they test and roll out additional rate types. Available API: Webservices, SOAP, JMS, File based. Format: XML.

**Virtual Channels/Meters** – The scope includes delivering Net Metering calculations, aggregating interval channels into virtual meters or totalized meters.

**EnergyIP Core Reports & Reporting Framework (BIRT)–** EnergyIP provides an out of the box reporting framework integrated with BIRT (Business Intelligence Reporting Tool) reporting capabilities. Users can create their own reports or export the included reports and modify them as needed. Standard reports will be deployed for a variety of business and operational processes including Meter Provisioning, Data Collection, Billing, VEE, Meter Events and Service Requests. Additional reports can be defined and can be built and deployed using the EnergyIP Reporting Framework. Reports are created using predefined Business Objects which reference meter data and asset information stored within the EnergyIP data repository. As part of base scope, reports outside out-of-box reports can be developed that do not require custom software build/release and that can be designed with minimal effort such as SQL writing queries etc. Siemens base scope includes an additional 200hours of effort for such tailored report. Available API: File based, email/SMTP.

EnergyIP has several core reports, including:

- Billing Request Summary – summarizes billing requests for a given billing period by activity, status, read, errors, and validation.
- Billing Data Change – contains detailed information about billing changes due to changes of billed data.

- Billing Exceptions – shows trend and detailed information of exceptions that occurred in a billing process for given time range.
- Excessive Missing Reads – displays the summary of register and interval channels with missing reads exceeding a user defined threshold.
- Non Reporting Meters – provides graphical summary and tabular detail views for the number of meters where no valid register or interval data has been received for a specified number of consecutive days.
- VEE Exceptions – provides a quick summary of all the VEE Exceptions which happened within a date range.
- Event Activity Report – summarizes event activity for four important types of meter events: Outage, Connect/Disconnect, Tamper, and Voltage Sag
- Meter Reset – detailed list of meters that have a cumulative read that is lower than the prior cumulative read.
- Theft Flags – detailed list of meters that have reported a theft flag, either a reverse rotation or magnetic flags, for water and electric meters.
- Pending Service Request – summarizes all service requests with status not 'Done'.
- Completed Service Request – summarizes all service requests with a status of 'Done' that were closed in a specified date range.
- Stats – displays statistics counts for each internal processing service.
- Exceptions Summary – displays a list of exception counts for each internal processing service in the specified time period.
- System Activity – summarizes system activity reported by the meter data processing and data delivery services.

**Inbound Work Order Management (Activity Gateway)** – EnergyIP Activity Gateway component is responsible for exchanging such current or future dated work order request/response with the CIS. Connect, Disconnect, On-Demand Reads, Power Status are supported. These are then delegated via workflows to respective adapters to facilitate respective remote operations. Available API Webservices, SOAP, JMS, CIM. Format: XML.

**Outbound Work Order Management Integration –** EnergyIP supports integration with external systems for outbound work orders using the Activity Gateway interface. Outbound work orders generated by EnergyIP based on meter events (such as tampers) or reports can be sent to the external system. Status of these work orders can then be communicated back to EnergyIP. Available API: Webservices, SOAP, JMS, CIM. Format: XML.

**Interval Data Transfer (Data Transfer Service)–** EnergyIP provides the transfer of non-billing meter data and events to external systems like the EVERSOURCE datalake, SCADA, load profile management. The frequency and the types of reads are configurable (real-time DTS is in scope). Available API: Webservices, SOAP, JMS, CIM. Format: XML,CSV.

**Events Processing & Analysis (EDAM) –** The events collected via individual head-end adapters are processed and archived within EnergyIP database. While the Event and Data Action Management (EDAM) module creates service requests based on patterns of smart meter events. Thresholds are set per event type, and this can be used to monitor issues with electric meters (e.g., voltage condition, hardware error, etc). This provides EVERSOURCE insight into topics like meter operations and theft as well as traceability on actions taken to address these concerns. Available API: Webservices. Format: XML.

**Meter Reads Retrieving (Meter Reads Web Service)**– This feature enables EVERSOURCE's Azure Datalake to pull meter data from the EnergyIP. EnergyIP provides meter readings on demand for a requested time span for external applications. Interval, usage, or cumulative readings can be leveraged for a web interface, or data analysis studies. Available API: Webservices, SOAP Format: XML.

**Customer Portal Integration (DTS/MRWS)** – Flexible EnergyIP API's allow a seamless integration of MyAccount customer web portal enabling it to pull register and interval data on-demand over webservices.

## Phase 1 – Advanced (Connecticut - Electric Only)

Systems interfacing with Siemens Advanta solution in this phase:

1. MV90
2. Outage Management System (Oracle NMS)
3. FCS (opt-out)

**MV90 MeterData** – As required by EVERSOURCE advanced phase 1, Siemens solution offer's MV90 MDEF adapter that will interface with EVERSOURCE's MV90 to collect register, interval and meter event data. Available API: File Format: MDEF.

**Universal Adapter (UAA) –** EnergyIP proposes a universal adapter to process 1 year of historical reads and events from EVERSOURCE's existing MV90. Another instance of the same adapter will process years of AMR/Manual opt-out customers meter reads from EVERSOURCE's existing FCS. API: File based, Format: XML.

**Outage Event Management –** The Outage Event Management Application within EnergyIP leverages the AMI data to deliver a robust outage and restoration management solution. Using filtering and bellwether metering, the Outage Event Management Application delivers only the most pertinent information to the selected Outage Management System (OMS). This prevents the OMS system from becoming overwhelmed during storms and massive outage events. As the restoration from a major event unfolds, EnergyIP also provides the OMS with an interface to validate restorations through the request of a Power Status Verification (PSV) to the AMI meter. Only the PSV is currently included in scope, however, given further input from EVERSOURCE on specific requirements and priority, adjustments can be made as needed. API: MultiSpeak 3.0 Adapter, MultiSpeak 4.1 Adapter, Outage CIM Adapter.

## Phase 2 Scope (East Massachusetts & West Massachusetts – Electric only)

Systems interfacing with Siemens Advanta solution in this phase:

1. SAP CIS (Inc. SAP EAM and SAP Work Order management)
2. Customer Portal – TBD
3. Additional MV90 systems

**SAP MDUS Adapter –** The SAP Adapter is the integration package that implements the standardized interfaces between EnergyIP and SAP ISU. The SAP AMI ES Bundle can integrate with an external system in one of the following ways:

- Using SAP NetWeaver PI, which is a Process Integration Layer
- Peer-to-Peer Communication through WS-RM (Web Services Reliable Messaging)

EnergyIP MDUS integrates with SAP ISU through the SAP Adapter using the SAP PI layer. The existing WSDLs of the SAP Adapter are not intended for WS-RM, and the communication between SAP Adapter and the SAP backend is facilitated by the SAP PI layer.

The SAP AMI ES bundle leverages enterprise SOA by sending web service messages from SAP for Utilities to the SAP PI layer. The PI messages are then mapped to the XML required for a particular third-party metering system and this metering system in turn communicates with the meter or the headend system.

Key functionalities of the SAP MDUS Integration Pack include:

- Master Data Synchronization: As new meters enter the system or data on existing meters is modified, SAP triggers a web service to EnergyIP. EnergyIP receives this message and synchronizes this data. After the installation of a meter, SAP sends the installation details, including Premise data and Device Location information, to EnergyIP. EnergyIP then creates the relationship records tying the meter to a particular service point and location. SAP also notifies EnergyIP of a meter removal so that the relationships can be ended. Once the meter has been installed, and EnergyIP has completed the provisioning process, a notification is sent back to SAP with the information that the provisioning has been completed. There are also services available for linking other devices like communication module, Disconnect Collar, and CTPTs to Meter and Service Delivery Point.

- Meter Read Data Delivery: A variety of transactions in SAP trigger a meter read request from EnergyIP such as move-in / move-out, cycle billing, off-cycle reads, control reads, and so on. EnergyIP receives this information and creates a request in the Data Delivery Service application. Once the Data Delivery Service application fulfills the request, the adapter sends the appropriate value back to SAP to complete the process. Requests can also be canceled if the read is no longer needed.

- On-Demand Meter Reads: In addition to requesting a meter read for a specific date, SAP can also trigger a request for an on-demand read. When EnergyIP receives such a request, a message is sent to the meter through the Activity Gateway for a meter read. Once the request is fulfilled, the result is returned to SAP.

- Support for Interval Data: Interval data can be pushed on a regular basis to the SAP adapter. Interval data goes through the validation, estimation, and editing process in EnergyIP. Valid or estimated interval values are sent according to the schedule (for example, daily). SAP receives this data and stores the values in the Energy Data Management component of SAP. At that point, the interval data is available for further processing in SAP. SAP can request framed usage data according to the TOU bins or critical peak times. Agents have the ability to view interval data from the MDUS if required, for example, to analyze a rate or view the details behind a TOU bin. Interval data can continue to be replicated in SAP if desired.
- Meter Commands: The integration pack supports meter commands like connection status changes. If a meter has these remote capabilities, a connection status change request or an operational state check initiated in SAP and sent to the MDUS. The MDUS routes this request to the appropriate AMI head-end. Upon execution of this request, the MDUS sends back the information to SAP to complete the process.

- Event Handling: Events coming from the meter are converted to SAP events and sent to SAP for further action. There is also the capability to send Service Requests information in the form of SAP events to SAP for further action.

- Manual Meter Reads: Manual meter reads are collected by the utility using means other than AMI. The SAP system triggers a web service to EnergyIP. EnergyIP receives this message containing the register reads. These reads are passed through the normal meter reads processing logic in EnergyIP and finally persisted. Once the request is fulfilled, a confirmation is sent to SAP.
- Manual CDC: The meters can be manually connected/disconnected on the field. The SAP system triggers a web service to EnergyIP. EnergyIP receives this message containing the connect/disconnect information for the meters. SAP adapter processes these requests as connect/disconnect events. You can configure the VEE application to use these events for suppressing estimation of the manually disconnected meters and start the estimation of the manually connect meters.

## Phase 3 (Connecticut - Electric Only)

This phase comprises of migration for CT Electric accounts from C2 to SAP.

## Optional Scope

**Real-time Framework –** The Real-time Framework provides core components and processes for Connected Device Communication Infrastructure (CDCI) and Front-End Processor (FEP) functionality to facilitate the ingestion of high-speed real time data. The Real-time Framework requires EnergyIP, Kafka for messaging, and a temporary database store to store incoming data for a short period of time before moving it to permanent storage. It supports both Oracle and Cassandra as data stores for storing incoming data and supports several different implementation scenarios, depending on the functionality needed.

**Prepayment Integration** – EnergyIP has the ability to process disconnect commands from a prepayment system and also export usage data through a standard API. Only the export of usage data is currently included in scope, however, given further input from EVERSOURCE on specific requirements and priority, adjustments can be made as needed.

**Maps Integration–** EnergyIP® provides an ability to show data on maps, including feature layers from Customer's GIS system.

## Future Phase (NH Electric; NH/MA/CT AMI Gas & AMI Water)

SCADA Integration, CVR/Voltage Management, Leak Detection (Water, Gas), Revenue Protection, Methane Gas Sensor

**Revenue Protection** –Siemens Revenue Protection Analytics application provides utilities the ability to reduce lost revenue by using analytic technology to increase the detection of non-technical losses caused by actions external to the power system such as electricity theft, customer non-payment, and accounting and record-keeping errors.

**Siemens Analytics Foundation** solution is capable of aggregating interval data by groups or transformers.

**Analytics** – On a standalone basis, EnergyIP comes with a number of operational reports that can allow EVERSOURCE to extract real value from its smart meter data. The next logical extension is EnergyIP Analytics Foundation which provides advanced reporting options and further analytics modules that incorporate machine learning and probabilistic algorithms.

**Analytics Foundation Reports** – The Analytics Foundation comes with out-of-box reports which help utilities with a number of use cases. This includes support for analysis of consumer load patterns with comparisons of different groupings of customers, as well as analysis of the distribution level assets. There is also support for analysis of outages including location, duration, and frequency. There are reports that analyze other types of events to evaluate business impact.

## Scope Assumptions

This section refers to the assumptions upon which our estimates, plan, schedule, staffing and pricing is based for the proposed base-scope for the on-premise solution. Any deviations that arise during the contracting phase or project will be managed via the Project Change Control Process described herein. The base scope assumes:

- EnergyIP software version that will be implemented is version 9.x.
- A single instance of EnergyIP will be configured to support multi-tenancy for Connecticut and Massachusetts
- Workshops will be held to cover mappings and configurations. The limits below apply to the solution as a whole.
- Configuration per org of up to 8 VEE Services (4 Register and 4 Interval VEE Services)

- Configuration per org of up to 4 register channels, 4 interval channels and 2 usage channels per meters for meter reads processing. Based on requirements this can be re-evaluated during workshops.
- Configuration per org of up to 4 TOU schedules.
- Configuration of up to 10 standard out-of-the-box reports. Reporting will come from the of EnergyIP out-of-the-box reports and the out-of-the-box reporting framework which will enable EVERSOURCE to create their own reports. Design and development of any custom built reports and the Analytics Foundation are not included in the current scope. SIEMENS ADVANTA may assist EVERSOURCE with additional reporting needs under a approved change request.
- Up to 30 events configured to support service request creation via EDAM.
- All external system interfaces to EnergyIP will use standard integration formats and adapters, as defined by SIEMENS ADVANTA.
- EnergyIP's adapters to the Head End System, CIS, and other back-end systems are designed as point-to-point integrations but can also pass through an Enterprise Service Bus. If the integration includes an ESB, these adapters will integrate directly to the ESB, and it will be the responsibility of the ESB provider to pass through these messages to the appropriate backend systems.
- Scope assumes up to 2 years of historical meter reads to be imported into EnergyIP via Universal AMI adapter for MV90 meter. data.
- Hardware procurement, sizing, build, and operation are the responsibility of EVERSOURCE, based on documented requirements from SIEMENS ADVANTA as part of the requirements deliverables.
- SIEMENS ADVANTA will deploy EnergyIP once to EVERSOURCE's development environment and it is expected that EVERSOURCE will perform any subsequent deployments, using the initial deployment as a training exercise (for Utility-Hosted).
- SIEMENS ADVANTA will supply training and documentation, as defined in this SOW, to allow EVERSOURCE System Administrators to deploy the EnergyIP solution.
- Disaster Recovery Implementation Services and Hardware Procurement are the responsibility of EVERSOURCE. SIEMENS ADVANTA will provide advisory services in these areas to support EVERSOURCE with MDM planning and implementation details during the design workshops.
- Testing of disaster recovery solution is not in scope. However, SIEMENS ADVANTA will provide sizing requirements for the Disaster Recovery environment as part of the Project Architecture Specification.
- Business process design, blueprinting, or implementation of an enterprise message bus (or data transformation services) are not in scope.
- Any configuration, modifications, or enhancements to the external systems are the responsibility of EVERSOURCE (including but not limited to the ESB, CIS, and AMI systems).
- EVERSOURCE is responsible for providing the IT infrastructure for all environments in their data center for on-premise solution.
- Use of standard Generally Available ("GA") interfaces (including AMI adapters) within EnergyIP.
- EVERSOURCE is responsible for the quality and the content of the data that is being provided to the EnergyIP system. Data quality of the initial load files from EVERSOURCE (account/premise/meter information from CIS) will be such that exceptions associated with data quality are less than 2%.
- SIEMENS ADVANTA standard delivery methodology and templates shall be used during the project and for all deliverables. The plan, schedule, and resource allocation have been planned based on the use of the SIEMENS ADVANTA methodologies and templates. Any deviations or additional activities/deliverables may be subject to the Change Control Process.
- As a services provider, SIEMENS ADVANTA is implementing the EnergyIP software. Therefore, SIEMENS ADVANTA is responsible for the implementation process and the configuration and testing of the software as specified in this Statement of Work. In the event of issues with the software, SIEMENS ADVANTA and the customer will jointly facilitate product defect reporting and coordination with the software product support group during the implementation. SIEMENS ADVANTA will implement the subsequent defect fixes provided by the software product group during the implementation.
- Any delays or re-work, not caused by the SIEMENS ADVANTA implementation team, shall be subject to the Change Control Process.
- Deliverables designated as Work Products do not require formal Review and Approval.

- The current EnergyIP software versions available at the time of contract signature will be utilized as described in the SOW unless otherwise mutually agreed. Product customizations, enhancements, services packs, and hot fixes are not included in the Services pricing.
- The Requirements Documentation will serve as a basis for the future architecture and design of the EnergyIP solution. As such, after the document review/approval process, any change to the agreed contents of these documents will be considered a change request.
- SIEMENS ADVANTA will not be responsible for the meter data accuracy, as provided by the AMI system(s) or legacy meter data repositories.
- SIEMENS ADVANTA does not warrant that any recommendations regarding business processes supported or incorporated in the implementation of the EnergyIP solution as being optimized, or the most cost efficient, or fully compliant with state or federal regulatory bodies.
- Assumes use of standard EnergyIP software AMI adapters commercially available at the time of the contract execution.
- SIEMENS ADVANTA's delivery of the Services includes the use of offshore personnel.
- Performance testing is limited to EnergyIP software and its components. It does not consider external components such as network, hardware, third-party systems etc., that are outside the scope of EnergyIP software configuration.
- Disaster recovery and application failover design, documentation, process and scripts are not in scope.
- Database installation, maintenance and administration support is not in scope.
- Open Priority 2, 3 and 4 defects will not prevent the Project from moving forward. Defect priority designation shall be mutually agreed to, per the criteria described herein.
- Following completion of Post-Production Support, any additional support required by EVERSOURCE may be provided by SIEMENS ADVANTA on a T&M basis at prevailing rates.
- The Services work hereunder does not entail the handling of any waste products or hazardous materials, nor is it subject to Environmental Regulations, Federal Red Flag Requirements or NERC CIP Requirements.
- Only SIEMENS ADVANTA personnel to perform work on EVERSOURCE's premises will be subject to additional screenings and/or background checks as may be required by EVERSOURCE.
- In connection with the implementation Services, no EVERSOURCE data, including personal information, shall be stored on SIEMENS ADVANTA IT systems.
- Additional professional services beyond the Warranty period are not included in this SOW. However, SIEMENS ADVANTA offers a variety of optional services for production support and can personalize the level of support to meet EVERSOURCE's needs under a separate agreement.

## A.3 Project Approach and Proposed Schedule

### STANDARD PROJECT IMPLEMENTATION METHODOLOGY

#### Standard Project Stage Approach

This Project will be conducted in four stages: Blueprint, Configuration, Testing, Production/Cutover.

**A. Blueprint Stage**

Stage 1 is the Blueprint Stage. The Blueprint will focus on the prerequisites necessary to provide EnergyIP software installation and configuration that meets EVERSOURCE's business as set forth in this SOW. This initial stage will be gathering, documenting, reviewing, and approving requirements necessary to implement and configure EVERSOURCE's MDM. Through a series of onsite workshops, coordinated and facilitated by EVERSOURCE's Systems Integrator, SIEMENS ADVANTA will document EVERSOURCE's required EnergyIP software configuration. SIEMENS ADVANTA will work with EVERSOURCE personnel, representatives from EVERSOURCE's System Integrator and representatives from AMI solution in consolidated Requirements workshops to a mutually agreed-to and approved requirements baseline and schedule. SIEMENS ADVANTA will participate in all appropriate workshops to facilitate a consolidated and comprehensive set of documented business, functional and technical requirements, and integrations.

**B. Configuration Stage**

Stage 2 is the Configuration Stage. The Configuration Stage will consist of configuring the interfaces and functionality as set forth in this SOW. It will involve applying configuration parameters gathered in Stage 1 to EVERSOURCE's test and QA systems. SIEMENS ADVANTA will prepare the unit test plan, data, and scripts to conduct Unit Test (UT) prior to entering the Test period with EVERSOURCE. UT may be conducted remotely and may include unit testing of the interfaces between EnergyIP software and the AMI Head End System and EVERSOURCE'S CIS. The outcome of UT delivered to EVERSOURCE is a detailed test report and demonstration that the specific EnergyIP software configuration has been validated and meets EVERSOURCE's approved requirements baseline.

**C. Testing Stage**

Stage 3 is the Testing Stage. Test consists of Systems Integration Testing ("SIT"), Performance Testing ("PT") and User Acceptance Testing ("UAT"). SIEMENS ADVANTA will contribute to the development of the overall test plan and test scripts. SIEMENS ADVANTA will provide test scripts for the SIT to be reviewed and enhanced by EVERSOURCE. SIEMENS ADVANTA will offer guidance and assistance in conducting a comprehensive end-to-end testing program. SIEMENS ADVANTA will provide system familiarization as described in Appendix A for the testing personnel.

**D. Production/ Cutover Stage**

Stage 4 is go-live and production cutover. SIEMENS ADVANTA will work with EVERSOURCE to design a production cutover plan. Upon completion of the testing from the Testing Stage, SIEMENS ADVANTA will offer technical support in the transition of the EnergyIP solution to the production environment.

SIEMENS ADVANTA will hand over to EVERSOURCE a tested production ready system that meets the mutually agreed to go-live criteria. SIEMENS ADVANTA will also provide all fully updated requirements baseline specifications documentation comprised of the following: Project Functional Specification ("PFS"), Technical Interface Specification ("TIS"), Project Architecture System ("PAS"), Configuration Workbook ("CWB") which represents the "as built" solution.

#### Standard Project Management Methodology

SIEMENS ADVANTA is a project-focused company. Year over year, project business comprises more than half of our global sales and we are dedicated to providing a collaborative value-added solution for the planning and

implementation of your EnergyIP solution. SIEMENS ADVANTA is committed to working with you and your team toward the successful planning and installation of your solution - on time and on budget.

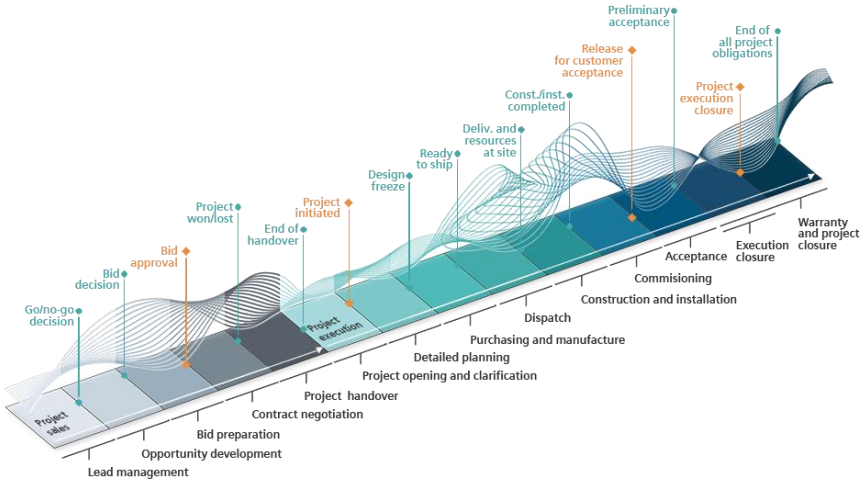
SIEMENS ADVANTA recognizes that every project and every customer's needs are unique – from how programs are structured, and governance is applied - to how projects are managed day-to-day. The SIEMENS ADVANTA project management approach is not to apply one uniform program approach, but to work starting in the sales process to determine the best program fit for the delivery of your program and ensuring all stakeholders impacted by program delivery are involved in determining the right delivery approach.

Early in the process, you are assigned a Lead Project Manager ("PM"), who is your single point of contact for our implementation services. Our PM is the central team member whose primary focus is that we stay on track with our Clients' goals. Your assigned PM will manage stakeholders, schedule, budget, risks, communications, and facilitate the project plan is executed on-time and on-budget. We work together with you and your team to define goals, objectives, and timelines, in order to optimize the implementation process and results.

As already stated, SIEMENS ADVANTA strives to deliver its projects on-time and on-budget, and with the highest satisfaction, by leveraging its global presence, including its pool of skilled and experienced people, and its global world-class standardized project management methodology, PM@SIEMENS ADVANTA, to implement the right model globally. PM@SIEMENS ADVANTA is our premier global project management methodology that applies to every project we undertake, no matter what type anywhere in the world. PM@SIEMENS ADVANTA is an umbrella that protects and governs the Customer's entire project, starting from the RFP response to the final solution turnover to the customer.

SIEMENS ADVANTA believes that good project management is complemented by thorough knowledge of both project management processes and behavioral skills. The PM@SIEMENS ADVANTA project management training and certification program emphasizes these skills and is closely aligned with both PMI (Project Management Institute) and IPMA (International Project Management Association).

PM@SIEMENS ADVANTA focuses not just on methodology but also on the development and accreditation of project management professionals. This approach ensures that wherever a program and project are delivered, the methodology and processes applied are based on common foundations and are easily understood and transferable globally.

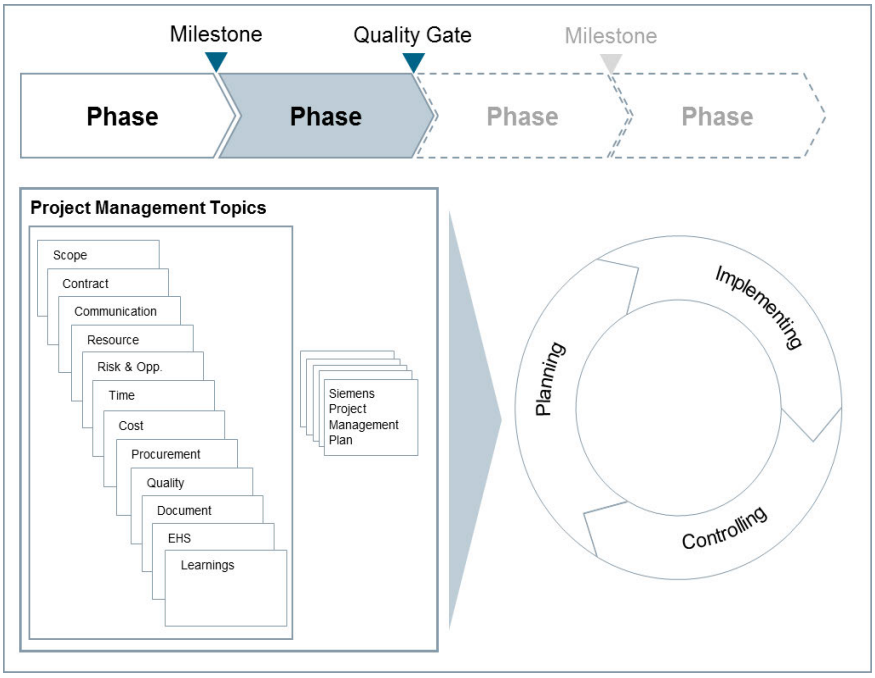



*Overview PM@SIEMENS ADVANTA High-Level Overview – Flexible Milestone Model for Project Execution*

## Key Program and Project Management Responsibilities

Building on the foundations of PM@SIEMENS ADVANTA and the project management competencies, plus defined EVERSOURCE requirements, the core activities of project managers is summarized below.

- **Risk and Issue Management** proactively identifies risks and issues and plans and executes measures against them before they can affect the program / project.
- **Planning and Reporting** provides both high-level program and detailed project plans so that project and program teams have visibility on activities that are planned or in execution. PM@SIEMENS ADVANTA has a defined set of milestones that are planned, monitored, and controlled throughout the project lifecycle.
- **Communications** following the contract between SIEMENS ADVANTA and EVERSOURCE, the relevant governance structure will be established to facilitate that communications are managed and controlled.
- **Quality** processes facilitate the outputs from the project are produced to agreed quality standards and that EVERSOURCE 's standards have been met.
- **Gate Reviews** provides a check at key points (Gates) in the program to validate the quality of outputs, ensure that processes are being followed and that planned progress is being made.
- **Change Control** ensures any changes to project baselines, originating from inside or outside the program and projects, are analyzed and executed in a controlled manner.
- **Environment, Health & Safety** processes ensure that project work methods and outputs are safe and minimize environmental impacts. The process ensures compliance with all legislative requirements and is led by an EHS specialist, supported by the program and project managers – local EHS requirements are planned and managed within each respective project.
- **Sub-contract / Partner Management** provides for the relationships between SIEMENS ADVANTA and its sub-contractors are effectively managed, and quality of delivery is maintained.
- **Program / Project Specific Processes** learning from early experiences and applying lessons learned will be applied throughout the life of the program. Where needed any specific processes required to support program execution will be developed and implemented.

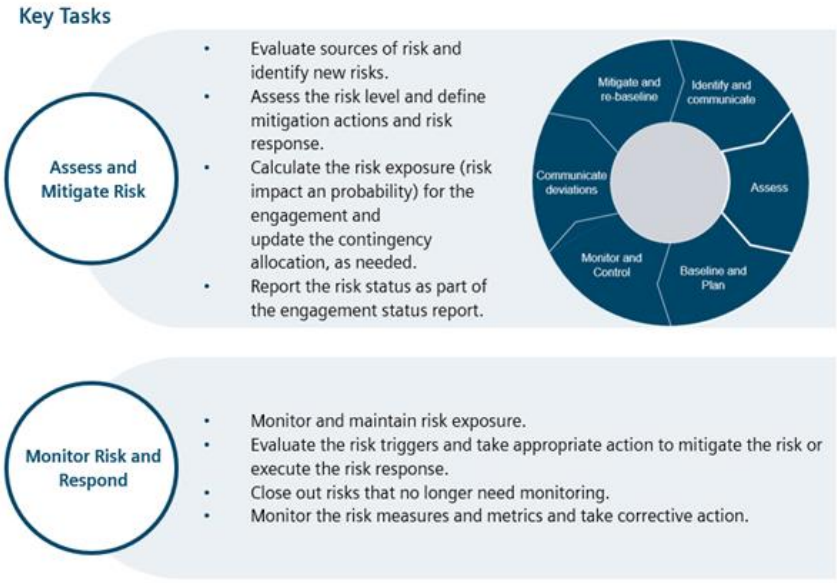



*PM@SIEMENS ADVANTA – Key Disciplines for Success*

SIEMENS ADVANTA Customers expect their projects to be managed in an excellent, innovative, and responsible way, and this applies especially to large projects such as the EVERSOURCE MDMS Project. Bringing this value proposition to EVERSOURCE means professional excellence in project delivery which is delivered by our skilled project managers working for our customers worldwide every day. Our goal, therefore, is to provide EVERSOURCE with a Project Management program aligned to the needs of the project and the unique aspects of this implementation. We have defined an approach which provides project governance and operational support, project implementation services, quality management, and integrated planning and communications with EVERSOURCE. The PM will define the tasks, responsibilities, and fundamental processes, as well as apply the disciplines in project management that supports project members for the implementation and realization of the Project. This includes the definition of standards, efficient operating processes, tools, and methodologies, as well as monitoring the implementation, with transparent reporting. This approach provides operational efficiency and effectiveness. With the PM taking an active part starting with the bid process, this supports transfer of lessons learned as well as early risk identification and risk management into the implementation. See Resourcing section for proposed resource plan.

## Risk and Issue Management

The Risk Management process includes proactively identifying and analyzing risks, planning, and executing the mitigation actions and risk response, monitoring risks, and managing the contingency budget in alignment with the risks.




*Risk and Issue Management*

## Management of Dependencies

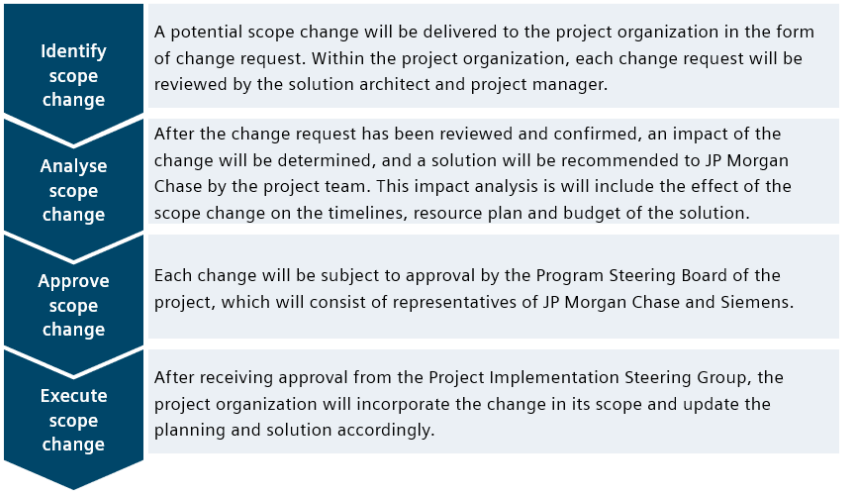
One key success factor in the sphere of any program is the systematic and rigorous management of dependencies within the project itself as well as to and external and parallel activities, projects, and programs potentially running.

- Dependencies need to be identified and communicated / made aware with all involved / affected stakeholders
- Dependencies need to be jointly assessed (nature of dependency, impact, responsibility, etc.)
- Management of the dependency needs to be identified and considered in the:
    - Baseline Plan
    - Incorporation of the dependency in all respective project scheduled and plans
    - Regular status updates on progress, issues, risks (monitoring and early warning)
    - Clear and immediate information of any changes to the agreed baseline (scope, timeline, etc.)
    - According to mitigation measures, corrective action, and re-assessment
    - Establishment of new baseline and communication of impact on the Project.

### Change Control Management

Change Control Management provides control over potential changes in the scope of the project. It provides clear ownership of the change and rigor in the impact assessment. It helps monitor resolution progress and ensures timely resolution. It helps avoid schedule/cost overrun by incorporating all the scope changes through estimation and approval of additional time and cost required.

The party receiving the Change Request should review and respond to it within an agreed upon number of working days. The change management process follows the following steps:



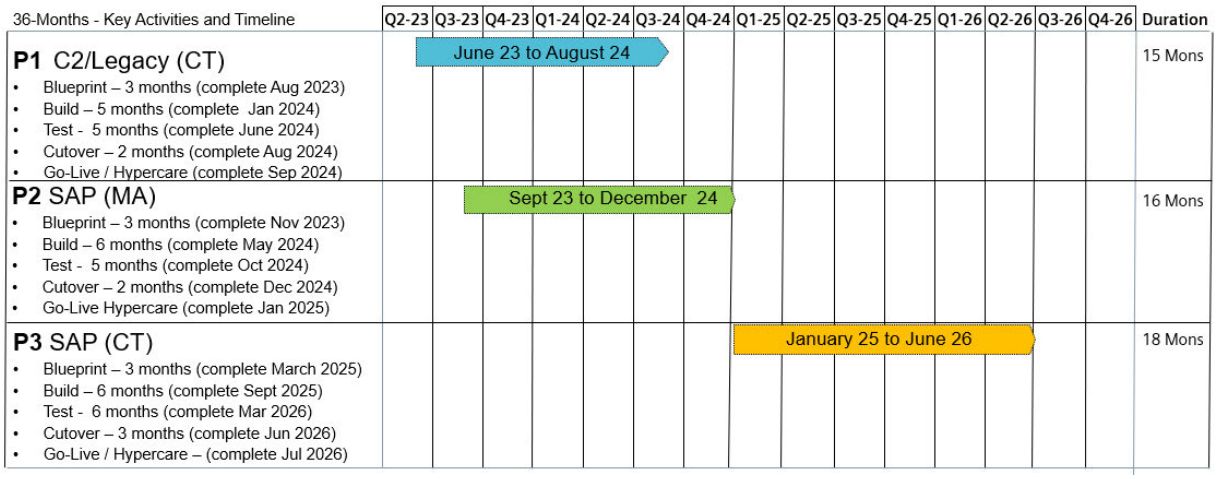

*Change Management Process*

## CHANGES TO STANDARD PROJECT IMPLEMENTATION METHODOLOGY

There are no changes to our standard project implementation methodology required.

## HIGH LEVEL SCHEDULE

### 36-Month Project Timeline




## LIST OF PROJECT DELIVERABLES BY PHASE AND TASK

For each phase, below are the list of key project deliverables. Deliverables that are signed-off will continue to be revisited and updated as needed both during and across the project phases.

### Project Phase Key Deliverables

**Blueprint Stage:**

- A detailed project plan with on-site resource plan for Project
- Weekly project status reports – Work Product PAS, PFS, and TIS requirements documentation detailing all agreed upon interface formats and protocols.
- Hardware and software requirements in the form of a Project Architecture Specification (PAS) for EVERSOURCE's purchase of Development (DEV), QA and Production (PRD) and Disaster Recovery environments.
- End User System Familiarization Plan for MDM Integration Project
- Sign off (Approval) on Requirements Specifications (PAS, PFS and TIS) documents signed by both Parties.
- Milestone Completion Document for Blueprint Stage.

**Build Stage:**

- Fully configured EVERSOURCE DEV and QA environments per the approved requirements.
- Unit Test (UT) Report.
- Interfaces configured per the TIS.
- Configuration Workbook delineating the EnergyIP software configuration.

**Testing Stage:**

- RTM (with traceability for test cases)
- PFS, TIS, PAS and configuration documents, if updates required, before SIT and updated versions during code freeze
- Milestone Completion Document for Testing Stage

**Cutover Stage:**

- Completed EnergyIP solution Go-live checklist.
- Completed production handover documentation consisting of final PFS, TIS, PAS, Configuration Workbook (CWB), latest EnergyIP software operations manual, latest EnergyIP software administration manual, scripts, and operational tools.
- Post Go-Live Support Report at end of Hypercare.

## CHANGES TO STANDARD PROJECT IMPLEMENTATION METHODOLOGY BY REMOTE OR HYBRID-REMOTE ACTIVITIES

There are no changes to our standard project implementation methodology due to remote or hybrid-remote activities.

## SUGGESTED ROLES AND RESPONSIBILITIES FOR EVERSOURCE'S TEAM MEMBERS

### EVERSOURCE General Responsibilities

- Provide a single duly authorized point of contact, called the EVERSOURCE project manager for the SIEMENS ADVANTA project manager to work through, that will represent the interests of EVERSOURCE and authorized to act in all aspects of the contract and implementation of the Project, including the organization and delivery of information to SIEMENS ADVANTA in a timely manner as well as the review and approval of SIEMENS ADVANTA documentation and testing, throughout the life of the Project.
- Perform the requisite due diligence on EVERSOURCE's IT infrastructure and software applications in a timely manner to supply accurate and complete information to support requirements specifications development.
- Provide management and/or facilitate providing subject matter expertise regarding configuration, functionality, and Application Programming Interface ("API") specification requirements of legacy or new application software owned and/or operated by EVERSOURCE that will interface with meter data management solution purchased.
- Provide personnel having the appropriate domain expertise, who can provide timely information requested by SIEMENS ADVANTA during the Blueprint stage to support Project solution development and requirements specifications. This information would typically include but may not be limited to, description and review of current and future business processes, data flow diagrams, data definitions, regulatory compliance practices and procedures, workflow process diagrams, etc.
- Signoff for approval of requirements specifications and tests in a timely manner pursuant to mutually agreed schedule. Unless otherwise noted, all deliverables and documents will be submitted in draft form for comment by EVERSOURCE. EVERSOURCE will review the draft documents within 10 business days of submittal and provide complete comments. Final deliverables and documents will be submitted to EVERSOURCE and will be approved, or EVERSOURCE will provide written reasons for non-acceptance, within 3 business days of submittal. SIEMENS ADVANTA will correct identified issues and documents within mutually agreed time.
- Define EVERSOURCE data model for data exchanges, utilizing SIEMENS ADVANTA supplied information.
- Perform as required, in a timely manner, quality control inspections, data acceptance / rejection of SIEMENS ADVANTA Deliverables.
- Provisioning of office space, telephone service and VPN connection for SIEMENS ADVANTA personnel to development and test systems.
- Provide all test and production system equipment including but not limited to servers, network devices, storage arrays, back up facilities, security devices, and workstations.
- Provide personnel for training as mutually agreed.
- Provide access to EVERSOURCE's shared file space or repository.

### EVERSOURCE Project Manager Responsibilities

- Provide a Project Manager for the Project, who will work with the SIEMENS ADVANTA Project Manager and act on behalf of EVERSOURCE in all aspects of this Project, including all approvals, obtaining resources, and coordinating EVERSOURCE responsibilities.
- Provide a technical lead, who the SIEMENS ADVANTA technical leads will work with, to understand, define, and implement EVERSOURCE environments and the technical aspects of the Project.
- Actively participate in the weekly status calls.

- Schedule EVERSOURCE resources to actively participate in any status calls.
- Provide business and technical resources, with the appropriate knowledge and skills, in order to meet the Project schedule.
- Participate in the review and finalization of Project plans.
- Manage and coordinate EVERSOURCE Project resources and dependencies according to the approved Project plan, including resources from other system and application suppliers including but not limited to AMI vendors, CIS vendors, system integrators, program managers, and installation contractors.
- Provide input to the action items list.
- Assist the SIEMENS ADVANTA Project Manager in administering Project processes, including Project change control, issue management, Project communications, and risks.
- Signoff for acceptance of requirements specifications and tests in a timely manner, if sufficiently completed, pursuant to mutually agreed schedule.
- Provisioning of office space, telephone service and VPN connection for SIEMENS ADVANTA personnel, as needed.
- Provide all IT system equipment including but not limited to servers, network devices, storage arrays, back up facilities, security devices and workstations.

## EVERSOURCE Project Responsibilities by Stage

**A. Blueprint Stage:**

- Coordinate workshop schedule and agenda with SIEMENS ADVANTA.
- Participate fully in requirement workshops and ensuring EVERSOURCE decision makers are present to define EnergyIP software configuration.
- Review and provide feedback on PAS, PFS and TIS documents.
- Review and provide feedback on RTM document.
- Review and provide feedback on Communication and System Familiarization Plan.
- Signoff on Project Requirements and Project Schedule.

**B. Configuration Stage:**

- Coordinate objectives and schedules with SIEMENS ADVANTA Project Manager.
- Develop and complete all interfaces as defined in the TIS and Project schedule.
- Develop and provide EVERSOURCE's CIS sample sync data sets in support of SIEMENS ADVANTA configurations and integrations.
- Provide all required hardware and third-party software required to support the EnergyIP software installation in a DEV and QA environment pursuant to an agreed upon schedule.
- Install and configure the third-party software to support DEV and QA environments, as specified by SIEMENS ADVANTA in the Blueprint Stage.
- Review Unit Test Report.
- Participate fully in Unit Testing review.

**C. Testing Stage:**

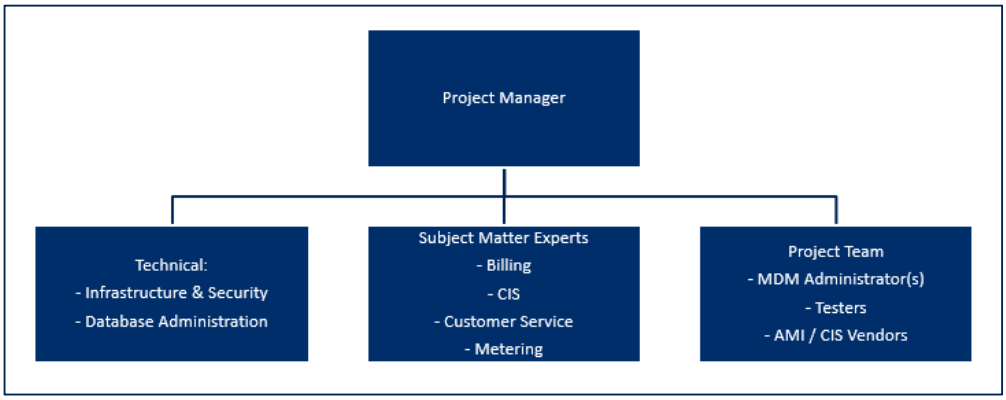
- Meet with SIEMENS ADVANTA to convey the test objectives and requirements.
- Develop SIT and UAT Test Plan and Strategy.
- Provide necessary EVERSOURCE resources to meet testing schedule.
- Participate in ongoing EnergyIP solution training.
- Lead execution of SIT with SIEMENS ADVANTA and other technical users.
- Prepare SIT and UAT test data sets. Review and enhance baseline UAT test cases.
- Document, with weekly test reports and daily defect reports, the SIT progress and completion.
- Lead UAT execution with EVERSOURCE end users.
- Document, with weekly reports and defect tracking, the UAT progress and completion

- Work with SIEMENS ADVANTA to keep testing on schedule while waiting on fixes or changes to EVERSOURCE resourcing.

**D. Production/ Cutover Stage:**

- Lead in master planning and documenting production cutover plan.
- Lead mock production cutover conversion runs with direct involvement in the activities.
- Provide necessary EVERSOURCE resources to meet production cutover schedule.
- Lead cutover execution.
- Lead monitoring system.
- Review of handover documentation.
- Participate in end user training.

Recommended EVERSOURCE Implementation Team:




Resource allocation recommended for the EVERSOURCE team members:

| | Planning Stage | Workshops | Documentation | *Config/ Unit Test | *Integration / Performance Testing | *User Acceptance Testing | Initial Go Live |
|---|---|---|---|---|---|---|---|
| **Project Manager** | 75% | 100% | 50% | 50% | 50% | 75% | 100% |
| **MDM Admin** | 0% | 100% | 20% | 75% | 100% | 100% | 100% |
| **Billing SME** | 10% | 100% | 20% | 10% | 25% | 80% | 100% |
| **CIS SME** | 10% | 100% | 20% | 10% | 25% | 80% | 100% |
| **CSR SME** | 10% | 100% | 20% | 10% | 25% | 80% | 100% |
| **AMI/Metering SME** | 10% | 100% | 20% | 20% | 25% | 80% | 100% |
| **Tester(s)** | 0% | 100% | 20% | 20% | 75% | 100% | 100% |
| **DBA** | 0% | 100% | 0% | 10% | 50% | 20% | 100% |
| **IT Engineer** | 0% | 100% | 0% | 20% | 50% | 50% | 100% |

* total allocation with consideration of overlapping phases 1 and 2

## A.4 Prior Experience

### Reference 1

Reference type: **Using multi-tenant capability of EnergyIP**

| Reference Company Name | Consolidated Edison Company of New York, Inc. |
|---|---|
| Contact Person at the Reference Company | [redacted] |
| Contact Person Address | [redacted] |
| Contact Person Phone Number | [redacted] |
| Contact Person Fax Number | N/A |
| Contact Person Email Address | [redacted] |
| Link to the Customer's website | https://www.coned.com/en/ |

Reference company's relevant project information:

- Start and end of MDMS implementation: 2016 to present (initial go-live in 2017)
- Number of electric and, if appropriate, gas and water AMI meters managed and billing through the MDMS:
  - 3.6 million Cecony and 0.3 million ORU electric meters
  - 1.0 million Cecony and 0.1 million ORU gas meters
- Typical data collected from each AMI meter and frequency of data delivery to MDMS:
  - 4 register channels, 15 min x 2 interval channels , 5 min x 2 interval for Electrical
  - 1 register channel, 60 min x 1 interval channel for Gas
  - Data is collected every 15 minutes by the HES and sent to the MDMS front-end processor and then sent every 4 hours to the MDMS VEE processor.
- Cloud services or utility owned MDMS: Utility owned
- MDMS functionality in production:
  AMI Billing, AMI Provisioning, VEE, Prepayment, Outage management, Event Management, Demand response, Theft detection, Advanced Billing, Universal Adapter (for MV90 conversion), FlexSync (for sync with CIS/Billing), Low Voltage Outage Event Management (LVOEM) , Real Time Framework (RTF)
- The information systems (specific product name and version) integrated with the MDMS: EnergyIP® 8.7 SP4
- Implementation services provided as part of the MDMS implementation and whether a subcontractor or internal resources were used for this implementation:
  As the exclusive provider of MDMS Professional Services since 2016 for ConEd, Siemens Advanta provides ongoing production support and hardening managed services, as well as upgrade and release management services, including requirements design, configuration, testing, and deployment support; at its highpoint, we had 20+ resources engaged. A successful go-live of the upgraded MDMS occurred in March 2022. Services were performed with internal resources and one subcontractor resource. We remain engaged performing EnergyIP enhancements, production support, and hardening support.
- The software version of the MDMS presently in production and compare this version to the version being proposed to EVERSOURCE: ConEd in-production is EnergyIP® 8.7 SP4, proposed to EVERSOURCE is EnergyIP® 9.0 SP3; The latest release includes the general availability of EnergyIP Mosaic® and enhancements to the Siemens Smart Grid application platform components, including improvements to the Meter Data Management (MDM) functionality.

## Reference 2

Reference type: Short-term customer with SAP

| **Reference Company Name** | **Dominion Energy Inc.** |
|---|---|
| Contact Person at the Reference Company | [redacted] |
| Contact Person Address | [redacted] |
| Contact Person Phone Number | [redacted] |
| Contact Person Fax Number | N/A |
| Contact Person Email Address | [redacted] |
| Link to the Customer's website | https://www.dominionenergy.com/ |

Reference company's relevant project information:

- Start and end of MDMS implementation: January 2021 to production go-live in April 2023
- Number of electric and, if appropriate, gas and water AMI meters managed and billing through the MDMS:
  - 2.7 million electric meters
- Typical data collected from each AMI meter and frequency of data delivery to MDMS:
  - Two (2) 30-minute interval channels
  - Two (2) daily register channels
  - Frequency of data collection is every 4 hours by HES and sent to MDM daily
- Cloud services or utility owned MDMS: Utility owned
- MDMS functionality in production:
  SAP MDUS, AMI Billing, AMI Provisioning, VEE, Outage management, Event Management, Demand response, Advanced Billing, Universal Adapter (for MV90, AMR, and legacy MDM conversion)
- The information systems (specific product name and version) integrated with the MDMS: EnergyIP® 9.0 SP3
- Implementation services supplied as part of the MDMS implementation and whether a subcontractor or internal resources were used for this implementation:
  Siemens Advanta is the exclusive provider of MDMS Professional Services starting in 2021 for Dominion Energy. Siemens Advanta provides requirements design, configuration, testing, and cloud-deployment support; internal resources are utilized and 1 subcontractor. This is a major project for this customer, and includes a large SI, various large technology companies, and active involvement of the customer. A tremendous amount of coordination and collaboration is required of all parties. All Siemens Advanta project management is done in conjunction with the SI and the customer, with Siemens Advanta's active participation in Executive Committees, joint partner status meetings, and joint technical activities. After various successful cutover dress rehearsals and extensive operational readiness testing, Go-Live is planned for April 2023.
- The software version of the MDMS presently in production and compare this version to the version being proposed to EVERSOURCE: Dominion and EVERSOURCE is EnergyIP® 9.0 SP3; This latest release includes the general availability of EnergyIP Mosaic® and enhancements to the Siemens Smart Grid application platform components, including improvements to the Meter Data Management (MDM) functionality.

**Reference 3**

Reference type: Long-term customer with SAP

| **Reference Company Name** | **Entergy Corporation** |
|---|---|
| Contact Person at the Reference Company | [redacted] |
| Contact Person Address | [redacted] |
| Contact Person Phone Number | [redacted] |
| Contact Person Fax Number | N/A |
| Contact Person Email Address | [redacted] |
| Link to the Customer's website | https://www.entergy.com/ |

Reference company's relevant project information:

- Start and end of MDMS implementation: 2016 to present (initial go-live in 2016)
- Number of electric and, if appropriate, gas and water AMI meters managed and billing through the MDMS:
  - 3.0 million electric meters
  - 0.3 million gas meters
- Typical data collected from each AMI meter and frequency of data delivery to MDMS:
  - Data is collected by the HES every 4 hours and sent to MDM" - 3,289,719 meters, 6 batches per day, every 4 hrs, starting at 1 am
  - Total register values collected - 26,949,247, including KW Max Demand Register, KVARH Del Register, KWH Rec Register, KWH Del Register
- Cloud services or utility owned MDMS: Utility owned
- MDMS functionality in production:
  SAP MDUS Adapter, AMI Billing, AMI Provisioning, VEE, Outage management, Event Management, Demand response, Theft detection, Advanced Billing, Universal Adapter (for AMR conversion)
- The information systems (specific product name and version) integrated with the MDMS: EnergyIP® 8.7 SP3
- Implementation services supplied as part of the MDMS implementation and whether a subcontractor or internal resources were used for this implementation:
  As the provider of MDMS professional services for Entergy for the past 6+ years, Siemens Advanta has provided ongoing production support and hardening managed services as well as upgrade and release management services, including requirements design, configuration, testing, and deployment support; internal resources are staffed and 1 subcontractor is used. We work in close collaboration with the Global AMI SI for Entergy, as well as with the Entergy technical staff. We recently completed a successful EntergyIP upgrade in December 2022.
- The software version of the MDMS presently in production and compare this version to the version being proposed to EVERSOURCE: ConEd in-production is EnergyIP® 8.7 SP3, proposed to EVERSOURCE is EnergyIP® 9.0 SP3; The latest release includes the general availability of EnergyIP Mosaic® and enhancements to the Siemens Smart Grid application platform components, including improvements to the Meter Data Management (MDM) functionality

**Description of how the Siemens solution meets the minimum requirements defined in Section 5.5 of the RFP**

As described in detail in section A.3 (Solution Summary), our proposed solution meets the mimimum requirements defined in Section 5.5 of the RFP. Specifically we acknowledge and confirm to support EVERSOURCE requirements for:

- multi-tenancy: EnergyIP utilizes the concept of an Organization (Org) for the purpose of data segregation between different entities using the same installation of EnergyIP. Siemens Advanta has experience with an ongoing project involving 2 organizations deployed in a single instance of the MDM and intends to use our methodology to manage and segregate the configuration and data for EVERSOURCE's various organizations. Note, the SAP system must also be a configured as a single, multi-tenamt system when implementing this design between SAP and the MDM.

- multi-commodity support for electric, gas and water metering: EnergyIP is a multi-commodity platform and is designed to store meter data for electric, water and gas meters, with configurable channel data. Our initial scope is focused on electric but we will also meet requirements related to gas and water meters. As cited in our references, Siemens Advanta has experience with SAP implementations involving all 3 commodities.

- meter-to-cash operations related to C2 integration for AMI meters, including VEE, connects / disconnects,and billing of rates specified. Siemens Advanta has experience as cited in our references with legacy CIS systems and will meet these requirements.

- meter-to-cash operations related to SAP S/4 HANA integration for AMI, non-AMI and MV-90 meters, including VEE, connects / disconnects,and billing of rates specified. EnergyIP comes with a purpose-built SAP adapter that we will be implemented for these transactions. We have in-depth experience (as cited in our references) with customers using this functionality.

- data synchronization with both C2 and SAP for the purposes of automated provisioning and commissiong with the HES of meter adds, deletes and changes.

- MV90 historical data migration, including collection and storage of new reads for billing purposes: EntergyIP support historical data migration using a Universal Adapter. Siemens Advanta is also supporting this functionality on 2 of our projects listed in our references.

- Outage integration to Oracle NMS: we have planned for this integration usign the standard EnergyIP outage module and also have experience with Oracle NMS

- storage of non-revenue meter data for the purpuposes of capturing AMI alarms, data analysis and notification of emergent events to SAP: our purpose-build AMI adapters have the ability to capture all AMI alarms and events as well as real-time notification through our Event and Data Action Management feature and notification back to SAP.

- reporting and aggregation, including totalization and calculation of system peak: EnergyIP provides an out of the box reporting framework integrated with BIRT (Business Intelligence Reporting Tool) reporting capabilities. We will also configure virtual channels and custom reports as needed to meet EVERSOURCE's requirements

- export of meter data to external systems at scheduled intervals: we will support this functionality through our Data Transfer Service and have experience with this functionality

- cloud-based SaaS solution: all of the above proposed solution features are available in a Siemens Hosted and Managed cloud offering.

## A.5 Project Team

The Siemens Advanta team has extensive experience in utility application integration for operations and planning as well as in implementations associated with utility system analysis and analytics. This includes extensive domain experience in MDMS, DEMS, CIS, OMS, and WFM enterprise integration. The implementation services team for the EVERSOURCE project will be led by one of our many experienced project managers.

The following roles are planned to be part of the Siemens Advanta team to deliver EVERSOURCE's project.

### Project Manager

The SIEMENS ADVANTA Project Manager (PM) is responsible for the overall success of the project and provide the day-to-day management of SIEMENS ADVANTA resources, project activities, and deliverables. The Project Managers will work closely with the EVERSOURCE Project Manager in managing, monitoring, and tracking all project activities, resource participation, and Change Control.

### Solutions Architect

The Solutions Architect (SA) is the primary SIEMENS ADVANTA resource responsible for the conversion of project requirements into an architecture and design that will become the blueprint for the solution.

### Technical Lead

The Technical Lead (TL) is the point of contact throughout the project for technical areas. TL collaborates with EVERSOURCE's technical team and integrators in order to provide consistency within technical deliverables. The TL works closely with the SA during the requirements workshops and develops the configuration that enables each business requirement.

### Configuration Engineer

The Configuration Engineers (CE) are skilled at working with EnergyIP software and end users to match their requirements with the application. The CE has technical experience, which is useful in configuring and testing the application.

### System Engineer

The System Engineer (SE) is responsible for installation and initial technical configuration of the EnergyIP software. The SE works with the EVERSOURCE IT team to provide the EnergyIP solution properly installed and ready for integration testing.

We plan to assign the following team members to the EVERSOURCE project, AMI/MDMS Phases 1-3:

**EVERSOURCE-hosted MDMS:**

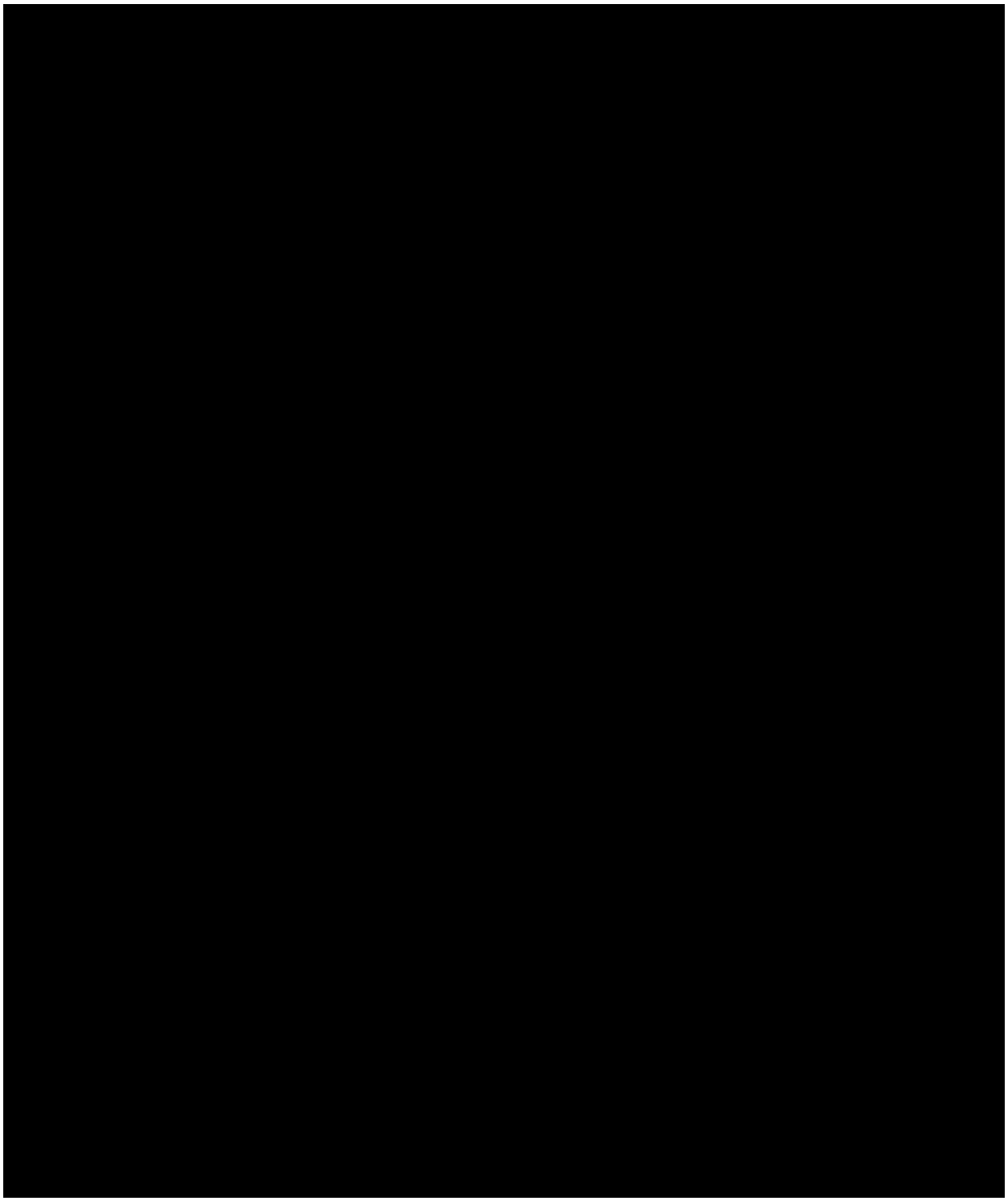
- [redacted]
  California (USA), Full-time resource, **Project Manager**, 20 years of experience
- [redacted]
  Texas (USA), Full-time resource, **Solution Architect**, 20+ years of experience
- [redacted]
  New Jersey (USA), Full-time resource, Technical Lead, 20 years of experience

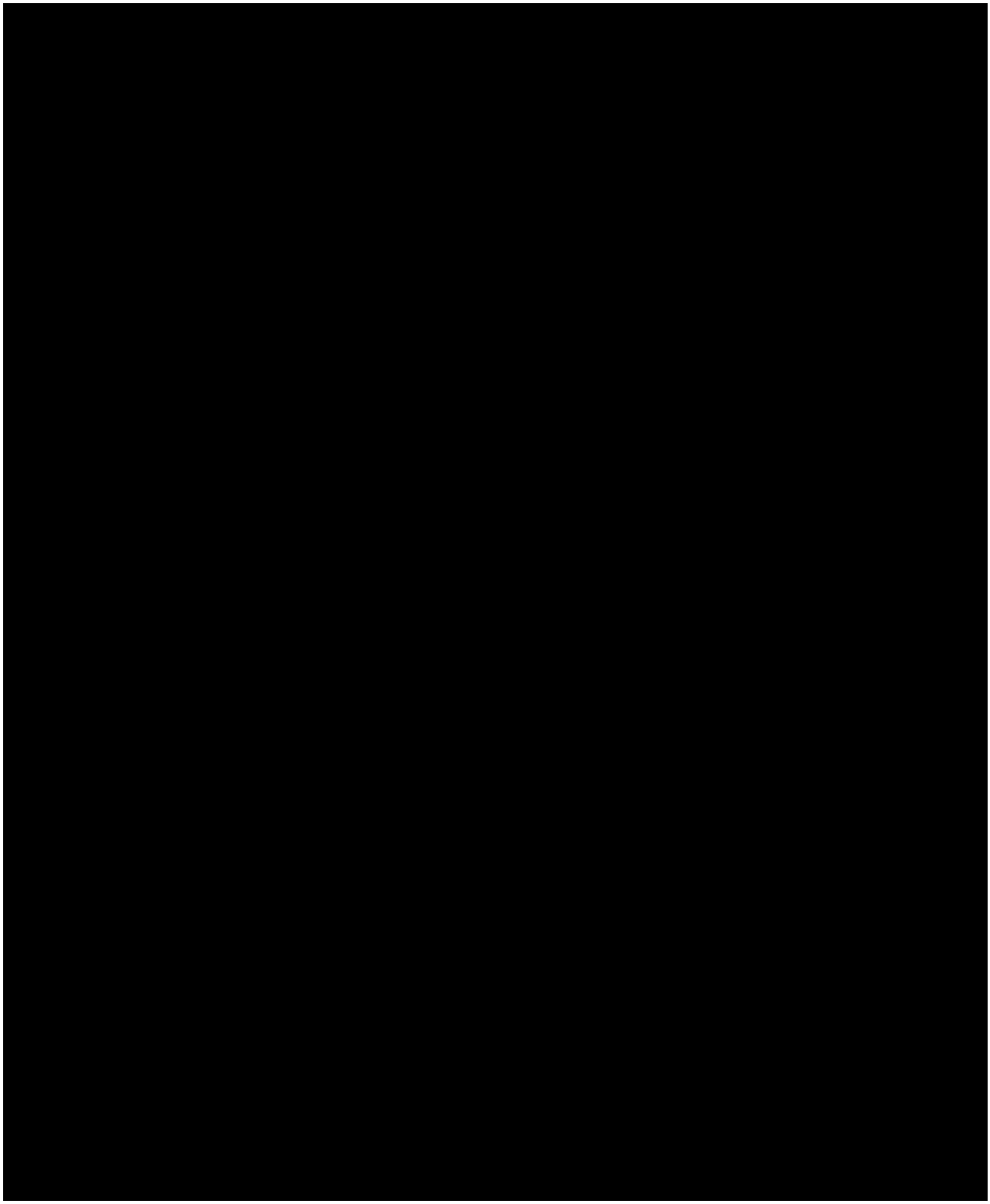
- [redacted]
  Texas (USA), Full-time resource, Configuration Engineer, 20+ years of experience

- [redacted]
  Texas (USA), Full-time resource, System Engineer, 20+ years of experience

Following are the team resumes for further details about their experience, expertise, and skills. If a listed team member should not be available at the time of the project, they will be replaced with someone of equal experience, expertise, and skill level.







## MSaaS Solution

In addition to the described team for the EVERSOURCE-hosted solution, we will provide additional professional resources for the MSaaS solution for the following functions:

### Service Delivery Manager

1. Overall technical point of contact for all communications.
2. Technical project manager leading ticket remediation (e.g., meeting prep, reports, etc)
3. Reviews incidents weekly with EVERSOURCE

### Cloud Architect

1. Install, Deploy, Monitor and Patch EnergyIP on AWS infrastructure per best practices
2. Respond to any potential threat found on the system and work to eliminate Virus or Malware found.
3. Working with the overall solution architect define RTO & RPO policies and procedures

### Service Delivery Engineer

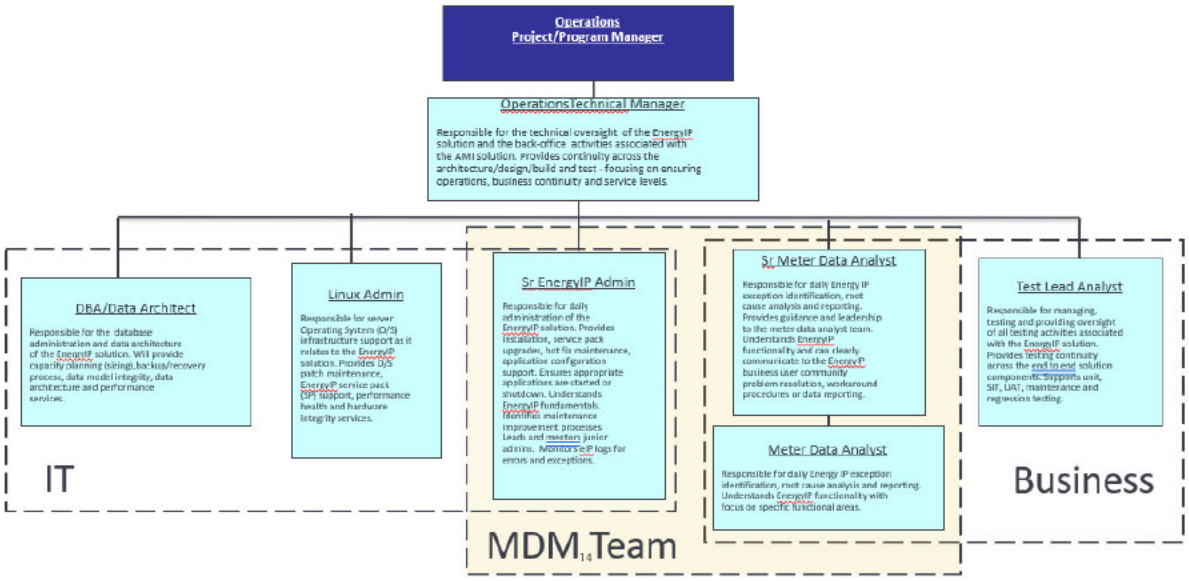
1. EnergyIP application certified specialist
2. EnergyIP MDMS config and test engineer
3. Leads triage, remediation, and resolution of issues

### Dev Ops Support

1. Proactive reporting, monitoring, healthchecks
2. Review logs, database, alerts, exceptions, meter rollout
3. Automation and intelligence (avoid escalations)
4. Supports testing and resolution of issues

## A.6 EVERSOURCE Staffing for Implementation and Operations

The following EVERSOURCE team structure is recommended to prepare EVERSOURCE for daily opertions of the MDM once the system is live:




## DIFFERENCES OF EVERSOURCE STAFFING REQUIREMENTS BETWEEN EVERSOURCE-HOSTED AND MSAAS

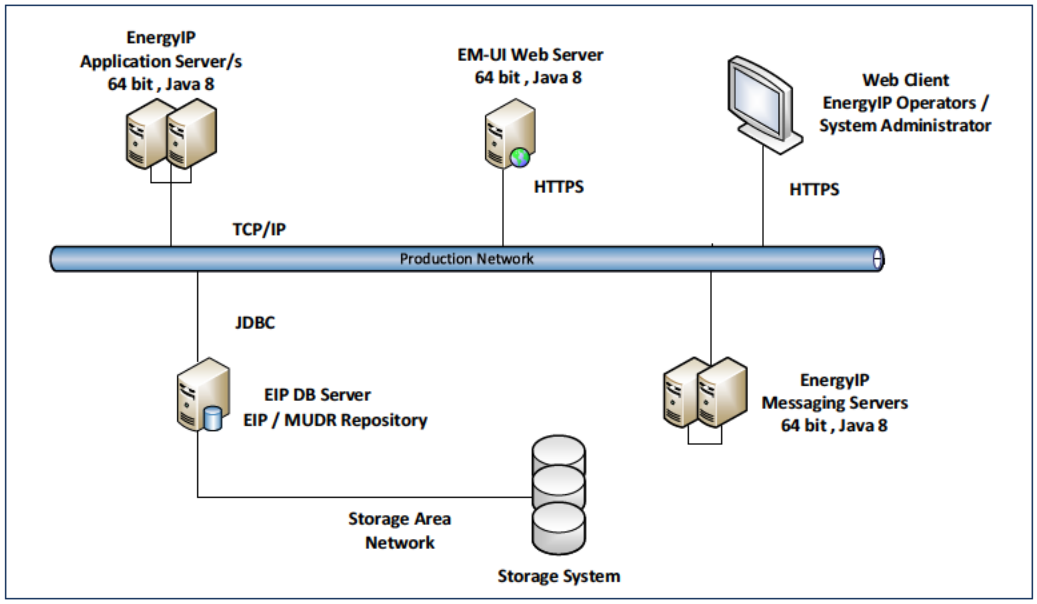
Per diagram above, the IT functions, including management of the application, server and database infrastructure, would be handled by Siemens Advanta as part of the MSaaS cloud operations.

## A.7 System Requirements

### EnergyIP Architectural Overview

The EnergyIP Architecture comprises four tiers of server components: i) EnergyIP Web Application Server, ii) EnergyIP Java Application Servers, iii) EnergyIP Database Server, and iv) EnergyIP Messaging Servers. Apache Kafka is utilized on the EnergyIP Messaging Servers for EnergyIP interprocess communications. EnergyIP architecture is based on a distributed architecture with loosely coupled interaction which is the usual cornerstone for high availability architectures. The architecture provides a built-in mechanism for High Availability (HA) which is achieved by running multiple instances of applications across multiple servers. All EnergyIP applications can have multiple instances with each instance handling a portion of the load and any instance can pick up the load of a failed instance. The Apache Kafka software operates in a cluster with message traffic replicated and distributed across all nodes in the Kafka cluster.

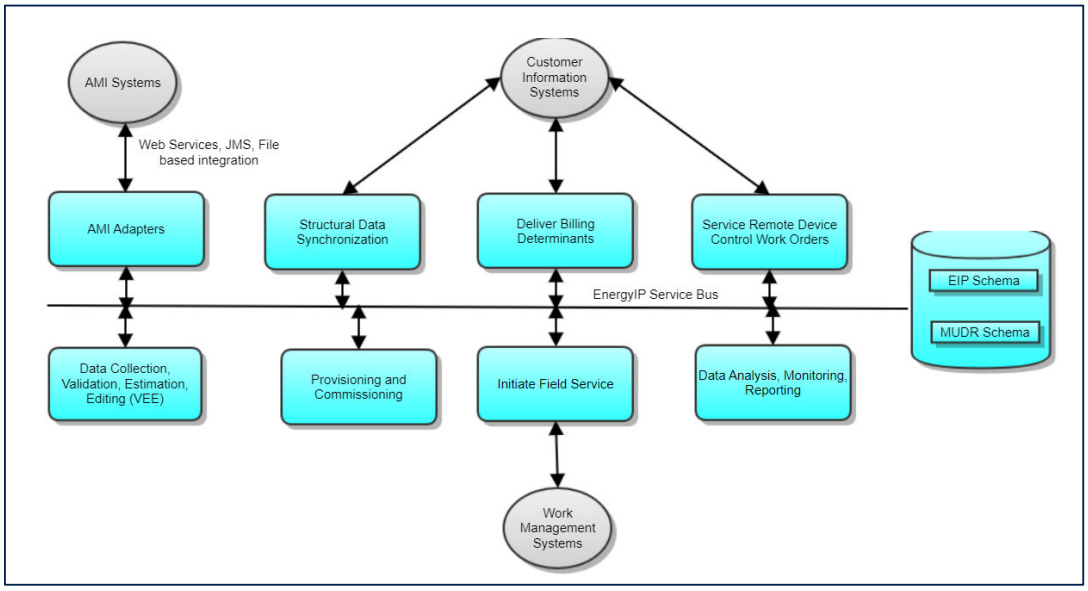
The EnergyIP network connecting the servers should be segregated from your remote access network. It is preferable for all EnergyIP server tiers to be on the same subnet. The EnergyIP network connecting to all server components and to the rest of the environment must be Gigabit Ethernet or faster. This should include all network interfaces, routers, switches, and other network equipment. It is strongly recommended that redundancy be built into all levels of the network from the backbone switches and routers to the individual network interfaces.




**EnergyIP High Level Architectural Overview**

### EnergyIP Component Overview

The diagram below shows a high-level functional component overview of EnergyIP deployment. The primary function of EnergyIP is to collect meter data (both reads and events) from the external headend systems and store this information for access by the utility, for billing and analytical purposes. The EnergyIP Component Overview diagram shows a component view of EnergyIP with all major application components, databases, and general message processing information. Optional components and features are also illustrated and further described. The components and features included are dependent on your deployment of EnergyIP, therefore, not all components will pertain to your setup.




**EnergyIP High Level Functional Component Overview**

## EnergyIP Platform Overview

The components described above run on the EnergyIP Platform. The platform contains many components, and the following picture illustrates the high-level component overview of the EnergyIP platform.

A significant part of EnergyIP functionality is now exposed as business services that can be used to integrate with or customize the functionality provided by EnergyIP.

All EnergyIP business services are exposed as REST services. They can also be accessed as pure java services and used with a published java interface. The services cover the following areas:

- **Asset Handling**: Creation/management and relation handling for ServicePoints, Devices, Channels, SDP, Meter and detailed objects such as SvcPt Groups, Device functions, and so on.
- **Customer Handling**: Creation/management and relation handling for Consumer, Account, Premise and Addresses.
- **Service Configurations**: Configuration and management of DDS, DTS, VEE, Framing and DCS services.
- **Service Request and Billing Request Management and Workflow**
- **General Administration**: User, Role, Privilege, Enumeration, Validation, attribute and parameter rule management, and so on.

## Agile Application Framework

Agile Application Framework (A2F) is a SOA framework that provides protocol-independent access to EnergyIP business functions and services like Device Reads Processing, Billing Data Delivery Services, FlexSync services or MeterReadsServices - all of these can be invoked over SOAP, JMS or plain Java using A2F provided interface.

## Application Management

The EnergyIP platform provides configuration and management of applications through the System Console user interface and the command line interface.

## Security

A single sign-on server (SSO) is provided with EnergyIP platform which can work with any LDAP server/Directory server for authentication. If an implementation lacks a directory server, EnergyIP does provide a fully encrypted and secure database-based authentication mechanism. The SSO server can be configured to work with either LDAP or EnergyIP provided authentication. In addition, EnergyIP platform provides a full-feature authorization mechanism for role-based access control.

## Distributed In-memory Data Grid

A cache layer for frequently accessed data is managed in a distributed data grid, which provides high throughput capabilities to EnergyIP applications.

## Reference Data Handling

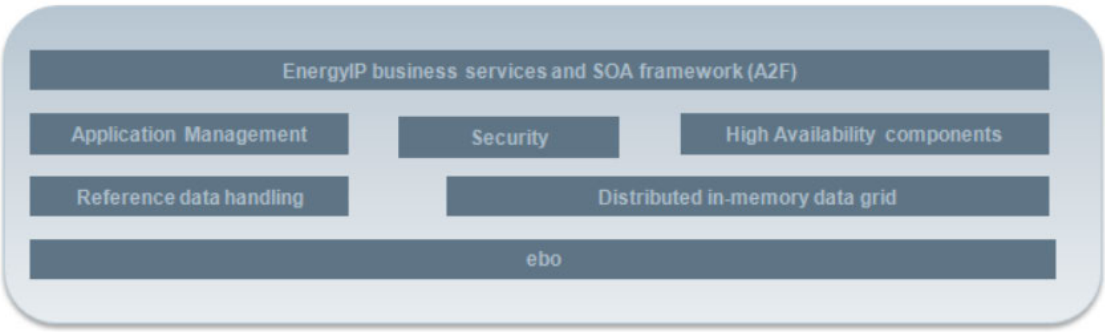
Reference Data Handling is a set of tools that help with common business data management, business configurations (e.g., SDP types/subtypes data) and import/export of environments for ease of move between development, test, and production systems.

## High Availability Components

All applications on the EnergyIP platform are run in software-based HA mode, so remaining application instances and services are used by the platform while generating information for system administrators for any kind of application-down situations. Since EnergyIP runs a distributed architecture with multiple instances of an application joining in a load-balanced manner in order to handle work, the application is guaranteed to continue running, even if an instance is lost.

## eMeter Business Object

eMeter Business Object (eBO) is the data access layer of the EnergyIP platform. eBO provides a streamlined access to EnergyIP databases – MUDR (for meter data) and EIP Database (for asset data) and supports the CRUD (Create, Update, Delete) operations on the database objects. eBO eliminates the need for direct SQL queries and provides a Value Object representation of data objects in the EIP database schema. By exposing simpler API calls for data access and other common functionality, eBO hides the complexity of accessing multiple data sources. eBO supports querying the database to fetch eBOs based on the search criteria specified in a query and provides other features like serialization/de-serialization, notification of the data change events, time zone handling, change summary, data sharing, and caching in-memory.




**EnergyIP High Level Platform Component Overview**

## Environment Sizing Assumptions

The information below summarizes the key drivers used to determine the server and storage sizing for EVERSOURCE EnergyIP 9.x environments.

- 1.2 million installed electric meters
- 32+ billion rows of register reads (all registers) for 36 months
  - 100+ billion rows of intervals reads (all channels) for 15 months
  - EIServer dB size is currently 22.5 TB and grows approximately 7 TB annually (566 GB monthly).
- Register Channel Configuration
  - kWh
  - kVARh
  - Voltage (single and poly-phase),
  - Current, financial registers (e.g., Cost Today)
  - custom registers (e.g., switch status)
- Interval Channel Configuration

| | | Installed Meters (12/2021) |
|---|---|---|
| 1 Channel | Interval Data Channel is kWh-Delivered or kWh-Sum | 392,000 |
| 2 Channel (a) | Interval Data Channels are kWh-Delivered and kVARh-Q1 | 300 |
| 2 Channel (b) | Interval Data Channels are kWh-Delivered and kWh-Received | 50 |
| 4 Channel (a) | Interval Data Channels are kWh-Delivered, kVARh-Q1, kWh-Received, kVARh-Q3 | 5 |
| 4 Channel (b) | Interval Data Channels are kWh-Delivered, kVARh-Delivered, kWh-Received, kVARh-Received | 400 |
| 3 Channel | Interval Data Channels are kWh-Delivered, kVARh-Delivered, and Phase 'A' Voltage | 619,000 |
| 5 Channel | Interval Data Channels are kWh-Delivered, kVARh-Delivered, kWh-Received, kVARh-Received, and Phase 'A' Voltage | 74,000 |
| 9 Channel | Interval Data Channels are kWh-Delivered, kVARh-Delivered, Phase 'A' Voltage, Phase 'B' Voltage, Phase 'C' Voltage, Phase 'A' Current, Phase 'B' Current, Phase 'C' Current, and Neutral Current | 28,600 |
| 11 Channel | Interval Data Channels are kWh-Delivered, kVARh-Delivered, kWh-Received, kVARh-Received, Phase 'A' Voltage, Phase 'B' Voltage, Phase 'C' Voltage, Phase 'A' Current, Phase 'B' Current, Phase 'C' Current, and Neutral Current | 1,500 |
| **Total** | | **1,115,855** |

- Data is delivered to EnergyIP once every 4 hours (as well as Daily, and hourly based on interfacing system).
- A three (3) hour processing window for meter data is used to calculate processing requirements.
- Disaster Recovery and Performance Testing environments will be sized at 100% of Production performance/capacity requirements.
- QA environment will be sized at 50% of Production performance/capacity (processing power).

- Dev environment will be sized to support basic functional testing only and not intended for any large volume of data or performance evaluation.
- High availability supporting a single server failure per server type has been included for all environments (excluding Dev)
- Three (3) years of storage has been estimated.

## Server and Storage Estimates

The following estimate is based on Intel 2.8GHz Xeon processors or equivalent and assumes that the User Interface (UI) components are deployed separately from the primary application components. The data in the tables below describe the server hardware required to achieve the requirements identified in the Assumptions which reflect the end state at full meter deployment. Virtualization of all application server tiers is supported and actively used in many EnergyIP implementations.

| Server | Quantity | CPU Cores | RAM | Storage |
|---|---|---|---|---|
| EIP Application Server | 5 | 32 | 128GB per server | 500 GB per server |
| EIP Messaging Server | 5 | 8 | 32GB per server | 1 TB per server |
| Database Server | 2 (Primary/ Standby) | 32 | 256GB per server | 1 TB per server (app + os) **For data see rollout schedule below** |

**EnergyIP Server Hardware Requirements per Environment (Production, DR, Performance)**

Note: QA should be sized at up to 50% processing power compared to PROD and DEV should be 20%.

Additional hardware such as a load balancer would be required to provide high availability to web-based user interfaces and/or web service integration points. All other application components support high availability/clustered configurations without additional hardware/software components.

## Rollout schedule

### From June 2023 to August 2024

| | | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **P1** | C2 -legacy | Design | | | Build | | | | Testing | | | | | Cutover | | |
| **P2** | SAP/CT | | | | Design | | | | Build | | | | | Testing | | |
| **P3** | SAP/MA | | | | | | | | | | | | | | | |
| **Future -NH Elec+CT/NH/MA-Gas/Water** | | | | | | | | | | | | | | | | |
| Dev#1 -storage | | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB |
| Dev#2 -storage | | | | | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB |
| Dev1&2 -CPU/Memory @ | 20% of prod | | | | | | | | | | | | | | | |
| QA#1-Storage | | | | | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB |
| QA#1-CPU @ | 50% of prod | | | | | | | | | | 50% | | | | | |
| Perf (optional) -Storage | | * need supplimental pricing for this env | | | | | | | | | | 3TB | 3TB | 3TB | 3TB | 3TB |
| Perf(optional)-CPU/Memory @ | 100% of prod | | | | | | | | | | | | | | | 100% |
| QA-2 - Storage | | | | | | | | | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB | 3TB |
| QA-2 - CPU/Memory @ | 50% of prod | | | | | | | | | | | | | | | |
| Prod - Storage | | | | | | | | | | | | | | | | 6TB |
| Prod-Core/Memory per db node | | | | | | | | | | | | | | | | 16 / 64 |
| Prod-Core/Memory per app node | | | | | | | | | | | | | | | | 8 / 64 |
| Prod-Core/Memory/gB per kafka node | | | | | | | | | | | | | | | | 4/32/200 |

### From September 2024 to August 2025

| | | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **P1** | C2 -legacy | start AMI Deployment *assuming 800k AMI meters for CT | | | | | | start AMI Deployment *assuming remaining AMI meters for CT and 1.5mn for MA | | | | | |
| **P2** | SAP/CT | Cutover | | | | | | | | | | | |
| **P3** | SAP/MA | | | | | Design | | | Build | | | | |
| **Future -NH Elec+CT/NH/MA-Gas/Water** | | | | | | | | | | | | | |
| Dev#1 -storage | | 1TB | 1TB | 1TB | 1TB | | | | | | | | |
| Dev#2 -storage | | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB |
| Dev1&2 -CPU/Memory @ | 20% of prod | | | | | | | | 20% | | | | |
| QA#1-Storage | | | | | | | | | | | | | |
| QA#1-CPU @ | 50% of prod | | | | | | | | | | | | |
| Perf (optional) -Storage | | 5TB | 5TB | 5TB | | | | | | | | | |
| Perf(optional)-CPU/Memory @ | 100% of prod | | | | | | | | | | | | |
| QA-2 - Storage | | 5TB | 5TB | 5TB | 5TB | 5TB | 5TB | 5TB | 5TB | 10TB | 10TB | 10TB | 10TB |
| QA-2 - CPU/Memory @ | 50% of prod | | | | | | | | 50% | | | | |
| Prod - Storage | | 6TB | 6TB | 10TB | 10TB | 10TB | 16TB | 24TB | 24TB | 24TB | 30TB | 30TB | 30TB |
| Prod-Core/Memory per db node | | 16 / 64 | 16 / 64 | 16 / 64 | 16 / 64 | 16 / 64 | 16 / 64 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 |
| Prod-Core/Memory per app node | | 8 / 64 | 8 / 64 | 8 / 64 | 8 / 64 | 8 / 64 | 8 / 64 | 8 / 64 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 |
| Prod-Core/Memory/gB per kafka node | | 4/32/200 | 4/32/200 | 4/32/200 | 4/32/200 | 4/32/200 | 4/32/200 | 4/32/200 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 |

### From September 2025 to June 2026

| | | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Apr-26 | May-26 | Jun-26 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **P1** | C2 -legacy | | | | | | | | | | |
| **P2** | SAP/CT | | | | | | | | | | |
| **P3** | SAP/MA | Test | | | | | | | Cutover | | |
| **Future -NH Elec+CT/NH/MA-Gas/Water** | | | | | | | | | | | |
| Dev#1 -storage | | | | | | | | | | | |
| Dev#2 -storage | | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB | 1TB |
| Dev1&2 -CPU/Memory @ | 20% of prod | | | | | | | | | | |
| QA#1-Storage | | | | | | | | | | | |
| QA#1-CPU @ | 50% of prod | | | | | | | | | | |
| Perf (optional) -Storage | | | | | | 5TB | 5TB | 5TB | 5TB | | |
| Perf(optional)-CPU/Memory @ | 100% of prod | | | | | | | 100% | | | |
| QA-2 - Storage | | 10TB | 10TB | 10TB | 10TB | 10TB | 10TB | 10TB | 10TB | 10TB | 10TB |
| QA-2 - CPU/Memory @ | 50% of prod | | | | | | | | | | |
| Prod - Storage | | 34TB | 34TB | 34TB | 40TB | 40TB | 40TB | 40TB | 40TB | 40TB | 40TB |
| Prod-Core/Memory per db node | | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 | 32 / 128 |
| Prod-Core/Memory per app node | | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 | 16 / 128 |
| Prod-Core/Memory/gB per kafka node | | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 | 8/32/500 |

## EnergyIP Software Requirements

| Operating System | Bundled Software | Required 3rd Party Software |
|---|---|---|
| *EnergyIP Application Server* | | |
| Red Hat Enterprise Linux 7.x or higher (64-bit) | EnergyIP 9.0 | Oracle Sun JDK 11 or higher version (64-bit) (OpenJDK Supported.) |
| | Oracle 12c JDBC driver | Bash |
| *EnergyIP Messaging Server* | | |
| Red Hat Enterprise Linux 7.x or higher (64-bit) | | Apache Kafka 2.11_2.0.0 |
| | | Oracle Sun JDK 11 or higher version (64-bit) (OpenJDK Supported.) |
| | | Bash |
| *Oracle Database Server* | | |
| Any supported by Oracle | None | Oracle Enterprise Edition 12.2.0 with minimum patchset of 1 |
| | | Oracle Partitioning |

**EnergyIP Software Requirements**

## EnergyIP Client Requirements

EnergyIP provides a modern web-based user interface requiring no additional software beyond a supported web browser. Users involved with development of custom reports to be deployed through EnergyIP's graphical reporting framework will require an additional IDE tool be installed on their workstation.

| Client Software Requirements |
|---|
| Google Chrome v93+ |
| Microsoft Edge 93+ |
| Eclipse 4.5.0 (report development only) |

**EnergyIP Client Requirements**

## A.8 MDMS Solution Requirements Compliance

Please refer to Attachment A (MDMS Solution Requirements Compliance Matrix) regarding our detailed requirement compliance responses.

The following describes the implementation of the base cloud infrastructure to support the EVERSOURCE infrastructure requirements. The designs are high level and are subject to detailed design workshops during the future phases of the project. The Siemens Cloud Operations team will take responsibility for the deployment of a secure cloud platform. The following scope of deliverables and services will be offered to support the deployment of the EVERSOURCE highly available solution into Amazon Web Services.

- Infrastructure technical design and planning
  AWS Infrastructure Architecture Design including:
  - Network Design
  - Resilience
  - Sizing
  - Deployment Strategy
  - Back Up and Archiving Strategies.
- Cloud Infrastructure Operations
- Secure Infrastructure Design
- Mitigation and adherence to international standards, secure protocols and internal standards

With our MSaaS solution, Siemens Advanta will be able to meet the Service Level Targets specified by EVERSOURCE, including ownership of the operational activities as specified in Section 5.6 of the RFP. The details of the MSaaS solution are specified in A.10 with the EVERSOURCE roles and responsibilities defined in A.6.

## A.9 MDMS Solution Requirements Compliance Reference

This information can be provided through MDMS Software provider, upon request.

## A.10 Standard Software License and Software Maintenance Agreement

# Software Terms

**License Agreement**

**This license agreement ("Agreement") is entered into by the undersigned customer ("Licensee") and eMeter corporation ("eMeter") as of this ___ of ____, 20__ (the "effective date") for the provision by eMeter of software license to Licensee in exchange for fees as specified in this Agreement.**

| **CUSTOMER** | **eMeter Corporation** |
|---|---|
| _____ | _____ |
| Authorized Utility Signature | Authorized eMeter Signature |
| _____ | _____ |
| Date | Date |
| _____ | _____ |
| Type or Printed Name | Type or Printed Name |
| _____ | _____ |
| Title | Title |

| **CUSTOMER** | **eMeter Corporation** |
|---|---|
| _____ | _____ |
| Authorized Utility Signature | Authorized eMeter Signature |
| _____ | _____ |
| Date | Date |
| _____ | _____ |
| Type or Printed Name | Type or Printed Name |
| _____ | _____ |
| Title | Title |

**1. APPLICABLE TERMS.** This Agreement governs the license of Software to Licensee by eMeter. Any additional or conflicting terms in Licensee's request for proposal, specifications, purchase order or any other written or oral communication are not binding on eMeter unless separately signed by eMeter. eMeter's failure to object to Licensee's additional or conflicting terms does not operate as a waiver of any terms contained in this Agreement. Any purchase of products or services shall be subject to a separate written agreement. If Licensee received the Software prior to executing this Agreement, and installs, copies or otherwise uses the Software, Licensee shall, by doing so, indicate that Licensee has read and understood this Agreement and accepted these terms and conditions. Licensee is not entitled to install or use the Software if Licensee does not agree with these terms. In such an event, Licensee should promptly contact eMeter for instructions on return or certified destruction of the Software.

**2. DEFINITIONS.** The following terms have the meanings set forth below.

2.1. "Additional Maintenance Services" has the meaning given in Exhibit 1, Section 1.2, below.

2.2. "Affiliate" means any individual, corporation, partnership, limited liability company, association, joint stock company, trust, unincorporated organization, joint venture, government or political subdivision or agency thereof that directly or indirectly, controls or is controlled by or is under common control, with respect to eMeter or Licensee, is not a competitor of, or in litigation or arbitration with, eMeter or Licensee, as the case may be.

2.3. "Authorized Agents" means eMeter-authorized or Licensee's consultants, agents and contractors who are working on Licensee's premises or environment and who require access to the Software and/or Documentation solely for their support of Licensee's internal business as indicted in Exhibit 1-A.

2.4. "Authorized Users" means (i) Licensee's employees and (ii) Authorized Agents, provided the Authorized Agents comply with the terms of this Agreement.

2.5. "Confidential Information" means all information obtained from the disclosing party and all information compiled or generated by the disclosing party under this Agreement for the receiving party, including but not limited to business information, manufacturing information, technical data, drawings, flow charts, program listings, software including the Software and Documentation, plans and projections provided that such information has been marked or otherwise identified as confidential at the time of disclosure or consists of information that, by its context, is sufficient to put the receiving party on notice of its confidential nature.

2.6. "Documentation" means the explanatory printed or electronic functional specification materials provided by eMeter with respect to the Software, including, but not limited to, license specifications, instructions for the use of the Software and technical specifications.

2.7. Escalation" means the greater of either [redacted]. Should the above mentioned index increase by more than [redacted]% in a two consecutive quarters, eMeter shall be entitled to invoice separately and collect an increase in fees prior to the end of the applicable service year at a rate equal to the increase in the above mentioned index.

2.8. "Extended Support" means the same services are provided as under Maintenance Services, although (i) the Service Level obligations are limited to Severity 1 and Severity 2 issues and (ii) feature requests are not considered.

2.9. "Fix Method" is the approach by which a problem resolution is provided to the licensee. The next Service Pack is the standard vehicle to provide qualified software problem resolution for Software versions within the Maintenance Service Period. In exceptional cases, a Hot Fix is provided, which is limited to severity 1 or severity 2 problems.

2.10. "Hot Fix" is a fix for a specific customer issue, which is generated separate from a Service Pack the customer is using in production. Providing a Hot Fix for any reason is at the sole discretion of the Licensor and will require additional fees.

2.11. "Initial Maintenance Services" has the meaning given in Exhibit 1, Section 1.1, below.

2.12. "License Metrics" means the particular metric restrictions for a relevant Software License Type as indicated in Exhibit 1-A, Product Schedule, and may include meter/device count, concurrent user, named user, per machine, per server, per device, or per time usage, or any other metric agreed to by eMeter and Licensee.

2.13. "License Type" means a Limited Term License, Perpetual License or as described in Exhibit 1-A, Product Schedule.

2.14. "Limited Term License" means a license of the Software that is limited in term to a period of time mutually agreed by eMeter and Licensee. Limited Term Licenses include, but are not limited to Rental Licenses.

2.15. "Licensee" means the party that is acquiring rights to the Software pursuant to the terms of this Agreement.
2.16. "Maintenance Fees" means the fees for Maintenance Services set forth in the Agreement or as stated in Exhibit 1-B.
2.17. "Maintenance Services" means the maintenance services that eMeter is to provide under this Exhibit in support of the Software as set forth here, and includes the right to receive then current Major Releases, Minor Releases, Service Packs exclusive of Tier 1 Support. In all cases, Maintenance Services exclude any configuration, implementation and integration services.
2.18. "Maintenance Services Period" means the time period during which eMeter will provide Maintenance Services for the current Major Release and/or Minor Release of the Software, which shall be for a period of forty-eight months from the date the current Major Release and/or Minor Releases was made generally available.
2.19. Major Release" means such functional modifications, improvements and enhancements to (a) the Software that eMeter in its discretion incorporates into the Software and licenses to its then-current customers and that are delivered to Licensee by eMeter and (b) the Third-Party Software that the Third-Party Software manufacturer incorporates into its products and eMeter delivers to Licensee. Major Releases are identified by the first digit of a three digit code following the name of the Software. eMeter may, in its discretion, identify Major Releases by increasing the number on the left side of the decimal point in a Software version numbering (e.g., "Version X.Y.Z" is the Major Release X).
2.20. "Minor Release" means modifications to the Software delivered to Licensee by eMeter in accordance with eMeter's maintenance and support policy set forth herein. Minor Releases are designated by the second digit of a three digit code following the name of the Software (e.g., "Version X.Y.Z" is a Minor Release Y of Major Release X.)
2.21. "OSS" means open source software.
2.22. "Other Third Party Software" means the system on which the licensed Software is installed, run and/or used contains all third party software not contained in or bundled with the Software as delivered and that is necessary to run, install, interface with, and/or use such Software.
2.23. "Perpetual License" means a license of Software that is not limited in term, but, subject to the terms of this Agreement, extends indefinitely. As with most any License Type, Perpetual Licenses do not include Maintenance Services or professional services which must be purchased separately.
2.24. "Rental License" means a license whose term is limited to an agreed to period of time.
2.25. "Service Levels" means the levels of responsiveness eMeter provides generally to its customers and which current levels are described herein.
2.26. "Service Pack" means a maintenance release, on a Major/Minor version. Defect fixes, for reported issues that require a defect fix, are delivered in a Service Pack release ~~.~~ Service Packs are designated by the third digit of a three-digit code following the name of the Software (e.g., "Version X.Y.Z" is Service Pack Z of Minor Release Y of Major Release X.). Service Packs contain all corrections since the previous service pack. Service Packs include the full product.
2.27. "Software" means the product that is licensed or distributed by eMeter to Licensee under the terms and conditions of this Agreement. "Software" includes the related Documentation.
2.28. "Territory" means the jurisdiction in which eMeter has licensed rights to the Software as indicated in this Agreement. If no Territory is identified, the Territory shall be limited to the Licensee's service territory in which the Software is delivered or otherwise made available to Licensee as of the effective date of the Agreement.
2.29. "Third Party Software" means third party technology is licensed to Licensee either under the terms of this Agreement or under separate license terms that shall be specified in the relevant Documentation, "read me" files, notice files, or other such documents or files.
2.30. "Tier 1 Support" means, with respect to the Software, conducting problem definition and diagnosis, including (a) checking log files for errors; (b) reviewing case collateral; (c) searching systems of record for similar cases; (d) searching for known defects; and (e) searching for fixes available and recording and maintaining accurate records of the issue and resolution process in a web-based help desk system, including (i) creating cases; (ii) reproducing errors and creating test cases; and (iii) maintaining ownership of an issue until such issue is closed, even if escalated.

**3. LICENSE GRANT AND CONDITIONS.**

3.1. License Grant. Subject to the terms and conditions of this Agreement, eMeter grants to Licensee a nonexclusive, nontransferable, limited license to allow Authorized Users to access and use the executable form of the Software, to the extent to which the same has been enabled by eMeter through use of license key or other mechanism for use by Licensee, in the Territory. The license granted to Licensee shall be of the

License Type and be subject to the License Metrics set forth in herein or in the Exhibit 1-A, Product Schedule. No title to or ownership in the Software is transferred to Licensee. Title to the Software, and all applicable rights in patents, copyrights, trade secrets and other intellectual property rights inherent in the Software, will remain in eMeter or third parties from whom eMeter has obtained the right to license the Software. eMeter reserves all rights in the Software not explicitly granted herein.

The Software is licensed for the term stated in Exhibit 1-A, Product Schedule, and only for the then-current Release and Service Pack and in connection with the configuration of the goods and operating system for which the Software is ordered and for the end-use purpose stated in the related eMeter operating documentation. Except as expressly provided herein, use of the Software in a time sharing, application service, or other computer service basis to a third party shall be prohibited. Modification or creation of derivative works of the Software or Third Party Software shall be strictly prohibited.

3.2. Backup of Software. Licensee may make one copy of the Software for archival backup purposes only, unless otherwise indicated in Exhibit 1-A, Product Schedule. Licensee shall retain and reproduce all copyright or proprietary notices in the backup copy of the Software. eMeter retains all rights to the original and backup copy of the Software. The backup copy will also be subject to the terms and conditions of this Agreement

3.3. Delivery of Software. Upon execution of this Agreement and upon a valid purchase order from the Licensee, the Software will be made available for download and delivery from eMeter. The Software receipt in accordance with the terms of this Agreement is separate and independent from acceptance of any services or deliverables under a separate Services Agreement.

3.4. Use of Unauthorized Software. Except as otherwise describe in this Agreement, Licensee represents and warrants that it will only use eMeter software that has been validly licensed to it by eMeter or its authorized partner. If Licensee downloads, installs and/or uses unauthorized software, then eMeter has the right to terminate this Agreement in accordance with the terms of Article 6 below.

3.5. Third Party and Open Source Software. The Software may contain or require the use of third party technology that is provided with the Software, including OSS. Licensee acknowledges that the Software incorporates Third Party Software. Licensee‘s use of the Third Party Software is limited to its internal purposes as integrated with the Software. Licensee has no license or any other rights to the Third Party Software and may under no circumstances use the Third Party Software independently or separated from the Software. Third Party Licensors shall be considered a third party beneficiary of this Agreement, solely insofar as rights to their product are concerned. Licensee’s rights to use Third Party Software are subject to such separate license terms and are not restricted in any way by this Agreement and to the extent that a term of this Agreement is in conflict with any applicable mandatory right granted by a third-party license, such term shall not apply. If applicable, eMeter will furnish OSS source code contained in the Third Party Software upon written request and subject to Licensee’s payment of shipping and handling charges. Third party technology that is not Third Party Software shall be deemed part of the Software and is licensed to Licensee under the terms of this Agreement. The terms of any third-party license (if any) that apply to the licensed Software shall separately accompany the licensed Software and are automatically presented for acceptance prior to first use of such Software by an Authorized User in accordance with Exhibit 1-A, Product Schedule, or are specified in the “read me” file or document for the licensed Software. The terms of such third-party licenses are herein incorporated by reference to this Agreement.

3.6. Other Third Party Software Not Provided. Except where the parties agree in writing to the contrary, Licensee is solely responsible for ensuring that Licensee and/or Licensee’s system fulfill the requirements of all required licenses for Other Third Party Software and Licensee shall have responsibility for all other administration and maintenance of Other Third Party Software, including without limitation, integration, implementation, daily monitoring, operational tasks, patch management or administration thereto.

3.7. U.S. Government Restricted Rights. The Software is a commercial product that has been developed exclusively at private expense. If the Software is acquired directly or indirectly on behalf of a unit or agency of the United States Government under the terms of (i) a United States Department of Defense ("DOD") contract, then the Software and Documentation are considered "Commercial Items", as that term is defined in 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software

Documentation", as such terms are defined in 48 C.F.R. §252.227-7014(a)(5) and 48 C.F.R. §252.227-7014(a)(1), and used in 48 C.F.R. §12.212 and 48 C.F.R. 227.7202, as applicable, consistent with 48 C.F.R. §12.212, 48 C.F.R. §252.227-7015, 48 C.F.R. §227.7202 through 227.7202-4, 48 C.F.R. §52.227-14, and other relevant sections of the Code of Federal Regulations ("C.F.R."); or (ii) a Civilian agency contract, then use, reproduction, or disclosure is subject to the restrictions set forth in clause 27.405(b)(2)(i) of the Federal Acquisition Regulation ("FAR"), entitled Acquisition of Existing Computer Software, and any restrictions in the agency's FAR supplement and any successor regulations thereto, and the restrictions set forth in this Agreement. The United States Government will only have the rights set forth in this Agreement. eMeter Software licensed to United States Government end users with only those rights as granted to all other end users, according to the terms and conditions contained in this Agreement. eMeter shall not be required to obtain a security clearance or otherwise be involved in accessing classified information as described in FAR 52.204-2 and the National Industrial Security Program Operating Manual (DoD 5220.22-M).

**4. PRICING AND PAYMENT.** Prices and payment terms are: (i) as stated in eMeter's proposal, or if none are stated; (ii) eMeter's standard prices in effect when eMeter receives Licensee's purchase order.

4.1. Payment. Unless otherwise agreed to, all payments are due net thirty (30) days from the invoice date in United States Dollars. Buyer shall provide a PO covering the entire term of any multi-year commitment. Buyer will be invoiced on an annual basis one month prior to the renewal date to ensure uninterrupted service. Payments will be due net 30 Days from date of invoice.

4.2. Taxes. Licensee must pay any and all federal, state or local taxes (other than taxes based on Licensor's income) including sales taxes imposed in connection with the purchase of the license of the Software under this Agreement or the purchase of Maintenance Services in connection with this Agreement.

4.3. Late Payments. Late payments shall bear interest at an annual percentage rate of twelve percent (12%) or the highest rate allowed by law, whichever is lower.

**5. LICENSEE RESPONSIBILITIES AND PROHIBITED ACTIONS.**

5.1. Meter Count: On an annual basis, either upon the earlier of the anniversary date of this License Agreement or within 60 days of Licensee's intent to renew Maintenance Services, Licensee shall provide the License Metric of meter/device count to Licensor and remit applicable license fees.

5.2. Remarketing of Software. Licensee will not cause or permit the loan, publication, transfer of possession (whether by sale, exchange, gift, operation of law or otherwise) of the Software, in whole or in part, to or for any third party, and/or use of the Software as a service bureau.

5.3. Transfer of Software. Unless specifically allowed by the terms of this Agreement, Licensee may not distribute, rent, lease, sell, sublicense or otherwise transfer all or any portion of the Software, or any rights granted in this Agreement, to any other person without the prior written consent of eMeter.

5.4. Reverse Engineering or Modifying the Software.

5.4.1. Prohibitions. Licensee will not reverse engineer, decompile, translate, disassemble, or otherwise attempt to discover the source code of the Software.

5.4.2. Licensee shall not be entitled to remove any alphanumeric identifiers, trademarks or copyright notices from the Software, the data medium, or Documentation supplied under this Agreement.

5.5. Host Identifier. With respect to each order for Software under this Agreement, Licensee or eMeter's authorized channel partner will provide eMeter with the host identifier required by eMeter and such other information reasonably requested by eMeter for each workstation and/or server on which the license management portion of the Software will be installed to permit eMeter to generate a license file that will restrict end-user access to only those Software modules licensed under this Agreement and limit use of such Software modules at any given time to the maximum number of licensed Authorized Users.

5.6. Authorized Agents; Indemnity. Licensee will ensure that Authorized Agents comply with the terms of this Agreement and agrees to indemnify eMeter from and against any and all liabilities, losses, claims, costs and/or expenses incurred by eMeter and/or its Affiliates as a result of any violation of the terms of this Agreement by any Authorized Agents.

6. **TERM AND TERMINATION.** The term of this agreement shall be as specified in Exhibit 1-A, Product Schedule or applicable Statement of Work. eMeter will have the right to terminate this Agreement and/or any Limited Term License and/or Perpetual License granted hereunder immediately on notice to Licensee if Licensee: (a) violates the license restrictions of this Agreement; (b) breaches Article 3(d); (c) fails to pay any undisputed amounts within sixty (60) days of invoice; or (d) files a petition in bankruptcy, has such a petition filed against it, which petition is not discharged within sixty (60) days after such filing, makes an assignment for the benefit of creditors, if a receiver, trustee, custodian or similar agent is appointed or takes possession of Licensee's assets, or if Licensee becomes insolvent or otherwise ceases doing business in the ordinary course. In addition, eMeter will have the right to terminate this Agreement and/or any Limited Term License and/or Perpetual License granted hereunder if Licensee breaches any other obligation or provision of this Agreement which breach remains uncured for a period of thirty (30) days after receipt of notice thereof from eMeter.

7. **EFFECT OF TERMINATION.** Upon termination of this Agreement, the licenses granted hereunder and all other provisions of this Agreement (except those specified in this Article) shall be terminated and Licensee shall immediately cease using the Software, the Documentation and other eMeter confidential information and shall permanently delete all electronic copies thereof from Licensee's systems. Except as specifically set forth in this Agreement, all license fees and Maintenance Services fees are non-refundable. Termination or expiration of this Agreement or any license granted hereunder shall not limit either party from pursuing other remedies available to it, including injunctive relief, nor shall such termination relieve Licensee's obligation to pay all fees that have accrued or are otherwise owed by Licensee up to the effective date of termination. All Licensee obligations under this Agreement shall survive and continue in full force and effect after any termination of this Agreement.

8. **FORCE MAJEURE / DELAYS.** If eMeter's performance is delayed by any cause beyond its reasonable control (regardless of whether the cause was foreseeable), including without limitation acts of God, strikes, labor shortage or disturbance, fire, accident, war or civil disturbance, delays of carriers, cyber-attacks, terrorist attacks, failure of normal sources of supply, or acts or inaction of government, eMeter's time of performance will be extended by a period equal to the length of the delay plus any consequences of the delay. eMeter will notify Licensee within a reasonable time after becoming aware of any such delay.

9. **LICENSEE'S REQUIREMENTS.** eMeter's performance is contingent upon Licensee timely fulfilling all of its obligations under this Agreement. These obligations include the Licensee supplying all documents and approvals needed for eMeter to perform, including but not limited to technical information and data, drawing and document approvals, and necessary commercial documentation. eMeter may request a change order for an equitable adjustment in prices and times for performance, as well as for any additional costs or any delay resulting from the failure of Licensee or Licensee's contractors, successors or assigns to meet these obligations.

10. **WARRANTIES.**

10.1. Unless otherwise stated in this Agreement, including Exhibit 1-A, Product Schedule, eMeter warrants that, as of the date the Software is delivered or otherwise made available to Licensee via electronic download and for a period of ninety (90) days thereafter (the "Warranty Period"), the Software will provide the features and functions generally described in the Documentation. eMeter shall make reasonable efforts to correct any reproducible errors in the Software that cause them to fail to perform substantially in accordance with this limited warranty. eMeter's entire liability, and Licensee's exclusive remedy, during the Warranty Period will be, at eMeter's sole option, to attempt to correct or work around errors.

10.2. This warranty does not apply to Software delivered by eMeter but produced by others. The warranty for Software produced by others shall be the warranty as stated by the relevant Third Party Software producer license terms.

10.3. This warranty will apply only provided that: (i) the Software is not modified, changed, or altered by anyone other than eMeter or its suppliers, unless authorized by eMeter in writing; (ii) there is no change by anyone

other than eMeter to the Products for which the Software is ordered; (iii) Licensee is using the Software in a proper manner in compliance with all operating instructions included in the Documentation; (iv) the nonconformity is not caused by Licensee or any of their agents, servants, employees, or contractors, or any third party; (v) Licensee or Licensee's eMeter-authorized transferee promptly notifies eMeter in writing of the nonconformity after it is discovered; and (vi) all fees for the Software due to eMeter have been paid.

10.4. Licensee is responsible for the prevention of security issues with regard to its own systems and data, including Software hosted on Licensee's systems. Licensee's responsibility includes, but is not limited to, undesired invaders of the software such as malware, viruses, spyware or trojans and eMeter disclaims responsibility for any damages incurred as a result of Licensee's failure to secure its systems and data.

10.5. EXCEPT FOR THE EXPRESS LIMITED WARRANTIES PROVIDED IN THIS ARTICLE 10, EMETER MAKES AND LICENSEE RECEIVES NO EXPRESS WARRANTIES. ANY STATEMENTS OR REPRESENTATIONS ABOUT THE SOFTWARE AND ITS FUNCTIONALITY IN ANY COMMUNICATION WITH LICENSEE CONSTITUTE TECHNICAL INFORMATION AND NOT AN EXPRESS WARRANTY OR GUARANTEE. IN ADDITION, EMETER SPECIFICALLY DISCLAIMS ANY OTHER WARRANTY INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WITHOUT LIMITING THE FOREGOING, EMETER DOES NOT WARRANT THAT THE OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE.

**11. LIMITATION OF LIABILITY.** NOTWITHSTANDING ANYTHING IN THIS AGREEMENT TO THE CONTRARY, EMETER IS NOT LIABLE, WHETHER BASED IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL OR EQUITABLE THEORY, FOR: LOSS OF USE, PRODUCTION, REVENUE, SAVINGS, PROFIT, INTEREST, GOODWILL OR OPPORTUNITY, COSTS OF CAPITAL, COSTS OF PURCHASED OR REPLACEMENT POWER OR SUBSTITUTE USE OR PERFORMANCE, LOSS OF INFORMATION AND DATA, LOSS OF POWER, VOLTAGE IRREGULARITIES OR FREQUENCY FLUCTUATION, INTERRUPTION OF OPERATIONS, CLAIMS ARISING FROM LICENSEE'S THIRD PARTY CONTRACTS, OR FOR ANY TYPE OF INDIRECT, SPECIAL, LIQUIDATED, PUNITIVE, EXEMPLARY, COLLATERAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER LOSS OR COST OF A SIMILAR TYPE.

EMETER'S ENTIRE LIABILITY FOR ALL CLAIMS OR DAMAGES ARISING OUT OF OR RELATED TO THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT OR OTHERWISE, WILL BE LIMITED TO AND WILL NOT EXCEED, IN THE AGGREGATE THE AMOUNT PAID TO EMETER FOR THE SOFTWARE LICENSED UNDER THIS AGREEMENT FOR THE TWELVE (12) MONTH PERIOD PRECEDING THE DATE GIVING RISE TO THE CLAIM. THIS LIMITATION IS NOT APPLICABLE TO CLAIMS COVERED BY ARTICLE 12 OF THIS AGREEMENT.

LICENSEE AGREES THAT THE EXCLUSIONS AND LIMITATIONS IN THIS ARTICLE 11 WILL PREVAIL OVER ANY CONFLICTING TERMS AND CONDITIONS IN THIS AGREEMENT AND MUST BE GIVEN FULL FORCE AND EFFECT WHETHER OR NOT ANY OR ALL SUCH REMEDIES ARE DETERMINED TO HAVE FAILED OF THEIR ESSENTIAL PURPOSE. THESE LIMITATIONS OF LIABILITY ARE EFFECTIVE EVEN IF EMETER HAS BEEN ADVISED BY LICENSEE OF THE POSSIBILITY OF SUCH DAMAGES. THE WAIVERS AND DISCLAIMERS OF LIABILITY, RELEASES FROM LIABILITY AND LIMITATIONS ON LIABILITY EXPRESSED IN THIS ARTICLE 11 EXTEND TO EMETER'S AFFILIATES, PARTNERS, PRINCIPALS,

SHAREHOLDERS, DIRECTORS, OFFICERS, EMPLOYEES, SUPPLIERS, AGENTS AND SUCCESSORS AND ASSIGNS.

**12. PATENT AND COPYRIGHT INFRINGEMENT.**

12.1. eMeter will, at its option and expense, defend or settle any suit or proceeding brought against Licensee based on an allegation that the Software or use thereof for its intended purpose constitutes an infringement of any Patent Cooperation Treaty country member's patent or misappropriation of a third party's trade secret or copyright in the country where the Software is delivered by eMeter. Licensee will promptly give eMeter written notice of the suit or proceeding and the authority, information, and assistance needed to defend the claims. eMeter shall have the full and exclusive authority to defend and settle such claim(s) and will pay the damages and costs awarded in any suit or proceeding so defended. eMeter is not responsible for any settlement made without its prior written consent. Licensee shall not make any admission(s) which might be prejudicial to eMeter and shall not enter into a settlement without eMeter's consent. If the Software, or any part thereof, as a result of any suit or proceeding so defended is held to constitute infringement or its use by Licensee is enjoined, eMeter will, at its option and expense, either: (i) procure for Licensee the right to continue using the Software; (ii) replace it with substantially equivalent non-infringing Software; or (iii) modify the Software so it is non-infringing.

12.2. eMeter will have no duty or obligation under this Article 12 if the Software is: (i) supplied according to Licensee's design or instructions and compliance therewith has caused eMeter to deviate from its normal course of performance; (ii) modified by Licensee or its contractors after delivery; or (iii) combined by Licensee or its contractors with devices, methods, systems or processes not furnished hereunder and by reason of said design, instruction, modification, or combination a suit is brought against Licensee. In addition, if by reason of such design, instruction, modification or combination, a suit or proceeding is brought against eMeter, Licensee must protect eMeter in the same manner and to the same extent that eMeter has agreed to protect Licensee under this Article 12.

12.3. THIS ARTICLE 12 IS AN EXCLUSIVE STATEMENT OF EMETER'S DUTIES AND LICENSEE'S REMEDIES RELATING TO PATENTS, TRADE SECRETS AND COPYRIGHTS, AND DIRECT OR CONTRIBUTORY INFRINGEMENT THEREOF.

**13. CONFIDENTIALITY.**

13.1. Both during and after the term of this Agreement, the parties will treat Confidential Information in the following manner; (i) not use such Confidential Information except as expressly set forth herein; and (ii) not disclose such Confidential Information to any third party. If Licensee conducts benchmarks or other tests concerning the Software, including any content or functionality of eMeter's Third Party Licensors, or hardware, then the results shall constitute eMeter's Confidential Information and shall not be published or otherwise revealed to any third party, without the prior written consent of eMeter. Each party will prevent the disclosure and protect the confidentiality of the other party's Confidential Information by using the same means it uses to protect its own Confidential Information, but in any event not less than reasonable means. However, eMeter has the right to share Licensee's Confidential Information with its Affiliates and subcontractors, provided those recipients are subject to the same confidentiality obligations set forth herein. Licensee has the right to share eMeter's Confidential Information with Authorized Users and Authorized Agents provided those recipients are subject to the same confidentiality obligations set forth herein. If a party breaches any of its obligations with respect to confidentiality or unauthorized use or disclosure of the other party's Confidential Information hereunder, the disclosing party shall be entitled to obtain equitable and injunctive relief in addition to all other remedies that may be available to protect the disclosing party's interests.

13.2. Nothing in this Agreement requires a party to treat as confidential any information which: (i) is or becomes generally known to the public, without the fault of the receiving party; (ii) is disclosed to the receiving party, without obligation of confidentiality, by a third party having the right to make such disclosure; (iii) was previously known to the receiving party, without obligation of confidentiality, which fact can be demonstrated by means of documents which are in the possession of the receiving party upon the date of this Agreement; (iv) was independently developed by receiving party or its representatives, as evidenced by written records, without the use of discloser's Confidential Information, or (v) is required to be disclosed by law, except to the extent eligible for special treatment under an appropriate protective order, provided that the party required to

disclose by law will promptly advise the originating party of any requirement to make such disclosure to allow the originating party the opportunity to obtain a protective order and assist the originating party in so doing.

13.3. It is eMeter's policy not to unlawfully or improperly receive or use confidential information, including trade secrets, belonging to others. This policy precludes eMeter from obtaining, directly or indirectly from any employee, contractor, or other individual rendering services to eMeter, confidential information of a prior employer, client or any other person which such employee, contractor, or individual is under an obligation not to disclose. Licensee agrees to abide by this policy.

13.4. This Article 13 will survive the expiration or termination of this Agreement for any reason.

**14. DATA PROTECTION.** Licensee represents and warrants that it is in compliance with all applicable data protection laws and that it has obtained all necessary consents as required by applicable law in respect of personal data Licensee transfers or makes available to eMeter for processing in the course of this Agreement or any related maintenance and/or support services and will indemnify eMeter in respect of all costs, claims, liabilities and demands incurred by eMeter in respect of any breach of this warranty.

**15. FEEDBACK.** To the extent that Licensee gives feedback on the Software to eMeter or its subcontractors, Licensee hereby assigns to eMeter all rights to such feedback (including any suggestions, enhancement requests, recommendations or other feedback) provided by the Licensee and its Authorized Users of the Software and shall treat such feedback as Confidential Information of eMeter in accordance with the obligations set forth herein. Licensee further agrees to ensure that it obtains such rights to Feedback from the Authorized Users and to provide eMeter all reasonable assistance necessary to perfect any intellectual property rights resulting from any feedback.

**16. AUDITS.** Licensee will at all times maintain records specifically identifying the Software licensed under this Agreement, the location of each copy thereof, and the location and identity of the workstations and servers on which the Software is installed. eMeter may, during regular business hours and upon reasonable advance notice, conduct an audit to determine Licensee's compliance with the terms and conditions of this Agreement. Licensee will permit eMeter or its agents to access Licensee's facilities, workstations and servers and otherwise cooperate fully with eMeter in any such investigation and will take all commercially reasonable actions to assist eMeter in accurately determining Licensee's compliance with the terms and conditions of this Agreement. eMeter and its authorized agents will comply with Licensee's reasonable security regulations while on Licensee's premises.

**17. SOFTWARE MAINTENANCE TERMS AND CONDITIONS.** Licensee may purchase software Maintenance Services, including access to new releases under terms in accordance with the applicable eMeter annual maintenance and support services offering, attached hereto as Exhibit 1, which is subject to change annually without notice. All multi-year commitments are non-cancellable and non-refundable.

**18. NON-WAIVER.** Any waiver by a party of strict compliance with this Agreement must be in writing, and any failure by the parties to require strict compliance in one instance will not waive its right to insist on strict compliance thereafter.

**19. MODIFICATION OF TERMS.** This Agreement may only be modified by a written instrument signed by authorized representatives of both parties.

**20. ASSIGNMENT.** Neither party may assign all or part of this Agreement, or any rights or obligations under this Agreement, without the prior written consent of the other; but either party may assign its rights and obligations, without recourse or consent, to any parent, wholly owned subsidiary, Affiliate, or successor organization (whether

as a result of reorganization, restructuring or sale of substantially all of a party's assets). However, Licensee shall not assign this Agreement to: a competitor of eMeter; an entity in litigation with eMeter; or an entity lacking the financial capability to satisfy Licensee's obligations. Any assignee expressly assumes the performance of any obligation assigned. eMeter may grant a security interest in this Agreement and/or assign proceeds of this Agreement without Licensee's consent.

21. **APPLICABLE LAW AND JURISDICTION.** This Agreement is governed by and construed in accordance with the laws of the State of Delaware, without regard to its conflict of laws principles. The application of the United Nations Convention on Contracts for the International Sale of Goods is excluded. BOTH EMETER AND LICENSEE KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVE ALL RIGHTS TO A JURY TRIAL IN ANY ACTION OR PROCEEDING RELATED IN ANY WAY TO THIS AGREEMENT. Each party agrees that claims and disputes arising out of this Agreement must be decided exclusively in a federal or state court of competent jurisdiction located in a state in which either Licensee or eMeter maintains its principal place of business. Each party submits to the personal jurisdiction of such courts for the purpose of litigating any claims or disputes.

22. **SEVERABILITY.** If any provision of this Agreement is held invalid, illegal or unenforceable, the remaining provisions will not in any way be affected or impaired. A court may modify the invalid, illegal or unenforceable provision to reflect, as closely as possible, the parties' original intent.

23. **COMPLIANCE WITH LAWS; EXPORT / IMPORT.** The parties agree to comply with all applicable laws and regulations. Should a change in the law delay Siemens performance under this Agreement, or increase costs, Siemens shall be entitled to a change order therefor. Licensee acknowledges that eMeter is required to comply with applicable export/import laws and regulations relating to the sale, export, import, transfer, assignment, disposal and use of the Software, including any export / import license requirements. Licensee agrees that the Software will not at any time directly or indirectly be used, exported, imported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with any export / import laws and regulations. eMeter's continuing performance hereunder is conditioned on compliance with such export / import laws and regulations at all times and eMeter shall have the right to terminate this Agreement if Licensee fails to comply with such export / import laws and regulations.

    Licensee further agrees to use reasonable security precautions to provide access by its employees or Authorized Users to the Software and Third Party Software and to prevent unauthorized access. Licensee assumes responsibility for all data it introduces into the Software, including but not limited to adequate protection and backup, and eMeter and Third Party Software providers shall have no obligation or liability with respect thereto.

24. **PUBLICITY.** Except as may be required by applicable law, neither party shall disclose the terms of this Agreement or issue a press release in connection with the subject matter hereof without the prior written consent of the other party, which shall not be unreasonably withheld. Notwithstanding the foregoing, eMeter shall be permitted to name Licensee as a customer of eMeter on eMeter's website, in company presentations, customer lists and in other eMeter marketing materials and each party shall have the limited right to disclose the terms of this Agreement to its bona fide financial, tax and legal advisors subject to appropriate confidentiality obligations.

25. **NUCLEAR.** Unless expressly authorized in writing by eMeter, the Software must not be used in or in connection with a nuclear facility or application. If Licensee uses any Software in connection with any nuclear facility or activity, it does so at its own risk and Licensee will indemnify, defend and hold eMeter harmless, and waives and will require its insurers to waive all right of recovery against eMeter, for any damage, loss, destruction, injury or death resulting from a "nuclear incident," as defined in the Atomic Energy Act of 1954, as amended,

whether or not due to eMeter's negligence. eMeter's consent to Licensee's use of the Software in connection with any nuclear facility or application will be subject to additional terms and conditions that eMeter deems necessary to protect its interests.

**26. SURVIVAL.** The articles titled "Patent and Copyright Infringement," "Limitation of Liability," "Confidentiality," "Delivery, Title and Risk of Loss or Damage," "Export/Import Compliance," "Feedback," and "Nuclear" survive termination, expiration or cancellation of this Agreement.

**27. ORDER OF PRECEDENCE AND CONTRADICTION OF TERMS.** In the event of inconsistency between or among these provisions, the following order of precedence shall govern: 1) Exhibits to this Agreement or 2) This Agreement.

**28. RELATIONSHIP OF THE PARTIES.** For all purposes, Licensor and Licensee will be deemed to be independent contractors and nothing contained herein will be deemed to constitute a joint venture, partnership, employer-employee relationship or other agency relationship. Neither party is, nor will either party hold itself out to be, vested with any power or right to contractually bind or act on behalf of the other party.

**EXHIBIT 1**

**MAINTENANCE SERVICES**

**1.1 Initial Maintenance Services.** All multi-year commitments are non-cancellable and non-refundable. Commencing on the delivery date set forth in the Agreement and extending for an initial maintenance period agreed upon by the parties or 12 months thereafter, whichever is longer, eMeter will provide Maintenance Services to Licensee for the Initial Maintenance Period subject to payment of the Maintenance Fees set forth in the Agreement.

**1.2 Additional Maintenance Services.** Unless sixty (60) days previous notice is provided by either party, on the anniversary of the delivery date of the Software (i.e., upon expiration of the Initial Maintenance Period), Maintenance Services for the Additional Maintenance Period of 12 months shall commence at an annual fee inclusive of a percentange increase associated with Escalation as from the beginning of the previous Additional Maintenance Period or the Initial Mantenance Period. Licensee shall pay eMeter's invoice for such Additional Maintenance Period in accordance with the payment terms of the Agreement.

**1.3 Effect of Maintenance Discontinuation.** Licensee's license to use the Software and Documentation under this under this Agreement will not terminate merely because of the discontinuation of Maintenance Services, provided that eMeter shall have no obligations under this Maintenance Services Exhibit upon such discontinuation. If Licensee discontinues Maintenance Services, Licensee is not entitled to a refund of any unused portion of Maintenance Services Fees paid.

**1.4 Service Levels.** The Service Levels shall be subject to change from time to time with reasonable advance notice to Licensee. eMeter's obligation to provide Maintenance Services at its then-current Service Levels is subject to Licensee's providing indirect system access via remote VPN connection for eMeter support staff on Licensee's systems when necessary.

**1.5 Scope of Maintenance Services.** Subject to the timely payment of all Maintenance Fees, eMeter will provide Maintenance Services through the conclusion of the Maintenance Services Period. Upon payment by Licensee of the Maintenance Fees, the most current Releases that are then generally available shall be deemed Software and all references to Software in this Agreement shall be deemed to include the Release. Licensee is strongly encouraged to apply and use the most recently released Service Pack for the Production system, or the system that is close to reaching Production status. Licensee shall be responsible for independently obtaining and maintaining all IT security programs and processes. Unless otherwise agreed in writing by the parties, Maintenance Services shall not be provided for non-embedded Third Party Software or customized software, inclusive of integration, implementation, daily monitoring, operational tasks, patch management or administration thereto. Subsequent to the above mentioned Maintenance Services Period, Licensee shall be deemed to be in Extended Support.

**1.6 Content and Control of Maintenance Services**. Maintenance Services include, subject to eMeter's then-current standard terms: (a) the right to receive all Releases and Service Packs at no additional cost; (b) a direct response (by email, telephone or otherwise, in eMeter's discretion) to Licensee with respect to inquiries concerning the performance, functionality, operation of or deficiencies in the Software; and (c) commercially reasonable efforts to resolve problems or performance deficiencies of the Software according to the Service Levels; provided however the Maintenance Services do not include Tier 1 Support, then Licensee shall be responsible for Tier 1 Support of the Software. eMeter will have the sole right to control and directly supervise the method, manner and details of the Maintenance Services.

**MAINTENANCE SERVICE LEVELS**

To provide timely response to support issues as well as a constructive resolution, eMeter has established the following support guidelines. These goals are not to be interpreted as a guarantee for response and/or resolution but should serve as a guideline for eMeter's working relationship.

| Severity | Issue Impact/Description | Environment | Initial Contact | Target Response | Licensee Response |
|---|---|---|---|---|---|
| 1 | Catastrophic Failure – System has halted or a work stoppage is imminent. The application system is unavailable or unusable. | Production | 1 Hour | 4 Hours | 2 Hours |
| 2 | Application Inoperable/Data Corrupted – an application in the eMeter system is not working or has limited capability and the problem significantly impacts the customer. Or, production data is being corrupted and work must be stopped to avoid further corruption/loss of data. | Production | 1 Hour | 8 Hours | 4 Hours |
| 3 | Feature not working as documented – application has issues that can impact customer but that do not stop customer from performing daily business. Or, issues for which there is a reasonable workaround. | Production | 8 Hours | 1 week | 2 Business Days |
| | | Non Production | 1 Business Day | 1 week | 2 Business Days |
| 4 | Informational Question/Cosmetic Issue – problem/question with day-to-day operational issues, cosmetic problem with user interface, error in documentation. | Production & Non-Production | 3 Business Days | 10 Business Days | 4 Days |
| 5 | Enhancement Request – request from customer for new features or changes in the functionality of existing features. | Enhancement Requests can be made at any time and will be considered for future product releases by the eMeter Product Management Team | | | |

The table above details issue classification and associated response times, defined for:

- **Initial Contact** – means the time in which eMeter will acknowledge to Licensee's initial Support request, either personally or via our automated ticketing system response.

- **Target Response** – includes but is not limited to a request for additional information or action by Licensee, analysis of potential issues and impact, or a proposed workaround and finally agreement to provide a software fix. The actual software release version and date will be provided later.

- **Licensee Response** – includes but is not limited to a response by Licensee to eMeter providing requested information or results of requested further action and/or confirmation of successful workaround implementation, if provided by Support.

eMeter tracks issues from the time reported to the time the issue is resolved with priority response given to the highest severity issues. Authorized Agents on behalf of the Licensee may also request high priority attention to an issue if it seriously impacts Licensee's business or if eMeter's response time is not satisfactory.

All issues are resolved when a resolution or fix is available to eMeter's customers. If Licensee is not satisfied with the resolution, Licensee may request that the issue be re-opened.

**EXHIBIT 1-A**

**PRODUCT SCHEDULE**

**ORDERED PRODUCTS:**

The following software programs shall be deemed Software under this Agreement and are included in the original Software license purchase, as offered to Licensee by Licensor and/or an Authorized Agent.

**SOFTWARE**

***EnergyIP™ Core System***
Energy IP Platform version X

***EnergyIP™ Application Modules:***

***EnergyIP™ AMI Adapters/Data Importers:***

The Invoiced Price includes the right to use the Software for [ ] meters and no other service delivery points [describe].

Authorized Agents: Licensee shall have the right to allow the Authorized Agents listed below to access, use or operate the Software under the terms of this Agreement and solely for the benefit of the Licensee, provided that the Licensee will not be relieved of any duty of liability relating to such

access, use or operation of the Software. Licensee will not allow any third-party access to the software except as provided herein:

**The Energy IP Software is licensed for one of each of the following environments for up to the Meter Count, and for License Type and Territory as from the Effective Date of this Agreement:**

Production environment

Development environment

Quality Assurance environment

Test environment

In the event that Licensee desires to use the Software in a Back Up/Disaster Recovery environment, Licensee shall notify eMeter in writing of such fact. Additional License and Maintenance Fees may apply.

**License Type:** [Choose: Limited Term License of _____ year(s) _____ months(s) / Perpetual License or Rental / Managed Service].

**Terrritory:** [Describe the geographic area for which the license may be used]

## A.11 Outsourced, or Managed, Services Proposal

### MDM SAAS TECHNICAL OVERVIEW

EnergyIP® supports all aspects of Smart Meter deployment and operation for the residential market as well as commercial/industrial (C&I). It captures the complex relationships among assets, premises, customer accounts, users, applications, and services that must be managed in a successful smart meter network. Incorporating automated business processes and workflows, EnergyIP goes beyond billing-centric MDM to integrate operations and drive smart grid management.

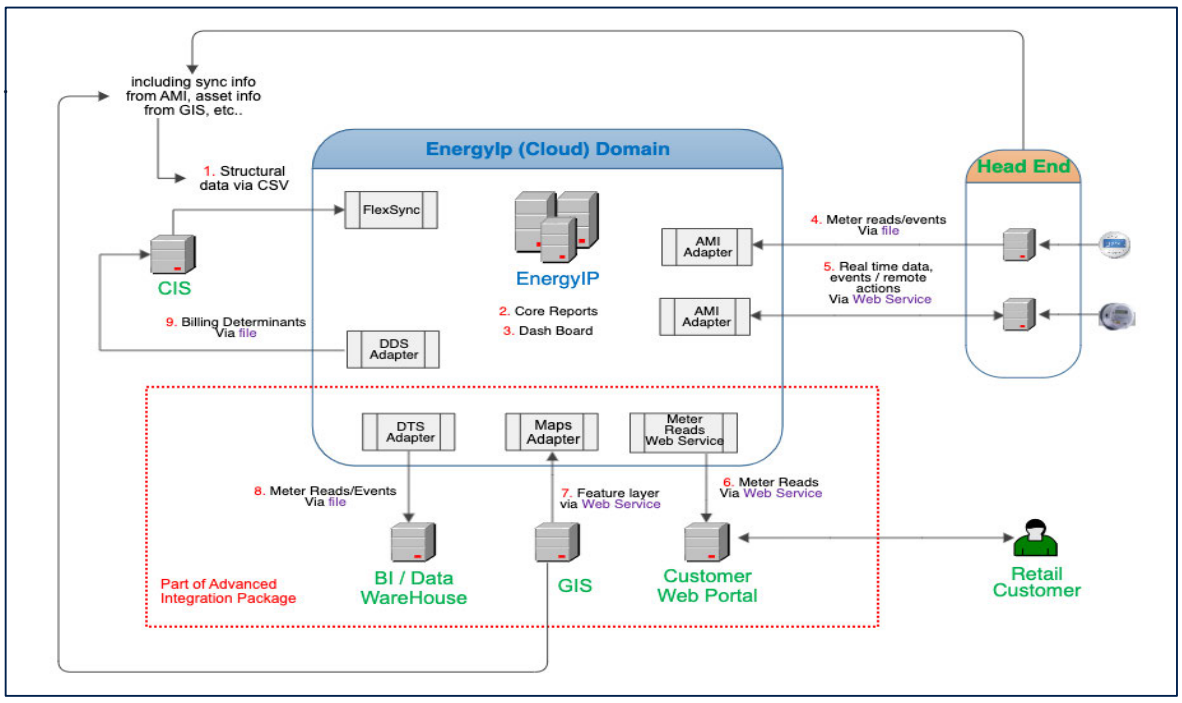
EnergyIP® operates in the AWS environment using industry modern, state of the art technology. The AMI Management Database maintains the relationships between meters and network assets, service premises, customer accounts, rates and tariffs, system provisioning and configuration, application services, user privileges, etc.

The Metered Usage Data Repository (MUDR) is a highly optimized, high-volume data store. The data collected and processed from the meters—including daily and real-time register readings, interval usage data, event logs, outage history, as well as derived data such as billing determinants, aggregations, and KPIs such as meters read per day, meters installed per day, and meter reads expected but not received per day.

EnergyIP® comes with a complete set of interfaces to other standard enterprise system, including interface adapters, data importers, and APIs configured to integrate with utility legacy systems using both real-time and batch techniques, and native adapters to the top AMI vendors.

This robust architecture allows non-disruptive functional evolution, ensures performance as the system scales, and provides superior reliability with server fail-over and hot-standby capabilities. Online backups and archiving are standard and hot updates make EnergyIP a true 7 x 24 x 365 solution.

### MDM SAAS INTERFACES



## IMPLEMENTATION

Siemens view: "excellence in project management is about doing the right things right"

Siemens has direct experience with successfully implementing Meter Data management systems for a variety of utility companies globally. We have a well-established track record of delivering excellent on-premise solutions, SaaS solutions, and migrating CPAUs from on- premise to SaaS. Siemens will use our proven PM@Siemens methodology to deliver all the necessary aspects of the MDM solution to CPAU. The PM@Siemens program is underpinned by 2 key areas:

- Project Knowledge: Siemens is a project-focused company. PM@Siemens is our global program that applies to every project we undertake. It supports the continuous and sustainable improvement of our project management processes. It is an umbrella that protects and governs the entire project
- Utility Knowledge: Siemens knows utilities. We have a proven, long term relationship with utilities across the globe. This is underpinned by our understanding of how utilities operate and do business across their entire value chain and customer base. This industry focus enables us to design and deliver MDM services that improve the Customer Experience and integrate seamlessly into wider operational systems.

## PROJECT MANAGEMENT

The project management methodology for the MsaaS solution is the same that is describe for the EVERSOURCE-hosted solution.

## SCOPE OF WORK

Siemens Advanta will provide Cloud Managed Services for Hosted Software, including the Cloud Solution support services specified hereunder. Any changes to the scope of work must follow the Change Order Procedure.

The implementation of the Hosted Solution and related planning, design, installation, configuration, acceptance testing and deployment of the Hosted Software and the integration of the Hosted Software with the AMI Head End Systems ("HES"), EVERSOURCE's CIS, legacy MDMS, Customer Web Portal and Hadoop Data-lake (collectively, the "Implementation Services") are governed by the separate Statement of Work governed by Master Agreement for Consulting Services. To proceed with the Cloud Managed Services, the Customer must contract for the Implementation Services under the separate Statement of Work, subject to the following clarifications related to the provision of Cloud Managed Services: (i) any reference under the Implementation Services Statement of Work to the Customer's obligation to separately procure Oracle licenses are not applicable since Oracle licenses will be provided by Siemens Advanta under the terms of this SOW, and (ii) any reference to the Customer's provision of and responsibility for the IT infrastructure on which the Hosted Software will be installed is not applicable since Siemens Advanta will be providing and managing the hosted environment in accordance with the terms of this SOW.

This SOW describes the base cloud infrastructure and managed services to support the Hosted Software for EVERSOURCE, and the designs are high level and are subject to detailed design workshops during the blueprint and planning phases under the Statement of Work for the Implementation Services.

## 1. Operations and Support Services

The platform is based on a Service Oriented Architecture (SOA) and highly scalable; designed to handle the largest, most complex networks in the world. Our core support services tailored around the environment, application and business processes will enable EVERSOURCE to enhance their business with a supported Meter Data Management System.




Our comprehensive core services, which can also be optionally extended and tailored to meet EVERSOURCE's needs, to provide high availability, as well as undisturbed and efficient operation.

The core services consist of the following:

1. Service Management
    a. Comprehensive service management based on our operational framework incorporating industry standards (ITIL, ISO27001, etc.)
    b. Customer success management based on dedicated contacts
2. Managed MDMS based on the EVERSOURCE specific infrastructure requirements running on EnergyIP 9.X
    b. Infrastructure technical design and planning
        i. AWS Infrastructure Architecture Design including:
            1. Network Design
            2. Resilience
            3. Sizing
            4. Deployment Strategy
            5. Back Up and Archiving Strategies.
    c. Operating a MDMS Solution with an integrated deployment and logistics tool based on EVERSOURCE infrastructure and premises with guaranteed availability
        i. Cloud Infrastructure Operations based on a Hybrid operational model
        ii. Secure by design Infrastructure
        iii. Secure mitigation and adherence to secure protocols and Siemens standards
    d. Management and maintenance of an exclusive single tenant MDMS solution

3. Customer support
    a. Customer support available through multiple communication channels
    b. Incident and ticket management at guaranteed response and solution times

## 2. Cloud Architecture

### 2.1 Energy IP Cloud Sizing and Environment

Description of the AWS services underpinning the architectural design for the Production environment:

Please note – In addition to the Production environment, a Pre-Production environment has been sized to be available for 20% of the time for the testing of OS and Application Patches before release into Production.

All Sizing is based on specifications provided by EVERSOURCE within the RFP. The specifications will be validated during detailed design workshops as described in the implementation SOW and any impacts may be subject to the Change Control Process. The design includes where appropriate the deployment of the required services over multiple availability zones and is included in the sizing information.

For sizing the Production Environment, except for Storage, Compute Resource (as indicated within the same specifications) or Server Sizing remains consistent from years 2022 to 2026 as no further

information has been received to the contrary. Both Hot and Cold (Archiving Storage) increases for the 5-year period are reflected in the forecasted AWS costs.

## 2.2 High Level Infrastructure

**Eversource High Level Infrastructure Design for Energy IP**

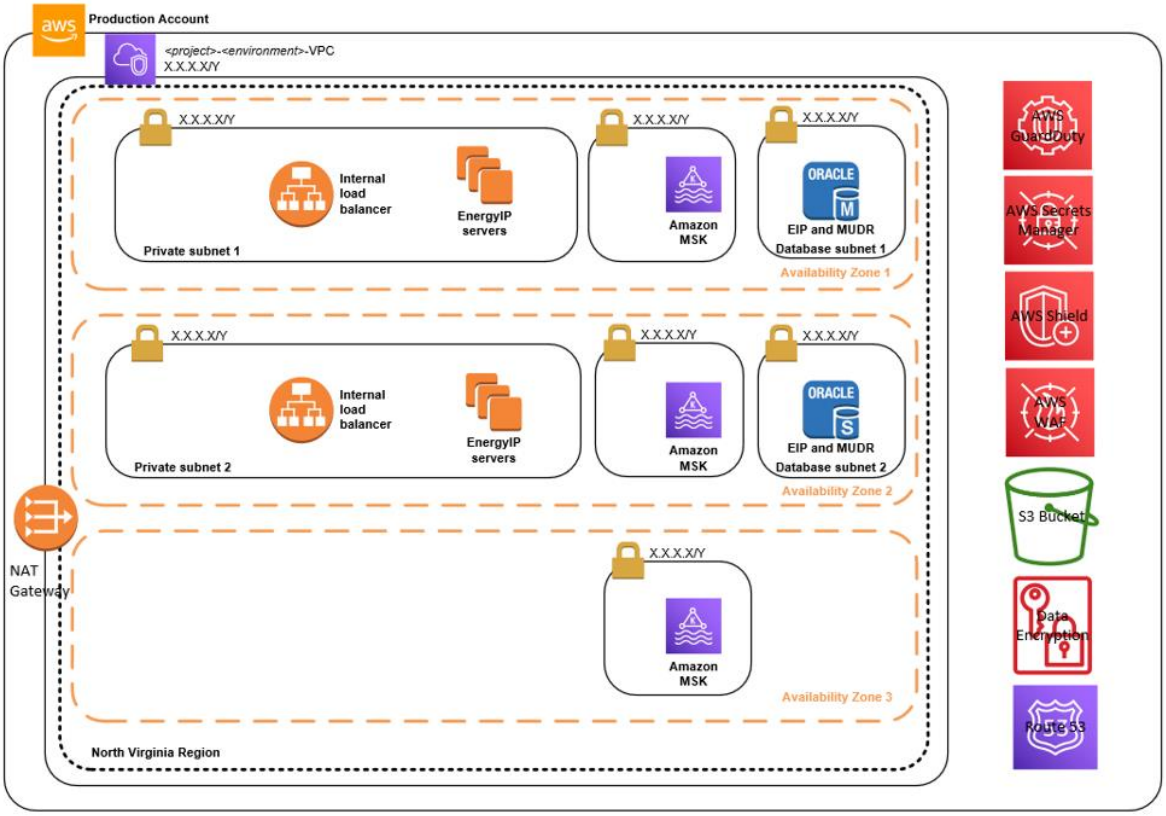



FIGURE: HIGH LEVEL EVERSOURCE CLOUD INFRASTRUCTURE

The above infrastructure design utilizes the Amazon Cloud Computing Resources that span Multiple Data Centre Locations known as Availability Zones (AZ's):

1. **EC2 Instances.** The application and user interface are deployed over multiple server instances across availability zones providing resilience and high availability within the application. Application Instances can be scaled both vertically (larger instance type) or horizontally (additional instances added) based on forecasted additional demands. Additional resources can be made available, but certain conditions may require a short outage within an agreed maintenance window. OS patching can be conducted with little or in certain circumstances no downtime depending on the nature of the maintenance required. This will however be conducted as a staggered update.
2. **Oracle RDS.** The solution utilizes the Oracle RDS Service which is deployed over two AWS Availability Zones offering high availability, reliability, and security within a 'hot stand by' configuration. As a managed service, the Oracle clusters are continuously monitored to keep workloads running with self-healing storage and scaling. Most minor patching within the RDS service can be conducted with little or no downtime. There are occasions where major engine upgrades are conducted within an agreed maintenance window.
3. **MSK (Kafka Messaging).** An integral part of Energy IP is Kafka. The solution utilizes the managed service from AWS (MSK) that is deployed across two or more availability zones. Additional nodes can be added to the cluster without stopping the service. Equally instance sizing can be increased to

accommodate the need for greater resources through rollout or spike in Compute requirements. Kafka chan7ges can usually be made with no downtime as long as the Kafka environment is within tolerances set within the configuration.

4. **Secure Configuration for AWS Services.** Application (EC2), Kafka (MSK) and Oracle (RDS) services are separated on sub-nets and are secured using AWS Security Groups for EC2 instances and Network Access Control Lists (Firewalls) for the individual sub-nets
5. **Encryption.** All Data at rest across the environment is encrypted. The solution uses AWS Certificate Manager to manage all associated certificates. All traffic from coming from outside the AWS environment is encrypted.
6. **SFTP Services.** SFTP services are used for flat file data transfer as described in the following diagram.

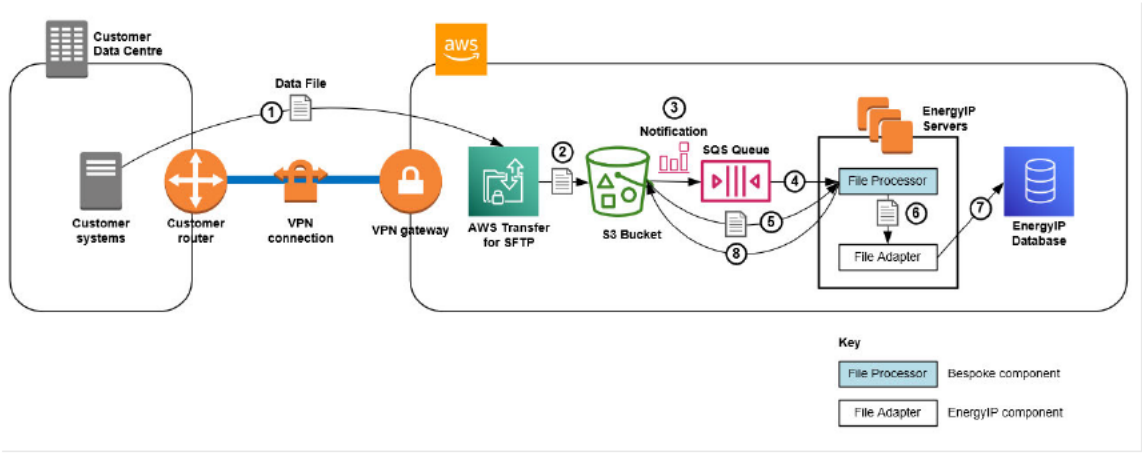



FIGURE: SFTP DATA FLOW

## 2.3 Backup

Snapshot backups are taken daily of all the core infrastructure components. By default, automated snapshots are retained for 35 days with options to retain snapshots in archive for longer periods. Copies of Snapshots can be moved across Availability Zones and where applicable across regions. Backup design and associated policies form part of the detailed design on project commencement.

## 2.4 Environments

Siemens Advanta will provide the following Environment's with the EnergyIP 9.x installation:

- **2x Development (Dev)** – Environment will be used for initial installation, configuration, and unit testing. This environment may or may not be connected to other EVERSOURCE systems. If so, Siemens will work with EVERSOURCE regarding connectivity requirements and timing between the Dev MDM, CIS and HES and 3rd party environments needed to meet the base scope requirements.

- **2x Testing / Quality Assurance (QA)** – As part of the implementation, the application will be installed in the QA environment and configuration will be transferred from the Dev environment. The QA environment will be used for SIT and UAT. Siemens will work with EVERSOURCE on connectivity requirements and timing between the QA MDM, CIS, HES and 3rd party environments needed to meet the base scope requirements. Once deployment is complete, Siemens does recommend keeping the QA and Production servers in alignment for future testing of functionality, service packs, etc.

- **Performance Testing (PT)** – The performance testing will be conducted by Siemens specific to optimizing performance tuning and configuration of the MDM as it relates to verifing how large quantities of data coming in from CIS or the Head End System(s) are handled by the MDM application. Siemens will work with EVERSOURCE on connectivity requirements and timing between the PT MDM, CIS, HES environments. Note, the PT environment may also serve multiple purposes, such as supporting the conversion configuration and testing requirements during the implementation and then serving as the disaster recovery environment after production go-live.

- **Production (Prod)** – Siemens will work with EVERSOURCE to install the EnergyIP application into the Production environment and transfer the configuration from Pre-Prod. Siemens will provide the primary services to install the application into the Production environment and transferring the configuration. No specific testing is planned in the Production environment, though it may be used for dress rehearsal exercises.

- **Pre-Prod** – Siemens will work with EVERSOURCE to install the EnergyIP application into the Pre-Production environment and transfer the configuration from QA. Siemens will provide the primary services to install the application into the Pre-Production environment and transferring the configuration. Pre-Production is based on Production with Storage limited to a maximum of 1000 Gb

## 3. Service Management

Our operation and support services are specifically focusing on applications, infrastructure, and business processes. These services are designed to ensure the effectiveness of your solution to support your business.

### 3.1 Service and Customer Success Management

Service management ensures the continuous service delivery of the ordered services within the agreed service levels. The operational service management as part of the service fee consists of:

a. Service Level and Customer Success Management
b. Monthly service performance reports (a summary of the ongoing service provided by Siemens)
c. Quarterly service reviews (via online meeting) on executive level with EVERSOURCE
d. Contract and Change Management
e. Quality Management
f. Continuous improvement of policies, procedures, and processes
g. Discussion of future trends and workload requirements on an annual basis with EVERSOURCE.

### 3.2 Incident Management

All requests are managed by Siemens in the form of tickets, using the Siemens Service Management Tool (for corrective maintenance, evolutionary maintenance, and steering). In this way, Siemens ensures that EVERSOURCE receives feedback within the agreed timelines. Service Level Agreement (SLA) policies for your service determine the timeframe set to react, respond, and resolve tickets based on their priorities. Tickets can be opened via a web portal, chat, e-mail, or telephone. In the unlikely event of disruptions, tickets are also proactively created by Siemens and EVERSOURCE will be informed about their progress and resolution. Only EVERSOURCE as super users are entitled to open tickets with Siemens. The customers of EVERSOURCE (e.g., municipal utility members) will contact EVERSOURCE directly for any support, if applicable. This includes,

1. Proactively monitor managed systems (24x7x365) for key events and thresholds to proactively detect and identify incidents.
2. Respond to incidents that may occur to the infrastructure.
3. Maintain policies and procedures for responding to incidents relating to Infrastructure
4. Correlate incidents and problems where applicable for Infrastructure
5. Use web-based support portal to document and track incidents
6. Infrastructure System Administration and Maintenance
7. Contact desk (e.g.: Jira) for infrastructure services, for all activities listed below as they relate to Infrastructure.

- Event Management
- Incident Management
- Problem Management
- Request Fulfilment
- Configuration Management
- Change Management
- Release Management
- Security Access Management
- Availability Management
- Patch Management

Siemens support is structured on a four-tier basis linked to the technical complexity, which consists of:

a. Tier 0 Support in form of self-help through the knowledge base and automated first level support

b. Tier 1 Support in form of a customer support desk

c. Tier 2 Support in form of technical support and

d. Tier 3 Support through the service contracts to the environment and software suppliers (product supplier).

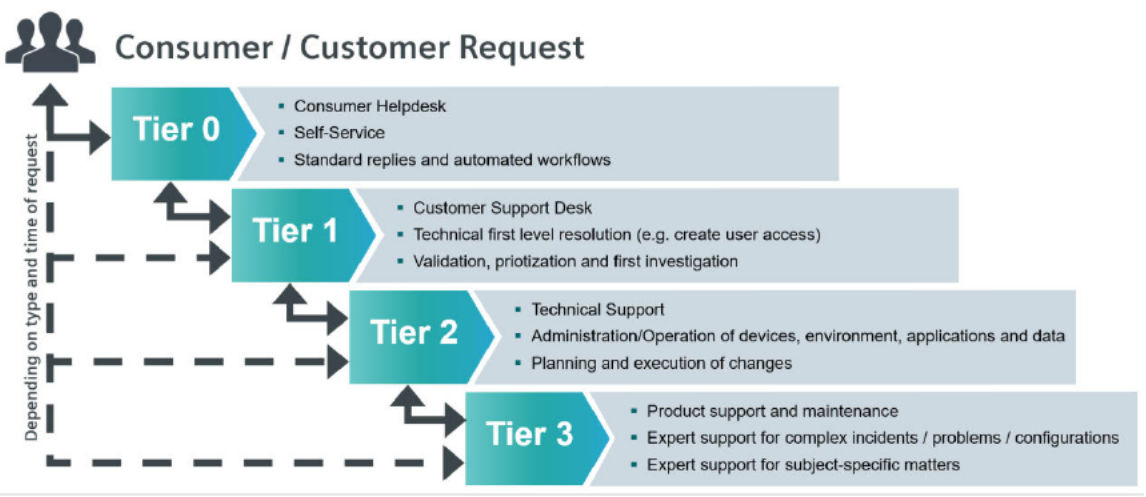



FIGURE: SUPPORT STRUCTURE

An on-call service is available to contact Siemens solely for critical disturbances (Level 1 anomaly equals to urgent incidents) outside the regular business hours.

**Telephone** Available Monday to Friday 08:00am to 07:00pm (Time zone CST). Contact details will be communicated before service start

**Email** Available 24x7. Contact details will be communicated before service start

**Portal** Available 24x7. Contact details will be communicated before service start

**Chat** Available Monday to Friday 08:00am to 07:00pm (Time zone CST) in English and French. Contact details will be communicated before service start

**Critical on-call support** Available 24x7, via phone or Email for Level 1 anomalies as defined below. Contact details will be communicated before service start

**SLAs** Detailed information on incident processing times (intervention time, resolution time and permanent fix time):

| | Typical Intervention Lead Time | Prioritization of Tickets |
|---|---|---|
| Level 1 anomaly: | Two (2) hours | Urgent |
| Level 2 anomaly: | Six (6) working hours | High |
| Level 3 anomaly | One (1) business day | Medium |
| Level 4 anomaly: | Four (4) business days | Low |

| | Typical Permanent Fix Lead Time | Provided Via: |
|---|---|---|
| Level 1 anomaly: | Thirty (30) days | Hotfix |
| Level 2 anomaly: | Sixty (60) business days | Next Service Pack |
| Level 3 anomaly: | Ninety (90) business days | Next Minor Release |
| Level 4 anomaly: | >Ninety (90+) business days | Next Major Release |

**The different anomaly levels are defined as follows:**

**Level 1 (Urgent)** The entire system/application is down/unavailable/ unusable. All consumers/users are impacted. (e.g., MDMS DB failure)

**Level 2 (High)** Total loss of any business-critical feature for all users; or any business-critical data error, the incident causes a severe loss of service and impacts availability, however, operation can continue in a restricted fashion; degradation of system or service that impacts end user service quality or significantly impairs business process control or operational effectiveness (additional workforce time is required). (e.g., HES adapter failure on all systems)

**Level 3 (Medium)** Partial loss of any business-critical feature for a majority or all users; or any business-critical data error, the incident causes a degradation of service, however, operation can continue in a restricted fashion; degradation of system or service that impacts end user service quality or impairs business process control or operational effectiveness. (e.g., 1 HES adapter failed, other adapters are functioning)

**Level 4 (Low)** Any other non-critical incidents.

## 3.3 Patch Management

- Siemens Advanta may need to apply patches - whether operating system (OS), database, web server, and security to address actual and potential issues.
- Siemens Advanta will follow the Operations Change Management plan when deploying patches. As part of this process, Siemens Advanta will generate documentation defining the need for the patch and the patch verification plans.
- Patch deployment and verification is to be scheduled and coordinated with Customer Application Owner.
- All patches will be first deployed and verified in a non-production Environment before applying to Production.

## 3.4 Emergency Management

Siemens Advanta shall define an escalation path (EP) when a critical issue takes longer than expected. EP requires all involved parties provide quick and dedicated response to the situation. EP includes supplemental, scheduled meetings, which could be hourly, depending upon the criticality of the issue.

- Meetings are to discuss the situation and steps that are being taken to resolve the situation and issues.
- Each meeting is to provide an update and next steps as the issue continues to be worked to resolution.
- Meeting participants will include management, as needed.

## 3.5 Downtime

Siemens Advanta will leverage automated application monitoring to detect unexpected downtime. Downtime incidents shall be managed effectively and in an automated way.

- Siemens Advanta shall document the downtime incident and associated actions, information in the Delivery Manager ticketing system as a Critical Problem.
- Root cause analysis of each unscheduled downtime incident shall be executed and documented in Service Manager (as part of the incident's Critical Problem ticket).
- Siemens Advanta shall also document in Service Manager any actions and/or changes implemented to minimize the possibility of downtime recurrence.

## 3.6 Security Breach Management

Siemens Advanta will leverage automated security breach monitoring to identify any unauthorized access to the system that could cause a loss in data, confidentiality, or integrity of that data.

- This process shall include Service Manager Ticket documentation of the breach, initiating root cause analysis and corrective actions.
- Related documentation shall be made available to Customer for review upon request.

## 3.7 Back-ups

Back-ups are performed daily. The data retention period is 30 days

## 3.8 Disaster Recovery (DR)

Siemens Advanta shall define, document and test DR processes and procedures. This documentation shall be reviewed by Customer. DR will be tested at least once per year with business involvement. If DR fails the test, the issue(s) will be addressed and re-tested during the DR re-test event.

- DR requires Customer business participation for validating the recovered system. Customer will coordinate business participation.
- Documented evaluations of business-executed tests completed during the DR drill must be completed and signed off by both Siemens Advanta and the Customer User included in the DR test.
- Siemens Advanta shall author a final DR Assessment report summarizing the DR activities including the business-executed test summary and any issues identified during the test.

## 3.9 Operations Change Management

When necessary, Siemens Advanta shall define and follow a change management plan to notify Customer staff and Siemens Advanta management. The change management plan will include information related to:

- Upcoming changes
- Issues and usage trends

- Key issues that could impact business use of the application
- Upcoming deployments and planned outages
- Additional responsibilities include:
- Identifying, engaging, and managing all Siemens Advanta resources required in executing and deploying the change.
- Managing tasks assigned to them through Service Manager throughout the Change Record process.
- Siemens Advanta shall monitor (manual or automated) capacity for the Production Environment. Should the application exceed any agreed threshold:
- A ticket will be created to document capacity threshold issues.
- Siemens Advanta will investigate and take action to address the situation.

The customer Application Owner will be notified when threshold issues occur or when Siemens Advanta predicts capacity thresholds are going to be exceeded.

## 3.10 Security Management

The application infrastructure will be designed such that network traffic will be routed through a firewall before access is allowed and only approved access will be allowed into the system based on the approved security model. The host service will maintain a standard firewall security policy to manage threat and vulnerability.

Siemens Advanta shall monitor the application for intrusion detection and initiate corrective steps when an issue is detected.

Reports from monitoring shall be generated and stored when a threat is identified. This report shall be available to customer upon request and include:

1. Detailed information about the issue
2. Corrective action planned and taken

Siemens Advanta' monitoring will include malware protection and regular reviews performed to detect if malware protection software has not been compromised.

Siemens Advanta shall not be held responsible for issues associated with customer network outages or poor customer network performance. The Cloud Support Solution Team shall provide commercially reasonable assistance to customer to investigate these issues.

## 4. Solution Support Services

Siemens Advanta will provide Customer Success Manager Services for the MDMS solution remotely (Environment and Application Management), as part of the offer. This consists of:

1. System administration (servers, users, network, software licenses) and its security
2. Remote Environment management (Infrastructure/Network operation): performance monitoring, analysis, and maintenance of the on-premise environment as well as optimization
3. Database management: performance monitoring, analysis and maintenance of database operation and optimization
4. Management and administration of virtual machines, network, operating systems, database, and applications by applying hotfixes, patches, minor release upgrades and IT security measures
5. Testing and validating of hotfixes, patches, minor release, and configuration changes
6. Monitoring of applications: performance monitoring, analysis, and maintenance of the MDMS application and optimization
7. Diagnosis of system and application problems and their resolution, if necessary, in cooperation with third parties
8. Operational support, maintenance, defect and/or incident rectification
9. Manage to agreed performance and capacity
10. Management of data backups and restore, if necessary
11. Periodic testing of implemented recovery scenarios
12. Archiving of data backups

13. Management of solution maintenance regime and the communication and coordination of activities
14. Report of solution performance
15. Keep documentation on solution up to date
16. Daily solution health check

## 5. Subscription Term

The initial Subscription Term for Cloud Managed Services will commence [Contract State Date] and ending [Contract End Date]. Any change to the Subscription Term must follow the Change Order Procedure.

## 6. Access

Access to the Cloud Managed Services, including any Environment, is limited to Authorized Users in the Territory during the Subscription Term, solely in accordance with the Entitlement and the terms of the Agreement. The right to access Cloud Managed Services does not confer additional rights to Products beyond the rights which Customer has purchased from Siemens Advanta outside this SOW.

## 7. Definitions

**Hotfix**: A hotfix update, indicated by HF after the version (e.g., EnergyIP 8.7 SP2 HF1), is a single, cumulative package that includes information (often in the form of one or more files) that is used to address a problem in a software product. Typically, hot-fixes are made to address a specific customer situation and thereby their nature is ad-hoc. Siemens will provide hotfixes in agreement with EVERSOURCE for any component they deliver as part of their environment. The application of new hot-fix software releases will be at the discretion of Siemens in conjunction with EVERSOURCE during the Change Management process and are included in the Services Fee.

**Intervention lead time**: A service agent has been assigned and a first qualified response with a first assessment has been provided.

**Major release**: A major release, indicated by the leading number before the dot (e.g. EnergyIP 9.x), of a software project is a planned release normally associated with the product roadmap, where new major additional functionality is being added to the environment. Normally a major release will require a very large amount of testing. This would require careful planning to ensure there are no impacts to interfacing systems and to understand if significant changes are re-quired to how a component of the environment is deployed i.e., changes to underlying database structure for example. Major software releases are typically released every 3-5 years and are not included as part of this offer.

**Minor release**: A Minor release, indicated by the number after the dot (e.g., EnergyIP 9.x), of a software project is one intended to fix a collection of bugs, implement some small clean-ups and/or add small functional enhancements rather than add significant features. As with a major component software release this would require careful planning to ensure other systems integrated with the environment are not impacted by the change. Typically, a new minor release is released every year. The application of new patch software releases will be at the discretion of Siemens in conjunction with the customer during the Change Management process.

**Permanent Fix lead time**: Problem (Underlying defect) or permanent solution is resolved through hotfixes, software patches and/or updates/upgrades by making them available to EVERSOURCE

**Service Pack**: A service pack is a piece of software, indicated by SP after the version (e.g., EnergyIP 9.x), designed to update a computer program or its supporting data, to fix or improve it. This includes fixing security vulnerabilities and other bugs and improving the usability or performance of the system. A service pack, comparable to a patch, normally contains a limited number of code fixes. Typically, there are 2 service pack releases per year. The application of new service pack will be at the discretion of Siemens in conjunction with the customer during the Change Management process and are included in the Services Fee.

## 8. Out of Scope

A. Unless explicitly stated, all tasks not identified in this SOW are out of scope. For additional clarity, the following, non-exhaustive list shows examples of deliverables and activities that are not in Scope for this SOW unless otherwise provided. Customer contract management.
B. Any end consumer engagement, i.e., end customers of our corporate customer.
C. Any issues concerning Hosted Software other than access via Cloud Managed Services.
D. All needed Customer project activities for which Siemens Advanta is not leading or assisting.
E. Customer processes, procedures, and documentation, including but not limited to metrics of service levels, uptime, performance, scalability and other similar performance requirements or parameters or measurements, not specifically identified in this SOW.
F. Customer server access to the Environments.
G. Any data migration, upload, data cleanup or data validation services.
H. Any on-premises activities.
I. Changes to standard Documentation provided with Software or other Offerings.
J. Application upgrades including major releases and service packs beyond those expressly provided in this SOW.
K. Knowledge transfer of any configurations and/or customizations to the Hosted Software by a non-Siemens Advanta Implementation Team to the Cloud Solution Support Team.

## 9. Assumptions

The scope of this SOW is further qualified by following assumptions:

1. The Siemens recommended SLAs defined in 2.3.2 are based on our best practices but can be mutually agreed upon with EVERSOURCE prior to the start of the service period.
2. EnergyIP licenses, will be separately procured by EVERSOURCE via the Siemens Software Team.
3. To guarantee a quick and reliable support and maintenance service and to be able to deliver according to the requested response & resolution times, Siemens therefore bases its entire service concept on a secure remote connection to the customer solution, available at any time to be able to be as close to the solution as possible. With this background, EVERSOURCE allows remote access to the solution and to the data that is required by Siemens to fulfill the maintenance contract.
4. EVERSOURCE will be responsible for managing any with 3rd party systems and/or suppliers (e.g., HES, CIS, etc.) that may be required to be able to provide a smooth service framework and to keep up running the solution. Siemens support contacts need to be added as administrators to the support contacts of these 3rd party supplier to be able to cooperate and/or coordinate any logistics related to open tickets, if necessary.
5. EVERSOURCE grants access to all related 3rd party software support contacts, if necessary.
6. Siemens manages the solution remotely. EVERSOURCE is responsible for the hardware in their datacenter. Any onsite engagement and hardware support that needs to be carried out, will be responsibility of EVERSOURCE.
7. Pricing is provided under the assumption that EVERSOURCE adopts a single, hosted, Meter Data Management Solution (MDMS)
8. A Production Environment in line with compute requirements will be made available aligned to the start of Implementation Activities but sized to minimum specifications until within the implementation plan full performance testing is required. A Production Environment with high availability will be implemented. There is no Disaster Recovery Environment included in the sizing estimates, however as noted above, the PT environment can be repurposed after go-live. All environments are deployed using infrastructure as code. In the unlikely event of multiple service failures on a regional level, the environment can be re-deployed to a different AWS region. AWS Regions are sub-divided into separate Availability Zones (Discrete Data Locations or Separate Data Centers) The proposed design can tolerate the loss of an Availability Zone to continue the service. A version of the Pre-Production Environment will be available at go-live in the cloud. Pre-Production although based on Production will not carry the same sizing of storage as in Production used to facilitate a production-like environment to test enhancements, integrations, or upgrades before release into Production in addition to the Pre-Production Environment, a Development Environment has been sized. The specification of the DEV environment means that only Functional testing would be achievable. Any Performance testing would be conducted within the Pre- Production Environment. For AWS sizing and cost estimates, it is

suggested that Pre- Production only runs for a percentage of the time. For reasons of AWS costs, the calculation is based on 20% of Production Availability. Storage for Pre-Production is also reduced and set at 2000Gb

9. All Infrastructure is deployed using scripted installation routines. Therefore, any manual configuration of the infrastructure is not permitted. This ensures that any design characteristics including that of security are deployed across all Production and Non-Production accounts in the same way. Oracle Hosted License is provided as part of this hosted solution
10. All Environment will be deployed in the AWS Region Oregon (West). We have made an allowance for data transfer and ancillary services etc. such as UIs, data transfer, load balancing etc. – this will be confirmed during the due diligence phase and covers the day to day working of the solution, e.g., excludes continuing transfer to data lakes etc.
11. A Pre-Production Environment is based on a 20% uptime aligned to Production without Production Database Storage. This can be increased but will carry additional cost. VPN Assumed for Network Communications between EVERSOURCE, Siemens & AWS. Assumption that sufficient bandwidth is made available for normal Production Processing.
12. AWS Sizing and Storage calculations are based on RFP requirements and subject to change during the detailed design workshops.
13. Any Custom code requirements are not built into the sizing. It has been assumed from this SOW that there is no custom code deployed. Costs are subject to change control review (to cover RPI, cost of living etc. on an annual basis post end 2nd year of support).
14. Detailed sizing is dependent on the output from design workshops. Additional compute resource can be introduced to support specific requirements but will mean a marginal increase to AWS costs.
15. Additional flexibility AWS resources can be provided during specific higher demand processing times. For example, some migration activities may require greater resources that can be reduced on completion.
16. Sizing estimates are based on years 2023 to 2026.
17. The assumption is that Production strength environments will be available starting August 2024.
18. The DEV environment will be made available from the start on Project Implementation.
19. Security Utilize SOC 2 Type II certified AWS primary and secondary data center operations.
20. Implement and maintain a security program that complies with ISO 27001 or a successor standard (if any) that is substantially equivalent to ISO 27001 and that is designed to provide at least the same level of protection as evidenced by the certification of the providers under ISO 27001
21. Monitor the physical and cyber security of the infrastructure 24x7x365 to ensure system is highly secure in accordance with ISO27001 Standards. Copies of ISO 27001 certification can be available on request
22. Perform active intrusion prevention and detection of the infrastructure network and firewalls and monitor logs and alerts.
23. Conduct monthly vulnerability scanning Perform patch management with approval from system owner.
24. Install updates to virus protection software and related files (including Virus signature files and similar files) on all servers from the update being generally available from the anti-virus software provider.
25. Respond to any potential threat found on the system and work to eliminate Virus or Malware found. Working with the overall solution architect define RTO & RPO policies and procedures.

## 10. Pricing Assumptions

1. The monthly data usage charge for AWS was estimated with only the current knowledge of the system based on the RFP. During the project workshops, detailed sizing will be revisited any may be subject to pricing adjustments based on the Change Control Process.
2. If AWS increases the pricing for the applicable AWS region, Siemens Advanta will notify EVERSOURCE and initiate the Change Control Process to assess the impact of any changes.

3. Customer will be invoice monthly and payment is due within 30 days of date of invoice
4. AWS regional pricing currently employs the following parameters:

1. Base Volumes: [Volume] GB

   Next 1 TB/Month - $0.1155 per GB/Month

2. Data Transfer from the cloud: [Data Transfer] GB/Month Free

   1 GB to 10 TB/Month - $0.09 per GB

   10TB to 50 TB/Month - $0.085 per GB (next 40 TB)

## Appendix B

### B.1 Pricing – Submittal Format and Worksheet

Please refer to Attachment B: MDMS Software and Services Pricing Matrix.xls for all pricing related to our proposal. Our proposal is valid for 180 days after date of submission.

We applied an assumption of continued inflation in our prices and therefore included a price escalation of [redacted]% for 2024 and [redacted]% for 2025. Upon publication for 2024 and 2025, prices will be adjusted based on the actual percentile change of the [redacted]. This will result in a corresponding change order (positive or negative).

Progress payments should be made for EVERSOURCE-hosted solution as well as for the MSaaS solution according to the project schedule and the associated payment milestone schedule:

**Phase 1**

| Milestones | Percentage |
|---|---|
| 1.1 - SOW Signature (May 2023) | 20% |
| 1.2 - End of Design Phase 1 | 20% |
| 1.3 - End of Build Phase 1 | 25% |
| 1.4 - End of Testing Phase 1 | 20% |
| 1.5 - Go Live and Hypercare | 15% |
| **TOTAL** | 100% |

**Phase 2**

| Milestones | Percentage |
|---|---|
| 2.1 - SOW Signature (May 2023) | 20% |
| 2.2 - End of Design Phase 2 | 20% |
| 2.3 - End of Build Phase 2 | 25% |
| 2.4 - End of Testing Phase 2 | 20% |
| 2.5 - Go Live and Hypercare | 15% |
| **TOTAL** | 100% |

**Phase3**

| Milestones | Percentage |
|---|---|
| 3.1 - SOW Signature (May 2023) | 20% |
| 3.2 - End of Design Phase 3 | 20% |
| 3.3 - End of Build Phase 3 | 25% |
| 3.4 - End of Testing Phase 3 | 20% |
| 3.5 - Go Live and Hypercare | 15% |
| **TOTAL** | 100% |

## Appendix C

### C.1 Security Requirements and Questionnaire

Regarding our answers to the security requirements, please refer to the Attachment L questionnaire.

In addition, we confirm that we have reviewed the security requirements that were provided in Attachment K and certify that we will comply with these requirements if awarded with the contract. There are no exceptions that we have to the requirements.

## C.2 Exceptions to EVERSOURCE Master Services Contract

In keeping with the terms proposed to the Eversource IT Master Services Agreement, Siemens Advanta Solutions Corp. would also be amenable to adopt and amend the Master Procurement Agreement, dated March 20, 2008, between Northeast Utilities Services Company, as agent for the Connecticut Light and Power Company, Western Massachusetts Electric Company and Public Service of New Hampshire, as Owner, and Siemens Power Transmission & Distribution, Inc, as Contractor, to govern the provision of Services in connection with the RFP. This could expedite the contracting process in accordance with the desired Eversource start date. In case this is not the preferred avenue for contracting, we've also specifically addressed the terms attached to the RFP.

Following are our recommended comments/ exceptions to the EVERSOURCE-provided Master Services Contract.

**For Pages 269-301:**

**The marked copy of this section has been removed because it is not relevant for this filing which included proposed and negotiated terms. The Company has provided a signed and executed contract at Page 342.**

## C.4 Proposed Agreement for MSaaS

# MSaaS Terms

The provision of MSaaS is governed exclusively by the terms and conditions of the Universal Customer Agreement found at: https://new.siemens.com/global/en/company/sustainability/compliance/terms/base-terms.html ("UCA"), and the Oracle License Terms set out below (collectively the UCA, Oracle Terms and the applicable Transaction Schedule are referred to hereunder as the "Agreement").

Although Customer may have initially acquired rights to the applicable MSaaS Subscription Term, all rights and obligations concerning the Software are governed by the Agreement.

Any conflict between or among terms shall be resolved in the following order of precedence from highest to lowest: the base Transaction Schedule, the Oracle Terms, and the UCA.

### Oracle License Terms

The provision of MSaaS includes software programs from Oracle America, Inc. ("Oracle programs"), for which the following terms ("license agreement") apply.

(1) Your use of the Oracle programs and/or hardware is limited to your legal entity.

(2) Your use of the Oracle programs is limited to the scope of the Siemens application package and to your internal business operations.

Your use is subject to these terms, including the license definitions and rules set forth in the Oracle program documentation and the Oracle Partner Ordering Policy, available at http://partner.oracle.com (log in, select Membership I Agreements & Policies).

You may permit agents or contractors (including, without limitation, outsourcers) to use the Siemens application package on the applicable your behalf for your internal business operations, subject to these terms.

You are responsible for your agent's, contractor's and outsourcer's use of the Siemens application package and compliance with these terms.

For a Siemens application package that includes programs that are specifically designed to facilitate interactions between you and your customers and suppliers, you may permit your customers and suppliers to use the Siemens application package in furtherance of such interactions subject to these terms.

(3) You may only use the Oracle operating system delivered with the hardware in accordance with the terms of the license delivered with the hardware and only as incorporated in, and as part, of the hardware.

(4) You may only use the Oracle integrated software in accordance with these terms and the hardware documentation and only as incorporated in, and as part, of the hardware.

(5) Oracle or its licensor retains all ownership and intellectual property rights to the Oracle programs, operating system and integrated software.

(6) Third party technology that may be appropriate or necessary for use with some Oracle programs and/or hardware is specified in the Oracle program documentation, readme files, notice files, installation details and/or hardware documentation.

Such third party technology is licensed under the terms of the third party license agreement specified in the Oracle program documentation, readme files, notice files, installation details and/or hardware documentation and not under the terms of this license agreement.

(7) The Oracle hardware and integrated software are not specifically designed, manufactured, or intended for use as parts, components, or assemblies for the planning, construction, maintenance, or operation of a nuclear facility.

You are prohibited from using the Oracle hardware and/or integrated software for these purposes.

(8) You are prohibited, to the extent permitted by applicable law, from assigning, giving, or transferring the Oracle programs and/or any services ordered or an interest in them to another individual or entity. In case of a legal name change or reorganization, Oracle's standard Legal Name Change and Assignment Process apply.

To the extent an assignment, gift or transfer is not permitted to be prohibited under applicable law, you must obtain a recipient's written agreement to comply with these terms and conditions governing the respective Oracle programs and/or services.

If you decide to finance an acquisition of the Oracle programs and/or any services you must follow Oracle's policies regarding financing which are available at http://oracle.com/contracts.

(9) You are prohibited from (a) using the Oracle programs for rental, timesharing, subscription service, hosting, or outsourcing; (b) removing or modifying any Oracle program markings or any notice of Oracle's or its licensors' proprietary rights; (c) making the Oracle programs available in any manner to any third party for use in the third party's business operations (unless and to the extent permitted for interoperability by mandatory applicable law); and (d) having a title to the Oracle programs, operating system and/or integrated software passed to you or any other party.

(10) You are prohibited from reverse engineering (unless required by law for interoperability), disassembly or recompilation of the Oracle programs (the foregoing prohibition includes but is not limited to review of data structures or similar materials produced by programs), operating system and/or integrated software and from duplication of the Oracle programs, operating system and/or integrated software except for a sufficient number of copies for your licensed use and one copy of each Oracle program media.

(11) Some Oracle programs, operating system or integrated software may include source code that Oracle may provide as part of its standard shipment of such programs, operating system or integrated software which source code shall be governed by the terms of this license agreement.

(12) Hardware, if purchased, includes Oracle's hardware warranty in effect at the time the hardware is purchased. Oracle's hardware warranty can be accessed at http://www.oracle.com/support/policies.html.

(13) Oracle's liability for (a) any damages, whether direct, indirect, incidental, special, punitive or consequential, and (b) any loss of profits, revenue, data or data use, arising from the use of the Oracle programs is disclaimed to the extent permitted by applicable law.

(14) You are required to discontinue use and destroy or return all copies of the Oracle programs and documentation at the termination of this license agreement, except for the programs embedded in physical devices.

(15) You are prohibited from publishing any results of benchmark tests run on the Oracle programs and/or hardware.

(16) You are required to fully comply with all relevant export laws and regulations of the United States and other applicable export and import laws.

(17) Oracle is not required to perform any obligations or incur any liability not previously agreed.

(18) Your use of the Oracle programs may be audited. You are required to provide reasonable assistance and access to information in the course of such audit and to bear your costs incurred in cooperating with the audit. Audit result may be reported to Oracle.

(19) Oracle is a third party beneficiary of this license agreement.

*** End***

# RFP Company Profile (Software) Questions

**Company Name: eMeter Corporation**

Please provide answers to the following questions enclosed in this document. Please clearly identify **by number** the questions and your answers to help Eversource efficiently analyze and evaluate your proposal.

**Company Background**

1. Official registered name (Corporate, D.B.A., Partnership, etc.), Dun & Bradstreet Number, primary and secondary SIC numbers, address, main telephone number.
   - Official registered name: eMeter Corporation
   - Dun & Bradstreet ID: 01-094-4650;
   - SIC Numbers are being replaced by NAICS (North American Industrial Classification) http://www.naics.com. 541330 (Engineering Services); 541990 (All Other Professional Services);
   - Address: 400 East Third Ave., Suite 400k, Foster City, CA 94404

2. Brief history of your company.
   Siemens is a global technology leader and has stood for excellence, innovation, quality, reliability, sustainability and security for more than 170 years. The company is active in more than 200 countries, with robust offerings and a loyal customer base and in all aspects of the Utilities Market including the distribution of electricity, gas and water.

   Siemens' EnergyIP platform is the global market leader in MDM, deployed in 35 countries including 20 US states and 4 Canadian provinces. The EnergyIP platform has been evolving and meeting customers' requirements for 20 years, and now spans 85 million managed devices in more than 150 utilities, ranging in size from thousands to millions of meters. Graded for completeness of vision and ability to execute against all MDM competitors, EnergyIP has garnered the #1 position in the Gartner Magic Quadrant for MDM six years running. Siemens' EnergyIP solution offers increased data reliability, delivers impeccable billing accuracy, and is highly automated thus reducing operating costs. The user- friendly EnergyIP MDM solution distinguishes itself by providing a rich application suite that extends beyond the billing systems and allows for advanced analytics, prepayment, and outage management. The standard solution offers rich functionality out-of-the-box, e.g., support of electric vehicle and PV use cases leveraging virtual channels.

3. Where is your corporate headquarters and what other offices do you have?
   Corporate office is located in Foster City, CA at the address listed above.

4. Which office will be servicing this work?
   The corporate office in Foster City, CA.

5. Is there a specific Business Division that will be managing this product?
   eMeter Corporation manages the product.

6. How many years have you been in business?
   eMeter Corporation has been in business over 20 years.

7. How many employees does your company have?
   eMeter Corporation currently employs approximately 200 individuals to support the business consisting of Solution Architects, Project Managers, Solution Engineers, and Technical Support.

8. What are your annual sales?
   eMeter Corporation is a privately held company and does not report standalone financial information. The ultimate parent is Siemens AG a public company registered in Germany. Please visit www.siemens.com. From there, please click 'Investor Relations' to obtain any current financial information that is publicly available as part of required filings.

9. Key contact name, title, address (if different from above address), direct telephone number.
   [redacted], Account Manager, 1[redacted]

10. Person authorized to contractually bind the organization for any proposal against this RFP.
    [redacted] – Head of Siemens Industry U.S., [redacted] – Finance Head of Siemens Industry U.S.

11. Summarize the capabilities your company brings to this project.
    EnergyIP® is the utility industry's leading solution for integrating Meter Data Management functionality. The highly automated platform ties together utility operations by collecting time-series data and event-driven information from a variety of devices, processing and sharing that information to support utility business processes, including meter-to-cash and consumer engagement.
    EnergyIP® supports all aspects of Smart Meter deployment and operation for the residential market as well as commercial/industrial (C&I). It captures the complex relationships among assets, premises, customer accounts, users, applications, and services that must be managed in a successful smart meter network. Incorporating automated business processes and workflows, EnergyIP goes beyond billing-centric MDM to integrate operations and drive smart grid management.

12. What percentage of your customer base is related to the Utility industry?
    100% is related to the Utility industry.

13. What percent of the Utility market uses your product?
    eMeter supports the global utility market. Siemens is unable to provide a guaranteed written response for this question. However, Siemens has been graded for completeness of vision and ability to execute against all MDM competitors, EnergyIP has garnered the #1 position in the Gartner Magic Quadrant for MDM six years running.

**Software**

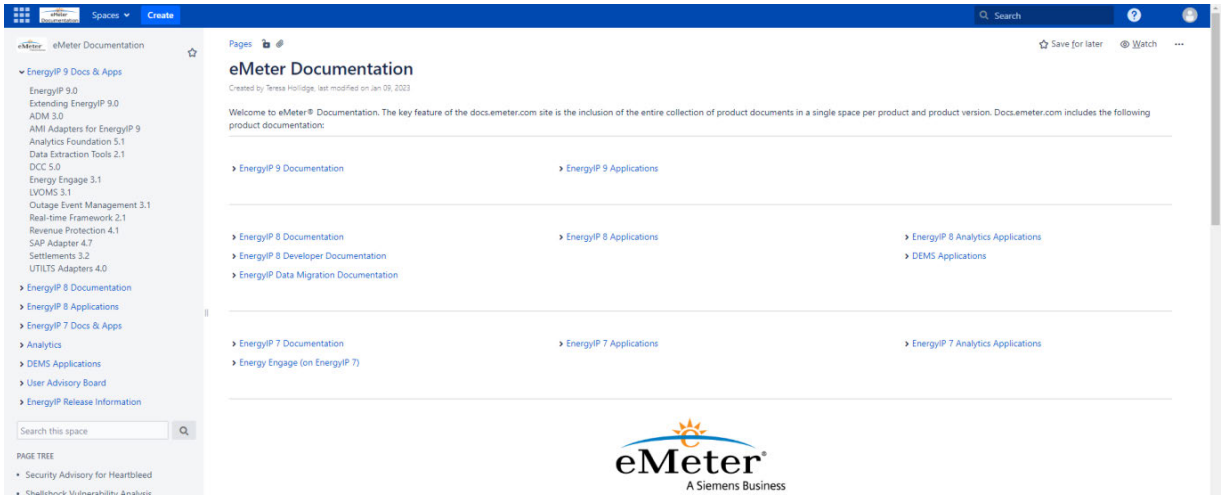
14. Is a soft copy of the product brochure available and can it be provided to Eversource?
    The soft copy of the product brochure is available at the following site:
    https://www.siemens.com/global/en/products/energy/energy-automation-and-smart-grid/energyip-meter-data-management.html

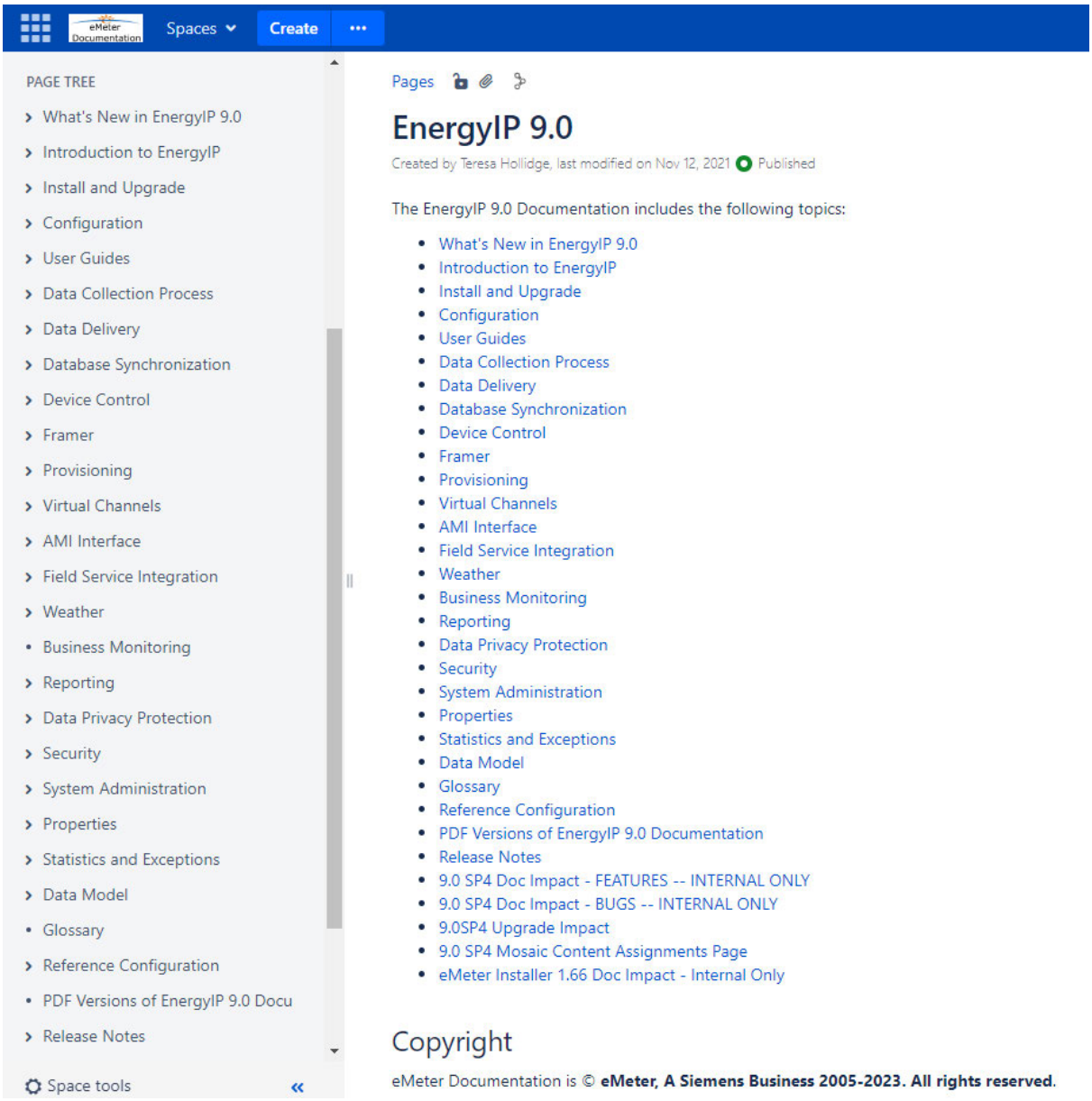
15. Provide a product user manual and technical details document for Eversource review.

The full product user manual and technical details document are available online. These are available to customers once the End User License Agreement is signed.

16. Provide the Name for each proposed Product/Module(s) for this engagement.
    This depends on Solution Architecture. Please refer to the solution overview

17. Provide a list of all software and documentation that is shipped with the proposed Product/Module(s).
    The Product/Modules are dependent on Solution Architecture. Please refer to the solution overview.
    All product documentation is available online and accessible to all customers. The outline of the online documentation is captured in the screen shots:




eMeter Documentation
Spaces
Create
PAGE TREE
What's New in EnergyIP 9.0
Introduction to EnergyIP
Install and Upgrade
Configuration
User Guides
Data Collection Process
Data Delivery
Database Synchronization
Device Control
Framer
Provisioning
Virtual Channels
AMI Interface
Field Service Integration
Weather
Business Monitoring
Reporting
Data Privacy Protection
Security
System Administration
Properties
Statistics and Exceptions
Data Model
Glossary
Reference Configuration
PDF Versions of EnergyIP 9.0 Docu
Release Notes
Space tools
Pages
EnergyIP 9.0
Created by Teresa Hollidge, last modified on Nov 12, 2021 Published
The EnergyIP 9.0 Documentation includes the following topics:
What's New in EnergyIP 9.0
Introduction to EnergyIP
Install and Upgrade
Configuration
User Guides
Data Collection Process
Data Delivery
Database Synchronization
Device Control
Framer
Provisioning
Virtual Channels
AMI Interface
Field Service Integration
Weather
Business Monitoring
Reporting
Data Privacy Protection
Security
System Administration
Properties
Statistics and Exceptions
Data Model
Glossary
Reference Configuration
PDF Versions of EnergyIP 9.0 Documentation
Release Notes
9.0 SP4 Doc Impact - FEATURES -- INTERNAL ONLY
9.0 SP4 Doc Impact - BUGS -- INTERNAL ONLY
9.0SP4 Upgrade Impact
9.0 SP4 Mosaic Content Assignments Page
eMeter Installer 1.66 Doc Impact - Internal Only
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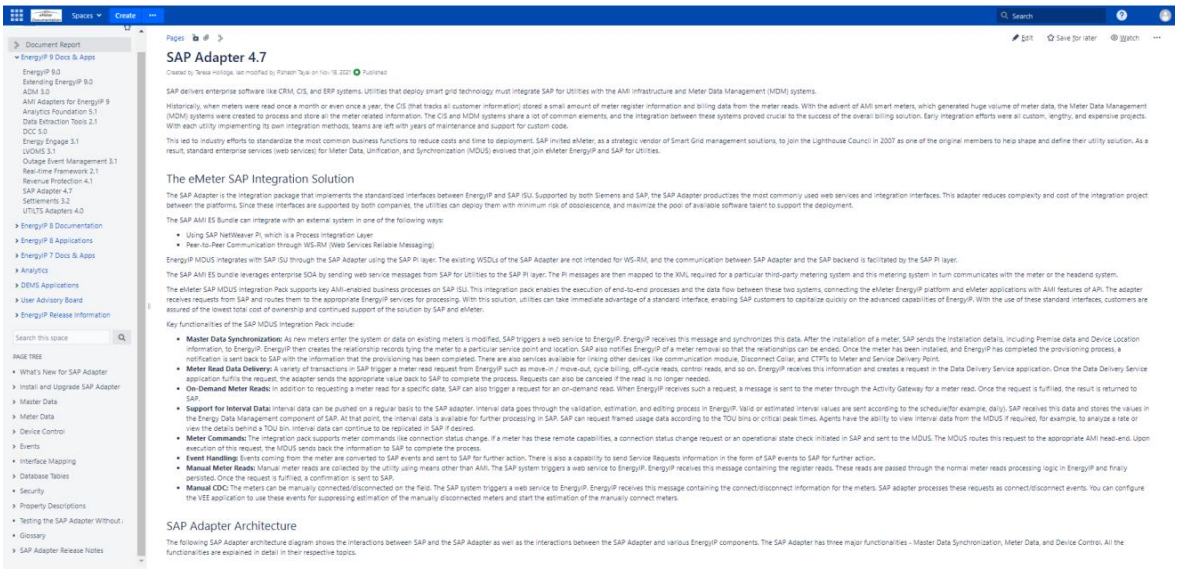


SAP Adapter 4.7

The eMeter SAP Integration Solution

SAP Adapter Architecture

18. What are the future milestones in the product's roadmap?
    Refer to the attached Product Roadmap:

SaaS - 2022-11-EnergyIP-Rc

19. What is the current version of the product?
    EnergyIP 9.0 SP3

20. When was the first version of the product released (first shipment of product)?
    The first version of the product was released in 2004.

21. When was the major upgrade released?
    EnergyIP 9.0, November 2021.

22. Typically, how often do you issue patches/releases?
    Service Pack releases (patches) – quarterly. Minor release - approximately every 12 months.

23. How do you identify new product release features?
    The primary driving factor in identifying new product release feature comes from customer needs and their input via customer support portal and User Advisory Board (UAB). Other factors include market research, industry trend and input from industry experts.

24. How do you collect and prioritize feature enhancement requests?
    The feature enhancement requests are collected through various channels such as the customer support portal, sales organization contact with customers, quarterly UAB (User Advisory Group) that meets and discusses customer needs and feature requests. The Product Management organization analyzes and reviews the requested features and finalizes priorities based on customer impact, market / regulatory needs, and product needs.

25. How is the software kept current with changing technologies?
EnergyIP is a constantly evolving technology based on customer feedback, industry needs, and the changing technology landscape. As part of the Product and Technical Management prioritization of enhancements, eMeter constantly evaluates technology changes to keep the EnergyIP platform current and to look for technologies that can enhance the product.

26. Provide your solution deployment options (Cloud, On Premise, or Both), which option you recommend for this request and why.
EnergyIP can be deployed in either the Cloud or an On-Premise implementation. Please see the implementer response for recommendations for the Eversource implementation.

27. Does the product use any 3rd party software licenses? If so, provide a listing.
See the following table:

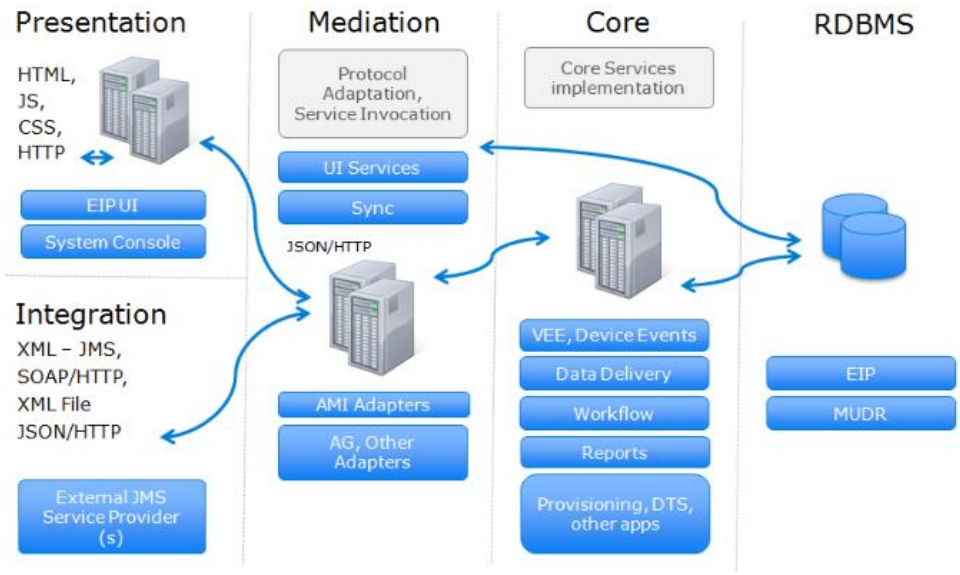
| Server Component | Software Type | 3rd Party Software | License Required by Customer |
|---|---|---|---|
| EnergyIP MDM & Database Server | Operating System | RHEL 8.4, 8.3, 7.9(64-bit)<br><br>Note: Database OS could be on any platform including RHEL as supported by Database vendor. Consult Oracle doc | **Yes** |
| EnergyIP MDM Server | Messaging | Apache Kafka 2.7.1 - kafka_2.12-2.7.1<br><br>Apache Kafka 2.7.1 includes Apache ZooKeeper 3.5.9 | No. License included in the product. |
| | | Apache ActiveMQ 5.15.x – Required only for JMS integration with external systems | **Yes** |
| EnergyIP MDM Server | Java | **Oracle Java 11**<br>Oracle Java SE Development Kit 11.0.6<br>(or higher sub-version 11.0.xx)<br><br>**Eclipse Temurin OpenJDK Java 11**<br><br>OpenJDK 11(LTS) jdk-11.0.12+7<br><br>(or higher sub-version 11.0.xx) | Yes<br><br>Freely available. |
| EnergyIP Database Server | Database | Oracle Enterprise Edition with Partitioning License<br>Oracle 19c - Oracle 12.2.0.3 | **Yes** |
| NA | IDE Tool | Eclipse BIRT 4.8.0 for custom report development | Freely available |

| | | | |
|---|---|---|---|
| NA | Browser | Microsoft Edge Version 93 and higher, Google Chrome Version 93 and higher | Freely available. |

28. What is your typical proposed technical architecture? Provide a high-level architecture diagram.
    Please see implementer solution overview.

29. Do you offer four environments (Dev, QA, Test, Production) at no cost?
    Yes. Product license includes all four environments for deployment.

30. Provide your integration API capabilities, Integrations with other products, and overall integration architecture.
    EnergyIP has open, scalable, N-tier, distributed, architecture with secure web- based services and interfaces. It supports a comprehensive suite of SOA (Service Oriented Architecture) based integration options. It's SOA approach and clearly defined interfaces are key to its integration capabilities.
    Interface Adapters, Data Importers and APIs are available in EnergyIP for integration with external systems using both real-time and batch techniques. EnergyIP also provides integration capabilities with ESB (Enterprise Service Bus) using standard SOAP/HTTP web services or XML/JMS protocols using several different message exchange patterns (In Only, In/Out, Out Only) as applicable to the interface.



31. Provide minimum software requirements (OS and version, DB and version, 3rd party products, etc.) needed to deploy the product. List any known limitations and/or compatibility issues.
Refer to the following table (same as in Item 26):

| Server Component | Software Type | 3rd Party Software | License Required by Customer |
|---|---|---|---|
| EnergyIP MDM & Database Server | Operating System | RHEL 8.4, 8.3, 7.9(64-bit)<br><br>Note: Database OS could be on any platform including RHEL as supported by Database vendor. Consult Oracle doc | **Yes** |
| EnergyIP MDM Server | Messaging | Apache Kafka 2.7.1 - kafka_2.12-2.7.1<br><br>Apache Kafka 2.7.1 includes Apache ZooKeeper 3.5.9 | No. License included in the product. |
| | | Apache ActiveMQ 5.15.x – Required only for JMS integration with external systems | **Yes** |
| EnergyIP MDM Server | Java | **Oracle Java 11**<br>Oracle Java SE Development Kit 11.0.6<br>(or higher sub-version 11.0.xx)<br><br>**Eclipse Temurin OpenJDK Java 11**<br><br>OpenJDK 11(LTS) jdk-11.0.12+7<br><br>(or higher sub-version 11.0.xx) | Yes<br><br>Freely available. |
| EnergyIP Database Server | Database | Oracle Enterprise Edition with Partitioning License<br>Oracle 19c - Oracle 12.2.0.3 | **Yes** |
| NA | IDE Tool | Eclipse BIRT 4.8.0 for custom report development | Freely available |
| NA | Browser | Microsoft Edge Version 93 and higher, Google Chrome Version 93 and higher | Freely available. |

32. Provide minimum network requirements (communication bandwidth, speed, etc.) needed to deploy the product. List any known limitations and/or compatibility issues.
The EnergyIP Network connecting the servers should be segregated from your remote access network. It is preferable for all these servers to be on the same subnet. The EnergyIP network connecting to all Server components and to the rest of the environment must be Gigabit Ethernet or faster. This should include all Network Interfaces, Routers Switches, and other Network equipment.

It is strongly recommended that redundancy be built to all levels of the network from the backbone switches and routers to the individual Network Interfaces.

33. Does the product have an open architecture such that users will have ad-hoc access to the data?
EnergyIP is based on clearly defined multi-tier architecture such as Presentation, Integration, Mediation, Application and Database layer (See diagram in item 29). It also provides well defined interfaces based on industry standards such as Java, XML, SOAP/HTTP (Web Services), JSON/HTTP (Rest Services), JDBC /ODBC etc. to access data in EnergyIP from external system.

34. Describe your best practices for training. Documents/materials, type of training (classroom, train-the-trainer), etc.
The eMeter Learning Cloud for on-line training is included as part of the product license and eMeter Docs is available for product information. Customers can choose between online self-paced training or in-person training if needed. Please see information from the implementer regarding train-the-trainer training or knowledge transfer that may be provided as part of the implementation project.

35. Provide a description of report options, with sample screenshots of reports.
EnergyIP comes with full featured reporting framework called BIRT (Business Intelligence Reporting Tool) that is used to provide out of the box standard reports. It can also be used to develop new and custom reports if necessary. For details on all standard reports, their description and screen shots, refer to the following documentation:



EnergyIP-Standard-Sample-Reports.doc

36. Provide a description of Dashboard options, with sample screenshots of dashboards.
EnergyIP comes with highly configurable Dashboard to provide snapshot of daily MDM operation as well as to display various KPIs relevant to users. The dashboard consists of configurable tiles that can be added or removed as needed. See below some of the standard dashboard tiles.

Sample Dashboard Tiles:

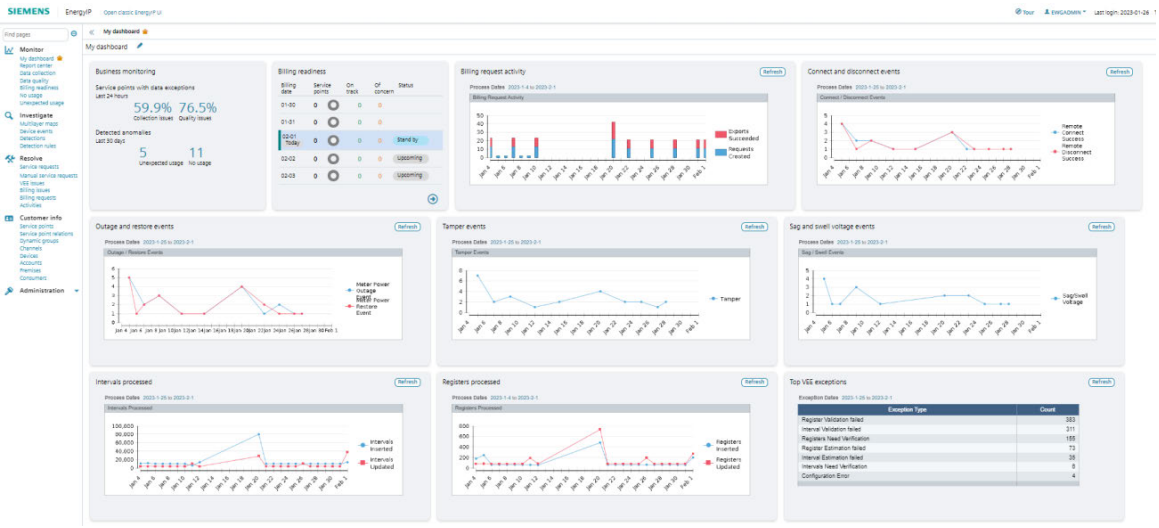
- Business monitoring
- Billing readiness
- Billing request activity
- Connect and disconnect events
- Outage and restore events
- Sag and swell voltage events
- Tamper events
- Top VEE exceptions
- Top billing exceptions
- Top statistics
- Interval processed
- Register processed

Other Sample Tiles specific to water meters

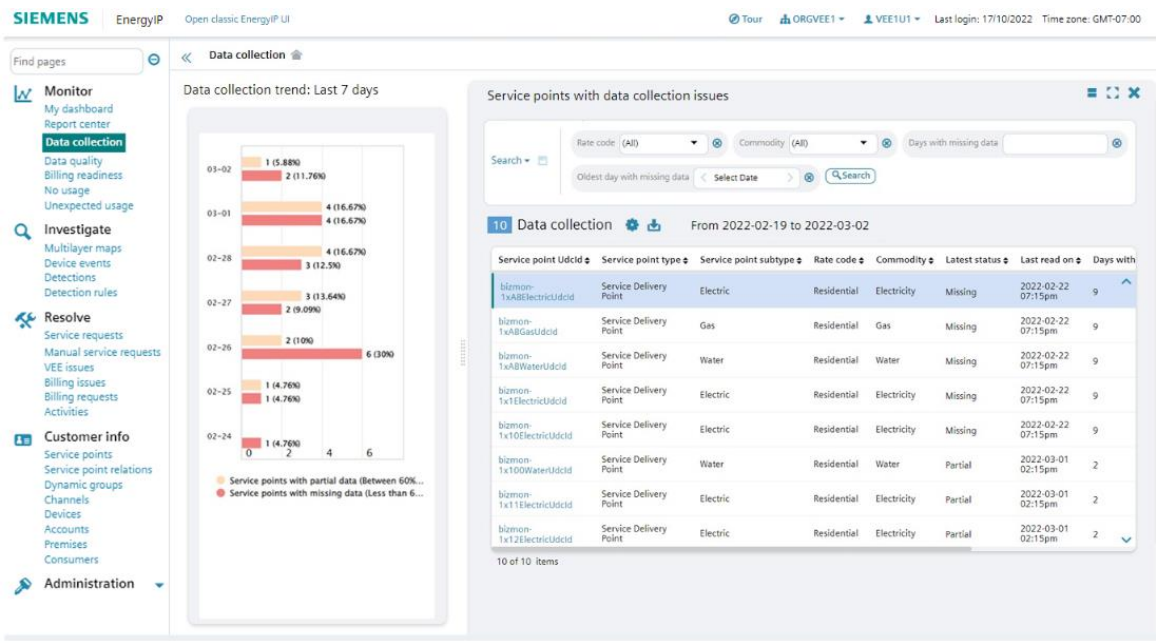
- Water leak

- Water low flow
- Water back flow event
- Battery low event
- Threshold violation

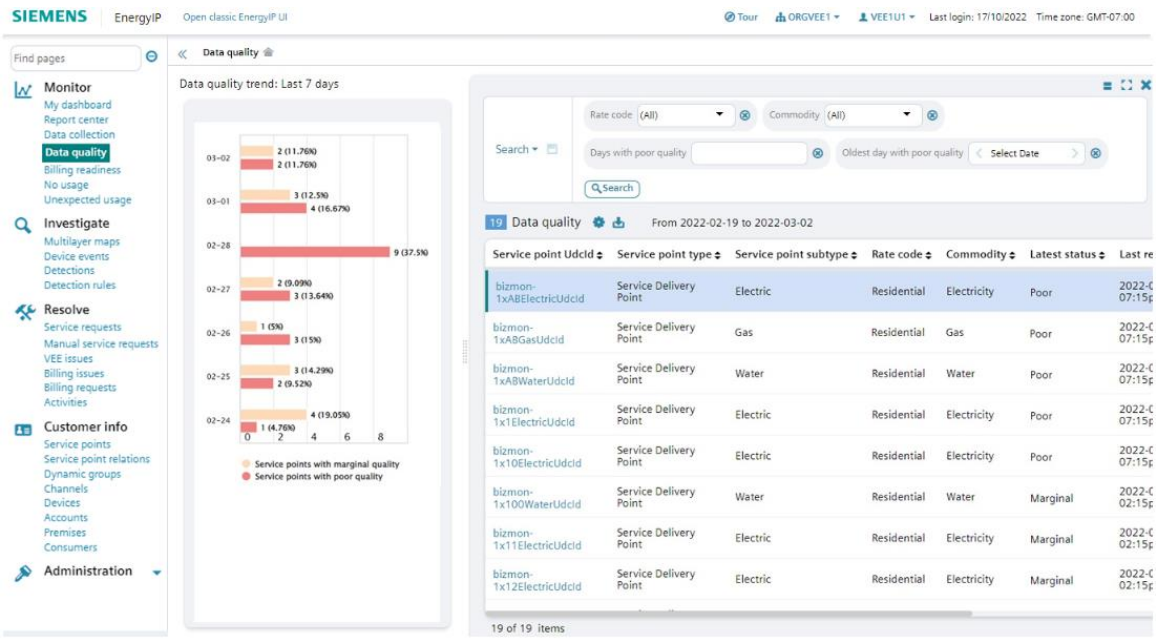
See the following sample screen shots on Dashboard Tiles:



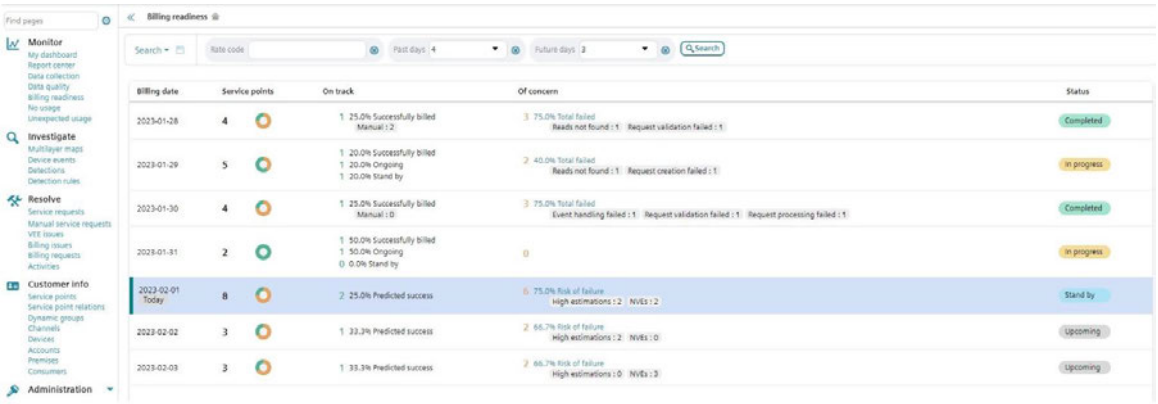
Screenshot 1: Sample Dashboard Tiles



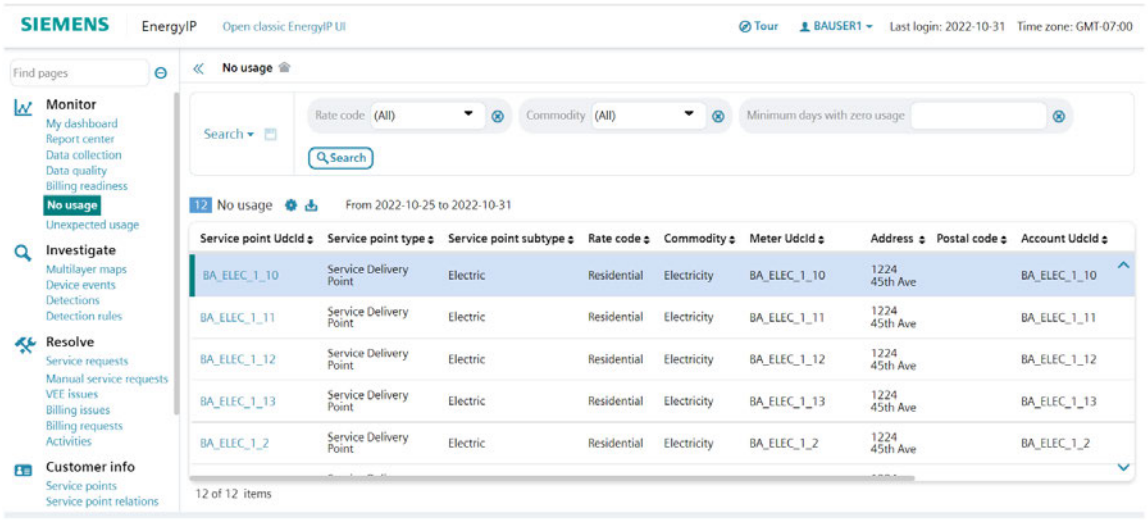
Screenshot 2: Data Collection Trend and Service Point with Collection Issues



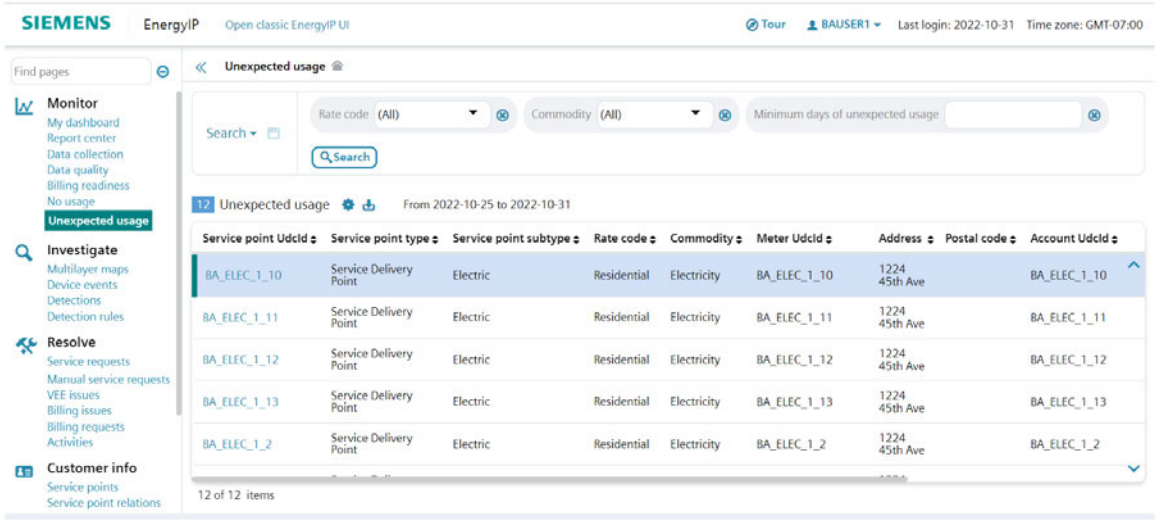

Screenshot 3: Data Quality Trend and Service Points with Quality Issues




Screenshot 4: Billing Readiness with Predictive Success Assessment




Screenshot 5: Service Point with No Usage




Screenshot 6: Service Point with Unexpected (Unauthorized) Usage

37. Describe your operational support services, including any additional options for user help and support with your product.
    The eMeter Help Desk is available for 24x7 EnergyIP support. Eversource will be introduced the eMeter Help Desk as part of the implementation Go Live process. Additional support can be available from the implementer.

38. Provide a description of your standard guidelines for post-implementation support.
    Post implementation support is typically provided through the eMeter Help Desk. Additional post-implementation support may be available from the implementer.

39. How much is spent annually on developing enhancements, new functionality, and modernization to your Utility product(s)?
    Please visit www.siemens.com. From there, please click 'Investor Relations' to obtain any current financial information that is publicly available as part of the SEC required filings.

# RFP Company Profile (Services) Questions

**Company Name: Siemens Advanta Solutions Corp.**

Please provide answers to the following questions enclosed in this document. Please clearly identify **by number** the questions and your answers to help Eversource efficiently analyze and evaluate your proposal.

## Company Background

1. Official registered name (Corporate, D.B.A., Partnership, etc.), Dun & Bradstreet Number, primary and secondary SIC numbers, address, main telephone number.
   - Official registered name: Siemens Advanta Solutions Corp.
   - Dun & Bradstreet ID: 07-956-6240
   - SIC Numbers are being replaced by NAICS (North American Industrial Classification) http://www.naics.com. 541330 (Engineering Services); 541990 (All Other Professional Services)
   - Address: 10900 Wayzata Blvd, Suite 400, Minnetonka, MN 55305

2. Brief history of your company.
   Siemens is a global technology leader and has stood for excellence, innovation, quality, reliability, sustainability, and security for more than 170 years. The company is active in more than 200 countries, with robust offerings and a loyal customer base and in all aspects of the Utilities Market including the distribution of electricity, gas and water.

   Siemens Advanta Solutions Corp. is the Siemens implementation and integration services practice focused on implementations of the proposed EnergyIP MDM solution. It combines their extensive MDM domain expertise along with proven, world-class delivery methodology, to manage EnergyIP Customer implementations on time, in scope and on budget.

3. Where is your corporate headquarters and what other offices do you have?
   The corporate office is located in Minnetonka, MN at the address listed above.

4. Which office will be servicing this work?
   The corporate office in Minnetonka, MN.

5. Is there a specific Business Division that will be managing this product?
   eMeter Corporation manages the product.

6. How many years have you been in business?
   Siemens Advanta Solutions Corp, fka Omnetric, has been in business since 2014.

7. How many employees does your company have?
   Siemens Advanta Solutions Corp. employs approximately 60 specialists in the U.S. who manage and integrate technology solutions for utility clients. It is part of a global business unit with 10,000 employees who work in consulting, solutions, and development.

8. What are your annual sales?
   Siemens Advanta Solutions Corp. is a privately held company and does not report standalone financial information. The ultimate parent is Siemens AG a public company registered in Germany. Please visit www.siemens.com. From there, please click 'Investor Relations' to obtain any current financial information that is publicly available as part of required filings.

9. Key contact name, title, address (if different from above address), direct telephone number.
   [redacted], VP Digital Utilities, [redacted]

10. Person authorized to contractually bind the organization for any proposal against this RFP.
    [redacted] – CEO Siemens Advanta U.S./ [redacted] – CFO Siemens Advanta U.S.

11. Summarize the capabilities your company brings to this project.
    Siemens Advanta has in-depth knowledge and experience with the EnergyIP platform globally, having integrated more than 75% of the over 100 million smart meters contracted through EnergyIP.

12. What percentage of your customer base is related to the Utility industry?
    100% is related to the Utility industry.

13. What percent of the Utility market uses your product?
    Please see also the reply in Attachment H:
    eMeter supports the global utility market. Siemens is unable to provide a guaranteed written response for this question. However, Siemens has been graded for completeness of vision and ability to execute against all MDM competitors, EnergyIP has garnered the #1 position in the Gartner Magic Quadrant for MDM six years running.

**Services**

14. Describe your proposed Project Team: include titles, resumes, and experience.
    Please see the main proposal under Appendix A.5 Project Team.

15. Has the proposed team worked together on other projects?
    This team has been working together on multiple projects.

16. How will you maintain resource continuity for the length of the project?
    Our project resource planning has the goal to ensure not only resource availability but also resource continuity throughout the course of the whole project. We consider this a leading factor for a successful project delivery.

17. Will you be providing senior level resources that will not have to be trained?
    All our proposed resources are experienced and considered senior and will not have to be specifically trained for your project.

18. What are your team members experience with implementing systems at a Utility?
    Since the business model of Siemens Advanta Solutions Corp. is the implementation of systems

at utilities, our proposed team has extensive experience in this area.

19. Describe your teams experience with integration with Eversource's identified systems?
    The Siemens Advanta Solutions Corp. team has extensive experience with Eversource's meter-to-cash systems.

20. What is your team members experience with OCM?
    Please clarify the acronym.

21. What resources will be involved in data conversion and what experience do they have?
    Our team has experience with similar data conversion projects.

22. Provide the work locations of each team member (onsite, offsite office location). For onsite team, provide number of day's onsite / week.
    Siemens Advanta Solutions Corp. plans to execute the project remotely. However, team members will provide onsite support, as needed.

23. What hours do your consultants work during the week? Monday through Friday 8-5?
    Regular business hours Monday through Friday from 8am to 5pm.

24. Identify your key resources that will be onsite on a weekly basis for the duration of the project?
    Regular onsite travel is not planned but can be discussed.

25. What resources will be onsite during critical phases of the project?
    All onshore resources will be onsite during critical phases.

26. Provide a proposed organizational structure, including third parties and the Eversource team.
    Please see the main proposal under Appendices A.5 Project Team and A.6 Eversource Staffing for Implementation and Operations.

27. Will your proposed project team be exclusively dedicated to the Eversource Project?
    Yes, our team will be exclusively dedicated to the Eversource project.

28. Provide a summary of the unique skills your team provides.
    Our team has a combination of proven domain expertise (OT) paired with strong IT capabilities and consulting methodologies. It has extensive, hands-on experience managing the integration of multiple Headend Systems and complex system architectures including multitenancy and legacy CIS to SAP conversions.

29. What resources should Eversource provide? Describe roles and responsibilities.
    Please see the main proposal under Appendix A.6 Eversource Staffing for Implementation and Operations.

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EVERSOURCE
Hosted Services Requirements

| Instructions | |
|---|---|
| To be filled out by Company IT Department | Any section highlighted in Light Blue must be reviewed and approved, revised or filled out before being sent to Contractor. |

| Definitions | |
|---|---|
| **All capitalized terms used herein, or elsewhere in the Agreement, shall have the meanings ascribed to them in this Article 1, unless such terms are otherwise defined in the Agreement. The terms "include(s)", "included" and "including" are used without limitation.** | |
| AGREEMENT | The collective term used to describe all documents comprising each agreement between the parties for the Services, including the Order, terms and conditions, exhibits and attachments, statements of work, specifications, Services Documentation, the Eversource Hosted Services Requirements and any items specifically incorporated by reference and/or issued (including any documents issued with respect to any change order, modification or amendment) or provided by Company to Contractor in connection herewith, and any amendments to the foregoing agreed to in writing by the parties. |
| BREACH EVENT | A known or suspected security breach of Contractor's Services and or information technology systems involving Company Data, any unauthorized access, acquisition, misuse or loss of Company Data under the control of Contractor or exploited vulnerabilities impacting Company Data under the control of Contractor. |
| BUSINESS DAYS | Any day other than Saturday, Sunday and days observed as legal holidays by the federal or state government applicable to the Company. |
| COMPANY | "Company" shall mean Eversource Energy Service Company for itself and as agent for its affiliates, dba Eversource Energy. |
| COMPANY DATA | Company Data means the electronic data or information submitted by Company or Authorized Parties to the Service for storage. |
| CONFIDENTIAL INFORMATION | Confidential and/or proprietary information of a party to the Agreement. Company's Confidential information includes Company Data and written, oral, or electronic information and Information containing personal financial information, employee or customer personally identifiable information, protected health information, proprietary information or any other information that Company designates as confidential and desires to protect against unrestricted disclosure or competitive use, including business plans, marketing strategies, bidding activities, commercial, technical and performance information, contracts, financial Information, research documentation, information about investors or any company or individual with whom Company does business, information considered by Company to be a trade secret and/or of a commercially valuable and sensitive nature or information that may otherwise be deemed confidential by law or regulatory agency. |
| CONTRACTOR | The entity issued an Order by Company |
| CONTRACTOR RESOURCES | Contractor's and any Subcontractor's employees, contract employees, consultants, agents, and all other persons of entities employed by or under the control of Contractor or any Subcontractor. |
| INFORMATION | All intellectual property, computer software and documentation, studies, data, reports, documents, designs, plans, drawings, calculations, test results, Specifications, electronic communications and data, or other information, in whatever form or media. This includes any patents, trademarks, service marks, copyrights, or trade secrets or any devices, designs, methods, or written Services developed or capable of being developed during the course of the Agreement |
| ORDER | The document issued by Company for specific Services. |

EVERSOURCE

Hosted Services Requirements

| | |
|---|---|
| SERVICES | Those services furnished by or on behalf of Contractor under the Agreement, as referenced in the Agreement documents, and all related duties, obligations and responsibilities undertaken or required to be undertaken by Contractor under the Agreement. |
| SITE | The location at which the Services are to be performed. The Site can include Company's property, Company rights of way, or other property not owned by Company where Services is to be performed. |
| SPECIFICATIONS | The Services requirements, specifications or technical specifications, which may include instructions, scope or statement of Services, written requirements for materials, equipment, construction, systems, standards, Information and workmanship for the Services and performance of Services, as provided, supplemented or revised from time to time by Company. |
| SUBCONTRACTOR | Any subcontractor or supplier who furnishes any portion of the Services hosting facilities and/or Services to Contractor to meet Contractor's obligations to perform Services under the Agreement. |
| INFRASTRUCTURE | Infrastructure shall mean the equipment comprising and/or used to support Contractor's information technology system operations, including but not limited to, storage, hardware, servers, and networking components. |
| RECORDS RETENTION SCHEDULE | Records Retention Schedule means the Company's retention schedule for Company Data. |
| RELEASE EVENT | Any of the following conditions constitute a "Release Event": (i) Contractor has defaulted in performance or otherwise has failed to perform its obligations under (i) the Agreement and such default or failure to perform has continued for a period of thirty (30) days following written notice thereof to Contractor from Company; (ii) Contractor has made an assignment for the benefit of creditors, has admitted in writing its inability to pay debts as they mature, or has ceased operating in the normal course of business; (iii) A trustee or receiver of Contractor or of any substantial part of Contractor's assets has been appointed by any court; (iv) An involuntary proceeding has been commenced by any party against Contractor under any one of the chapters of Title 11 of the United States Code and (i) the proceeding has been pending for at least sixty (60) days; or (ii) Contractor has consented, either expressly or by operation of law, to the entry of an order for relief; or (iii) Contractor has been decreed or adjudged a debtor; (v) A voluntary petition has been filed by Contractor under any of the chapters of Title 11 of the United States Code; or (vi) Contractor has or announces it will discontinue support, upgrades, or enhancements of any of the Services. |

| Priority of Documents | |
|---|---|
| Order of Priority | In the event of any conflict, inconsistency or ambiguity between or among the Agreement documents, the order of priority shall be: as follows, except as otherwise designated in advance and in writing by Company: (1) Company's Order; (2) these Hosted Services Requirements; (3) any remaining documents referred to in the Agreement documents. The provisions of change orders and other changes, amendments, deletions, additions or other alterations to Agreement documents shall have the priority of the applicable Agreement documents to which they relate. In the absence of written direction from Company to the contrary, the more/most stringent requirements of the Agreement documents shall be deemed to apply in the event of any inconsistency, conflict, or |

| | |
|---|---|
| | ambiguity between or among two or more requirements therein. |
| **Pilot/Services Acceptance Period** | |
| Pilot Services Acceptance Period. | Use of Services shall not constitute acceptance until Company has accepted the Services or portion thereof in accordance with acceptance criteria agreed to by the Company. Following demonstration of the satisfactory completion of Services testing by the Contractor, upon delivery of the Services, Company will have _Refer to Appendix A.11_ days to review and evaluate the Services to assess whether such Services meet its requirements and specifications as well as industry standards for professional and technical quality (the "Acceptance Period"). If Company rejects the Services during the Acceptance Period, Company may, in its sole discretion and with a reservation of its rights under the Agreement, elect to: (1) extend the time for Contractor to modify the Services for acceptance testing; (2) revise its specifications and negotiate an appropriate reduction in the fees to reflect the revised specifications; or (3) terminate the Agreement and to the extent applicable, receive a refund of any payments made to Contractor. |
| **Services Performance** | |
| Services Performance Warranties | Functionality – The Services shall function in accordance with the Agreement and, in addition to any other rights and remedies available to Company set forth in the Agreement, Contractor shall provide Company with specified credits set forth below for Contractor's failure to satisfy the Service Levels set forth in the Agreement.<br><br>Performance Warranty for Services. The following performance warranties shall apply to the Services under this Agreement.<br>a) Contractor warrants that the Services will conform with the Agreement documentation and standards accepted by Company. Company will provide notice of any non-conformity. Contractor may modify the Services and Services Documentation, provided in no event will the functionality of the Services as set forth in the Agreement be decreased or impaired during the Term. In the event of any breach of the foregoing warranty, Contractor (i) shall fix, provide a work around, or otherwise repair or replace the Service or, (ii) if Contractor is unable to fix, provide a work around, or otherwise repair or replace the Service, Company shall have the right terminate the applicable Services, and in such event Contractor shall refund any fees paid by Company for the development or implementation of the terminated Services plus the fees associated with the period commencing from Company's notice of nonconformity through the remainder of the Term or extension Term, as applicable.<br>b) Contractor warrants that:<br>i. the Services will meet, at a minimum, the service level requirements set forth in the Agreement and in the event of a breach of the foregoing warranty, Contractor will provide the applicable remedy/credit set forth in the Agreement.<br>ii. it will provide services (including, without limitation, support services) in a professional and workmanlike manner consistent with good industry standards and practices and in accordance the Agreement.<br>iii. all software used in the performance of the services is free of vulnerabilities at the time of deployment into production that could result in unauthorized access to or a compromise of Company's data. Contractor will provide applicable remediation to prevent exploitation of all critical vulnerabilities<br>For any breach of the foregoing warranty, Contractor will promptly provide a work around, or correct the nonconformity, or otherwise promptly re-perform the services.<br>d) In no event shall the products or functionality for the Services described in the Documentation be diminished by any updates or modifications thereto and in the event that the products or functionality described are repackaged, renamed or re-bundled, and are substantially similar, then for the duration of the Agreement, Company shall be |

EVERSOURCE
Hosted Services Requirements

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| | entitled to the similar functionality as part of the Services at no additional charge. |
| **Services Usage** | |
| Affiliate Rights | All affiliates of the Company shall have the right to use the Services without additional cost or restriction. |
| **Backup** | |
| Backup Procedure | Contractor shall perform daily backups of all Company Data. Where required by the Company, these backups must be encrypted and Contractor confirms that capabilities exist to encrypt the backups as part of the contracted services. |
| **Disaster Recovery** | |
| Disaster Recovery and Business Continuity Plan | Contractor shall have a business continuity plan and supporting infrastructure and services for the protection of the Company Data and continuity of Services without interruption during catastrophic or other disruptive events. Contractor shall periodically test these plans to ensure their effectiveness, and shall provide Company with documentation confirming such testing and satisfactory performance as requested by Company. Such plan shall include disaster recovery, business continuity and redundancy of systems and the capacity for activation of services at a remote location while restoration of systems is undertaken.<br><br>Contractor shall provide expected times to restore service to the Company based on execution of the Disaster Recovery and Business Continuity plans. |
| **Assignment and Subcontracting** | |
| Assignment and Subcontract-ing | Contractor will not assign the Agreement or subcontract any part of the Services to be performed or provided thereunder without the advance written approval of Company and, notwithstanding any such subcontract approved by Company, Contractor shall remain liable for the acts and omission of any subcontractor. Contractor will also disclose any third parties used or planned to be used in the performance of the services.<br>Hosting Services Changes. Contractor agrees that any hosting arrangement may only be suspended, terminated or assigned with Company's written consent, and further agrees to promptly notify Company in the event Contractor receives any notice of suspension or termination of the hosting service. Contractor further agrees (i) that in the event of a Release Event or suspension or termination or unauthorized assignment of the hosting service, Contractor consents to the automatic assignment of the hosting environment supporting Company's use of the Services from Contractor to Company, and (ii) in the event Contractor fails to make the Services available to Company in breach of the Agreement (which breach has not been cured as provided under the Agreement), then Contractor shall assign the hosting environment supporting Company's use of the Services from Contractor to Company and Company shall have the right to continue to have the Services hosted at no additional cost for remainder of any annual term pre-paid by Contractor or to host such Services with a third –party service provider.<br><br>In addition to the foregoing, Contractor shall upon the Company's request facilitate the negotiation and execution of a three party agreement by and among Contractor, Company and a third party service provider acceptable to Company ("Three-Party Agreement") in a form acceptable to Company. The Three-Party Agreement shall provide capabilities and services including without limitation the hosting of a fully operational copy of the Services application and Company Data for Company's benefit, thereby providing Company access to the Services in operational form. |

EVERSOURCE
Hosted Services Requirements

| Infringement Indemnity | |
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| Infringement Indemnity | Contractor will (i) defend Company against any claim, suit or proceeding by a third party that any of the Services provided to Company pursuant to this Agreement (the "Indemnified Product(s)") infringes any valid patent, copyright or other third party intellectual property right, or misappropriates any valid trade secret enforceable under the laws of the United States or a jurisdiction thereof, or improperly licensed 3rd party software used in the performance of the services, and (ii) indemnify and hold Company harmless from and against any and all liabilities,damages, costs, fines, penalties, and attorney fees related to such claim, suit or proceeding (or agreed to under any final settlement of such claim).<br><br>Company will promptly notify Contractor in writing of the third-party claim, suit or proceeding (in any event, within thirty (30) days after Company becomes aware of such claim). If Contractor has acknowledged, by notice given to the affected Indemnified Person(s) within a reasonable period after receiving the notice from such Indemnified Person(s) (but no more than five (5) Business Days after receipt of such notice), its indemnification obligation with respect to an infringement claim, Contractor, in giving such notice to such Indemnified Person(s), may assume, at its sole cost and expense, the defense of such claim. Counsel selected for such defense shall be reasonably acceptable to such Indemnified Person(s), and such Indemnified Person(s) shall be entitled to participate in (but not control) such defense through its/their own counsel and at its/their own expense; provided that if the counsel selected by Contractor advises that, due to actual or potential conflicts, separate counsel should represent such Indemnified Person, the expense of such separate counsel shall be an indemnified expense in accordance with the terms hereof, the full cost of which shall be borne by Contractor. Such Indemnified Person(s) shall reasonably cooperate with Contractor in connection with the defense of such claim. Notwithstanding anything to the contrary in the applicable Contract Documents, each Indemnified Person shall have the right to retain separate counsel to represent such Indemnified Person, at the sole cost and expense of such Indemnified Person unless such cost and expense are subsequently determined to be an indemnified expense.<br><br>If Contractor does not acknowledge its indemnification obligation for a particular claim, or does not timely assume the defense thereof, such Indemnified Person may defend such claim in such manner as it may deem appropriate. Contractor shall bear all of the costs and expenses including attorneys' fees incurred by each Indemnified Person in connection with such defense. Contractor shall be entitled to participate (but not control) such defense through its own counsel and at its own expense. Contractor shall reasonably cooperate with each Indemnified Person in connection with the defense of such claim.<br><br>In the event of a claim relating to the Indemnified Products, Contractor will, at its sole option and expense: (a) procure for Company the right to use the Indemnified Products under the terms of this Agreement; (b) replace or modify the Indemnified Products to be (or to make it more likely to be) non-infringing; or (c) if the foregoing options are not reasonably practicable, then Contractor may terminate Company's rights to use the Indemnified Products and refund all amounts paid by Company to Contractor attributable to Company's future usage or access to the Indemnified Products and assist Company in retrieving all Company Data.<br><br>Contractor shall have no liability for intellectual property infringement, and the aforementioned Contractor obligations shall not apply to any claim based on or relating to (1) infringement caused by the use of the Indemnified Products in combination with any other product, service or device, if such infringement claim would have been avoided by the use of the Indemnified Products without such other product, service or device; and |

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| | (2) use of an Indemnified Products other than as expressly authorized pursuant to the Agreement. |

| Compliance with Applicable Laws and ADA Standards, Export Control Laws And Economic Sanctions Programs | |
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| Compliance | Contractor shall comply with all international, federal, state and local laws and regulations applicable to Contractor in the provision of the Services and applicable to the Company Data that Contractor electronically transmits, receives, hosts, stores, maintains, processes, or otherwise has access to or is under Contractor's control. Contractor shall be responsible for compliance with all applicable export control laws and economic sanctions programs relating to its respective business, facilities, and the provision of Services.<br><br>To the extent applicable, for any services performed by Contractor involving the creation of content or web development that impacts or interfaces with the Eversource.com website or any other websites of Company that are visible to customers, Contractor shall ensure that such deliverables or services comply with the general accessibility mandate of the Americans with Disabilities Act (ADA) and associated standards and guidelines, including without limitation, Section 508 standards and Level A and Level AA Success Criteria and Conformance Requirements of the Web Content Accessibility Guidelines 2.0 (Dec. 11, 2008) published by the World Wide Web Consortium. |

| Notice of Hosting Arrangement | |
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| Multi-Tenancy Model | Contractor shall provide, as part of the implementation plan, technical description of any shared components, or infrastructure used by Company and other customers, to be referred to as "multi-tenancy" – which includes, but is not limited to shared application servers, shared databases, or virtual systems under a common hypervisor. Infrastructure or systems that are dedicated exclusively for Company use, should be defined as such. |

| Insurance | |
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| Insurance | Contractor Insurance: Contractor warrants that it will maintain sufficient insurance coverage to enable it to meet its obligations created by the Agreement and by law. Without limiting the foregoing, and in addition to any other insurance requirements set forth in the Agreement with Contractor, Contractor will maintain (and shall cause each of its agents, independent contractors and subcontractors performing any services hereunder to maintain) at its sole cost and expense at least the following insurance covering its obligations under the Agreement:<br><br>i. Professional Liability Insurance with a combined single limit of not less than Five Million Dollars ($5,000,000) per occurrence and Cyber Insurance with a combined single limit of not less than Ten Million Dollars ($10,000,000). Such insurance shall cover any and all errors, omissions or negligent acts in the delivery of products and services under the Agreement. Such errors and omissions insurance shall include coverage for claims and losses with respect to Breach Events, network risks (such as data breaches, unauthorized access/use, ID theft, invasion of privacy, damage/loss/theft of data, degradation, downtime, etc.) and intellectual property infringement, such as copyrights, trademarks, service marks and trade dress. |

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| | ii. The Professional Liability and Cyber Insurance retroactive coverage date shall be no later than the Effective Date. Contractor shall maintain coverage for two (2) years after termination of the Agreement.<br><br>iii. Contractor shall ensure that (i) the insurance policy listed above contain a waiver of subrogation against Company and its affiliates, (ii) the Professional Liability policy names Company and its affiliates and assignees as additional insureds, and (iii) all policies contain a provision requiring at least thirty (30) days' prior written notice to Company of any cancellation, modification or non-renewal. Within seven (7) days following the Effective Date, and upon the renewal date of each policy, Contractor will furnish to Company certificates of insurance and such other documentation relating to such policies as Company may reasonably request. In the event that Company reasonably determines the coverage obtained by Contractor to be less than that required to meet Contractor's obligations created by the Agreement, then Contractor agrees that it shall promptly acquire such coverage and notify Company in writing that such coverage has been acquired. All insurance must be issued by one or more insurance carriers Best rated A- or better. Contractor's insurance will be deemed primary with respect to all obligations assumed by Contractor under the Agreement. |
| Advertising | |
| Advertising | Unless authorized in writing by Company or except as required by applicable law, Contractor shall not engage in any advertising, publicity or other promotional activity which directly or indirectly mentions or refers to the Company or the relationship between the parties or that Services are being furnished to Company. |
| Services Renewal | |
| Renewal Right and Services Fee Cap | Company shall have the right to renew the Services for additional one year terms upon written notice to Contractor prior to the expiration of the then current Term. For any renewal term, the fees for Services shall not exceed the previous year's charges by an amount that is the lesser of (a) 3%, or (b) the change in the Consumer Price Index for All Urban Consumers (CPI-U) in the Northeast Region. |
| Environment | Contractor shall provide a minimum of three (3) additional non-production environments (e.g. Test, User Acceptance Testing, or Training). |

| Data Availability and Representation | |
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| Data Availability | Once Company Data has been uploaded, Contractor shall have Services and Company Data available in a timely fashion and in accordance with the project schedule agreed upon by the parties and Contractor shall provide Company with reports demonstrating such availability upon Company request. |
| Data Representation | Contractor will provide Company with data relationships, data models, and data definitions within five (5) business days of Company's request. Contractor agrees to inform Company of any data representation changes thirty (30) days before they are implemented into the production release to allow for integration testing. |

| Company Data Ownership, Storage, Retention and Return | |
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| Company Data Ownership | All Company Data shall be the property of Company and Contractor shall have no right, title and interest to Company Data. |
| Company Data Storage | Contractor agrees to access, store and process Company Data only within the United States, unless Company contractually agrees otherwise. In no event will Company Data be co-mingled with the data of Contractor's other customers or clients, nor will the data be stored in a location or manner that allows individuals access to the data who are not acting in support of the contracted services. |

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| Retention Policies | The Contractor agrees to comply with and ensure that its employees, agents and contractors comply with the Company's retention, policies and periods., when Contractor is using, accessing, creating, storing, transmitting or otherwise has care, custody and control of Company Data. Contractor shall inform Company of its data search, retention and destruction practices, and, if necessary, shall provide the data search, retention and destruction capabilities required by Company, efficiently effectuate litigation holds, and locate, collect and preserve relevant data, including metadata. Subject to the section regarding the Termination and Transition of Data, Contractor shall not destroy any Company Data absent express written authorization from Company. Contractor shall also build in processes and controls that allow for the efficient authentication of data (e.g. accurate time-stamping; metadata; chain-of-custody indicators, etc.). |
| Electronic Discovery Assistance | Contractor agrees to make their best efforts to respond in a timely fashion and within five (5) days to Company's request to find, access, preserve and/or produce any and all Information that may be needed by Company in the context of lawsuits, audits, arbitrations, investigations and/or other formal proceedings. Contractor understands that responding in a timely manner is of extreme importance. If Contractor is contacted regarding the service of any subpoena or other legal process, including a request for discovery, Contractor agrees to provide Company and Company's Deputy General Counsel and Chief Compliance Officer, [redacted] with notice (within one (1) business day) of such request and shall assist and cooperate with Company in responding to such legal process. |
| Return of Company Data upon Termination | Upon request by Company made within six (6) months after any expiration or termination of the Agreement, Contractor will make Company Data available to Company through the Services for a period of up to six (6) months after such request is received by Contractor and upon Company's request, Contractor shall provide Company for download a file of all Company Data in the current format in which it is stored in the Services, and in a standardized CSV file format. As requested by Company, all data will be in either an encrypted or an unencrypted ANSII compliant readable format or such other format mutually agreed upon by the parties. One file per database table will be provided along with a data dictionary, which will include all field level descriptions, metadata descriptions, and table descriptions. All field level relationships, indexes and types will be described in a SQL format. All non-database content will be made available, along with its relational information to any database records. After such six month period and upon the provision of a complete Company Data file as required to Company, Contractor will have no obligation to maintain or provide any Company Data and shall thereafter, unless legally prohibited, destroy all Company Data in accordance with industry standards and in a manner preventing forensic restoration, for data destruction and provide Company with written certification as to such destruction provided however, to the extent that Contractor maintains any Company Data after the termination of the Agreement or applicable Services due to legally mandated requirements, Contractor shall continue to be bound by all confidentiality and compliance with laws obligations of the Agreement which shall survive any termination of the Agreement Additionally, during the Term of the Agreement, Company can export, backup, delete or extract Company Data at any time. |

| Company Data Protection and Security | |
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| Due Diligence Questionnaire and Cyber- | Contractor shall complete and submit to Company for review and approval the Due Diligence Questionnaire (DDQ) and shall comply with the representations and statements made therein for the term of the Agreement. Responses to the DDQ must |

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| security Standards | include areas where a 3rd party to the Contractor is providing a portion of the services, e.g. infrastructure as a service or a company providing data center facilities. Upon Company's request, Contractor shall complete updated DDQs from time to time for continuing services.<br><br>Contractor must notify the Company of any changes to Contractor's 3rd parties who were included in the DDQ and if requested by Company, update Contractor's responses to the DDQ so that the Company will have an opportunity to review an updated DDQ for the new service provider. The Company retains the right to terminate the agreement in accordance with the Termination section, if the new service provider is found to have insufficient controls (and is unwilling to correct the deficiencies) in place to adequately protect the Company's data.<br><br>In addition, Contractor agrees to provide periodic affirmations that the Contractor's responses in the DDQ have not changed and that the Contractor's control environment is consistent to that represented in the DDQ, and will make these affirmations upon Company's written request. In lieu of the affirmation, Company may request vendor to provide the most current (If available) versions of the following:<br>• SSAE 16 Audit Report<br>• SOC 2 or SOC 3 Audit Reports<br>• Independent ISO 27001 certification<br>• Independent IEC 62351 security certification<br>• Updated Due Diligence Questionnaire<br><br>Contractor acknowledges that the representations and statements made in the Due Diligence Questionnaire and supporting documents to the DDQ will be consistent with the cyber security controls, policies, procedures and practices Contractor uses when performing services for Company. |
| Background Checks | 1. Contractor represents and warrants that all Contractor personnel assigned to perform Services for Company having access to Company's Confidential Information or systems or applications containing Company Data must have:<br>(i) their identity affirmatively confirmed using such checks and verifications as are necessary;<br>(ii) been subjected to a rigorous background check by Contractor , including but not limited to verification of employment (the "Background Check"); and<br>(iii) a 5 panel drug screening.<br><br>2. Contractor shall ensure the Background Check of each Contractor personnel shall include, without limitation:<br>(i) Proof of identity validation; which must include a document with a photograph<br>(ii) court records searches of a Contractor personnel's criminal convictions in all jurisdictions where such Contractor personnel has lived and worked during the most recent ten (10) years;<br>(iii) if applicable or available, a trace using Contractor's personnel's Social Security Number (SSN) or other substantially equivalent unique identifier assigned by governmental authorities;<br>(iv) verification of Contractor personnel's educational, employment, and living (i.e., home addresses) history over the most recent seven (7) years;<br>(v) verification of any criminal convictions in all jurisdictions where such Contractor personnel has lived and worked during the most recent seven (7) years, including but not limited to verification for offenses that involve the taking of a false oath, the making of a false report, bribery, perjury, burglary, |

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| | larceny, theft, robbery, extortion, forgery, counterfeiting, fraudulent concealment, embezzlement, fraudulent conversion or misappropriation of funds, or securities or a conspiracy to commit any of these offenses or substantially equivalent activity in a domestic, military, or foreign court; and any additional information Customer may from time-to-time request to be included<br>(vi) verification of authorization to work in country from an official government agency, such as the Department of Homeland Security's E-Verify process;<br>(vii) Export Regulation Controls Review, including employees from Embargoed Countries, and Government Terrorist Lists Check<br>(viii) verification that each of Contractor personnel required to operate a motor vehicle is legally licensed and holds a valid driver's license appropriate to the vehicle to be operated, including a commercial driver's license search; and<br>(ix) any additional information Company may from time-to-time request to be included.<br><br>3. Contractor represents and warrants that none of Contractor personnel assigned to perform Services have been convicted of, or have agreed to enter into a pretrial diversion or similar program in connection with the prosecution of, a criminal offense involving theft, dishonesty, breach of trust, money laundering, the illegal manufacture, sale, distribution of or trafficking in controlled substances, a felony, or substantially equivalent activity in a domestic, military or foreign court. Examples of such criminal offenses include, but are not limited to, the taking of a false oath, the making of a false report, bribery, perjury, burglary, larceny, theft, robbery, extortion, forgery, counterfeiting, fraudulent concealment, embezzlement, fraudulent conversion or misappropriation of funds, or securities or a conspiracy to commit any of these offenses.<br><br>4. Contractor represents that it will comply with all applicable laws and regulations in conducting and maintaining Background Checks. |
| Identity Management/ Authentication | Contractor shall submit, in collaboration with Eversource IT Enterprise Architecture, a plan to provide provision for Single Sign On (SSO), using mutually agreed upon authentication standards (i.e., SAML 2.0). In no cases will the Contractor's solution be implemented with a separate user ID repository used for authentication, without prior written approval from the Eversource Enterprise Architecture Review Board (EARB). |
| Company Data Protection and Security | Contractor shall, in accordance with industry standards such as ISO 27001, ensure the confidentiality, integrity and availability of the Company Data under its control. Contractor complies with and has measures in place that satisfy the following minimum security requirements:<br><br>a. Contractor has a written confidential information security program and a published set of comprehensive security policies that stipulate technical controls, user responsibilities, meet all business and Contractor's legal and regulatory requirements applicable to Contractor for protecting the Contractor's information technology systems and networks and Company Data that ensures the confidentiality, integrity and availability of the Company Data accessed or stored by Contractor;<br><br>b. Contractor has established written policies and procedures for data security that prohibit activities that jeopardize security such as sharing user passwords, running hacking tools, performing unauthorized system changes. Such policies and procedures should have identifiable associated consequences. Contractor shall have |

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| | communicated these policies and procedures to all users of the Contractor's computer resources with user acknowledgement retained on file;<br><br>c. the Contractor's information technology level of protection has been defined using a risk assessment process;<br><br>d. each user shall be uniquely identified to ensure accountability and Contractor has processes in place to ensure only authorized and appropriate level of access is granted to computer resources;<br><br>e. user activity is logged and Contractor has a process in place for reporting suspected unauthorized activity to facilitate investigations;<br><br>f. attempted unauthorized activity is monitored by Contractor 7x24 for identified critical cyber assets (i.e., the Internet gateway, dial-in, or a high risk application) and Contractor has associated incident handling procedures in place to ensure timely and appropriate response in compliance with all laws applicable to Contractor as a provider of the services to be rendered by Contractor pertaining to Company Data;<br><br>g. Contractor has change control processes and associated security in place to ensure that only authorized hardware and software is installed on the Contractor's network;<br><br>h. Contractor has security services such as anti-virus, anti-spyware, firewalls, patch update processes, intrusion detection, third party vulnerability assessments, and internal vulnerability scanning of critical cyber assets and applications used in the performance of the services, in place and up to date, and Contractor shall keep such security services current and up to date (implementing the latest versions, patches, new virus definitions, etc, in accordance with its internal testing and implementation plan), and periodically test these services to ensure effective on-going operation;<br><br>i. where wireless technology is used, Contractor has sufficient controls (e.g., encryption, device identification, vulnerability assessment) in place to ensure only authorized use and data privacy;<br><br>j. any information technology used by Contractor to access or store Company Data shall be encrypted. These technologies include but are not limited to servers, storage devices, personal computers, and mobile devices (tablets, smartphones).<br><br>k. all records and files containing Company Data that will travel across public networks or will be transmitted wirelessly, shall be encrypted.<br><br>m. Contractor shall apply the same level security controls and configuration to the test or support environment, as provided to production and will “sanitize” Company Data that is copied to these environments so unneeded data fields are not brought into test systems.<br><br>n. Contractor shall ensure that all application development practices used as part of the System Development Life Cycle (SDLC) and used in support of the contracted services will include secured coding practices. Contractor will incorporate practices to prevent coding errors identified by industry standards such as the SANS top 25 Coding Errors.<br><br>o. Contractor shall ensure a vulnerability management program is in place to not less than quarterly, scan the infrastructure supporting application providing the |

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| | contracted services. Contractor will also scan the application at least annually and all changes prior to deployment to production. Contractor will remediate all vulnerabilities that could lead to a direct compromise of the system and the Company's data within 30 days.<br><br>p. Contractor shall establish and apply rules for the development of both software and systems to ensure that information security is designed and implemented within the development lifecycle of information systems in accordance with industry best practices (e.g. OWASP.org and SANS.Org),<br><br>q. Contractor shall establish and appropriately protect secure development environments for system development and integration efforts that cover the entire system development lifecycle for the duration of this contract/SOW. This includes segregation of development activities, protection of subversion system to maintain source code integrity, and access/authorization control.<br><br>r. Contractor shall supervise and monitor the activity of any outsourced system development.<br><br>s. Information involved in application services passing over public networks shall be protected from fraudulent activity, contract dispute and unauthorized disclosure and modification and information involved in application service shall be protected to prevent incomplete transmission, mis-routing, unauthorized message alteration, unauthorized disclosure, unauthorized message duplication or replay; therefore, Contractor shall develop a Secure Systems & Applications Development Lifecycle Plan incorporating these requirements as applicable.<br><br>t. Requirements for the technical review of applications and/or services during and after development efforts shall be identified and executed to ensure applications and services have no adverse impact on organizational operations or security; therefore, testing requirements of security functionality shall be identified in partnership with Eversource Energy and carried out by Contractor.<br><br>u. Changes to systems within the development lifecycle shall be controlled by the use of formal change control procedures between Eversource Energy and Contractor.<br><br>v. Contractor shall ensure the protection of data used for testing. Test data shall be selected carefully, protected and controlled.<br><br>w. Contractor shall provide adequate security resources to carry out workshops to help define specific security requirements derived from design and development sessions. |
| Security Reporting | During each calendar year for the term of the Agreement, as it may be extended, Contractor will provide, at Contractor's cost, reports with a joint opinion under both the SSAE 16 standards for Contractor locations (i.e., service centers from which services are provided to Company). The scope of these reports shall address the controls specific to the Services being provided to Company and may be the common controls that support Company as well as multiple clients, including Company, served from Contractor locations. The control objectives shall be at a minimum, based upon guidance from the Information Technology Governance Institute. Company and its external auditor will be provided copies of relevant reports upon issuance (not later than thirty days thereafter). Contractor will provide Company a representation letter (otherwise referred to as a "bridge letter") in relation to the time period which is not covered by the reports. For the avoidance of doubt, no Company Data or information |

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| | that could potentially identify Company as a customer of Contractor will be disclosed in the reports. Contractor will comply with future guidance relating to SSAE 16 as issued by the AICPA, IAASB, the Securities and Exchange Commission or the Public Company Accounting Oversight Board. |
| Company Data / Security Breaches | Contractor shall, in accordance with industry standards such as ISO 27001, ensure the confidentiality, integrity and availability of the Company Data under its control.<br><br>Prior to execution of the contract, Contractor agrees to identify a point of contact and contact information, to whom an Eversource Cybersecurity person can contact directly regarding related questions, events, or notifications.<br><br>Upon the occurrence of a Breach Event, Contractor will promptly notify via e-mail and telephone and within the same day of discovery the following contacts:<br><br>• Contractor should IMMEDIATELY CALL, regardless of the day or time the ITS Support Center at [redacted] (24x7) AND email [redacted] with Breach Event details; and<br>• Company's Deputy General Counsel and Chief Compliance Officer: [redacted] and<br>• Company: Any other contacts set forth in the notice provisions of the Agreement.<br><br>Contractor shall investigate, contain and mitigate the impact of the Breach Event on Company and coordinate, cooperate, and communicate with Company regularly regarding Contractor's activities, and Contractor shall provide Company with a copy of the incident forensics report upon completion. Company shall have the right to conduct its own forensic assessment and investigation of the Breach Event. Each party will reasonably assist the other party in remediating or mitigating any potential damage.<br><br>Upon Company's written request, Contractor shall provide all legally required notices regarding the Breach Event, provided that the content of all notices to Company's impacted persons shall be subject to Company's review and prior approval. Any notices to impacted persons mandated by law relating to a Breach Event involving personally identifiable information shall also include an offer for credit monitoring and identity theft restoration services from a provider approved by Company for any period mandated by law but not to exceed twenty-four (24) months. Company may, at its option, elect to undertake the notifications to impacted persons, subject to the terms set forth below. Contractor shall be responsible for the costs and damages for the following categories, or for the indemnification of Company for any such costs or damages incurred by Company for such categories, as a result of Breach Event:<br><br>i. the cost of providing required notice of the Breach Event to impacted persons;<br>ii. the cost of providing required notice to government agencies, credit bureaus, and/or other required entities;<br>iii. the cost of providing individuals affected by the Breach Event and receiving required notices, with credit monitoring and identity theft restoration services designed to protect potential fraud associated with identity theft crimes for a minimum period that is the greater of (a) twenty-four (24) months or (b) period mandated by law;<br>iv. call center support for person impacted by the Breach Event for a specific period not to exceed one-hundred eighty (180) days;<br>v. costs associated with Company's internal investigation and remediation of the Breach Event; |

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| | vi. fees associated with computer forensics work required for Breach Event investigations; and<br>vii. fines or penalties assessed by governments or regulators for Contractor's failure comply with its defined protection and/or security obligations and directly attributable to the Breach Event.<br><br>In addition, Contractor shall defend, indemnify and hold Company harmless from all claims, costs and liabilities arising from or related to any Breach Event. |
| Audit Rights | Company reserves the right to independently audit the cyber security controls of Contractor, at any time. Company may also request updated information Audit documents – such as SSAE-16 reports, or systems and network scans or penetration tests, or PCI-DSS Attestation of Compliance (AOC) within the Agreement period.<br><br>Upon the occurrence of a Breach Event, Contractor shall provide access for an onsite audit and inspection of its applicable facility or facilities and Contractor's information systems involved in the Breach Event. For purposes of the Breach Event audit, Company and Contractor will meet in good faith to agree upon the auditor. For purposes of the Breach Event audit, Company and the auditor will not be entitled to audit (i) data or information or shared infrastructure of other customers or clients of Contractor; (ii) any cost information; (iii) contract management reports; or (iv) any other Proprietary Information of Contractor that is not directly relevant for the authorized purposes of the audit. Contractor shall develop an action plan acceptable to Company to correct the causes of the Breach Event and all material vulnerability or vulnerabilities discovered during the audit or inspection. Promptly after Company approves the action plan Contractor shall correct each such Breach Event cause or vulnerability at its sole cost and expense. Notwithstanding the foregoing, in the event the Breach Event occurs on Contractor Infrastructure that is shared between Company and any other Contractor client, then Company shall not have the right to approve the action plan; provided however that Contractor notifies Company of the action plan and gives Company the opportunity to review the action plan before its implementation and in the event Company is dissatisfied with the plan, Company may terminate the Agreement and be refunded any prepaid fees for the duration of the Agreement after the effective termination date. Contractor shall confirm in writing to Company that it has corrected all such Breach Event causes and vulnerabilities. Contractor shall bear (and if applicable, shall reimburse Company for) all reasonable costs and expenses of an audit or inspection following a Breach Event. |

| Services Availability | |
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| Services Availability | Contractor's Services Availability for a given calendar month is 99.9% (~44 minutes per month) excluding Planned Maintenance. **In the event Contractor becomes aware of significant availability of functionality issues with Contractor's Services, Contractor should promptly contact Eversource's Data Center Operations at [redacted] to report such issues.** |
| Uptime Calculation | The "Monthly Uptime Percentage" for Services is calculated by the following formula: $\frac{User\ Minutes - Downtime}{User\ Minutes} \times 100$ |

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| | Where Downtime is measured in user-minutes; that is, for each month, Downtime is the sum of the length (in minutes) of each Incident that occurs during that month.<br><br>Definitions<br>"**User Minutes**" means the total number of minutes in a month, less all *Planned Maintenance* (See Planned Maintenance). |
| Planned Maintenance | Planned Maintenance such as security patches and upgrades shall not occur during the core production time-frame of Refer to Appendix A.11.<br><br>There should be at least 24 hours pre-notice for any planned maintenance. |
| Company Integration Downtime Procedure | In the event that the Contractor solution is integrated with Company services and/or systems, the Contractor will need to adhere to the following Integration Downtime procedure:<br><br>Company will inform the Contractor to make the solution/services unavailable by Refer to Appendix A.11<br><br>Contractor will make the solution/service unavailable upon Company request and in accordance with requested time periods, and provide appropriate notifications, including web page displays for the period that the system is not available with the content requested by Company.<br><br>Company will inform the Contractor in writing of the time period that Company is ready for Contractor to re-enable the solution/services<br><br>Company initiated downtime will not be counted against the Contractor in the Uptime Calculation. |

| Continued Enhancements | |
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| Continued Enhancements | Contractor will seek inputs from Company periodically as part of its client outreach, to upgrade systems and application technology consistent with its regular business practices in order to provide efficient servicing to its customers.<br><br>Contractor will hold periodic meetings, in person or virtual, and invite Company and other customers for I stakeholders to review and provide inputs and suggestions on the product roadmap, product enhancements and release schedules with respect to the licensed application. Contractor shall provide Company, in advance, with information regarding all application product updates and upgrades for review and discussion. Contractor will work with Company collaboratively to scope and prioritize future business critical application development and enhancement work and develop application enhancements to support Company business or any regulatory requirements. |

| Incident Problem Resolution | |
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| Response & Resolution | **Severity Level 1:**<br>"Severity 1" means (i) Company is unable to use the Services, (ii) a confirmed breach of Company Data, (iii) a critical vulnerability that allows for a direct compromise of the system or Company data; (iv) a Severity 2 problem has remained unresolved for 48 hours; or (v) a Severity 3 problem has remained unresolved for 96 hours. |

| Severity | Response Timeframe from receipt of service call | Resolution Timeframe from receipt of |
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"Severity 2" means (i) production is degraded, impeding critical business processing and/or causing disruption to normal production Services flow; (ii) development is down, disrupting critical development; or (iii) a Severity 3 problem has remained unresolved for 48 hours (iv) A suspected breach of Company data.

"Severity 3" means non-critical development is down, critical development is degraded, or non-critical production is experiencing problems.

"Severity 4" means non-critical development is degraded, or minor production problems and/or questions exist.

Contractor warrants that Company's calls for service will be responded to within the time period specified below, and that Contractor will immediately, diligently and continuously work to resolve the problem until the Service is returned to normal operation and the issue is resolved in accordance with the terms and conditions set forth below. Company shall provide the Severity Level of the problem when Company places a service call to Contractor. Company will be notified of status changes and Contractor will escalate the problem to the appropriate Contractor organization to resolve the problem and secure additional support as needed. The escalated problem will have higher priority than ongoing support, development or operations initiatives. Contractor warrants that it will use qualified technical personnel with the appropriate technical experience in the operation of the Services or resolution of the problem. If resolution requires a Contractor bug fix, Contractor will add the bug fix to its development queue for future update and suggest potential workaround until the problem is resolved in a future update.

i. *Support*: Contractor will provide telephone support not less than 24 hours per day, 7 days per week for Severity 1 problems, 8:00 a.m. to 8:00 p.m. Eastern Time, Monday through Friday for Severity 2 problems and, for Severity 3 and Severity 4 problems, 8:00 a.m. to 5:00 p.m. Eastern Time, Monday through Friday.

ii. *Resolution*: Problem resolution is defined as a permanent fix.

iii. *Timeframe for Resolution*: Contractor's service technician will respond to service calls as follows:

| | | | |
|---|---|---|---|
| | | | ***service call*** |
| | Severity 1 | 30 minutes | 4 hours |
| | Severity 2 | 2 hours if call is received prior to 12:00 p.m. EST | 8 hours |
| | Severity 3 | 2 hours if call is received prior to 3:00 p.m. EST | 24 hours |
| | Severity 4 | 24 hours | 72 hours |

If Company reaches a recorded message when it makes the service call, Contractor must respond back to Company by personal telephone call within the Response Timeframe to notify Company that Contractor received the service call and Contractor is working on a resolution.

Contractor will provide Company with a patch or adequate Services-around to the problem while working on resolution during the initial response to the service call. Such patch or work-around shall render the Services usable until a permanent resolution is provided by Contractor.

**Service Level Credits**

**Availability**

If the Monthly Uptime Percentage falls below 99.9% for any given month, Company will be provided the following Service Credit:

| Monthly Uptime Percentage | Service Credit |
|---|---|
| < 99.9% | 25% |
| < 98.0% | 50% |
| < 96.5% | 100% |

**Performance**

If the Services Processing Time falls below _ Refer to Appendix A.11__ seconds for any given month, Company will be provided the following Service Credit:

| Services Processing Time | Service Credit |
|---|---|
| | 25% |
| | 50% |
| | 100% |

**Incident Response & Repair**

If there are x or more failures to achieve Severity 1 or Severity 2 Problem Resolutions in any given month, Company will be provided the following Service Credit:

| Severity 1 or 2 Problem Resolution Deficiencies | Service Credit |
|---|---|

EVERSOURCE
Hosted Services Requirements

| | | | |
|---|---|---|---|
| | | **(Monthly)** | |
| | | Up to ***[Fill in #]*** | 25% |
| | | Between ***[Fill in #]*** and ***[Fill in #]*** | 50% |
| | | ***[Fill in #]*** or more | 100% |
| Transaction Processing Time | Transaction Processing Time. The mean transaction processing time shall not exceed ***[Fill in seconds:*** Refer to Appendix A.11***]*** and no individual transaction processing time shall exceed ***[Fill in seconds:*** Refer to Appendix A.11***]***. For this Service Level, Transaction shall be defined as _____ | | |
| | | **Transaction Processing Time** | **Service Credit** |
| | | Up to ***[Fill in #]*** | 25% |
| | | Between ***[Fill in #]*** and ***[Fill in #]*** | 50% |
| | | ***[Fill in #]*** or more | 100% |
| | OTHER SERVICE LEVELS: (to be provided): Refer to Appendix A.11 | | |

| Service Level Default | |
|---|---|
| Multiple Service Level failures | In the event of a failure to achieve any of the Service Levels for any two continuous months or any three months over a twenty-four (24) month period, such multiple Service Level failures shall constitute a material default of the Agreement and the Company shall have the right to terminate the Agreement for default with a full reservation of claims and rights, and shall receive a refund of all prepaid service fees that are unearned as of the effective termination date. |

| Reporting and Credit Application | |
|---|---|
| Functionality and service level reporting | Contractor shall track the Services performance metrics for service levels and functionality set forth in the Agreement and upon Company's request and as otherwise set forth in the Agreement, provide Company with requested reports of Contractor's performance metrics for such service levels and Agreement functionality. In the event that Contractor does not achieve one or more Service Levels, the Contractor shall report such event(s) to the Company and the foregoing applicable Service Level credits shall be provided to Company within 60 days of the applicable period giving rise to the credit. In the event that the service level credit cannot be applied to any fees that are due and payable for the remainder of the Term, Contractor shall issue a payment in the amount of the credit to Company within 60 days of the applicable period giving rise to the credit. |

EVERSOURCE
Hosted Services Requirements

| Notices, Dispute Resolution, Choice of Law | |
|---|---|
| Notices | All notices required under the Agreement shall be in writing and shall be deemed to be given when received upon personal delivery, or if mailed, as of the date indicated on the receipt document provided by the mail carrier, if so delivered or if so mailed and, unless otherwise indicated in the Contract Documents, with respect to Company, to the individual set forth on the "Direct Inquiries" line on Company's Purchase Order at the address set forth thereon. |
| Dispute Resolution. | If any dispute between Company and the Contractor arises, as evidenced by written notice from one party to another describing the matter the dispute, and/or Company disputes any charge or amount on any invoice and such dispute cannot be resolved promptly through good-faith discussions between the parties by executives with authority to settle the dispute and who are at a higher level of management than the persons with direct responsibility for administration of this Contract, Company shall pay the amount due under the Agreement less the disputed amount, and the parties shall diligently Services to resolve such disputed amount. An amount will be considered disputed in good faith if (i) Company delivers a written statement to the Contractor describing the basis of the dispute and the amount being withheld by Company; and (ii) all other amounts due from Company that are not in dispute have been paid in accordance with the terms of this Contract. All negotiations pursuant to this dispute resolution process shall be confidential and treated as compromise and settlement negotiations. If the dispute has not been resolved by negotiation within forty-five (45) days after the disputing party's notice, or if the Parties failed to meet within thirty (30) days, the Parties shall proceed to mediation under the then current CPR Mediation Procedure, and, unless otherwise agreed, will select a mediator from the CPR Panels of Distinguished Neutrals. Any dispute arising out of or relating to this Contract, including the breach, termination or validity thereof, that has not been resolved by a non-binding procedure as provided herein within ninety (90) days of the initiation of such procedure, shall be finally resolved by arbitration in accordance with the then current CPR Rules for Non-Administered Arbitration by a sole arbitrator, for disputes involving amounts in the aggregate under Three Million Dollars ($3,000,000), or three arbitrators, for disputes involving amounts in the aggregate equal to or greater than Three Million Dollars ($3,000,000), of whom each party shall designate one in accordance with the "screened" appointment procedure provided in CPR Rule 5.4, with the third arbitrator selected pursuant to CPR Rules 5 and 6. The arbitration shall be governed by the Federal Arbitration Act, 9 U.S.C. §§ 1-16, and judgment upon the award rendered by the arbitrator(s) may be entered by any court having jurisdiction thereof. The place of arbitration shall be Hartford, Connecticut. Any award or determination made by the arbitrator(s) shall be subject to the limitations of liability set forth in this Contract. The arbitrator(s) are not empowered to award damages in excess of compensatory damages and each party expressly waives and foregoes any right to punitive, exemplary or similar damages unless a statute requires that compensatory damages be increased in a specified manner. Each Party shall be responsible for its own costs and expenses, including attorney's fees. Unless otherwise directed in writing by Company, Contractor shall continue performance of the Services in compliance with the Agreement notwithstanding the existence of any Dispute between the Parties. Nothing herein shall prejudice, impair or otherwise prevent Company from receiving equitable relief pending the conclusion of any mediation and/or arbitration proceeding. Each Party will proceed in good faith to conclude the arbitration proceeding as quickly as reasonably possible. If a party refuses to participate in an arbitration proceeding as required by this Contract, the other party may petition any governmental authority having proper jurisdiction for an order directing the refusing Party to participate in the arbitration proceeding. All costs and expenses incurred by the petitioning Party in enforcing such participation will be |

| | |
|---|---|
| | paid for by the refusing Party. The parties hereby consent to the exclusive jurisdiction of the courts of the state of Connecticut for enforcement of all arbitration procedures and any other legal proceedings arising out of or relating to the Agreement and the transactions contemplated hereby. |
| Choice of Law | The Agreement and the rights and duties of the parties hereunder shall be governed by and construed, enforced and performed in accordance with the laws of the State of Connecticut, without regard to its principles of conflicts of law. |

**This license agreement ("Agreement") is entered into by the undersigned customer ("Licensee" or "Customer") on behalf of itself and its Affiliates having a principal office at 107 Selden Street, Berlin, CT 06037 and eMeter corporation ("eMeter" or "Licensor") having a principal office at 950 Tower Lane, Suite 1788, Foster City, CA 94404 as of this 29th day of August, 2023 (the "effective date") for the provision by eMeter of software license to Licensee in exchange for fees as specified in this Agreement. As used in this Agreement, "Party" means either Licensee or eMeter and "Parties" means both Licensee and eMeter.**

**CUSTOMER – Eversource Energy Service Company**

[redacted]
Authorized Utility Signature

08/30/2023
Date

[redacted]
Type or Printed Name

Procurement Manager
Title

**eMeter Corporation**

[redacted]
Authorized eMeter Signature

Date

[redacted]
Type or Printed Name

President
Title

**eMeter Corporation**

[redacted]
Authorized eMeter Signature

Date

[redacted]
Type or Printed Name

Vice President CFO
Title

*****

1. **APPLICABLE TERMS.** This Agreement governs the license of Software to Licensee by eMeter. Any additional or conflicting terms in Licensee's request for proposal, specifications, purchase order or any other written or oral communication are not binding on eMeter unless separately signed by eMeter. eMeter's failure to object to Licensee's additional or conflicting terms does not operate as a waiver of any terms contained in this Agreement. Any purchase of products or services shall be subject to a separate written agreement. If Licensee received the Software prior to executing this Agreement, and installs, copies or otherwise uses the Software, Licensee shall, by doing so, indicate that Licensee has read and understood this Agreement and accepted these terms and conditions. Licensee is not entitled to install or use the Software if Licensee does not agree with these terms. In such an event, Licensee should promptly contact eMeter for instructions on return or certified destruction of the Software.

2. **DEFINITIONS.** The following terms have the meanings set forth below.

2.1. "Additional Maintenance Services" has the meaning given in Exhibit 1, Section 1.2, below.

2.2. "Affiliate" means any individual, corporation, partnership, limited liability company, association, joint stock company, trust, unincorporated organization, joint venture, government or political subdivision or agency thereof that directly or indirectly, controls or is controlled by or is under common control, with respect to eMeter or Licensee, is not a competitor of, or in litigation or arbitration with, eMeter or Licensee, as the case may be.

2.3. "Authorized Agents" means eMeter-authorized or Licensee's consultants, agents and contractors who are working on Licensee's premises or in Licensee's environment and who require access to the Software and/or Documentation solely for their support of Licensee's internal business as indicted in Exhibit 1-A.

2.4. "Authorized Users" means (i) employees of Licensee or any Licensee Affiliate and (ii) Authorized Agents, provided the Authorized Agents comply with the terms of this Agreement.

2.5. "Claims" means any demand, or any civil, criminal, administrative, or investigative claim, action, or proceeding (including arbitration) asserted, or commenced against an entity or person.

2.6. "Confidential Information" means this Agreement, and all information obtained from the disclosing party and all information compiled or generated by the disclosing party under this Agreement for the receiving party, including but not limited to business information, manufacturing information, technical data, drawings, flow charts, program listings, software including the Software and Documentation, plans and projections provided that such information has been marked or otherwise identified as confidential at the time of disclosure or consists of information that, by its context, is sufficient to put the receiving party on notice of its confidential nature.

2.7. "Documentation" means the explanatory printed or electronic functional specification materials provided by eMeter with respect to the Software, including, but not limited to, license specifications, instructions for the use of the Software and technical specifications.

2.8. Unless otherwise specified in the Pricing Schedule attached hereto and made a part hereof as Exhibit 1-B, "Escalation" means the greater of either [redacted]% or the annual increase of the [redacted] Should the above mentioned index increase by more than [redacted]% in a two consecutive quarters, eMeter shall be entitled to invoice separately and collect an increase in fees prior to the end of the applicable service year at a rate equal to the increase in the above mentioned index.

2.9. "Extended Support" means the same services are provided as under Maintenance Services, although (i) the Service Level obligations are limited to Severity 1 and Severity 2 issues and (ii) feature requests are not considered.

2.10. "Fix Method" is the approach by which a problem resolution is provided to the licensee. The next Service Pack is the standard vehicle to provide qualified software problem resolution for Software versions within the Maintenance Service Period. In exceptional cases, a Hot Fix is provided, which is limited to severity 1 or severity 2 problems.

2.11. “Hot Fix” is a fix for a specific customer issue, which is generated separate from a Service Pack the customer is using in production. Providing a Hot Fix for any reason is at the sole discretion of the Licensor and will require additional fees.
2.12. “Initial Maintenance Services” has the meaning given in Exhibit 1, Section 1.1, below.
2.13. “Intellectual Property Rights” means all intellectual and industrial property rights, including copyrights, mask work rights, moral rights, trade secrets, patent rights, rights in inventions, trademarks, trade names, and service marks (including applications for, and registrations, extensions, renewals, and re-issuances of, the foregoing).
2.14. “License Metrics” means the particular metric restrictions for a relevant Software License Type as indicated in Exhibit 1-A, Product Schedule, and may include meter/device count, concurrent user, named user, per machine, per server, per device, or per time usage, or any other metric agreed to by eMeter and Licensee.
2.15. “License Type” means a Limited Term License, Perpetual License or as described in Exhibit 1-A, Product Schedule.
2.16. “Limited Term License” means a license of the Software that is limited in term to a period of time mutually agreed by eMeter and Licensee. Limited Term Licenses include, but are not limited to Rental Licenses.
2.17. “Licensee” means the party that is acquiring rights to the Software pursuant to the terms of this Agreement.
2.18. “Losses” means all judgments, awards, settlements, liabilities, damages, liens and claims, and all related costs, expenses and other charges suffered or incurred as a result of or in connection with a Claim, including reasonable attorneys' fees and disbursements, costs of investigation, litigation, settlement and judgment, and any taxes, interest, penalties and fines with respect to any of the foregoing.
2.19. “Maintenance Fees” means the fees for Maintenance Services set forth in the Agreement or as stated in Exhibit 1-B.
2.20. “Maintenance Services” means the maintenance services that eMeter is to provide under this Exhibit in support of the Software (and Third Party Software that is embedded into the Software) as set forth here, and includes the right to receive then current Major Releases, Minor Releases, Service Packs exclusive of Tier 1 Support. In all cases, Maintenance Services exclude any configuration, implementation and integration services.
2.21. “Maintenance Services Period” means the time period during which eMeter will provide Maintenance Services for the current Major Release and/or Minor Release of the Software, which shall be for a period of forty-eight months from the date the current Major Release and/or Minor Releases was made generally available.
2.22. Major Release” means such functional modifications, improvements and enhancements to (a) the Software that eMeter in its discretion incorporates into the Software and licenses to its then-current customers and that are delivered to Licensee by eMeter and (b) the Third-Party Software that the Third-Party Software manufacturer incorporates into its products and eMeter delivers to Licensee. Major Releases are identified by the first digit of a three digit code following the name of the Software. eMeter may, in its discretion, identify Major Releases by increasing the number on the left side of the decimal point in a Software version numbering (e.g., “Version X.Y.Z” is the Major Release X).
2.23. “Minor Release” means modifications to the Software delivered to Licensee by eMeter in accordance with eMeter’s maintenance and support policy set forth herein. Minor Releases are designated by the second digit of a three digit code following the name of the Software (e.g., “Version X.Y.Z” is a Minor Release Y of Major Release X.)
2.24. “OSS” means open source software.
2.25. “Other Third Party Software” means the system on which the licensed Software is installed, run and/or used contains all third party software not contained in or bundled with the Software as delivered and that is necessary to run, install, interface with, and/or use such Software.
2.26. “Perpetual License” means a license of Software that is not limited in term, but, subject to the terms of this Agreement, extends indefinitely. As with most any License Type, Perpetual Licenses do not include Maintenance Services or professional services which must be purchased separately.
2.27. “Rental License” means a license whose term is limited to an agreed to period of time.
2.28. “Service Levels” means the levels of responsiveness eMeter provides generally to its customers and which current levels are described herein.

2.29. "Service Pack" means a maintenance release, on a Major/Minor version. Defect fixes, for reported issues that require a defect fix, are delivered in a Service Pack release - Service Packs are designated by the third digit of a three-digit code following the name of the Software (e.g., "Version X.Y.Z" is Service Pack Z of Minor Release Y of Major Release X.). Service Packs contain all corrections since the previous service pack. Service Packs include the full product.

2.30. "Software" means the product that is licensed or distributed by eMeter to Licensee under the terms and conditions of this Agreement. "Software" includes adapters and the related Documentation and any functional modifications, improvements and/or enhancements to the Software created and distributed by eMeter.

2.31. "Territory" means the Licensee's and its Affiliates service territory as may be amended from time to time.

2.32. "Third Party Software" means third party technology is licensed to Licensee either under the terms of this Agreement or under separate license terms that shall be specified in the relevant Documentation, "read me" files, notice files, or other such documents or files.

2.33. "Tier 1 Support" means, with respect to the Software, conducting problem definition and diagnosis, including (a) checking log files for errors; (b) reviewing case collateral; (c) searching systems of record for similar cases; (d) searching for known defects; and (e) searching for fixes available and recording and maintaining accurate records of the issue and resolution process in a web-based help desk system, including (i) creating cases; (ii) reproducing errors and creating test cases; and (iii) maintaining ownership of an issue until such issue is closed, even if escalated.

**3. LICENSE GRANT AND CONDITIONS.**

3.1. License Grant. Subject to the terms and conditions of this Agreement, eMeter grants to Licensee (including its Affiliates) and Licensee accepts a nonexclusive, nontransferable (except as otherwise provided in this Agreement), perpetual license for the Licensee, its Affiliates and Authorized Users to: access and use the executable form of the Software, to the extent to which the same has been enabled by eMeter through use of license key or other mechanism for use by Licensee, in the Territory. The license granted to Licensee shall be of the License Type and be subject to the License Metrics set forth herein or in the Exhibit 1-A, Product Schedule. No title to or ownership in the Software is transferred to Licensee. Title to the Software, and all applicable Intellectual Property Rights inherent in the Software, will remain in eMeter or third parties from whom eMeter has obtained the right to license the Software. eMeter reserves all rights in the Software not explicitly granted herein.

The Software is licensed for the term stated in Exhibit 1-A, Product Schedule, and only for the then-current Release and Service Pack and in connection with the configuration of the goods and operating system for which the Software is ordered and for the end-use purpose stated in the related eMeter operating documentation. Except as expressly provided herein, use of the Software in a time sharing, application service, or other computer service basis to a third party shall be prohibited. Modification or creation of derivative works of the Software or Third Party Software shall be strictly prohibited.

3.2. Backup of Software. Licensee may make one copy of the Software for archival backup purposes only, unless otherwise indicated in Exhibit 1-A, Product Schedule. Licensee shall retain and reproduce all copyright or proprietary notices in the backup copy of the Software. eMeter retains all rights to the original and backup copy of the Software. The backup copy will also be subject to the terms and conditions of this Agreement

3.3. Delivery of Software. Upon execution of this Agreement and upon a valid purchase order from the Licensee, the Software will be made available for download and delivery from eMeter. The Software receipt in accordance with the terms of this Agreement is separate and independent from acceptance of any services or deliverables under a separate Services Agreement.

3.4. Use of Unauthorized Software. Except as otherwise describe in this Agreement, Licensee represents and warrants that it will only use eMeter software that has been validly licensed to it by eMeter or its authorized partner. If Licensee downloads, installs and/or uses unauthorized software, then eMeter has the right to terminate this Agreement in accordance with the terms of Article 6 below.

3.5. Third Party and Open Source Software. The Software may contain or require the use of third party technology that is provided with the Software, including OSS. Licensee acknowledges that the Software incorporates Third Party Software. Licensee's use of the Third Party Software is limited to

its internal purposes as integrated with the Software. Licensee has no license or any other rights to the Third Party Software and may under no circumstances use the Third Party Software independently or separated from the Software. Third Party Licensors shall be considered a third party beneficiary of this Agreement, solely insofar as rights to their product are concerned. Licensee's rights to use Third Party Software are subject to such separate license terms and are not restricted in any way by this Agreement and to the extent that a term of this Agreement is in conflict with any applicable mandatory right granted by a third-party license, such term shall not apply. If applicable, eMeter will furnish OSS source code contained in the Third Party Software upon written request and subject to Licensee's payment of shipping and handling charges. Third party technology that is not Third Party Software shall be deemed part of the Software and is licensed to Licensee under the terms of this Agreement. The terms of any third-party license (if any) that apply to the licensed Software shall separately accompany the licensed Software and are automatically presented for acceptance prior to first use of such Software by an Authorized User in accordance with Exhibit 1-A, Product Schedule, or are specified in the "read me" file or document for the licensed Software. The terms of such third-party licenses are herein incorporated by reference to this Agreement.

3.6. Other Third Party Software Not Provided. Except where the parties agree in writing to the contrary, Licensee is solely responsible for ensuring that Licensee and/or Licensee's system fulfill the requirements of all required licenses for Other Third Party Software and Licensee shall have responsibility for all other administration and maintenance of Other Third Party Software, including without limitation, integration, implementation, daily monitoring, operational tasks, patch management or administration thereto.

3.7. U.S. Government Restricted Rights. The Software is a commercial product that has been developed exclusively at private expense. If the Software is acquired directly or indirectly on behalf of a unit or agency of the United States Government under the terms of (i) a United States Department of Defense ("DOD") contract, then the Software and Documentation are considered "Commercial Items", as that term is defined in 48 C.F.R. §2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are defined in 48 C.F.R. §252.227-7014(a)(5) and 48 C.F.R. §252.227-7014(a)(1), and used in 48 C.F.R. §12.212 and 48 C.F.R. 227.7202, as applicable, consistent with 48 C.F.R. §12.212, 48 C.F.R. §252.227-7015, 48 C.F.R. §227.7202 through 227.7202-4, 48 C.F.R. §52.227-14, and other relevant sections of the Code of Federal Regulations ("C.F.R."); or (ii) a Civilian agency contract, then use, reproduction, or disclosure is subject to the restrictions set forth in clause 27.405(b)(2)(i) of the Federal Acquisition Regulation ("FAR"), entitled Acquisition of Existing Computer Software, and any restrictions in the agency's FAR supplement and any successor regulations thereto, and the restrictions set forth in this Agreement. The United States Government will only have the rights set forth in this Agreement. eMeter Software licensed to United States Government end users with only those rights as granted to all other end users, according to the terms and conditions contained in this Agreement. eMeter shall not be required to obtain a security clearance or otherwise be involved in accessing classified information as described in FAR 52.204-2 and the National Industrial Security Program Operating Manual (DoD 5220.22-M).

**4. PRICING AND PAYMENT.** Prices are stated in the Pricing Schedule attached hereto and made a part hereof as Exhibit 1-B.

4.1. Payment. Unless otherwise agreed to, all undisputed payments are due net thirty (30) days from when Licensee receives the invoice and shall be paid in United States Dollars. Licensee shall provide a PO covering the entire term of any multi-year commitment. Licensee will be invoiced on an annual basis one month prior to the renewal date to ensure uninterrupted service.

4.2. Taxes. Licensee shall pay any and all federal, state or local taxes (other than taxes based on Licensor's income) including sales taxes imposed in connection with the purchase of the license of the Software under this Agreement or the purchase of Maintenance Services in connection with this Agreement directly to the taxing authorities pursuant to its direct pay permit.

4.3. Late Payments. With respect to any undisputed amount due to eMeter which is not paid within sixty (60) days following the date of Licensee's receipt of invoice, eMeter may apply interest at an annual percentage rate of twelve percent (12%) or the highest rate allowed by law, whichever is lower.

**5. LICENSEE RESPONSIBILITIES AND PROHIBITED ACTIONS.**

5.1. Meter Count: On an annual basis, either upon the earlier of the anniversary date of this License Agreement or within 60 days of Licensee's intent to renew Maintenance Services, Licensee shall provide the License Metric of meter/device count to Licensor and remit applicable license fees related to any overages at the then current agreed upon pricing per license.

5.2. Remarketing of Software. Licensee will not cause or permit the loan, publication, transfer of possession (whether by sale, exchange, gift, operation of law or otherwise) of the Software, in whole or in part, to or for any third party, and/or use of the Software as a service bureau.

5.3. Transfer of Software. Unless specifically allowed by the terms of this Agreement, Licensee may not distribute, rent, lease, sell, sublicense or otherwise transfer all or any portion of the Software, or any rights granted in this Agreement, to any other person without the prior written consent of eMeter.

5.4. Reverse Engineering or Modifying the Software.

5.4.1. Prohibitions. Licensee will not reverse engineer, decompile, translate, disassemble, or otherwise attempt to discover the source code of the Software.

5.4.2. Licensee shall not be entitled to remove any alphanumeric identifiers, trademarks or copyright notices from the Software, the data medium, or Documentation supplied under this Agreement.

5.5. Host Identifier. With respect to each order for Software under this Agreement, Licensee or eMeter's authorized channel partner will provide eMeter with the host identifier required by eMeter and such other information reasonably requested by eMeter for each workstation and/or server on which the license management portion of the Software will be installed to permit eMeter to generate a license file that will restrict end-user access to only those Software modules licensed under this Agreement and limit use of such Software modules at any given time to the maximum number of licensed Authorized Users.

5.6. Authorized Agents; Indemnity. Licensee will ensure that Authorized Agents comply with the terms of this Agreement and agrees to indemnify eMeter from and against any and all liabilities, losses, claims, costs and/or expenses incurred by eMeter and/or its Affiliates as a result of any violation of the terms of this Agreement by any Authorized Agents.

**6. TERM AND TERMINATION.** The term of this Agreement shall be as specified in Exhibit 1-A, Product Schedule or applicable Statement of Work. eMeter will have the right to terminate this Agreement and/or any Limited Term License and/or Perpetual License granted hereunder immediately on notice to Licensee if Licensee: (a) violates the license restrictions of this Agreement; (b) breaches Article 3; (c) fails to pay any undisputed amounts within sixty (60) days of invoice; or (d) files a petition in bankruptcy, has such a petition filed against it, which petition is not discharged within sixty (60) days after such filing, makes an assignment for the benefit of creditors, if a receiver, trustee, custodian or similar agent is appointed or takes possession of Licensee's assets, or if Licensee becomes insolvent or otherwise ceases doing business in the ordinary course. In addition, eMeter will have the right to terminate this Agreement and/or any Limited Term License and/or Perpetual License granted hereunder if Licensee breaches any other obligation or provision of this Agreement which breach remains uncured for a period of thirty (30) days after receipt of notice thereof from eMeter or such other period as may be agreed upon by the parties to remedy such breach. Notwithstanding any terms contained herein to the contrary, Licensee shall have the right to terminate this Agreement, or any order issued pursuant to this Agreement if eMeter breaches any material obligation or provision of this Agreement which breach remains uncured for a period of thirty (30) days, or if the breach cannot reasonably be cured within thirty (30) days due to the nature of the breach, such other period reasonably necessary and agreed upon between the parties after receipt of notice thereof from Licensee. No refund of paid amounts will be granted to Licensee.

**7. EFFECT OF TERMINATION.** Upon termination of this Agreement, the licenses granted hereunder and all other provisions of this Agreement (except those specified in this Article) shall be terminated and Licensee shall immediately cease using the Software, the Documentation and other eMeter confidential information and shall permanently delete all electronic copies thereof from Licensee's systems. Except as specifically set forth in this Agreement, all license fees and Maintenance Services fees are non-refundable. Termination or expiration of this Agreement or any license granted hereunder shall not limit either party from pursuing other remedies available to it, including injunctive relief, nor shall such

termination relieve Licensee's obligation to pay all fees that have accrued or are otherwise owed by Licensee up to the effective date of termination.

8. **FORCE MAJEURE / DELAYS.** Neither Party will be liable for delay or failure to perform its obligations hereunder caused by an event of natural disaster, casualty, acts of God, riots, terrorism, governmental acts or such other event of similar nature that is beyond the reasonable control of the Party seeking to rely in this Section to excuse its delay or failure provided such Party did not contribute in any way to such event. Contractor will maintain commercially reasonable disaster recovery plans to cure any such delays or failures. EMeter will keep the plans under review and make such changes, from time to time, as are required in accordance with industry best practice, and will make such plans available to Licensee for review upon request. Notwithstanding the foregoing, if any eMeter delay or failure to perform that is attributable to a force majeure event continues beyond thirty (30) calendar days, Licensee will nevertheless have the right to terminate any affected purchase order, in whole or in part, with no further liability and receive a refund of any unearned, prepaid fees.

9. **LICENSEE'S REQUIREMNETS.**
eMeter's performance is contingent upon Licensee timely fulfilling all of its obligations under this Agreement. These obligations include the Licensee supplying all documents and approvals needed for eMeter to perform, including but not limited to technical information and data, drawing and document approvals, and necessary commercial documentation. eMeter may request a change order for an equitable adjustment in prices and times for performance, as well as for any additional costs or any delay resulting from the failure of Licensee or Licensee's contractors, successors or assigns to meet these obligations.

10. **WARRANTIES.**

10.1. Unless otherwise stated in this Agreement, including Exhibit 1-A, Product Schedule, eMeter warrants that, as of the date the Software is delivered or otherwise made available to Licensee via electronic download and for a period of ninety (90) days thereafter (the "Warranty Period"), the Software will (i) operate and perform in accordance with the Documentation and provide the features and functions generally described in the Documentation; (ii) at the time of delivery the Software has been scanned using commercially available virus detection software for viruses or other malicious code; and (iii) Licensor further warrants that it shall not install or insert any virus or disabling code or take any action which would permit Licensor or any third party to interfere with Customer's use of the Software. During the Warranty Period, eMeter shall make commercially reasonable efforts to correct, repair and/or replace, at no cost to Licensee, any reproducible defect, malfunction or nonconformity that causes the Software to fail to perform substantially in accordance with the Documentation. eMeter's entire liability, and Licensee's exclusive remedy, during the Warranty Period will be, at eMeter's sole option, to attempt to correct or repair the Software or in the event the Software cannot be corrected or repaired then eMeter shall either replace the Software or provide work arounds so that it conforms to this limited warranty at no cost to Licensee.

10.2. This warranty does not apply to Software delivered by eMeter but produced by others. The warranty for Software produced by others shall be the warranty as stated by the relevant Third Party Software producer license terms.

10.3. This warranty will apply only provided that: (i) the Software is not modified, changed, or altered by anyone other than eMeter, or its suppliers, unless authorized by eMeter in writing; (ii) there is no change by anyone other than eMeter to the Products for which the Software is ordered; (iii) Licensee is using the Software in a proper manner in compliance with all operating instructions included in the Documentation; (iv) the nonconformity is not caused by Licensee or any of their agents, servants, employees, or contractors, or any third party not authorized by eMeter; (v) Licensee or Licensee's eMeter-authorized transferee promptly notifies eMeter in writing of the nonconformity after it is discovered; and (vi) all fees for the Software due to eMeter have been paid.

10.4. Licensee is responsible for the prevention of security issues with regard to its own systems and data, including Software hosted on Licensee's systems. Licensee's responsibility includes, but is not limited to, undesired invaders of the software such as malware, viruses, spyware or trojans and eMeter

disclaims responsibility for any damages incurred as a result of Licensee's failure to secure its systems and data.

10.5. EXCEPT FOR THE EXPRESS LIMITED WARRANTIES PROVIDED IN THIS ARTICLE 10, EMETER MAKES AND LICENSEE RECEIVES NO EXPRESS WARRANTIES. ANY STATEMENTS OR REPRESENTATIONS ABOUT THE SOFTWARE AND ITS FUNCTIONALITY IN ANY COMMUNICATION WITH LICENSEE CONSTITUTE TECHNICAL INFORMATION AND NOT AN EXPRESS WARRANTY OR GUARANTEE. IN ADDITION, EMETER SPECIFICALLY DISCLAIMS ANY OTHER WARRANTY INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WITHOUT LIMITING THE FOREGOING, EMETER DOES NOT WARRANT THAT THE OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE.

**11. LIMITATION OF LIABILITY.** EXCEPT FOR VIOLATION OF SECTION 3 BY LICENSEE, IN NO EVENT WILL EITHER PARTY BE LIABLE TO THE OTHER PARTY, WHETHER BASED IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL OR EQUITABLE THEORY, FOR: LOSS OF USE, PRODUCTION, REVENUE, SAVINGS, PROFIT, INTEREST, GOODWILL OR OPPORTUNITY, COSTS OF CAPITAL, COSTS OF PURCHASED OR REPLACEMENT POWER OR SUBSTITUTE USE OR PERFORMANCE, LOSS OF INFORMATION AND DATA, LOSS OF POWER, VOLTAGE IRREGULARITIES OR FREQUENCY FLUCTUATION, INTERRUPTION OF OPERATIONS, CLAIMS ARISING FROM LICENSEE'S THIRD PARTY CONTRACTS, OR FOR ANY TYPE OF INDIRECT, SPECIAL, LIQUIDATED, PUNITIVE, EXEMPLARY, COLLATERAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER LOSS OR COST OF A SIMILAR TYPE.

EMETER'S ENTIRE LIABILITY FOR ALL CLAIMS OR DAMAGES ARISING OUT OF OR RELATED TO THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT OR OTHERWISE, WILL BE LIMITED TO AND WILL NOT EXCEED, IN THE AGGREGATE THE GREATER OF EITHER (1) THE AMOUNT PAID TO EMETER BY LICENSEE FOR THE SOFTWARE LICENSED AND MAINTENANCE SERVICES PROVIDED UNDER THIS AGREEMENT FOR THE TWELVE (12) MONTH PERIOD PRECEEDING THE DATE GIVING RISE TO THE CLAIM; OR (2) $2,500,000. THIS LIMITATION IS NOT APPLICABLE TO CLAIMS (I) COVERED BY ARTICLE 12 OF THIS AGREEMENT; (II) A BREACH OF EMETER'S CONFIDENTIALITY OR DATA PROTECTION OBLIGATIONS HEREUNDER; OR (III) MATTERS THAT CANNOT BE EXCLUDED BY APPLICABLE LAW.

THE PARTY'S AGREE THAT THE EXCLUSIONS AND LIMITATIONS IN THIS ARTICLE 11 WILL PREVAIL OVER ANY CONFLICTING TERMS AND CONDITIONS IN THIS AGREEMENT AND MUST BE GIVEN FULL FORCE AND EFFECT WHETHER OR NOT ANY OR ALL SUCH REMEDIES ARE DETERMINED TO HAVE FAILED OF THEIR ESSENTIAL PURPOSE. THESE LIMITATIONS OF LIABILITY ARE EFFECTIVE EVEN IF THE OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE WAIVERS AND DISCLAIMERS OF LIABILITY, RELEASES FROM LIABILITY AND LIMITATIONS ON LIABILITY EXPRESSED IN THIS ARTICLE 11 EXTEND TO EACH PARTY'S AFFILIATES, PARTNERS, PRINCIPALS, SHAREHOLDERS, DIRECTORS, OFFICERS, EMPLOYEES, SUPPLIERS, AGENTS AND SUCCESSORS AND ASSIGNS.

**12. INTELLECTUAL PROPERTY INFRINGEMENT.**

12.1. eMeter shall indemnify and hold Licensee and/or its Affiliates and their respective officers. directors, employees, contractors, agents, representatives, successors and assigns (collectively "Licensee Indemnitees") harmless from and against any Losses resulting from or arising out of a Claim brought against any of the Licensee Indemnitees to the extent such Claim alleges that the Software (including Documentation) or services furnished by or on behalf of eMeter, or the use thereof by Licensee, constitutes and infringement, misappropriation or unlawful use or disclosure of any Intellectual Property Rights of a third party. Further, eMeter agrees that it will, at its option and expense, defend or settle any suit or proceeding brought against Licensee based on an allegation that the Software or services furnished by or on behalf of eMeter, or use thereof by Licensee constitutes an infringement, misappropriation or unlawful use or disclosure of any Intellectual Property of a third party. Licensee

will promptly give eMeter written notice of the suit or proceeding and the authority, information, and assistance needed to defend the claims. eMeter shall have the full and exclusive authority to defend and settle such claim(s) and will pay the damages and costs awarded in any suit or proceeding so defended. eMeter is not responsible for any settlement made without its prior written consent. Licensee shall not make any admission(s) which might be prejudicial to eMeter and shall not enter into a settlement without eMeter's consent. If the Software, or any part thereof, as a result of any suit or proceeding so defended is held to constitute infringement or its use by Licensee is enjoined, eMeter will, at its option and expense, either: (i) procure for Licensee the right to continue using the Software; (ii) replace it with substantially equivalent non-infringing Software; or (iii) modify the Software so it is non-infringing but without prejudicing its functionality.

12.2. eMeter will have no duty or obligation under this Article 12 if the Software is: (i) supplied according to Licensee's design or instructions and compliance therewith has caused eMeter to deviate from its normal course of performance; (ii) modified by Licensee or its contractors after delivery, that was not specifically authorized by eMeter or its representative; or (iii) combined by Licensee or its contractors with devices, methods, systems or processes not furnished by eMeter or its authorized representative and by reason of said design, instruction, modification, or combination a suit is brought against Licensee. .

12.3. THIS ARTICLE 12 IS AN EXCLUSIVE STATEMENT OF EMETER'S DUTIES AND LICENSEE'S REMEDIES RELATING TO PATENTS, TRADE SECRETS AND COPYRIGHTS, AND DIRECT OR CONTRIBUTORY INFRINGEMENT THEREOF.

**13. CONFIDENTIALITY.**

13.1. Both during and after the term of this Agreement, the parties will treat Confidential Information in the following manner; (i) not use such Confidential Information except as expressly set forth herein; and (ii) not disclose such Confidential Information to any third party. If Licensee conducts benchmarks or other tests concerning the Software, including any content or functionality of eMeter's Third Party Licensors, or hardware, then the results shall constitute eMeter's Confidential Information and shall not be published or otherwise revealed to any third party, without the prior written consent of eMeter. Each party will prevent the disclosure and protect the confidentiality of the other party's Confidential Information by using the same means it uses to protect its own Confidential Information, but in any event not less than reasonable means. However, eMeter has the right to share Licensee's Confidential Information with its Affiliates and subcontractors but only as required in order for eMeter to perform its obligations under this Agreement and provided those recipients are subject to the same confidentiality obligations set forth herein. Licensee has the right to share eMeter's Confidential Information with Authorized Users and Authorized Agents provided those recipients are subject to the same confidentiality obligations set forth herein. If a party breaches any of its obligations with respect to confidentiality or unauthorized use or disclosure of the other party's Confidential Information hereunder, the disclosing party shall be entitled to obtain equitable and injunctive relief in addition to all other remedies that may be available to protect the disclosing party's interests.

13.2. Nothing in this Agreement requires a party to treat as confidential any information which: (i) is or becomes generally known to the public, without the fault of the receiving party; (ii) is disclosed to the receiving party, without obligation of confidentiality, by a third party having the right to make such disclosure; (iii) was previously known to the receiving party, without obligation of confidentiality, which fact can be demonstrated by means of documents which are in the possession of the receiving party upon the date of this Agreement; (iv) was independently developed by receiving party or its representatives, as evidenced by written records, without the use of discloser's Confidential Information, or (v) is required to be disclosed by law, except to the extent eligible for special treatment under an appropriate protective order, provided that the party required to disclose by law will promptly advise the originating party of any requirement to make such disclosure to allow the originating party the opportunity to obtain a protective order and assist the originating party in so doing.

13.3. It is eMeter's policy not to unlawfully or improperly receive or use confidential information, including trade secrets, belonging to others. This policy precludes eMeter from obtaining, directly or indirectly from any employee, contractor, or other individual rendering services to eMeter, confidential information of a prior employer, client or any other person which such employee, contractor, or individual is under an obligation not to disclose. Licensee agrees to abide by this policy.

13.4. Return of Confidential Information. At any time at the request and option of the disclosing Party and in the event of termination or expiration of this Agreement (or any part thereof) or any purchase order, the receiving Party agrees to promptly: (i) return to the disclosing Party the Confidential Information; or (ii) destroy or permanently erase (on all forms of recordation) the Confidential Information and, if requested by the disclosing Party, acknowledge in writing that all such Confidential Information, has been destroyed or permanently erased. Notwithstanding the foregoing, each party may retain copies of the Confidential Information, to the extent required to comply with applicable legal and regulatory requirements, provided, however, that such Confidential Information, will remain subject to the terms and conditions herein.

13.5. This Article 13 will survive the expiration or termination of this Agreement for any reason.

**14. DATA PROTECTION.** Licensee and eMeter each represent and warrant that it is in compliance with all applicable data protection laws and that it has obtained all necessary consents as required by applicable law to be issued in each party's name. Each party agrees it will indemnify the other party in respect of all costs, claims, liabilities and demands incurred by either party in respect of any breach of this warranty.

**15. FEEDBACK.** To the extent that Licensee gives feedback on the Software to eMeter or its subcontractors, Licensee hereby assigns to eMeter all rights to such feedback (including any suggestions, enhancement requests, recommendations or other feedback) provided by the Licensee and its Authorized Users of the Software and shall treat such feedback as Confidential Information of eMeter in accordance with the obligations set forth herein. Licensee further agrees to ensure that it obtains such rights to Feedback from the Authorized Users and to provide eMeter all reasonable assistance necessary to perfect any intellectual property rights resulting from any feedback.

**16. AUDITS.** Licensee will at all times maintain records specifically identifying the Software licensed under this Agreement, the location of each copy thereof, and the location and identity of the workstations and servers on which the Software is installed. eMeter may, during regular business hours and upon reasonable advance notice, conduct an audit to determine Licensee's compliance with the terms and conditions of this Agreement. Such audits shall be limited to no more one (1) audit per year. Licensee will permit eMeter or its agents to access Licensee's facilities, workstations and servers and otherwise cooperate fully with eMeter in any such investigation and will take all commercially reasonable actions to assist eMeter in accurately determining Licensee's compliance with the terms and conditions of this Agreement. eMeter and its authorized agents will comply with Licensee's reasonable security regulations while on Licensee's premises.

**17. SOFTWARE MAINTENANCE TERMS AND CONDITIONS.** Licensee may purchase software Maintenance Services, including access to new releases under terms in accordance with the applicable eMeter annual maintenance and support services offering, attached hereto as Exhibit 1. All multi-year commitments if elected by Licensee are non-cancellable and non-refundable, except as provided for in this Agreement.

**18. NON-WAIVER.** Any waiver by a party of strict compliance with this Agreement must be in writing, and any failure by the parties to require strict compliance in one instance will not waive its right to insist on strict compliance thereafter.

**19. MODIFICATION OF TERMS.** This Agreement may only be modified by a written instrument signed by authorized representatives of both parties.

**20. ASSIGNMENT.** Neither party may assign all or part of this Agreement, or any rights or obligations under this Agreement, without the prior written consent of the other; but either party may assign its rights and obligations, without recourse or consent, to any parent, wholly owned subsidiary, Affiliate, or successor organization, provided the assignee has the experience and capability to continue to perform all assignor's obligations under the Agreement and applicable orders (whether as a result of reorganization, restructuring or sale of substantially all of a party's assets). However, Licensee shall not assign this Agreement to: a competitor of eMeter; an entity in litigation with eMeter; or an entity lacking the financial

capability to satisfy Licensee's obligations. Any assignee expressly assumes the performance of any obligation assigned. eMeter may grant a security interest in this Agreement and/or assign proceeds of this Agreement without Licensee's consent.

21. **APPLICABLE LAW AND JURISDICTION.** This Agreement is governed by and construed in accordance with the laws of the State of New York, without regard to its conflict of laws principles. The application of the United Nations Convention on Contracts for the International Sale of Goods is excluded. BOTH EMETER AND LICENSEE KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVE ALL RIGHTS TO A JURY TRIAL IN ANY ACTION OR PROCEEDING RELATED IN ANY WAY TO THIS AGREEMENT. Each party agrees that claims and disputes arising out of this Agreement must be decided exclusively in a federal or state court of competent jurisdiction located in a state in which either Licensee or eMeter maintains its principal place of business. Each party submits to the personal jurisdiction of such courts for the purpose of litigating any claims or disputes.

22. **SEVERABILITY.** If any provision of this Agreement is held invalid, illegal or unenforceable, the remaining provisions will not in any way be affected or impaired. A court may modify the invalid, illegal or unenforceable provision to reflect, as closely as possible, the parties' original intent.

23. **COMPLIANCE WITH LAWS; EXPORT / IMPORT.** The parties agree to comply with all applicable laws and regulations. Should a change in the law delay Siemens performance under this Agreement, or increase costs, Siemens shall be entitled to a change order therefor. Licensee acknowledges that eMeter is required to comply with applicable export/import laws and regulations relating to the sale, export, import, transfer, assignment, disposal and use of the Software, including any export / import license requirements. Licensee agrees that the Software will not at any time directly or indirectly be used, exported, imported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with any export / import laws and regulations. eMeter's continuing performance hereunder is conditioned on compliance with such export / import laws and regulations at all times and eMeter shall have the right to terminate this Agreement if Licensee fails to comply with such export / import laws and regulations.

    Licensee further agrees to use reasonable security precautions to provide access by its employees or Authorized Users to the Software and Third Party Software and to prevent unauthorized access. Licensee assumes responsibility for all data it introduces into the Software, including but not limited to adequate protection and backup, and eMeter and Third Party Software providers shall have no obligation or liability with respect thereto.

24. **PUBLICITY.** Except as may be required by applicable law, neither party shall disclose the terms of this Agreement or use the name or marks of, refer to, or identify the other Party (or related entity) in any press release, interview, promotional or marketing material in connection with the subject matter hereof without the prior written consent of the other party. Notwithstanding the foregoing, each party shall have the limited right to disclose the terms of this Agreement to its bona fide financial, tax and legal advisors subject to appropriate confidentiality obligations.

25. **NUCLEAR.** Unless expressly authorized in writing by eMeter, the Software must not be used in or in connection with a nuclear operations or application. If Licensee uses any Software in connection with any nuclear operations or activity, it does so at its own risk and Licensee will indemnify, defend and hold eMeter harmless, and waives and will require its insurers to waive all right of recovery against eMeter, for any damage, loss, destruction, injury or death resulting from a "nuclear incident," as defined in the Atomic Energy Act of 1954, as amended, whether or not due to eMeter's negligence. eMeter's consent to Licensee's use of the Software in connection with any nuclear facility or application will be subject to additional terms and conditions that eMeter deems necessary to protect its interests. For the avoidance of doubt, the forgoing provision does not apply when the Software is used for the purpose of metering electricity be supplied to a nuclear facility or building.

26. **SURVIVAL.** The articles titled "Intellectual Property Infringement," "Limitation of Liability," "Confidentiality," "Delivery, Title and Risk of Loss or Damage," "Export/Import Compliance," and "Feedback," and "Nuclear" survive termination, expiration or cancellation of this Agreement.

27. **ORDER OF PRECEDENCE AND CONTRADICTION OF TERMS.** In the event of inconsistency between or among these provisions, the following order of precedence shall govern: 1) Exhibits to this Agreement or 2) This Agreement.

28. **RELATIONSHIP OF THE PARTIES.** For all purposes, Licensor and Licensee will be deemed to be independent contractors and nothing contained herein will be deemed to constitute a joint venture, partnership, employer-employee relationship or other agency relationship. Neither party is, nor will either party hold itself out to be, vested with any power or right to contractually bind or act on behalf of the other party.

29. **INSURANCE.** During the term of this Agreement and for a period of two (2) years thereafter, eMeter shall have and maintain in force at a minimum the insurance coverages listed in **Exhibit 1-C**.

30. **LICENSES SURVIVE BANKRUPTCY**. All rights and licenses granted by eMeter to Licensee under or pursuant to this Agreement or any purchase order are, and will otherwise be deemed to be, for purposes of Article 365(n) of the United States Bankruptcy Code (the "Code"), licenses to rights to "intellectual property" as defined under Article 101(35A) of the Code. The Parties agree that Licensee, as licensee of such rights under the Agreement or such purchase order, will retain and may fully exercise all of its rights and elections under the Code. The Parties further agree that, in the event of the commencement of bankruptcy proceedings by or against eMeter under the Code, Licensee will be entitled to retain all of its rights under this license.

31. **NOTICES.** All notices, requests, consents, claims, demands, waivers, and other communications hereunder (each, a "**Notice**") must be in writing and addressed to the Parties at the addresses set forth on the first page of this Agreement (or to such other address that may be designated by the Party giving Notice from time to time in accordance with this Section). All Notices must be delivered by personal delivery, nationally recognized overnight courier (with all fees pre-paid), email (with confirmation of transmission), or certified or registered mail (in each case, return receipt requested, postage pre-paid). Except as otherwise provided in this Agreement, a Notice is effective only: (i) upon receipt by the receiving Party, and (ii) if the Party giving the Notice has complied with the requirements of this Section.

32. **COMPATABILITY RELATED TO ADAPTERS.** eMeter hereby agrees to make available and maintain its SAP MDUS and AMI adapters so that they are compatable with the generally available AMI vendor releases and MDUS integration changes from SAP.

    When there is a new AMI vendor release that Licensee would like to implement, the Licensee will open a support ticket through eMeter support to request an adapter for the new AMI vendor version. Once the AMI version is generally available, eMeter will review the changes to determine if an updated adapter is required. If an updated adapter is not required, then Licensee will be notified that the existing adapter is compatible and no further action is required.If an updated adapter is required, eMeter will work to have the new adapter available within (3) months from General Availability of the AMI software or at a mutually agreed upon date based on Licensee implementation and eMeter adapter schedules.

    SAP MDUS adapter updates are done if there are updates to the SAP MDUS standard for integration or for changes due EnergyIP updates. These are made available in alignment with EnergyIP versions and/or service packs.

    AMI and SAP MDUS Adapters are only developed against versions of the software that are in standard support as defined in the eMeter Support Policy.

    If there significant changes in updated AMI or SAP MDUS adapter functionality and interaction with EnergyIP, then the updated adapters may only be available on the most recent version of EnergyIP.

**33. DISPUTE RESOLUTION; MEDIATION; ARBITRATION.** If any claim, controversy, or dispute arising from this Agreement ("Dispute") cannot first be settled, in good faith through negotiation, then such Dispute shall be finally settled in the English language under the rules of the American Arbitration Association (AAA) by a single arbitrator in accordance with such rules. The arbitrator shall be mutually agreeable to the parties and shall be an attorney at law with arbitration experience and at least ten years of demonstrated legal experience in technology arrangements. The place of arbitration shall be held in New York, NY. The arbitration award shall be substantiated in writing, shall be based solely on the terms and conditions of this Agreement as interpreted under the laws of New York State, shall be binding on the parties, and may be entered in any court having jurisdiction thereof. The arbitrator shall be bound by the applicable rules of procedure and evidence and the damage limitation clauses contained in this Agreement, and shall not have authority to award punitive damages. The arbitrator shall take all steps as may be necessary to (i) schedule the initial hearing within ninety (90) days of the initial demand for arbitration, (ii) schedule all hearings to be heard consecutively and for not longer than two days with each party allotted half the available time, and (iii) issue a written decision no later than fourteen (14) days after the hearing. Each party shall bear its own costs and attorneys' fees in connection with such arbitration and shall share equally in the fees and expenses of the arbitrator. Notwithstanding the foregoing, the parties may cancel or terminate this Agreement in accordance with its terms and conditions without being required to follow the procedures set forth in this Section. All information related to the arbitration proceedings described herein shall be deemed Confidential Information. Notwithstanding the foregoing, in the event of an actual or threatened breach of a Party's obligations regarding the other party's intellectual property rights or Confidential Information, either party shall be entitled to immediately seek specific performance of the other party's obligations under this Agreement, as well as further relief as granted by a court of competent jurisdiction.

## EXHIBIT 1
## MAINTENANCE SERVICES

**1.1 Initial Maintenance Services.** Except as specifically set forth in this Agreement all multi-year commitments are non-cancellable and non-refundable. Commencing on the delivery date set forth in the Agreement and extending for an initial maintenance period agreed upon by the parties or 12 months thereafter, whichever is longer, eMeter will provide Maintenance Services to Licensee for the Initial Maintenance Period subject to payment of the Maintenance Fees set forth in the Agreement.

**1.2 Additional Maintenance Services.** Unless sixty (60) days previous notice is provided by either party, on the anniversary of the delivery date of the Software (i.e., upon expiration of the Initial Maintenance Period), Maintenance Services for the Additional Maintenance Period of 12 months or other other period as mutually agreed shall commence at an annual fee inclusive of a percentange increase associated with Escalation as from the end of the previous Additional Maintenance Period or the Initial Mantenance Period. Licensee shall pay eMeter's invoice for such Additional Maintenance Period in accordance with the payment terms of the Agreement.

**1.3 Effect of Maintenance Discontinuation.** Licensee's license to use the Software and Documentation under this under this Agreement will not terminate merely because of the discontinuation of Maintenance Services, provided that eMeter shall have no obligations under this Maintenance Services Exhibit upon such discontinuation. If Licensee discontinues Maintenance Services, Licensee is not entitled to a refund of any unused portion of Maintenance Services Fees paid.

**1.4 Service Levels.** The Service Levels may be changed from time to time upon reasonable advance notice to LicenseeeMeter's obligation to provide Maintenance Services at its then-current Service Levels is subject to Licensee's providing indirect system access via remote VPN connection for eMeter support staff on Licensee's systems when necessary.

**1.5 Scope of Maintenance Services.** Subject to the timely payment of all Maintenance Fees, eMeter will provide Maintenance Services through the conclusion of the Maintenance Services Period. Upon payment by Licensee of the Maintenance Fees, the most current Releases that are then generally available shall be deemed Software and all references to Software in this Agreement shall be deemed to include the Release. Licensee is strongly encouraged to apply and use the most recently released Service Pack for the Production system, or the system that is close to reaching Production status. Licensee shall be responsible for independently obtaining and maintaining all IT security programs and processes. Unless otherwise agreed in writing by the parties, Maintenance Services shall not be provided for non-embedded Third Party Software or customized software, inclusive of integration, implementation, daily monitoring, operational tasks, patch management or administration thereto. Subsequent to the above mentioned Maintenance Services Period, Licensee shall be deemed to be in Extended Support.

**1.6 Content and Control of Maintenance Services**. Maintenance Services include, subject to eMeter's then-current standard terms: (a) the right to receive all Releases and Service Packs at no additional cost; (b) a direct response (by email, telephone or otherwise, in eMeter's discretion) to Licensee with respect to inquiries concerning the performance, functionality, operation of or deficiencies in the Software; and (c) commercially reasonable efforts to resolve problems or performance deficiencies of the Software according to the Service Levels; provided however the Maintenance Services do not include Tier 1 Support, then Licensee shall be responsible for Tier 1 Support of the Software. eMeter will have the sole right to control and directly supervise the method, manner and details of the Maintenance Services.

**MAINTENANCE SERVICE LEVELS**

To provide timely response to support issues as well as a constructive resolution, eMeter has established the following support guidelines. These goals are not to be interpreted as a guarantee for response and/or resolution but should serve as a guideline for eMeter's working relationship.

| Severity | Issue Impact/Description | Environment | Initial Contact | Target Response | Licensee Response |
|---|---|---|---|---|---|
| 1 | Catastrophic Failure – System has halted or a work stoppage is imminent. The application system is unavailable or unusable. | Production | 1 Hour | 4 Hours | 2 Hours |
| 2 | Application Inoperable/Data Corrupted – an application in the eMeter system is not working or has limited capability and the problem significantly impacts the customer. Or, production data is being corrupted and work must be stopped to avoid further corruption/loss of data. | Production | 1 Hour | 8 Hours | 4 Hours |
| 3 | Feature not working as documented – application has issues that can impact customer but that do not stop customer from performing daily business. Or, issues for which there is a reasonable workaround. | Production | 8 Hours | 1 week | 2 Business Days |
| | | Non Production | 1 Business Day | 1 week | 2 Business Days |
| 4 | Informational Question/Cosmetic Issue – problem/question with day-to-day operational issues, cosmetic problem with user interface, error in documentation. | Production & Non-Production | 3 Business Days | 10 Business Days | 4 Days |
| 5 | Enhancement Request – request from customer for new features or changes in the functionality of existing features. | Enhancement Requests can be made at any time and will be considered for future product releases by the eMeter Product Management Team | | | |

The table above details issue classification and associated response times, defined for:

- **Initial Contact** – means the time in which eMeter will acknowledge to Licensee's initial Support request, either personally or via our automated ticketing system response.

- **Target Response** – includes but is not limited to a request for additional information or action by Licensee, analysis of potential issues and impact, or a proposed workaround and finally agreement to provide a software fix. The actual software release version and date will be provided later.

- **Licensee Response** – includes but is not limited to a response by Licensee to eMeter providing requested information or results of requested further action and/or confirmation of successful workaround implementation, if provided by Support.

eMeter tracks issues from the time reported to the time the issue is resolved with priority response given to the highest severity issues. Authorized Agents on behalf of the Licensee may also request high priority attention to an issue if it seriously impacts Licensee's business or if eMeter's response time is not satisfactory.

All issues are resolved when a resolution or fix is available to eMeter's customers. If Licensee is not satisfied with the resolution, Licensee may request that the issue be re-opened.

For additional infromation related to Maintenance and Support Services see eMeter's EnergyIP Support Policy and Support processes attached hereto as Exhibit 1-D and made a part hereof.

**Exhibit 1-A**
**PRODUCT SCHEDULE**

## ORDERED PRODUCTS:

The following software programs shall be deemed Software under this Agreement and are included in the original Software license purchase, as offered to Licensee by Licensor and/or an Authorized Agent.

## SOFTWARE

***EnergyIP™ Core System***
Energy IP Platform version 9.x

***EnergyIP™ Application Modules:***
Meter to Cash
SAP (MDUS) adapter
Front End Processor
Outage Package (OEM+LVOMS)

***EnergyIP™ AMI Adapters/Data Importers:***
MV-90 Integration Adapter
TBD AMI Adapter

The invoiced price includes the right to use the Software for 1,500,000 meters and no other service delivery end points. Additional meters/service delivery end points may be purchased via the terms in Exhibit 1-B until 9/30/2025 at or the terms defined in section 5.1 of the agreement thereafter.

Authorized Agents: Licensee shall have the right to allow the Authorized Agents listed below to access, use or operate the Software under the terms of this Agreement and solely for the benefit of the Licensee, provided that the Licensee will not be relieved of any duty of liability relating to such access, use or operation of the Software. Licensee will not allow any third-party access to the software except as provided herein:

TRC_____
_____

**The Energy IP Software is licensed for one of each of the following environments for up to the Meter Count, and for License Type and Territory as from the Effective Date of this Agreement:**

Production Environment
Development Environment
Quality Assurance Environment
Test Environment

Disaster Recovery Environment

**Additional Non-Production Environments:** Additional non-production environments may be added at a later date without any additional charge or fee.
**License Type:** Perpetual License .

**Terrritory:** Licensees service area which is currenlty comprised of the State of Conneticut, the Commonwealth of Massaschusetts, and the State of New Hampshire.

**Term:** Subject to the terms of this Agreement, the Initial Term, which includes Maintenance Services, shall be seven (7) years from the date the Software has been made available for download ("Delivery") unless this Agreement is otherwise terminated in accordance with its terms.

# EXHIBIT 1-B

## Pricing Schedule

The following pricing is based on the purchase of software license for 1,500,000 meters licenses or service delivery end points at a unit rate of [redacted] per meter as referenced in Exhibit 1-A the Product Schedule above.

| Description | Price | Optional OEM & LVOMS M&S |
|---|---|---|
| Perpetual Software License for 1.5M Meters: | [redacted] | [redacted] |
| Year 1 Maintenance and Support: | | |
| Year 2 Maintenance and Support | | |
| Year 3 Maintenance and Support: | | |
| Year 4 Maintenance and Support: | | |
| Year 5 Maintenance and Support: | | |
| Year 6 Maintenance and Support: | | |
| Year 7 Maintenance and Support: | | |

**FOR THE AVOIDANCE OF DOUBT, THE PRICES STATED ABOVE FOR YEARS 2-7 HAVE FACTORED IN A [redacted]% INCREASE YEAR OVER YEAR AND SUCH PRICES SHALL ONLY CHANGE IN THE EVENT THE CONSUMER PRICE INDEX IS LOWER THAN [redacted]% PURSUANT TO THE PRICE ESCALATION CLAUSE NOTED BELOW.**

Additional perpetual meter licenses may be purchased at a rate of [redacted] per meter. Pricing shall remain valid until September 30th, 2025. M&S for all additional meters will be calculated at [redacted] of the license price and maintain the Price Escalation rate as stated below.

Licensing for additional meter licenses or service delivery end points can be purchased in accordance the Agreement in which this Schedule is attached to.

### MAINTENANCE AND SUPPORT ("M&S")

M&S is calculated at [redacted] of the license price.
Year 1 M&S shall be based on the support of 500,000 meters.
Years 2-7 shall be based on the support of 1,500,000 meters.
M&S for OEM LVOMS shall be optional for years 4 – 7.

### Payment Milestones

**Milestone Due Date**

Software License 100% upon the date software has been made available for download ("Delivery").
Year 1 M&S: 100% upon Delivery
Year 2 M&S: 100% upon the 1st anniversary of Delivery
Year 3 M&S: 100% upon the 2nd anniversary of Delivery
Year 4 M&S: 100% upon the 3rd anniversary of Delivery
Year 5 M&S: 100% upon the 4th anniversary of Delivery
Year 6 M&S: 100% upon the 5th anniversary of Delivery
Year 7 M&S: 100% upon the 6th anniversary of Delivery

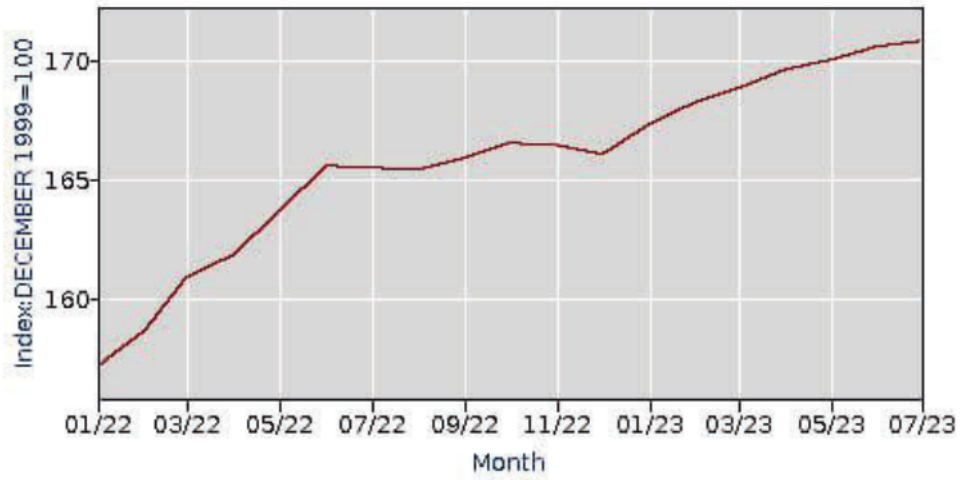
### Price Esclation

For the Initial Term listed in the Product Schedule contained herein, "Escalation" shall mean the lesser of either [redacted]). This Escalation shall be applicable to all meter licenses and Maintenance Serivies purchased during the entire length of the Initial Term (7 Years). Thereafter, the price Escalation shall be per the Agreement, Section 2.8 – Escalation or as mutually agreed in an addendum to this Agreement.

The yearly M&S price escalation shall be calculated two (2) full calendar months prior to the yearly anniversary based on the Index escalation formula identified below.

**Chained CPI for All Urban Consumers, U.S. city average (C-CPI-U)**

**Series Id:** SUUR0000SA0
Not Seasonally Adjusted
**Series Title:** All items in U.S. city average, all urban consumers, chained, not seasonally adjusted
**Area:** U.S. city average
**Item:** All items
**Base Period:** DECEMBER 1999=100




**Download:** xlsx

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2022** | 157.178 | 158.617 | 160.835 | 161.787 | 163.615 | 165.553 | 165.495 | 165.389 | 165.845 | 166.511(U) | 166.406(U) | 166.016(U) |
| **2023** | 167.295(U) | 168.248(U) | 168.781(U) | 169.614(U) | 170.020(U) | 170.561(U) | 170.824(I) | | | | | |

U : Interim
I : Initial

[redacted]

## EXHIBIT 1-C

## INSURANCE REQUIREMNTS

During the term of this Agreement and for a period of two (2) years thereafter eMeter shall have and maintain in force at least the following insurance coverage:

a) Workers' Compensation with statutory limits required by the Laws of each state exercising jurisdiction over the eMeter employees engaged in performing services under this Agreement.

b) Employer's Liability coverage with a minimum limit of $1,000,000 for bodily injury by accident or disease.

c) Commercial General Liability coverage including products and completed operations, blanket or broad form contractual, personal injury liability and broad form property damage with minimum limits of one million dollars ($1,000,000) per person and per occurrence for bodily injury/property damage and two million dollars ($2,000,000) per occurrence for personal injury and products/completed operations, with a two million dollars ($2,000,000) aggregate.

d) Business Automobile Liability coverage covering the use of all owned, non-owned and hired vehicles for bodily injury including death and property damage with a minimum combined single limit of one million dollars ($1,000,000) per occurrence.

e) Professional Liability Insurance with a combined single limit of not less than five million dollars ($5,000,000) per occurrence and Cyber Insurance with a combined single limit of not less than five million dollars ($5,000,000). Such insurance shall cover any and all errors, omissions, or negligent acts in the delivery of Products and Services under the Agreement. Such errors and omissions insurance shall include coverage for claims and losses with respect to Breach Events, network risks (such as data breaches, unauthorized access/use, ID theft, invasion of privacy, damage/loss/theft of data, degradation, downtime, etc.) and intellectual property infringement, such as copyrights, trademarks, service marks and trade dress.

f) Umbrella Liability coverage with a minimum limit of five million dollars ($5,000,000) coverage in excess of the coverages as set forth above.

g) Other insurance appropriate for eMeter's business or as required by law.

The foregoing coverages shall be maintained with insurers which have an A.M. Best rating of A- or better and /or an equivalent rating from a recognized insurance company rating agency.

eMeter agrees Customer, its Affiliates and its insurers shall have full subrogation rights against eMeter with respect to the foregoing insurance. EMeter's policies shall be primary without contribution from other insurance, for all losses and damages caused by the perils or causes of loss covered thereby and any insurance maintained by Customer shall be excess and noncontributory. eMeter hereby waives all rights of subrogation against Customer and its Affiliates.

EMeter will name Customer as an "additional insured" as to item (c) above.

EMeter shall cause its insurers or insurance brokers to issue certificates of insurance evidencing that the coverages required under this Agreement are maintained and in force prior to commencing work under this Agreement and at each renewal thereafter. In addition, eMeter will use reasonable efforts to give thirty (30) days' notice to Customer prior to any change in coverage.

**EXHIBIT 1-D**

**ENERGYIP SUPPORT POLICY AND PROCESSES**

# EnergyIP®

## EnergyIP Support Policy Documentation

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# EnergyIP Support Policy

This page was last updated on 04 Feb 2023


- Support Life Cycle
- Support Level Definitions
- 3rd Party Software Notices
- FAQ


## Support Life Cycle

- Standard support for any release of EnergyIP is 4 years from the General Availability (GA) date.
- Subsequent to Standard support, Extended support is available for 2 years. Extensions beyond this timeframe may be available by specific arrangements.
- Extended support means the same services are provided as under standard support, although
  - the Service Level obligations are limited to Severity 1 and Severity 2 issues, and
  - for 3rd party components that are out of support, cannot guarantee their performance or behavior
  - feature requests are not considered

| EnergyIP Release | GA Date | Standard Support Ends | Extended Support Ends |
|---|---|---|---|
| EnergyIP 9.0 | 2021 Nov | 2025 Nov | 2027 Nov |
| EnergyIP 8.7 | 2020 Aug | 2024 Aug | 2026 Aug |
| EnergyIP 8.6 | 2018 Aug | 2022 Aug | 2024 Aug |
| EnergyIP 8.5 | 2017 July | 2021 July | 2023 July |
| EnergyIP 8.4 | 2016 May | 2020 May | 2022 May |
| EnergyIP 8.3 | 2015 Dec | 2019 Dec | 2021 Dec |

Versions not listed above are not supported any longer unless specific arrangements have been made.

## Support Level Definitions

| | Standard Support | Extended Support |
|---|---|---|
| **Software updates** (with new features/enhancements)<br>• Access to latest software releases | ✓ | ✓[1] |
| **Software patches (bug fixes)**<br>• Delivered in the next service pack **for versions** in standard support in which the bug has been reported | ✓ | ✓[2] |
| **Security patches**<br>• Per vulnerability handling process, see EnergyIP Vulnerability Classifications | ✓ | ✗ |
| **Third-party s/w certification**<br>• Certified **only on latest service pack for versions** in standard support | ✓[3] | ✗ |
| **Direct upgrade path with EnergyIP automated installer** | ✓ | ✗ |

1 - With limitations to direct upgrade path from a version in extended support.

2 - Support for severity 1 and 2 issues only, excludes limitations caused by third-party software (EOL, compatibility, and so on).

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3 - Third-party s/w certifications on customer-specified EnergyIP versions are handled as a change request and will require additional fees.

# 3rd Party Software Notices

## Microsoft Windows 2003 Support (applies to all EnergyIP versions up to and including 7.6)

Microsoft Windows 2003 as an operating system for AMI servers is supported through EnergyIP 7.6.

Background: Windows 2003 went out of support on July 14, 2015. Any system presently running this version does not receive any security patches and this leads to a massive security risk. Due to this risk, we are not allowed to run any internal environment on Windows 2003 now as per SIEMENS corporate IT directive and will be retiring or upgrading the internal environments to a higher Windows version.

Customer Action: Customers who are running their AMI Server on Windows 2003 should plan to upgrade to a higher Windows version, if not already done.

Impact: eMeter/SIEMENS will not be able to test or recreate customer issues reported for an environment running AMI server on Windows 2003.

References: https://www.us-cert.gov/ncas/alerts/TA14-310A https://www.microsoft.com/en-us/cloud-platform/windows-server-2003

## TIBCO Rendezvous (RV) 8.4.1 Support (applies to EnergyIP version 7.7)

TIBCO is officially ending support for 8.4.0, 8.4.1, 8.4.2, 8.4.3, 8.4.4 and 8.4.5 releases of TIBCO Rendezvous (RV). This action will take effect on April 30, 2020.

Service Requests on the above releases of TIBCO Rendezvous Software will no longer be accepted after April 30, 2020. Service Requests under investigation for the releases being retired will be closed as of the retirement date, April 30, 2020.

https://support.tibco.com/s/article/Support-Policy-for-TIBCO-Rendezvous-RV-Software-releases-8-4-0-8-4-1-8-4-2-8-4-3-8-4-4-and-8-4-5

## Oracle Java SE 8 End of Public Updates (applies to EnergyIP version >=8.2 and <=8.6)

Java SE 8 is going through the End of Public Updates process for legacy releases. Oracle will continue to provide free public updates and auto updates of Java SE 8, until at least the end of December 2020 for Personal Users, and **January 2019 for Commercial Users**. Starting with the April 2019 scheduled quarterly critical patch update, Oracle Customers can access updates to Java SE 8 for commercial use from Oracle through My Oracle Support and via corporate auto update where applicable (Visit My.Oracle Support Note 1439822.1 - All Java SE Downloads on MOS – Requires Support Login).

https://www.oracle.com/technetwork/java/java-se-support-roadmap.html

### Impact of this Change and Recommended Action:

1. **If using Java as Oracle customers** (with a Java subscription or a support contract or as part of enterprise agreement with Oracle)
    - Impact: No impact of this change to EnergyIP customers as they will continue to get access to Java public updates/security patches via “My Oracle Support”.
    - Customer Action: N/A
2. **If using Java as Commercial users** (free use of Java)
    - Impact: EnergyIP customers will not have access to Java 8 updates from Jan 2019 (scheduled every quarter from now on. FYI https://www.oracle.com/technetwork/topics/security/alerts-086861.html )
    - Customer Action: In the short term, customers will need to convert to being “Oracle customers” to **get access to updates** via “My Oracle Support” and can continue to remain on Java 8 until EOL (Mar 2022) of Java 8. Although this will mean customers will have a one time /subscription cost for Java with this option.

# FAQ

**Q. What are the options to provide support for Sev 3 or Sev 4 issues when extended support begins?**

A: We do not intend to provide support during the extended support period for these issues.

**Q. According to this policy, the EnergyIP version we have (8.4) is in Extended Support, but we cannot upgrade to the latest version (9.0) as all add on applications (such as MTM, ADM) are not yet available on the latest version.**

A: Please contact your Account manager to discuss the options to upgrade to the next version.

**Q. We are running an EnergyIP version which will go into Extended Support in a couple of months, but we will be starting/started a project to upgrade to the latest version. Are we still expected to start paying additional M&S for Extended support until we go live on the latest version?**

A: This very much depends on your specific situation. For example, if you have an active and contracted project with a reasonable timeline, and you are current on your M&S payments, then we will waive the additional fee.

**Q. Since the Classic UI is now end-of-life / deprecated, how would bugs and enhancement requests be handled?**

A: See announcement https://support.emeter.com/support/discussions/topics/77000284830.

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# EnergyIP Vulnerability Classifications

| Vulnerability Classifications for EnergyIP Applications and 3rd Party OSS | | Resolution |
|---|---|---|
| **Rating** | **Description** | |
| **CRITICAL** | Vulnerabilities that could be easily exploited by a remote unauthenticated attacker and lead to system compromise without requiring user interaction. Flaws that require an authenticated remote user or a local user are not classified as Critical impact. | For the current release and two previous releases (as of Feb 2023, this includes EnergyIP 9.0.3, 8.7.5, and 8.6.10) a fix will be provided in a Hot Fix if feasible, or else in the next Service Pack. |
| **IMPORTANT** | Vulnerabilities that require network-local access and can easily compromise the confidentiality, integrity, or availability of resources. Network-local access means executable through EnergyIP integration applications/interfaces. | For the current release, a fix will be provided in the next Service Pack, if feasible, or else in the next release. |
| **MINOR** | Vulnerabilities that require server-local access and where the ability to exploit is mitigated to a significant degree by configuration or difficulty of exploitation, but in certain deployment scenarios could still lead to the compromise of confidentiality, integrity, or availability of user data and/or processing resources. | Efforts will be made to fix in an upcoming minor release. |
| **N/A** | All other issues that have a security impact. Vulnerabilities where exploitation is believed to be extremely difficult, or where successful exploitation would have minimal impact. Includes vulnerabilities that are withdrawn, or information only. | No action required. |

"Current release" means the latest EnergyIP release made generally available.

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**Upcoming UAB Call**

[redacted]

# EnergyIP Customer Support Processes

[redacted]

Modified on: Thu, 1 Dec, 2022 at 7:56 PM

The EnergyIP customer support resolves your queries related to the EnergyIP platform. This articles provides information about the EnergyIP customer support procedures, processes, and policies. An active maintenance and support contract mutually signed by the utility and Siemens provides an access to the utility to the EnergyIP customer support and its issue resolution processes.


- **EnergyIP Support Policy**
- **EnergyIP Customer Support Contact Information**
  - **Urgent Care 24x7 Hotline**
  - **EnergyIP Support Portal**
- **eMeter Documentation**
- **Issue Resolution Process**
- **Customer Responsibilities and Tier-1 Support**
- **Issue Escalation**
- **Issue Response Time**
  - **Example of Handling high Severity Issue**
- **Recommendations**


## EnergyIP Support Policy

The EnergyIP support policy includes Standard Support and Extended Support. The standard support includes full maintenance with a paid support fees, and a signed contract. The following table provides the salient features of the standard support.

| Standard Support Offer | Description |
|---|---|
| GA Maintenance Patches and Updates | Delivery of software patches for general availability |
| Technical Alerts | Release and update notifications |
| Access 24x7 Web Portal | Access to create, view, update, and close cases |
| Round-the-clock Availability | Support for severity 1 and 2 production issues 24 hours a day |

| Standard Support Offer | Description |
|---|---|
| Remote Troubleshooting through Screen Share | For better debugging of critical or urgent issues as needed |
| Case Review | Provides project related statistics on request |
| EnergyIP Support Newsletter | A quarterly update about product and support news |
| Support Knowledge Base Center | Product, technology, and process related knowledge base articles |

The standard support also covers the following facilities:

- Defect identification and resolution for core product functionality
- Feature and enhancement requests forwarded to product management
- Issue identification and resolution for custom code functionality (considering customization is done by Siemens and custom maintenance contract is done)

The standard support does not cover the cases that are specific to customer environment and may require beyond out of the box product analysis. Some cases are listed below, not limited to only these, that would need expert services engagement at an additional fee:

- Performance tuning and environment sizing
- Database configuration and tuning
- Upgrade planning
- Review of custom configuration
- Environment data cleanup
- Customization, for example, custom reports, done by implementation partners that requires a separate custom maintenance contract

If you want to renew your maintenance and support contract, contact your Siemens account executive or send an email to the **energyip_customer_support.us@siemens.com** alias.

For information on extended support, see **EnergyIP Support Policy** (https://docs.emeter.com/display/REL/EnergyIP+Support+Policy).

# EnergyIP Customer Support Contact Information

You can contact the EnergyIP support team using the following methods.

| Option | Contact Details |
|---|---|
| Urgent Care 24x7 Hotline | In the USA, call +1 (888) 363-8370<br>Outside USA, call +1 (650) 521-9705 |
| EnergyIP Support Portal (eSP) | (https://support.emeter.com/login.jsp?permissionViolation=true&os_destination=%2Fbrowse%2FSITNB-187&page_caps=&user_role=) (https://siemens-energy.freshdesk.com/support/login)https://support.emeter.com (https://support.emeter.com/) |
| Email address | **energyip_customer_support.us@siemens.com** |

## Urgent Care 24x7 Hotline

The Urgent Care 24x7 Hotline allow you to get in touch with our on-call support engineers to handle critical issues 24 hours a day. For a severity 1 or 2 issue, you should log a ticket from the EnergyIP Support Portal prior calling the Urgent Care 24x7 Hotline. If you are not sure that the issue can be marked as severity 1 or 2, you can call us or create a ticket from the EnergyIP Support Portal. The support engineer evaluates the issue and helps you determine the appropriate severity level of the issue. Severity 1 or 2 ticket triggers an alert for the support team and you will receive a response within the time frames designated in the support Service Level Agreement. See **Response Times** (https://support.emeter.com/a/solutions/articles/77000478358) for the severity level definition and the associated response time.

## EnergyIP Support Portal

The EnergyIP Support Portal (eSP) allows you to enter and track your issues and questions, review FAQs, and search the knowledge base. Support tickets can range from EnergyIP functionality to enhancement requests. All the issues, regardless of severity, must have a support ticket associated with them. You can also create a ticket if you need any advice or assistance, for example, how the EnergyIP applications interact with a third-party product or workaround for an issue encountered within a third party domain. A support team member will respond in the due course.

# eMeter Documentation

The eMeter documentation site, **https://docs.emeter.com** (https://docs.emeter.com/), provides documentation for the EnergyIP product and its applications. We recommend you to use the eMeter documentation as the first step in problem resolution. You can search for the Issue Ids in the documentation to check the release notes of fixed issue.

**Info:**
To request access to the eMeter product documentation site, please submit the following information in a support ticket or write to **energyip_customer_support.us@siemens.com**:

- Your full name
- E-mail address
- Contact phone numbers
- Name of your company
- Are you a customer, a partner, or internal?
- Current role
- eMeter contact person

# Issue Resolution Process

A support engineer is assigned to every ticket. The assigned engineer looks at the ticket and and coordinates the possible resolution. In some instances, support engineers ask for more information or request for a screen share debug session. This remote debugging session helps to diagnose and resolve highly complex issues.
For a bug in the software, once a potential fix is identified, the customer support team provides the release information with the fix of that defect. Once you apply the patch to your software, test and verify that the problem is resolved. For tickets that do not require software updates, the support team confirms that the provided solution has resolved the problem.
To move new and existing tickets in the queue, the support team resolves an existing ticket when:

- A fix or solution is provided and testing is pending from your side.
- The solution was provided in a previous ticket. The support team will resolve the case after updating the details of a previous solution on your support case.

Once the ticket is resolved, you can close the support ticket to your satisfaction by providing a CSAT rating at the time of closure. If a case is closed prematurely, you can reinstate it by creating a new ticket and referencing the original ticket.

## Customer Responsibilities and Tier-1 Support

All utility personnel in-charge of the EnergyIP system should complete the "Tier-1 System Administrator and Support" training. This training enables them to provide the Tier-1 support and manage EnergyIP and its applications. The Tier-1 team should understand error messages, parse the log files, edit the scheduled cron entries, query the database, and so on as needed during issue investigation.
Customers should do due diligence when any issue is encountered and perform the following tasks before creating a ticket:

- Consult the online documentation
- Explore potential broader system changes such as upgrade or addition of a new component
- Check the log files for errors
- Search for the encountered issue in the EnergyIP Support Portal to check if any resolution is provided

If your research yields no solution, create a support ticket with the following information:

- Information received from your research such as operation tried to run when the problem started
- Designated EnergyIP contacts (reporter of the ticket)
- Deployed product version to the patch release level
- Description of the issue
- Steps to replicate the issue
- Actual and expected behavior
- Any log files, screenshots, or collateral that help in debugging the issue

While creating a new ticket, you must assign an initial severity level, which will be reviewed by the support team. If the support engineer finds that the ticket is incorrectly rated, the severity level will be modified. If any disparity arises around classification, it is recorded and discussed at service management meetings to arrive at consensus.

## Issue Escalation

When a Severity 1 or 2 issue is identified as a software defect, the EnergyIP support team creates an internal escalation to the Research and Development (R&D) team. The Tier-1 team from the utility should be available to provide the required information. Customer Support team works with the R&D team to facilitate the updates through the support portal ticket. This will continue until a workaround or the steps required to resolve the issue are provided and the system is returned to an operational state. Severity 3 issues may also affect the business of the customer. Therefore, if any issue is not resolved in the due course of time or an issue needs the support team attention, you can escalate the issue.

## Issue Response Time

To provide timely response to customer reported issues as well as a constructive resolution, the support team has established the following support guidelines. These guidelines do not guarantee a response or resolution timeframe, but provide a relationship guideline between EnergyIP support and the customer.

| Severity | Issue Description | Environment | Initial Contact | Target Response | Licensee Response |
|---|---|---|---|---|---|
| 1 | Catastrophic Failure: System is halted or a work stoppage is imminent. The application system is unavailable and no workaround exists. | **Production Only** | **1 Hour** | **4 Hours** | **2 Hours** |
| 2 | Application Inoperable or Data Corrupted: An application in the EnergyIP system is not working or has limited capability, and the problem significantly impacts the customer, but a workaround exists. | **Production Only** | **1 Hour** | **8 Hours** | **4 Hours** |
| 3 | Feature not working as documented: An application has issues that can impact customer but do not stop the customer from performing daily business. This severity level also include issues that have a reasonable workaround. | **Production** | **8 Hours** | **7 Days** | **2 Days** |
| | | **Non-Production** | **1 Day** | **7 Days** | **2 Days** |

| Severity | Issue Description | Environment | Initial Contact | Target Response | Licensee Response |
|---|---|---|---|---|---|
| 4 | Informational Question or Cosmetic Issue: Problem or question with day-to-day operational issues, cosmetic problems in the user interface, or an error in the documentation. | **Production and Non-Production** | **3 Days** | **10 Days** | **4 Days** |
| 5 | Enhancement Request: Request from customer for new features or changes in the functionality of existing features. | Enhancement requests can be made at any time and will be considered but are not guaranteed for future product releases by the Siemens Product Management Team. | | | |

**Note:**
All response times, in days, refer to business days. The EnergyIP support team has defined an issue severity rating system that ranges from Severity 1, a "Catastrophic Failure', to Severity 5, an enhancement request for the environments that are not in deployment phase or are caused by EnergyIP software. The response time decreases as the severity of the issue intensifies.

The response time of an issue may vary depending on the following customer environments:

- **Production:** The system where the mutually agreed software solution is running after all use cases have been thoroughly tested and approved for release to production. This entire end-to-end system consists of production servers, production networks, and all real devices and third-party systems. If any component of the entire solution is not the real system, then it is considered as a non-production system. For example, if the EnergyIP software is deployed on production servers but the headend system is only API and not the real system, then it will not be considered as a production system.

- **Non-Production:** A non-production environment can be testing and any training environment which has the same software solution as that of production, except that the volume of data is low and not synced with the production in terms of most recent data.

- **Deployment:** This environment is used during the deployment phase by integration partners and the customer team to define and build the software solution. A lot of unknown variables exist during this phase related to the customer IT rules, cyber requirements, local hardware, and so on. Therefore, the unknown variables make it difficult to commit to a Service Level Agreement (SLA). On the other hand, if the out-of-the-box software is deployed on known and tested hardware, all tickets will be of severity 3 or 4.

The response time for initial contact, target response, and licensee response is explained in the following points:

- **Initial Contact:** The time in which the support team will acknowledge to Licensee's initial support request, either manually or through an automated ticketing system (global support queue).

- **Target Response:** Request for additional information or action by a licensee, analysis of potential issues and impact, or a proposed workaround and then an agreement to provide a software fix. The actual software patch release version and date is provided later.

- **Licensee Response:** Response by a Licensee to Siemens providing that the requested information, results of requested further action, or confirmation of successful workaround is implemented.

In absence of a Licensee Response within the stipulated time as per the above defined SLAs, the tool will downgrade the issue to a lower severity and eventually will resolve it in a due course of time.

## Example of Handling high Severity Issue

The following steps explain how a Severity 1 reported issue is handled:

1. The issue is downgraded to Severity 2 if Licensee Response is not received within 2 hours from the time of request.

2. It is further downgraded to Severity 3 if Licensee Response is not received within next 4 hours from the time of request.

3. The support team then sends gentle reminders, that includes a phone call, to provide the requested information in the next 4 business days.

4. If still no response is received from the customer, the issue is marked as Resolved and Waiting for Information.

> **Note;**
> The response time does not correspond to problem resolution time frames. With standard resourcing or standard support, Siemens does not offer a fixed time for resolution. A higher level of support is required for this type of request.

# Recommendations

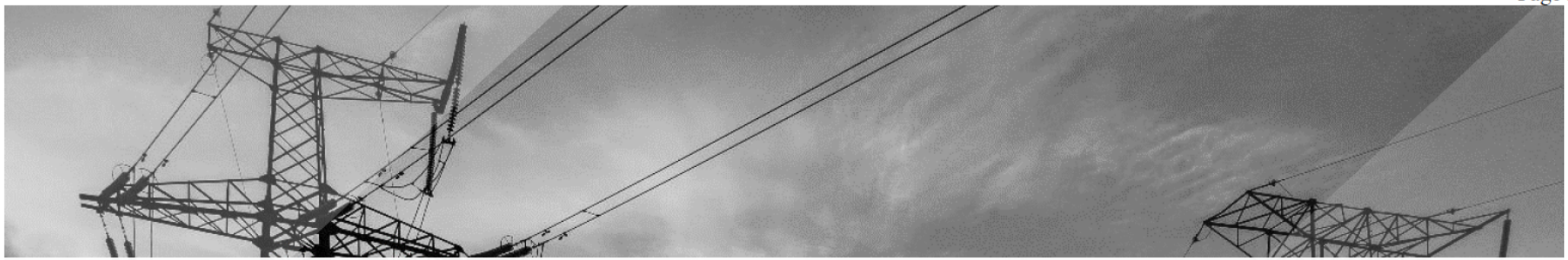
The EnergyIP customer support recommends the following best practices for smooth and effective system management:

- Conceptualize and implement adequate procedures to protect and backup data and equipment
- Implement your software in a certified environment and configuration.
- Maintain the environment's stability and capacity
- Maintain a separate test system identical to the production system that you can use to diagnose problems and test corrections prior to deployment in the production system
- Ensure that the appropriate utility personnel are available to work on your cases
- Capture trend reporting and event notifications to help ensure adequate visibility into system resources to help diagnose and ensure a stable system
- Keep all third-party maintenance and support contracts current and up to date

S Shveta is the author of this solution article.

REDACTED





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# MDMS RFP Vendor Selection Recommendation

## IMO Meeting

## April 14th, 2023



Connecticut Light and Power Company
d/b/a Eversource Energy
Docket No. 26-07-XX
Exhibit CLP-AMI-2, Appendix
Page 378 of 436

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# Agenda

- Review AMI Procurement Process
- Review MDMS RFP and Scoring
- MDMS Decision Recommendation
- Next Steps

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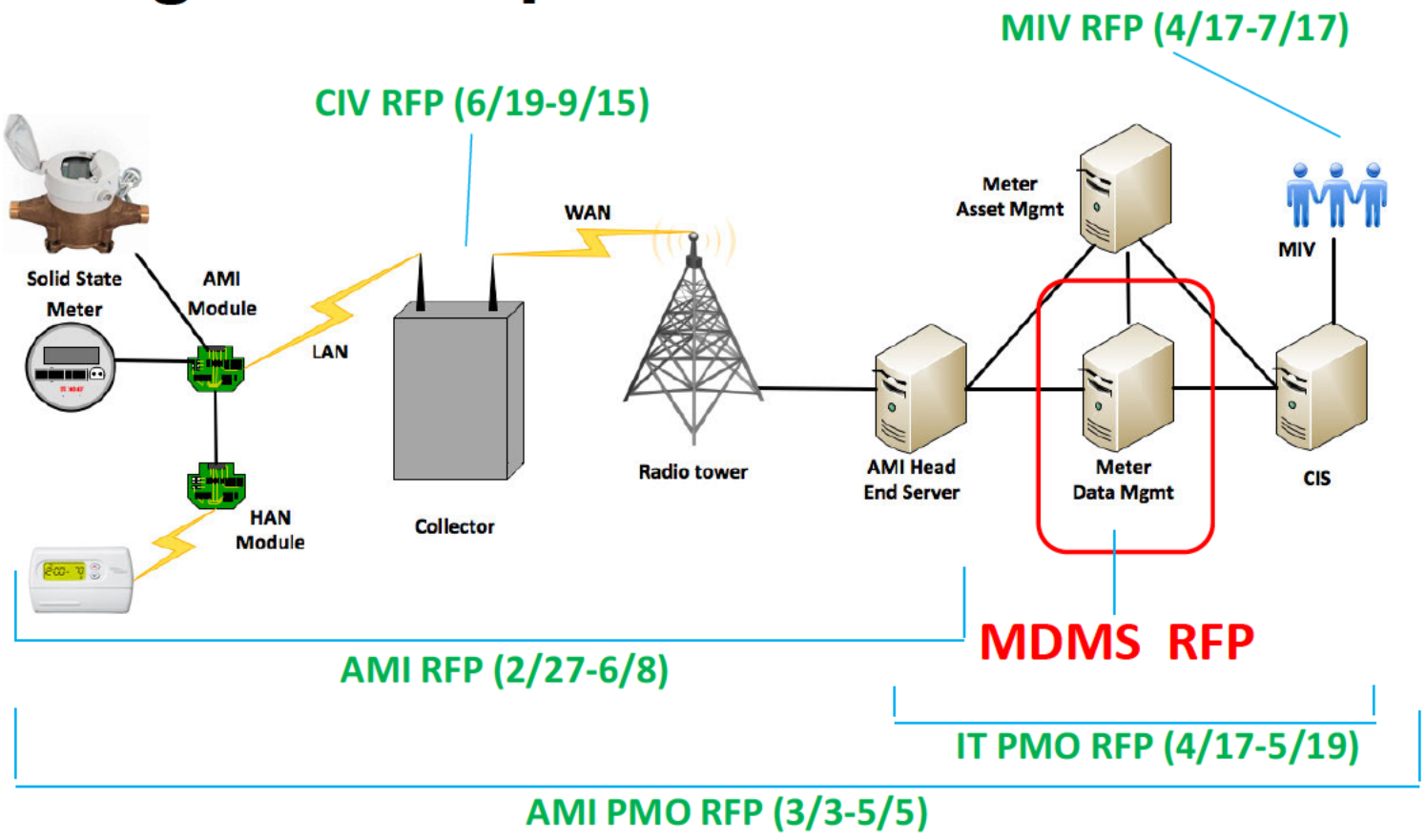
# AMI Program Scope - Six RFP Activities



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# Scope of MDMS RFP

- MDMS Software
  - Integration with and provisioning of AMI HES
  - Real-time data processing (validation, estimation and distribution of data)
  - Emergent and non-emergent event and alarm handling
  - Billing determinant calculation and integration with Omni
  - Service order creation and tracking (through Omni)
  - Outage management integration
  - Future grid modernization support
- Integration Services
  - Configuration and integration of MDMS software to Omni, DataLake, AMI HES, Customer portal
- Managed SaaS (as an option)

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# Summary of the MDMS Software and Services Procurement

**RFP**

- Released 1/13/23 and Returned 2/24/23
- 4 Vendor responses – Itron, L+G, Siemens Advanta, TRC/Siemens
- Cross-functional team reviewed and scored the responses over 3 weeks

**Shortlist**

- All 4 vendors invited to present their proposal and demonstrate their systems
- Four 6-hour sessions were conducted March 27, 29, 30, 31
- Evaluation team validated their top ranking and adjusted the ranking/scoring of the others

**BAFO**

- BAFO and clarifications requested 3/31/23 and returned 4/7/23
- Pricing adjustments and clarifications provided details for Procurement to assess ranking for pricing and recommend a vendor for selection

**Select**

- Reference calls
- Recommend vendor for contract negotiation
- Document process and results
- Begin contract negotiations with selected vendor

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# MDMS RFP Vendors

| | Itron | Landis+Gyr | Siemens Advanta | TRC/Siemens |
|---|---|---|---|---|
| Software | Itron Enterprise Edition | Gridstream MDMS | Siemens EnergyIP | Siemens EnergyIP |
| Integration Services | Itron Professional Services | L+G Professional Services | Advanta | TRC |
| MSaaS | Itron GSM | L+G Services | Siemens plc | TRC |
| Reference Utilities | Avangrid (CMP, NYSEG), TECO Energy, SCE | NPPD, HECO, PSEG, NGRID | Dominion Energy, LG&E-KU | ConEd (non-SAP), CPS Energy, SnoPUD, IESO |
| SAP Integrations | >20 | 2 | >20 | |

All three software vendors are in Leadership quadrant for MDMS by Gartner
All vendors met the minimum requirements*

*See Appendix for minimum requirements

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# Evaluation Team and Leads*

- Grid Mod – [redacted]
- IT – [redacted]
- Billing & Meter Systems and Data Management – [redacted]
- Credit/Collections & Revenue Assurance – [redacted]
- OMNI – [redacted]
- Electric metering – [redacted]
- Gas metering – [redacted]

Note: Water IT team participated in the review of the proposals but did not score.

*All team members are listed in Appendix

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# Final Technical scoring

| Security Assessment | Weighting | Itron | Landis+Gyr | Siemens Advanta | TRC |
|---|---|---|---|---|---|
| | Pass/Fail | Pass | Pass | Pass | Pass |
| | | | | | |
| **Shortlist Agenda Topics** | **Weighting** | **Itron** | **Landis+Gyr** | **Siemens Advanta** | **TRC** |
| Overall Presentation and Demonstration | 10% | 6.21% | 4.57% | 7.57% | 8.36% |
| Company and Roadmap | 10% | 7.50% | 5.43% | 7.57% | 7.79% |
| Managed Software as a Service | 15% | 10.71% | 9.00% | 10.29% | 11.79% |
| Demonstration Scenarios | 25% | 15.00% | 9.82% | 17.32% | 19.64% |
| Implementation and Project Team | 25% | 13.57% | 10.36% | 18.57% | 21.07% |
| Questions and Answers | 15% | 9.64% | 7.71% | 10.50% | 11.14% |
| | **Demo Score** | **37.59%** | **28.14%** | **43.09%** | **47.87%** |
| | | | | | |
| **RFP Evaluation Categories** | **Weighting** | **Itron** | **Landis+Gyr** | **Siemens Advanta** | **TRC** |
| Quality of Service (KPIs & SLAs) | 30.00% | 19.29% | 16.29% | 21.43% | 24.21% |
| Relationship-management / Responsiveness | 3.50% | 2.10% | 2.00% | 2.55% | 2.78% |
| Strong Root Cause Analysis w/follow-through Culture | 3.50% | 2.15% | 1.95% | 2.48% | 2.58% |
| Strategic Roadmap of Improvements | 5.00% | 3.86% | 2.93% | 3.64% | 3.71% |
| Trusted references | 18.00% | 11.73% | 10.03% | 12.37% | 12.24% |
| | **Vendor Score** | **39.12%** | **33.19%** | **42.47%** | **45.52%** |
| | | | | | |
| **Overall Technical Score (60% Max)** | | **38.35%** | **30.66%** | **42.78%** | **46.70%** |

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# Final ranking and recommendation

| | Itron | Landis+Gyr | Siemens Advanta | TRC |
|---|---|---|---|---|
| Technical | 38.35 | 30.66 | 42.78 | 46.70 |
| Price (MSaaS) | 28.90 | 15.40 | 37.30 | 33.90 |
| **Total (MSaaS)** | **67.25** | **46.06** | **80.08** | **80.60** |
| | | | | |
| Price (On Prem) | 31.30 | 21.80 | 32.10 | 28.20 |
| **Total (On Prem)** | **69.65** | **52.46** | **74.88** | **74.90** |

- MDMS Software: **Siemens EnergyIP** was preferred technically and is the lowest priced software.
- MDMS Implementer: **TRC Engineers** was preferred technically and technical + price score is highest overall.
- All team members agree with the recommendation to move forward with Siemens software and TRC as implementer.

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# Next Steps

- Notify vendors
- Assess MSaaS vs On-Premise (IT)
- Select contract negotiation team (suggest:  Procurement, Legal, GridMod, IT, Meter Systems & Data Management (Billing) and Z2Solutions)
- Negotiate contract (Target 6/1 contract execution for 6/15 onboarding (Same time as EY onboarding for OMNI integration design)
- Continue AMI-OMNI collaboration

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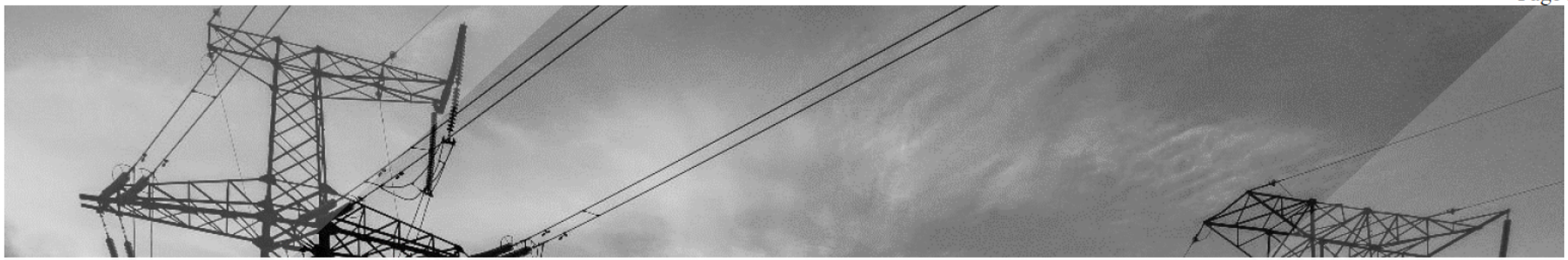

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# Appendix



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# Typical MDMS Pricing

Software License
- Z2Solutions' rule of thumb is the typical MDMS software license is about [redacted]/meter for utilities > 1M meters.
- An additional license is required for an SAP integration adapter
- The additional module for support for Outage Management is also going to be needed.
- License costs are subject to [redacted] maintenance and support each year
- So, MA license cost that we've seen in the industry would be:
  - [redacted] – Core software license
  - [redacted] – SAP Integration Adapter
  - [redacted] – Outage Management Module and Integration Adapter
  - [redacted] annual maintenance
  - Note that there's an escalation on maintenance which has typically been [redacted], but it appears that most vendors are now doing [redacted].

Implementation Services
- Z2Solutions' rule of thumb for implementation services is 1:1 between services and license.
- So, the services cost for MA would be:
  - [redacted]

Software as a Service
- This is relatively new for MDMS, so there's not a lot of history to go on
- Z2Solutions uses [redacted] between SaaS and licensed and the software license is included in the SaaS fees. But, we've decided to go with hybrid module where Eversource purchases the license to be able to capitalize it. So, I'd use [redacted].
- We have to include SaaS for the QA environment as well, but you only need QA for 2 years
- So, the SaaS cost for MA would be:
  - [redacted]/year with an escalation of [redacted] per year
  - QA SaaS is about [redacted] of the Production SaaS
  - The costs we are getting for SaaS appear to be in this range, but we're getting more clarity from the vendors.
  - In this case, the addition of CT would probably add another [redacted] as there are economies of scale.

Overall, 5 year TCO for MDMS:
- License = [redacted]
- Services = [redacted]
- SaaS (Production) = [redacted]
- SaaS (QA) = [redacted]
- Total 5 year TCO = [redacted]

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# MDMS RFP – Minimum Requirements

1. MDMS Software must be MDUS Certified by SAP
2. Proposer has integrated at least two MDUS with SAP ECC 6.0 EHP6 (or later) in US/Canada
3. The integrations named above must be at a utility with greater than 500,000 meters which are currently billing at least the last 2 years in the US / Canada.
4. Proposer has at least one MDMS implementation in US / Canada with greater than 3,000,000 electric meters and currently billing
5. Proposer must have at least one MDMS implementation with multiple CIS and multi-tenant implementation
6. Implemented and referenceable integrations must include Master Data synchronization, Billing from Register Reads, Billing from Billing Determinants calculated from Interval Data, Connect/Disconnect, Event Management and On-Demand Read.

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# MDMS RFP Evaluation Team



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# Initial Scoring of RFP

| Criteria | Points | Itron | Landis+Gyr | Siemens | TRC |
|---|---|---|---|---|---|
| Executive Summary | 1.5% | 0.79 | 1.14 | 1.14 | 1.24 |
| A.1 Company Profile | 2.5% | 2.07 | 2.02 | 2.04 | 2.18 |
| A.2 Solution Summary | 2.0% | 1.36 | 1.49 | 1.56 | 1.67 |
| A.3 Project Approach & Schedule | 5.0% | 3.00 | 3.59 | 3.82 | 4.07 |
| A.4 Prior Experience | 9.0% | 7.20 | 6.36 | 6.30 | 6.94 |
| A.5 Project Team | 5.0% | 2.54 | 3.11 | 3.57 | 4.04 |
| A.6 Eversource Staffing | 0.0% | | | | |
| A.7 System Requirements | 0.0% | | | | |
| A.8/9 Requirements | 29.0% | 19.74 | 18.93 | 18.01 | 18.60 |
| A.10 Software License | 0.0% | | | | |
| A.11 SaaS Proposal | 2.0% | 1.40 | 1.68 | 1.76 | 1.80 |
| C.1 Security & DDQ | 0.0% | Pass | Pass | Pass | Pass |
| C.2 Exceptions to T's and C's | 0.0% | | | | |
| C.3 Exceptions to SOW | 2.0% | 1.60 | 1.75 | 1.50 | 1.60 |
| C.4 SaaS Agreement | 2.0% | 1.30 | 1.45 | 1.45 | 1.80 |
| Total | **60%** | **41.00** | **41.51** | **41.15** | **43.94** |
| | | 33.22 | 33.47 | 33.50 | 35.81 |
| **Rank from RFP Functional/Technical Evaluation** | | **4** | **2** | **3** | **1** |

*Technical scoring using Z2Solutions scoring tool

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# Initial RFP Scoring mapped to 5 categories used in Customer Group Methodology

| Criteria | Points | Itron | Landis+Gyr | Siemens | TRC |
|---|---|---|---|---|---|
| Quality of Service (KPIs & SLAs) | 29.98% | 20.36 | 20.33 | 19.63 | 20.53 |
| Relationship-management / Responsivenes | 3.13% | 2.22 | 2.46 | 2.41 | 2.57 |
| Strong Root Cause Analysis w/follow-throu | 3.88% | 2.50 | 2.83 | 2.92 | 3.18 |
| Strategic Roadmap of Improvements | 5.10% | 3.52 | 3.87 | 3.90 | 4.18 |
| Trusted references | 17.92% | 12.40 | 12.03 | 12.30 | 13.49 |

*RFP Technical scoring mapped to the criteria used in the Customer Group methodology

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# Shortlist

| Proposed Time | Agenda |
|---|---|
| 8:30 | Room available for setup |
| 9:00 | Introduction and Company Overview |
| 9:15 | Software as a Service |
| 10:00 | Overview of Demonstration Setup |
| 10:15 | Demonstration Scenarios |
| 11:45 | Lunch Break |
| 12:30 | Demonstration Scenarios (cont'd) |
| 14:00 | Security and Technical Architecture Breakout session |
| 14:00 | Break |
| 14:15 | MDMS Implementation and Schedule |
| 15:00 | Remaining Questions and Action Items |
| 15:30 | End of Demonstration |

- All 4 vendors invited to present at the shortlist
- Scripted agenda and scripted demonstrations for vendors to meet
- Cybersecurity and IT provided a table top review session with vendor architects

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# Shortlist presentation highlevel results (in order of presenting)

- TRC Engineers: Good presentation and answers. The team re-affirmed preference for Siemens EnergyIP and re-affirmed overall preference
- Landis+Gyr: Poor presentation, technical answers and demonstration. Individual evaluators changed preferences and scores
- Itron: Good presentation and answers, but some difficulties with the demonstration.
- Siemens Advanta: Good presentation and answers. Re-affirmed preference for Siemens EnergyIP. Individual evaluators upgraded scores for services and SaaS assessment

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# Scoring of the Shortlist presentation and answers

| Shortlist Agenda Topics | Weighting | TRC | Landis+Gyr | Itron | Siemens Advanta |
|---|---|---|---|---|---|
| Overall Presentation and Demonstration | 10% | 8.36% | 4.57% | 6.21% | 7.57% |
| Company and Roadmap | 10% | 7.79% | 5.43% | 7.50% | 7.57% |
| Managed Software as a Service | 15% | 11.79% | 9.00% | 10.71% | 10.29% |
| Demonstration Scenarios | 25% | 19.64% | 9.82% | 15.00% | 17.32% |
| Implementation and Project Team | 25% | 21.07% | 10.36% | 13.57% | 18.57% |
| Questions and Answers | 15% | 11.14% | 7.71% | 9.64% | 10.50% |
| | **Demo Score** | **79.79%** | **46.89%** | **62.64%** | **71.82%** |

- This scoring was consistent across all scorers
- TRC was #1 and in some categories Siemens Advanta was also scored the same as TRC on some of the scores

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# Updated RFP Evaluation Scores

| RFP Evaluation Categories | Weighting | TRC | Landis+Gyr | Itron | Siemens Advanta |
|---|---|---|---|---|---|
| Quality of Service (KPIs & SLAs) | 30.00% | 24.21% | 16.29% | 19.29% | 21.43% |
| Relationship-management / Responsiveness | 3.50% | 2.78% | 2.00% | 2.10% | 2.55% |
| Strong Root Cause Analysis w/follow-through Culture | 3.50% | 2.58% | 1.95% | 2.15% | 2.48% |
| Strategic Roadmap of Improvements | 5.00% | 3.71% | 2.93% | 3.86% | 3.64% |
| Trusted references | 18.00% | 12.24% | 10.03% | 11.73% | 12.37% |
| | **Vendor Score** | **45.52%** | **33.19%** | **39.12%** | **42.47%** |

- Some scorers changed their scores and now all the scoring teams are well aligned
- Trusted references may change after reference calls

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# Reference call results

- Itron – Itron IEE + Itron Services + Itron GMS
  - Avangrid: Have full Itron AMI-MDMS stack and is on premise. Chose on-premise due to security
  - TECO Energy: Initially selected and preferred the Siemens MDMS, but had issues with contract negotiations. Have some issues with MDMS SaaS as it's not managed services as they wanted.
- Landis+Gyr – Gridstream MDMS + L+G Services
  - HECO: Having performance problems and some issues
  - PSE&G (NJ): Overall, pleased with the L+G solution, but did not use MDUS integrations due to legacy approach from PSE&G (LI)
- Siemens Advanta – Siemens EnergyIP + Advanta Services + Siemens plc
  - CenterPoint Energy: Completed. A nice reference for Siemens, but not positive or negative for Advanta. CNP went with TRC because of their technical capabilities.
  - Dominion Energy:
- TRC – Siemens EnergyIP + TRC Services + TRC Managed Services
  - CenterPoint Energy: A nice reference for Siemens and TRC. Also, good information about running EnergyIP on premise.
  - SnoPUD: A nice reference for Siemens and TRC. Good information on why they chose to go with MSaaS.

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# BAFO results (40%)

| Price | Itron | L+G | Siemens | TRC | |
|---|---|---|---|---|---|
| Software | 32.9 | 18.2 | 32.1 | 30.2 | |
| Services | 28.2 | 37.5 | 28.1 | 22.7 | |
| MSaaS (DR) | 19.5 | 11.0 | 37.3 | 33.6 | |
| Total (SaaS) | 28.9 | 15.4 | 37.3 | 33.9 | Total (MSaaS) includes Software, Services and MSaaS. |
| Total (OnPrem) | 31.3 | 21.8 | 32.1 | 28.2 | Total (On Premise) includes Software and Services. |

- [redacted]

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# AMI-Omni Phase 2 Cross Program Coordination

The AMI team has been engaged with the Omni Phase 2 team since October 2022; working together to identify and understand cross program impacts to schedules and resources.

- ✓EY has been brought in as the AMI-Omni P2 SI, and is currently in pre-planning to understand scope, schedule, and resource requirements for the integration, as well as impacts to the current Omni Phase 2 project.
- ✓The Omni Phase 2 team has been included in all EY – AMI team deliverable discussions and readouts including: AMI MVP requirements, AMI Project Roadmap, Resource Needs, and Solution Architecture.
- ✓The AMI and Omni Phase 2 teams, and their respective EY SI teams meet weekly to provide status updates on each projects.

# Eversource

## Request for Proposal for CIS Software Solution for CMA Customers (RFP 2525682200)

August 10, 2020



THE BEST RUN SAP



**SAP Industries, Inc.**
3999 West Chester Pike
Newtown Square, PA 19073

Eversource
Attn: [redacted]
IT Category Lead
107 Seldon St
Berlin, CT 06037

August 10, 2020

**Subject: SAP Response to Eversource Request for Proposal for CIS Software Solution for CMA Customers (RFP 2525682200)**

Dear Eversource Team,

SAP understands the strategic importance of the CIS Software Solution for the integration of CMA Customers as well as for the broader Eversource Customer Engagement strategy. The SAP solution proposed herein will provide the key enabling platform that drives your business transformation and will establish the foundation for your business operations for many years into the future. We trust that our passion for your success will be evident in our response and throughout the evaluation process.

SAP appreciates the opportunity to participate in your selection process. With nearly 87% of the world's utilities running financial and billing transactions through SAP, and over 1,300 of our customers globally running the SAP Utilities platform, which is nearly 6x our nearest competitor, we can clearly demonstrate that our solutions can affordably meet Eversource's functional requirements.

In response to Eversource's proposal, SAP is pleased to present a CIS solution that meets the needs of the CMA customers and allows for nimble and agile deployment so Eversource can exit the NiSource TSA as quickly as possible. Moreover, SAP's CIS solution was built with a core data model and process design to support multi-jurisdiction, multi-state, multi-sector utilities and to address deregulation. So, with the SAP solution, Eversource can meet the immediate needs of the CMA acquisition while being confident that the system can be configured and expanded to meet your broader requirements over time as well.

To meet the requirements of the Eversource growth and expansion strategy, SAP is very flexible and can provide a CIS solution via perpetual licensing or cloud subscription models. In either scenario, we can run the solution for you, if desired, and deploy across various environments (including Azure). The commercial proposal presented in this response in intended to demonstrate SAP's commitment to a long-term partnership with Eversource. You will see that with no up-front commitment beyond CMA required, we are extending volume-based pricing for the CMA scope consistent with what we would typically offer for a larger commitment. We look forward to discussing other ways SAP can best support Eversource in your near term and long-term objectives.

SAP has leveraged our understanding of Eversource as the foundation for our enclosed response. We are confident that SAP is ideally positioned to deliver a solution addressing your current requirements for CMA customers as well as your continued growth and expansion.

Best regards,

[redacted]

Senior Account Executive, SAP

T [redacted]

[redacted]

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**APPENDIX**

**A - Support Policy for SAP Cloud Services**
**B - SAP for-Utilities Roadmap-2020-06**
**C - SAP Service Cloud Utilities Roadmap**
**D - SAP Agreements**

STATEMENT OF CONFIDENTIALITY AND EXCEPTIONS

*Use or disclosure of the data contained in this proposal is subject to the following restriction. Proposal pages marked with the following legend: "Use or disclosure of the data contained on this page is subject to the restriction on the Table of Contents page of this proposal" contain data that is highly confidential and proprietary. Any pages marked thus, or the data contained on these pages, may be distributed only to those individuals authorized by Eversource to evaluate this proposal. Any additional, subsidiary, or other distribution, dissemination, or reproduction of the data thus marked is prohibited unless disclosed in accordance with applicable law(s).*

# EXECUTIVE SUMMARY AND REFERENCES

## SAP Benefits Summary

SAP recognizes the strategic nature of the CIS solution in support of Eversource's integration of Columbia Gas of Massachusetts, as well as your broader Digital Customer Engagement Strategy. We appreciate the opportunity to participate in your selection process. The solutions proposed in this response are based on SAP's industry-leading SAP S/4HANA Digital Core platform, demonstrated by peer utilities to be a platform which enables rapid post-merger integration, multi-jurisdictional support, optimized customer engagement, flexible response to regulatory mandates and the delivery of innovative products and services in response to the rapidly changing energy landscape in which they operate.

This SAP proposal intends to convey to Eversource our unique strengths in the following areas:

- Capability to replace the stated CIS solution for Columbia Gas in an affordable and timely manner with the top-ranked industry solutions
- Provide a base CIS solution that will enable Eversource to execute on a long-term CIS strategy uniquely incorporating multi-jurisdiction functionality for all Eversource customers
- Demonstrate how value can be delivered to the Eversource project, business, and customers in a modular way that can expand over time at the pace of Eversource's business imperatives.

As Eversource's business model continues to grow and evolve, SAP is here to support you. SAP solutions can also be easily configured to support new business models. We pride ourselves on continuously evolving with our customers and their business models, and our proposed work with Eversource is no exception.

## SAP Utilities Customer Solutions

**SAP S/4HANA Digital Core** – SAP S/4HANA is the core meter-to-cash solution which permits our customers to truly become Digital Enterprises able to adapt dynamically to the volume and velocity of change in the Digital Economy. With SAP S/4HANA:

- All operational data is kept in-memory using the SAP HANA technology, making it easily available on a real-time basis for access, analytics, integration, customer self-service, machine learning algorithms and more.
- Thousands of business functions that comprise the SAP S/4HANA Digital Core are available as micro-services accessible for customer innovation and designed for integration with other solutions from SAP and third parties. These span business capabilities including meter to cash as well as the balance of the SAP S/4HANA business process scope (if activated), including record-to-report.
- Standard proven interfaces are available for connection to existing Eversource systems

The solutions proposed by SAP for CIS are embedded in and supported by SAP S/4HANA.

**SAP Customer Experience –** SAP's Customer Experience portfolio is a global leader including, Sales, Service, Marketing, Commerce, Self-Service and Experience Management. Included in this proposal is SAP Service Cloud which serves as the pillar for Customer Service for Utilities on any device, anytime, anywhere.

- SAP Service Cloud was initially released in 2011 providing call center and mobile customer service capabilities. In addition, the Utilities specific enhancements began with the May 2015 release of Service Cloud with native support for CIS processes delivered in S4/HANA.

- SAP Service Cloud operates on a quarterly release schedule with net new functionality and improvements delivered four times per year. In addition, SAP Service Cloud delivers monthly releases as well, prioritized based on customer feedback for items which can be delivered in shorter timeframes.

- SAP Service Cloud leverages the native capabilities of SAP HANA to embed capabilities across the solution such as one field search, operationalized real-time reporting, machine learning to automatically categorize, route and propose solutions for customer service cases, and much more.

SAP Service Cloud is not only the core of SAP's Service strategy globally but is the cornerstone of the SAP Customer Experience portfolio both in innovation investment, as well as customer adoption across the United States.

## SAP Solutions in Scope

SAP's proposed architecture at high level is based on the following solutions:

- SAP S/4HANA Energy Meter-to-Cash and Meter Data & Operation solutions for CIS functions. In addition, while providing functions required to meet the immediate CIS capability needs for the integration of CMA, the native Energy Data Management (EDM) and Advanced Metering Infrastructure (AMI) capabilities in SAP S/4HANA will also support future the Eversource MDM requirements.
- Market Process Management for Utilities for SAP S/4HANA provides customer choice functionality
- SAP Cloud Platform and Process Orchestration as integration technologies
- SAP Analytics Cloud to support required ad-hoc business analytics/reporting
- SAP Data Services to manage the data conversion process

## Additional Considerations for Success

- **Flexible Licensing and Deployment Options** – SAP offer Utilities the choice of how to best license and deploy our SAP S/4HANA CIS solutions based on their business requirements and strategies. With a single SAP S/4HANA codebase spanning multiple deployment and commercial options, our customers can choose from the following fully supported standard offerings:
  - **Perpetual Licensing for SAP S/4HANA**
  - **SAP Managed Services for the operation of Perpetual Licenses (HANA Enterprise Cloud):** infrastructure provisioning and baseline application management delivered by SAP in an SAP data center

or in a top industry cloud hyperscaler platform such as Google Cloud Platform, Microsoft Azure, and AWS. Additional SAP managed services available on an optional basis.

- **Cloud Subscription for SAP S/4HANA:** the SAP S/4HANA Cloud, Extended Edition provides software licensing, support, infrastructure and management services in a single subscription model. As a private cloud, this affords the benefits of Software as a Service while giving the utility complete control and flexibility over the environment (e.g. to manage upgrade cycles, regulatory requirements, etc).
- **PLEASE SEE APPENDIX D FOR DETAILED SLIDES ON SAP HANA ENTERPRISE CLOUD**

- **Strategic Pricing Proposal**
  SAP strives to always take the long view regarding the relationships we enter with Utilities like Eversource. And we have made the effort to do that here with our pricing proposal. In short, SAP is offering pricing to Eversource for CMA which is consistent with the discounting levels we would typically apply for a much larger scale purchase, without requiring commitment to that purchase up front. While our accounting practices don't allow us to explicitly provide the phased pricing model requested, we hope this approach demonstrates that we are serious about building a long-term partnership with Eversource and look forward to the opportunity to discuss this further.

- **Industry Proven Flexibility for Complex Operations and Phased Deployment**
  After detailed review of your requirements, SAP is confident we can meet and exceed your stated criteria. Simply put, SAP is the lowest risk and most proven software solution globally to support the needs of Eversource. Only SAP has been deployed numerous times at utilities operating both as multi-jurisdiction, multi-service organizations as well as in single jurisdiction and single service deployments such as CMA. Furthermore, SAP natively supports Customer Choice and deregulation in single or multiple jurisdictions and across multiple services. Finally, only SAP has a proven track record with utilities who have successfully used our CIS to decommission multiple CIS in a phased approach which establishes a foundation for Eversource to decommission C2 and CIS in the near or long-term future as desired.

## SAP Product Development and Commitment to Utilities Industry

SAP is committed to the success of Eversource's immediate integration of CMA and to helping you 'de-risk' the initiative. We also view Utilities as one of the top and most strategic industries SAP serves, and so we have a constant commitment to ensure our platform is continuously optimized to meet the future needs of your business as well. In the following pages, you will find a detailed and comprehensive response to the questions in the CIS RFP.

Our mission is to provide the solutions that will support Eversource, and Eversource's customers, for many years to come. Together we will help you successfully deliver a platform that will drive operational efficiency, reduce costs and deliver an effortless customer experience that meets the expectations of your business.

**Proven Utilities Leadership and Solutions -** The proposed SAP S/4HANA Utility Customer solutions are best-in-class and differentiated in the marketplace through our track record of successfully delivering large and small Customer Information System transformations including those in multi- service, multi-jurisdictional, multi-

company environments. With the SAP solution we manage these business requirements with configuration, a characteristic proven to be unique to the SAP platform for multi- jurisdictional requirements. SAP's track record is further distinguished when considering we have over 1,340 customers globally running the SAP Customer solutions and for these reasons, have consistently been recognized as the industry leading CIS solution.

- #1 Gartner CIS solution since 2006
- #1 Utilipoint CIS solution since 2005
- #1 IDC CIS solution since 2009

***SAP is the industry market leader delivering CIS to over 1,340 utility customers worldwide.*** **We actively serve a vast number of large investor-owned utilities, mid-market utilities, municipalities, and utility cooperatives in North America.**

*(Please see the following page for an SAP Utility Industry Customer map)*

Below is a sample of our utility clients.




## SAP's Product Development

Research and development are at the heart of SAP's customer-focused innovation strategy. To continue to win in the extremely competitive software industry, SAP invested more than $4,920 million in 2019 in the development of the tools and technologies of tomorrow. At the end of 2019, our research and development organization counted 27,634 FTEs[1] who represented 28% of our overall workforce.

Led by the Product Engineering and Technology & Innovation organizations, SAP's research and development efforts channel our deep expertise and diversity to investigate new technology and develop new applications that deliver business value to our customers. To capitalize on the power of diversity and to best serve our regional and global markets, SAP research and development projects are distributed globally across SAP's infrastructure. SAP Labs and the SAP Innovation Center Network work with our partners, customers, and universities to create and cultivate breakthrough IT trends and technologies on a global scale. This collaboration contributes significantly to the technological edge of our product portfolio.

[1] FTE=Full-Time Equivalents

## SAP Solution Technical and Functional Roadmap

*Please keep in mind all information related to roadmap items and future plans of functionality or otherwise is subject to change and not guaranteed and can change at any point in time without notification.*

We see four major priorities driving utilities to succeed in today's energy markets:

- Distributed Energy Resource Operations
  - Sell new services and create energy communities by developing traditional customers into prosumers
  - Leverage sensors and meters attached to power-consumption or power-generation devices to stabilize the operator's grid
- Smart and Efficient Distribution
  - Enable smarter asset management with fully digital allocation of spare parts, work, and logistics services
  - Create cost-efficient, compliant, and safe power generation with smart asset operations and maintenance
- Demand- and Supply-Balancing Services
  - Generate business opportunities around balancing services in the energy system
  - Streamline energy-settlement processes for compliance with any regulatory requirements
- Omnichannel Retail to Digitalized Customers
  - Create personalized offers mixing commodity and non-commodity
  - Leverage real-time data analysis to broaden the scope of customer interactions and increase addressable consumer spend

These four priorities have great influence on the key elements of the utilities value chain:

- Enterprise Asset Management
- Meter, Energy and Water Data Management
- Customer Experience and Service Excellence
- Bill to Cash

Based on this we are working with our customers around the globe to drive our development roadmap to provide the right solution capabilities to meet the challenges and succeed in the market. Our role as solution provider is to help utilities achieve excellent customer service operation with individualized products and services. For example, embedded machine learning algorithms significantly reduce the manual effort of handling implausible meter readings or out-sorted billing documents. Moreover, the solution portfolio enables excellence in grid building, operations, and maintenance, which are all key for profitability. Advances in ubiquitous connectivity and edge computing help guarantee that the entire value chain can be connected, from design to

use of the assets inside utilities. The SAP offering, with its embedded analytics, supports the generation of renewable energy and the demand-side influence to shift consumption and save energy.

The roadmaps for each of the value chain elements are:

**Enterprise Asset Management**

The SAP Intelligent Asset Management solutions allowing utilities to monitor, assess, and predict asset health based on granular data from sensors and the maintenance history of assets. These insights allow just-in-time triggering of maintenance orders, with maintenance schedules based on real-time asset health status and failure prediction.

Upcoming functionality includes SAP Asset Intelligent Network, in combination with Ariba Network, enables a digital collaboration with other stakeholders during all maintenance, replacement, and procurement processes.

Our future direction includes providing IoT, ML, and AI technologies in a business cloud platform. Solutions such as SAP Predictive Maintenance and Service make use of these technologies. In addition, utilities and partners develop their own specific solutions on SAP Cloud Platform.

**Meter, Energy and Water Data Management**

The SAP S/4HANA solution for energy utilities meter data management and operations supports the complete meter lifecycle management and enable the complete processing of high volumes of metered data.

Upcoming enhancements cover amongst other capabilities the SAP Cloud for Energy solution. Utilities will be able to start a smooth transition to the cloud by using their existing on-premise core solutions such as SAP S/4HANA with native integration of this new solution.

The future direction includes SAP Cloud for Energy, running on SAP Cloud Platform, is planned to enable receiving, validating, storing, and processing structured and unstructured information in any kind of dimension and unit of measurement.

**Customer Experience and Service Excellence**

With the many capabilities of the SAP Customer Experience portfolio, SAP excels in delivering contextual customer experiences from a customer's initial engagement to ongoing nurturing of long-lasting customer relationships. For example, SAP Marketing has been extended to support the utilities-specific data model and attributes to proactively communicate with customers to drive adoption of preferred programs, products and services. SAP Commerce extends that ability to enable customers to enroll, manage and purchase programs, products and services contextually and with a frictionless experience.

Enhancement in the upcoming releases of the SAP Customer Experience solutions across customer service, marketing, sales and commerce continue to innovate in a digital, yet physical economy to deliver fluid and frictionless customer journeys across all channels of interaction and communication. This ensures that both the

customer and the utility employee have a unified experience not only now, but in the years to come. SAP has already for years embedded capabilities such as machine learning into core processes across the Customer Experience portfolio and continues to innovate on those capabilities based on customer feedback and shifting industry trends.

**Bill to Cash**

With bill-to-cash solutions from SAP, we support the complete billing, invoicing, and collection lifecycle, including the processing of billable data, with accuracy and speed at any scale. We enable utilities to serve consumers with flexible products and services.

Upcoming enhancements include application of ML algorithms throughout the entire bill-to-cash process to help resolve out-sorted billing documents with higher efficiency.

With our future direction we envision the possibility of leveraging an integrated subscription order management for subscription and usage-based billing scenarios within the utilities solution.

Examples for our planned roadmap items for SAP S/4HANA for Utilities for the next release later in 2020 include:

- Fiori* Meter Data Specialist:
  - Business Process Exception Management integration
  - Extensibility concept
- Fiori* Billing Specialist:
  - Business Process Exception Management integration
  - Extensibility concept
- Utilities Sales Contract Management:
  - Change and cancel processes
  - OData interfaces, e.g. for Cloud integration and self-services (MCF) II
  - Integration to SAP Market Communication Cloud
  - *Fiori is the SAP name for the end user experience
- Rule-based proposals of the latest acceptable completion date (LACD) for each maintenance activity
- Real-time visibility of estimated, planned, and actual maintenance costs
- Evaluate risk before deferring a maintenance activity
- Provide self-service invoice and contract account information
- Machine learning and predictive models for service-to-cash processes

- End to End monitoring and alerts for real-time intervention
- In-house repair processes
- Recurring services and maintenance plans
- Display of historic service order data in technical object views

The roadmap items planned for the upcoming releases of SAP Service Cloud for Utilities include:

- Contract Account Central – New Overview UI (GA)
- Financial Views in Contract Account Object Phase 2
- Move In with Sales (POC)
- Enhance Contract Account Object Header with Balances
- Premise Central – New Overview UI (Beta)
- Enhance Premise Object Header with Disconnection Information
- Integration to SAP Self Service Accelerator by SEW with Consumption Graph (GA)
- Integration to SAP Self Service Accelerator by SEW with Customer Notification Preference (GA)
- View Utility Objects in Agent Desktop
- View Large Accounts / Processes
- Enhance Sales Point of Delivery
- Enhance Guided Sales Quote
- Enhance Upload of Sales POD
- Move in with Sales
- Premise Central – New Overview UI
- Integration to SAP Self Service Accelerator by SEW

**Provide three (3) utility customer references.**

**The Respondent must provide the following information for each reference:**

**A. Name and title of reference**
**B. Company name, address, e-mail, telephone number and extension**
**C. Description of solution provided**

**Total number of customers and date that the Company implemented your CIS solution.**

**Eversource reserves the right to contact any or all the customer references provided by the Respondent. The Respondent will provide the reference contacts with advance notice in order to facilitate timely response to queries from the Eversource evaluation team.**

SAP recognizes the value of customer references and accordingly has a formal reference program which profiles SAP implementations that span multiple industries and solutions within various organizations throughout the United States and the world.

SAP is fully committed to complying with relevant laws and regulations, including the General Data Protection Regulation ("GDPR") and other data protection laws applicable to SAP in the operation of our business, to strengthen our customers' confidence and trust. Due to applicable local and global policies governing privacy and personal information, SAP can only provide the company names of our reference customers. To request a meeting between yourselves, SAP, and the reference customer, or to attain appropriate permission to obtain in-confidence information, please contact Ed Curran at SAP who will facilitate these reference requirements on your behalf.

While SAP will facilitate reference requirements, our reference customers reserve the right to decline participation in the reference program at any time.

Given the fast-pace nature of CIS implementations in this digital age, we have provided two sections of references for Eversource. We do this as we see both as highly relevant for consideration in your decision with regard to both CMA and the entirety of the Eversource customer base. We have broken them out as follows:

1) Live CIS References

2) In Flight CIS Implementations

**Live CIS References**

| **NextEra Energy** | |
|---|---|
| **Description** | NextEra Energy acquired Gulf Power from Southern Company with a TSA in place to operate the legacy CIS for Gulf Power. In just over one year, Gulf Power was live with S4/HANA and Service Cloud. |
| **About the Company** | Gulf Power is a subsidiary of NextEra Energy serving 500,000 electric customers in Northwest Florida. Their SAP CIS go live was in 2020. |

| CenterPoint Energy | |
|---|---|
| **Description** | CenterPoint Energy utilizes SAP CIS and SAP CRM (also known as SAP CR&B). They implemented SAP CRM over multiple CIS, both SAP and non-SAP while they retired one CIS at a time. They also ingested data from 10 different sources into SAP HANA to provide predictive call reason scenarios and expose the results to tailor the IVR experience for end customers as well as providing the CSR with the same insight and one-click actions while they have the customer on the phone. |
| **About the Company** | CenterPoint Energy services over 7 million customers across both gas and electric operations in 8 different states. The initial SAP CIS go-live was in 2001 with multiple upgrades and additional CIS retirements as recent as 2019. |

| First Energy | |
|---|---|
| **Description** | FirstEnergy operates SAP CR&B for their customer base across both regulated and deregulated operations in jurisdictions supporting customer choice. Furthermore, they operate a Non-Regulated business utilizing SAP Customer Experience solutions to drive additional non-regulated revenue streams. |
| **About the Company** | FirstEnergy serves over 6 million customers across 5 states for both gas and electric operations. Their original SAP go-live was in 2001 and they have co-innovated with SAP over the years to drive product roadmap for areas such as Collection Strategy Management which was then incorporated directly into the core SAP product. |

| Atmos Energy | |
|---|---|
| **Description** | Atmos Energy utilizes SAP CR&B for their CIS and Customer Service needs. One key decision point for Atmos in selecting SAP was the ability of SAP CIS to integrate into their non-SAP ERP due to the unique sub-ledger structure native to SAP. |
| **About the Company** | Atmos Energy serves over 3 million customers across 8 states. Their SAP CIS go-live was in 2013. |

| UGI | |
|---|---|
| **Description** | UGI began a digital transformation starting with their CIS. They implemented SAP CR&B for CIS and Customer Service needs with one key factor being the support of complex Pennsylvania state assistance and income assistance programs. |
| **About the Company** | UGI serves 700,000 gas and electric customers in Pennsylvania and Maryland. Their SAP CIS go-live was in 2017. |

| Pepco | |
|---|---|
| **Description** | Pepco utilizes SAP CR&B for their CIS and Customer Service needs. Two key decisions for their SAP selection was the ability for SAP CIS to integrate to their Non-SAP ERP as well as the multi-jurisdictional and multi-service capabilities native to SAP. After their initial go-live with SAP they implemented complex billing and AMI scenarios with SAP CR&B. |
| **About the Company** | Pepco serves 2 million electric and gas customers across three states and the District of Columbia. Their SAP go-live was in 2015. |

| Washington Gas & Light | |
|---|---|
| **Description** | WGL implemented SAP CR&B to replace their legacy CIS. Ahead of the SAP CIS go-live they were able to use SAP HANA to improve billing reconciliation in their legacy CIS. |
| **About the Company** | WGL serves over 1.1 million gas customers in 2017 the Virginia, Maryland and the District of Columbia. Their SAP go-live was in 2016. |

| Avangrid | |
|---|---|
| **Description** | Avangrid utilizes SAP CR&B for all-of their subsidiaries, implementing each over the past fifteen years and designing their solutions for integration and growth by acquisition. Each subsidiary operates their own solution and they connect for financials and other reporting to their parent company Iberdrola SA. |
| **About the Company** | They provide electric and gas services to over 3 million customers in the Northeastern U.S. Their first SAP go-live was in 2005 for the New York companies (NYSEG and RG&E) and implemented for Central Maine Power in 2017. |

| LG&E and KU | |
|---|---|
| **Description** | LG&E and KU implemented SAP CR&B for CIS and Customer Service which enabled them to standardize processes and procedures across their service territories and decommission two CIS systems in the process. More recently they went live with SAP Service Cloud for Key Account Management and Economic Development Initiatives augmenting their existing Customer Service. |
| **About the Company** | LG&E and KU serves 1.3 million electric and gas customers across Kentucky and Virginia. Their SAP CIS go-live was in 2009. |

**In Flight CIS Implementations**

| **Duke Energy** | |
|---|---|
| **Description** | In 2017 Duke Energy selected SAP as their Customer Information Platform (SAP CIS as well as SAP Customer Experience, commonly referred to as CIP) not only to replace their multiple legacy CIS solutions, but for the entire SAP Customer Experience Portfolio and the ROI capabilities enabled by SAP HANA. Since their selection they have already implemented a Unified Agent Desktop, next best action and recommendation engine to CSRs enabled by SAP HANA, also delivering SAP Commerce for their Non-Regulated business and redesigned their customer facing bill across jurisdictions. In addition, in 2019 they selected SAP to replace several of their customer facing portals/self-service websites. They went live with their first replacement portal in 2019 with a phased approach continuing through 2021. Their planned CIS go-lives begin in early 2021 with a phased approach to retire multiple CIS as well as extend Sales capabilities to their non-regulated stakeholders. |
| **About the Company** | Duke Energy provides gas and electricity to over 7.7 million electric and gas customers across six states including regulated and deregulated operations. |

| **Southwest Gas** | |
|---|---|
| **Description** | Southwest Gas embarked upon a 'CRM' initiative prior to their CIS replacement which included a Unified Agent Desktop, Native Mobile application for self-service and technician en-route tracking, and Marketing capabilities. They selected SAP for the utility expertise coupled with the ability to deliver their desired customer experience outcomes. Their next evaluation was for a CIS replacement in which they selected SAP based upon the ability to meet the multi-jurisdictional requirements and partnership in delivering business outcomes. They are currently live with SAP Marketing, SAP Service Cloud and an SAP self-service native mobile application with a 4.9 rating and have seen millions in cost savings as a result. Their expected CIS go-live is in mid-2021. |
| **About the Company** | Southwest Gas services over 2 million gas customers across Nevada, Arizona and California. |

| Dominion Energy | |
|---|---|
| **Description** | Dominion Energy selected SAP for their Customer Information Platform, initially for Virginia Power, due to its unique ability to support multi-service and multi-jurisdictional requirements as proven by the market. In 2018 they selected SAP to augment and ultimately replace their self-service capabilities and are currently live with extended customer communication preferences and notifications. Their planned CIP go-live is in 2023 with the project moving into full swing in 2021. |
| **About the Company** | Dominion Energy provides gas and electricity to over 7 million gas and electric customers in 8 states. |

| San Diego Gas & Electric | |
|---|---|
| **Description** | San Diego Gas & Electric (SDG&E) selected SAP CIS for its ability to support complex rate delivery to end customers coupled with a native Customer Experience portfolio. They are currently live with an SAP self-service mobile application receiving 4.9 stars and are planned to go-live with SAP CIP in early 2021. |
| **About the Company** | SDG&E provides service to 1.4 million electric and nearly 900,000 gas meters in the state of California. |

| Southern California Edison | |
|---|---|
| **Description** | Southern California Edison selected SAP for their CIP due to its ability to replace multiple systems required to deliver complex energy rating and delivery as the utility energy ecosystem continues to evolve. They are currently planning to go-live in early 2021. |
| **About the Company** | Southern California Edison serves 15 million electric meters in the state of California. |

| Central Hudson Gas & Electric | |
|---|---|
| **Description** | Central Hudson Gas & Electric chose SAP for its CIP to support the future of energy delivery and reliability as set forth in New York Governor Andrew Cuomo's NY REV initiative. Their current go-live is scheduled for2021. |
| **About the Company** | Central Hudson Gas & Electric serves 300,000 electric and 80,000 gas customers in the state of New York. |

## BUSINESS REQUIREMENTS

Please refer to Attachment A for SAP's response to Business Requirements.

## TECHNICAL QUESTIONS

Please refer to Attachment B for SAP's response to Technical Questions.

## ENTERPRISE CAPABILITY QUESTIONS

Please refer to Attachment C for SAP's response to Technical Questions.

## SOFTWARE PRICING

Please refer to Attachment D for SAP's response to Technical Questions.

## CONTRACT DOCUMENTS

Regarding perpetual licensing, SAP is open to working with Eversource to leverage the existing terms and conditions in place with Aquarion to streamline and simplify the contracting process. This would likely involve assignment from the subsidiary to the parent so that other operating companies can leverage. Similarly, SAP and Eversource should also consider how existing cloud terms and conditions for Ariba can be leveraged to expedite and simplify contracting for cloud subscriptions.

Please refer to Appendix D for existing agreements in place with Eversource and Aquarion.

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THE BEST RUN SAP

EVERSOURCE

# REQUEST FOR PROPOSAL

## CIS Software Solution for CMA Customers

## RFP 2525682200

**Dated July 21, 2020**

**Proprietary and Confidential**

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# 1.0 INTRODUCTION, BACKGROUND AND SCOPE

## 1.1 INTRODUCTION AND BACKGROUND

Eversource Energy (NYSE:ES), a Fortune 500 and Standard & Poor's 500 energy company based in Connecticut, Massachusetts and New Hampshire, operates New England's largest energy delivery system. Eversource is committed to safety, reliability, environmental leadership and stewardship, and expanding energy options for its customers.

Today, Eversource serves 3.17 million electric customers in Massachusetts, Connecticut and New Hampshire, and 530,000 natural gas customers in Massachusetts and Connecticut, for a total of 3.7 million customers.

On February 26, Eversource signed an agreement with NiSource, Inc. (NiSource) to purchase Columbia Gas of Massachusetts' (CMA) natural gas distribution system assets and customer base. Upon closing the transaction, Eversource will serve CMA's 330,000 natural gas customers in more than 60 Massachusetts communities, which will add to the existing 3.7 million electric and gas customer base.

The transaction will require approval from the Massachusetts Department of Public Utilities and the U.S. Justice Department under the Hart-Scott-Rodino Act. We expect the transaction to be approved and close on September 30, 2020.

Eversource and NiSource will enter into a Transition Services Agreement (TSA) that will codify data access, systems maintenance and business process support to be provided by NiSource for a limited transition time period (TSA period). Day 1 of the TSA period is expected to be October 1. The TSA period will be 24 months, ending September 30, 2022.

Eversource is acquiring the customers, customer data and distribution system assets in the transaction, inclusive of 180 CMA employees who currently work in various customer and field operations roles within CMA. Eversource is not acquiring any CMA or NiSource IT/OT enterprise software system assets; rather Eversource will migrate CMA customer data to enterprise software systems owned or utilized by Eversource. This cutover will occur within the 24-month TSA period.

Eversource has made the decision to acquire a new Customer Information System (CIS) for the purposes of billing and servicing the CMA customers. The objective of this RFP is to obtain and evaluate CIS system solution proposals that will enable Eversource the ability to select a new CIS system to serve the CMA customers. Accordingly, Eversource will migrate the 330,000 CMA natural gas customers to a new CIS on or about May 1, 2022. A separate RFP will be issued to Systems Integration firms for services to implement the software selected and purchased as a result of this software licensing tender.

A portion of the 330,000 CMA natural gas customers are also Eversource electric customers in MA. However, upon go-live of the new CIS (expected on or about May 1, 2022), the new CIS will initially only bill for natural gas customers. The former CMA customers who also receive electric service from Eversource in MA will continue to be billed and serviced for electric service using one of Eversource's two legacy CIS systems. This will continue until such time that Eversource migrates its other electric and gas accounts to the new CIS solution.

## 1.2 SCOPE

The new CIS must support the core meter-to-cash functions necessary to bill and service CMA natural gas customers in Massachusetts.

Ancillary capabilities such as advanced analytics, metering, and those aspects of a Customer Relationship Management (CRM) necessary to support sales and marketing, are not within the scope of this RFP.

Because Massachusetts is a customer choice state and approximately 5,500 CMA natural gas customers purchase supply from third-party gas marketers, the new CIS must support retail choice functionality.

Attachment A lists the key Eversource business requirements that we expect the new CIS solution will be very capable of supporting and the list of requirements is intentionally not an exhaustive, all-inclusive list of requirements. The requirements listing is meant instead to help the respondents determine which CIS modules/components are required to serve the CMA customers, and to allow the respondents an opportunity to showcase high-value attributes of their CIS solution.

While our immediate focus is securing a new CIS to serve the 330,000 CMA customers, we intend to migrate all of our existing 3.7 million electric and gas customers to the new CIS over time. The following two tables list the numbers of CIS users under two scenarios: a) the new CIS supports only the 330,000 CMA customers; and b) the new CIS supports all 4.03 million Eversource customers (including CMA customers):

CMA Natural Gas Customers Only: 330,000 metered accounts

| | Call Center | Billing | Credit | Digital | Field | Other* | Total Users |
|---|---|---|---|---|---|---|---|
| CMA users | 88 | 25 | 20 | 6 | 15 | 26 | 180 |

All Eversource Electric and Gas Customers: 4.03 million metered accounts

| | Call Center | Billing | Credit | Digital | Field | Other* | Total Users |
|---|---|---|---|---|---|---|---|
| All Eversource users | 513 | 212 | 313 | 45 | 120 | 177 | 1,380 |

## 2.0 ADMINISTRATIVE

### 2.1 DUE DATE

All proposals are due electronically via Eversource's Ariba tool. Any proposal received at the designated location after the required time and date deadline specified for receipt shall be considered late and non-responsive. Any late proposals will not be evaluated for award.

### 2.2 SCHEDULE OF EVENTS

| Event | Date |
|---|---|
| **1.** RFP is released to qualified Vendors. | Tuesday, July 21, 2020 |
| **2.** Follow-up calls to Bidders* | Tuesday/Wednesday, July 21st/22nd |
| **3.** RFP Bidder Question Deadline (no questions will be accepted after this date) | Thursday, July 23rd, 2020 (4:00pm EST) |
| **4.** Proposal due date | Monday, August 10th, 2020 (noon EST) |
| **5.** Supplier Presentations | Thursday, August 20th, 2020 |
| **6.** Anticipated decision and selection of Vendor(s) | Week of August 31st, 2020 |

* Eversource will schedule a call with each bidder in the days immediately following RFP release to clarify RFP instructions.

## 3.0 GUIDELINES FOR PROPOSAL PREPARATION

### 3.1 Proposal Submission

The submitted proposal must include each of the following sections:

**Proposal Response Sections**

- **Executive Summary and References**
- **Business Requirements**
- **Technical Questions**
- **Enterprise Capability Questions**
- **Software Pricing**
- **Contract Documents**

When submitting your proposal response documents, submit as a zip file. The detailed requirements for each of the above-mentioned sections are outlined below.

## 4.0 DETAILED RESPONSE REQUIREMENTS

### 4.1 EXECUTIVE SUMMARY

The Executive Summary should include:

A. A statement summarizing the benefits to Eversource
B. A description of your firm's product development and commitment to the industry
C. A depiction of your solution's functional and technical roadmap (future enhancements)

Provide three (3) utility customer references.
The Respondent must provide the following information for each reference:

A. Name and title of reference
B. Company name, address, e-mail, telephone number and extension
C. Description of solution provided
D. Total number of customers and date that the Company implemented your CIS solution.

Eversource reserves the right to contact any or all of the customer references provided by the Respondent. The Respondent will provide the reference contacts with advance notice in order to facilitate timely response to queries from the Eversource evaluation team.

### 4.2 BUSINESS REQUIREMENTS

Attachment A is a MS Excel file containing a listing of the Eversource CIS business requirements. Please refer to the instructions regarding how you should respond to the

requirements. Note the business requirements are focused on items needed to support the CMA natural gas customers.

## 4.3 TECHNICAL QUESTIONS

Attachment B (MS Word) contains technical questions. Please answer each question.

## 4.4 ENTERPRISE CAPABILITY QUESTIONS

Attachment C (MS Word) contains questions pertaining to enterprise capabilities that fall outside of the scope of this RFP. Please answer each question.

## 4.5 SOFTWARE PRICING

Please complete Attachment D – Software Pricing.

While it is Eversource's intent to initially deploy a new CIS for only the CMA natural gas customers, Eversource seeks software pricing for both the CMA natural gas customer base and the overall Eversource customer base. This will allow Eversource to compare the two options.

Eversource requests two pricing options:

- **Pricing A: CMA Only.** Pricing for supporting the 330,000 CMA customers (only), good through September 2021; and
- **Pricing B: Tiered Block Pricing.** Tiered pricing for all 4.03 million Eversource/CMA customers, good through calendar year 2025. This will enable Eversource to secure CIS licenses/subscriptions based on converting tiered blocks of customers in a sequential program, starting with 330,000 CMA customers in 2022, then converting our remaining Eversource customers in tiered blocks of 100,000 customers during years 2023, 2024 and 2025.

As noted in Section 1.2 Scope, Eversource requires software solution pricing for both on-prem solution licenses and SaaS software subscriptions for the core CIS and ancillary solution components required to satisfy the functional requirements delineated in Attachment A. Eversource requests that respondents provide either perpetual license or subscription-based software pricing for each CIS component, as warranted.

Eversource requests that respondents list all CIS components required to satisfy functional requirements using the following table format.

Licensed pricing: Include fixed price for perpectual software licenses and 5 years of maintenance and support. Provide the number and quantity of each individual software (License) module/component required to serve the Eversource user and customer counts.

Subscription pricing: Include annual subscription fees for vendor-cloud hosted solutions and 5 years of maintenance. Provide the number and quantity of each individual software module/component required to serve the Eversource user and customer counts.

Submit the attached Software Pricing Document with four tabs, Pricing A, On Prem, Pricing A, SaaS, Pricing B, On Prem, Pricing B SaaS.

## 4.5 CONTRACT DOCUMENTS

Provide your license, maintenance & support, and subscription agreements for Eversource's review. Indicate if existing executed contract documents can be leveraged and include any additional edits.

# 5.0 CRITERIA

## 5.1 EVALUATION CRITERIA

Any award to be made pursuant to this RFP will be based upon the proposal with appropriate consideration given to operational, technical, cost, and management requirements. Evaluation of offers will be based upon the Respondent's responsiveness to the RFP and the total price quoted for all items covered by the RFP.

The following elements will be the primary considerations in evaluating all submitted proposals and in the selection of a Respondent or Respondents:

| |
|---|
| 1. Completion of all required responses in the correct format. |
| 2. The extent to which Respondent's proposed solution fulfills Eversource stated requirements as set out in the RFP. |
| 3. An assessment of the Respondent's ability to deliver the indicated software in accordance with the specifications set out in this RFP. |
| 4. Respondent's acceptance of Eversource contractual terms and conditions, if applicable. |
| 5. Overall cost and business value of Respondent's proposal |

## 6.0 RESPONSE TERMS

### 6.1 REQUIRED PROPOSAL RESPONSE STRUCTURE

Bidders are required to submit their response using Microsoft Word and Microsoft Excel, as instructed. Please follow the order of the outline provided in Section 3.1 the RFP. Please do not submit your response within this main RFP document.

### 6.2 CORRESPONDENCE CONTROL

All correspondence relating to the project described in this specification shall be limited to transmittals between the bidder/vendor and Eversource via the Ariba tool.

### 6.3 RFP PARTICIPANT QUESTIONS AND CLARIFICATION

RFP participants are invited to submit questions or request interpretation or clarification of the RFP as needed. All questions must be submitted via Ariba by the deadline for such questions.

### 6.4 REPRESENTATIONS MADE BY VENDOR

By submitting a proposal, Bidder represents:

- Bidder has read and understands this RFP and Bidder's response is made in agreement and compliance with the RFP. All terms and conditions set forth herein are accepted and incorporated in the proposal.
- Bidder possesses the capabilities, personnel, technology, and financial wherewithal to provide the services in the proposed solution.
- The RFP response will be incorporated into the final contractual agreement.

### 6.5 FAILURE TO ESTIMATE COST

No allowance will be made for failure of Bidder to estimate correctly the costs and the nature of performance requirements. Failure to do so will be at Bidder's risk and will prevent granting a relief on a plea of error in proposal.

## 6.6 COSTS INCURRED

Costs incurred in the preparation of the proposal and subsequent demonstrations or any other activities related to the proposal shall be borne by Bidder. The rejection of any proposal in whole or in part will not render Eversource liable for incurred costs and damages.

## 6.7 RIGHT TO REJECT ALL BIDS/DISCONTINUE RFP

Eversource, at its sole discretion, reserves the right to reject any and all bids as well as the right not to award any contract under this bid process. In addition, Eversource may discontinue this RFP at any stage.

## 6.8 CONFIDENTIALITY

Bidder shall maintain all data furnished by Eversource as strictly confidential information and shall not, unless otherwise required by law, disclose the source of such data to any person except with the written consent of Eversource legal counsel. All data furnished by Eversource shall remain in the custody of the vendor. Bidder shall promptly notify Eversource of any data which are required by law to be disclosed to any person.

## 6.9 PROPRIETARY MATERIAL

This RFP is confidential and for the sole use of your company's preparation of a proposal. By your company's acceptance hereof, your company agrees:

- Not to disclose, copy or distribute this RFP and attachments in whole or in part to persons other than your company's employees and agents who are authorized by nature of their duties to receive such information.
- To return to Eversource any confidential or proprietary materials upon Eversource's request.
- Not to use any information in this RFP and attachments or any other materials related to the business affairs or procedures of Eversource and any of its affiliates for your own advantage, other than in performance of this RFP.
- That Eversource reserves the right to retain all submitted materials.