



METERING AS A SERVICE

Request for Qualifications

November 10, 2021



Raleigh, North Carolina
San Jose, California



Table of Contents

I.	Introduction.....	3
II.	Submitter History	7
III.	Financial Stability.....	10
IV.	AMI Full-Service Program Capabilities	12
V.	References:.....	20



I. Introduction

To All Interested Parties at the Town of Federalsburg:

On behalf of the entire MeterSYS team, I am pleased to submit this Statement of Qualifications for serving the Town of Federalsburg (“Town”). MeterSYS is the originator of Metering as a Service® and our proven program will provide the Town with unsurpassed performance in your AMI solution. The size and scope of this project is a perfect fit for our services company and, unlike other firms with a variety of disparate business units, AMI and MaaS are all we do.

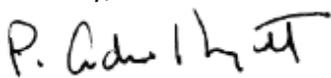
MeterSYS was founded with a focus on serving as an advocate and partner to public utilities, and we are independent of all manufacturers and distributors. This creates a true “best-value” approach to all our metering projects that promotes enhancements to operations, finance, and customer service. We are unique to the industry by:

- Operating as technical advisors and operators of AMI systems. MeterSYS has designed, installed, and now operates three fully operational AMI systems in addition to management of two AMI networks and delivery of over 40 AMI systems across the country.
- Staffing our projects with senior consultants with broad experience in AMI, public administration, utility operations and AMI manufacturing.
- Having the most expansive experience of AMI solutions across the industry currently managing projects from six different meter manufacturers (Badger, Itron, Neptune, Master Meter, Mueller, and Sensus) on both the east coast and west coast.
- Leading the industry in full end-to-end Beyond the Read™ smart-Town IoT solutions integrated with AMI infrastructure.
- Operating a testing center for network and devices integrated with custom data applications.

Considering the original RFQ and the addendum based on vendor questions and, more specifically, the Town’s position of “pay as you go” the Town may be equally well served to implement AMI as a traditional AMI implementation project. Whether as a capital project or Metering as a Service, our firm is prepared to work with the Town to identify all options available and the best course of action providing reliable performance over the 15-year useful life of the infrastructure.

We encourage an opportunity to discuss our unique qualifications for this program with your team. After meeting with our group of dedicated and passionate AMI service providers, we are confident you will find MeterSYS to be absolutely the best long-term partner for your metering program.

Sincerely,



Andy Honeycutt
Managing Director, MeterSYS®



METERING AS A SERVICE® BY METERSYS



Overview:

We are confident you will find our company's qualifications are uniquely aligned with the Town of Federalburg's goals and objectives for this engagement. MeterSYS has extensive experience in direct planning, deployment, and operation of AMI solutions. We possess broad knowledge and experience with leading AMI solutions including Aclara, Badger Meter, Itron, Kamstrup, Master Meter, Mueller Systems, Neptune and Sensus. We maintain the resource capacity and financial stability to support the Town of Federalburg through this proposed 10-year program of work.

MeterSYS is headquartered in the Caviness Building located at 703 West Johnson Street in Raleigh, North Carolina. We also operate a satellite office in San Jose, California which supports our active west coast AMI projects. Considered a leading national AMI consultancy and services firm, we have served as expert witness for AMI technologies.

Unlike most other firms in the industry, MeterSYS was founded with a core focus on water metering technology and billing operations for public agencies. We remain completely neutral to the AMI technology solution so that we may provide solid and unbiased technical support to our clients for their AMI investments. We lead the industry in AMI deployments with our Beyond the Read™ technologies that maximize the infrastructure investments for our clients. We operate a full-scale AMI and IoT testing center, which provides us with unique *device to data* design and operational experience unmatched in the industry.

SERVING CUSTOMERS SINCE 2015

As the original Metering as a Service (MaaS) provider, MeterSYS has partnered with public water agencies to implement Advanced Metering Infrastructure (AMI) technology previously considered to be too expensive or too complex for small and mid-sized utilities. As operators of AMI systems for utilities since 2015, we lead the industry in innovation and performance for metering and billing operations and Beyond the Read® automation.

WHAT IS METERING AS A SERVICE?

We work with each utility client to develop a customized service program to ensure each utility receives the level of design and support they seek from MeterSYS. Unlike other firms that advertise "subscription" metering

METERSYS MaaS PROVIDES UTILITIES WITH ESSENTIAL BENEFITS INCLUDING:

- ✓ Replaces costly upfront capital investment with affordable and fixed annual service fees
- ✓ Accelerates AMI implementation and reduces implementation and support risks
- ✓ Operates with high performance accuracy and reliability
- ✓ Increases utility revenues and lowers operational costs
- ✓ Provides utilities with real time data, analytics, and insights
- ✓ Enables higher levels of customer responsiveness and customer service
- ✓ Maintains "like new" operational performance through monthly service programs



services, MeterSYS provides our clients with a tested and unique AMI service tailored to the priorities of each utility. We guide the utility through the entire process, providing a streamlined approach customer-designed and fully supported. From planning to ongoing support, MeterSYS Metering as a Service is delivered by professionals experienced in managing AMI performance for public utilities.

Our commitment to partnering with the Town for a turn-key program delivery will ensure the successful achievement of the objectives for metering and billing automation both cost effectively and with sustainable performance.

The MeterSYS® Mission- Our company was formed to address the clear divide between the manufacturing and distribution vendors on one side and their utility customers on the other. We bridge this gap so that AMI investments serve water agencies with sustainability, performance, and financial value for the life of the assets while preserving public trust. We consider AMI implementation as a technology enhancement program of work that requires experienced specialists in networking, software applications and integrations, water distribution operations and utility billing as well as possessing a strong background in the elements of effective public administration. Our team is committed to delivering AMI solutions for our clients that presents agencies as good stewards of public infrastructure while enhancing revenues, operational efficiencies, and customer service.

		
WATER AMI "PURE PLAY" CONSULTANTS AND OPERATORS	CITIZEN-CENTRIC AMI SERVICES FIRM	AMI DATA MANAGEMENT TECHNICAL PROFICIENCY AND MANAGEMENT EXPERTISE
		
NETWORK INTEGRATORS AND DEVICE TESTING - METERSYS TESTING CENTER	SMART CITY AND POST-DEPLOYMENT SERVICES (SENTHISYS, METERSERV)	BROAD INDUSTRY PARTNERSHIPS AND COMPREHENSIVE RESOURCES

Since the company's inception, we have seen exponential growth in the market, due in large part to our complete neutrality among AMI vendors, our cost effectiveness, our commitment to the water industry as core service offerings, our direct experience in operation of public utility metering, and our innovation and leadership in new technologies.



Neutrality: MeterSYS is committed to advocacy on behalf of our clients for all aspects of AMI planning, procurement, and program management independent of all manufacturers and distributors, while partnering with the industry for effective design and implementation of AMI systems. Our balanced approach to the industry ensures each AMI project managed by MeterSYS will be defined with the public utility's interests firmly established and met.



Performance Accountabilities: We have developed comprehensive AMI operational expertise from our experience as AMI system owners. MeterSYS understands the technical elements critical for sustained performance and we have developed predictive analytics for device and network asset management.



Beyond the Read™ Integrators: MeterSYS is the industry leader in expanded utilization of AMI networks for devices supporting water distribution, wastewater and stormwater collection, parking monitoring, environmental sensors, and a host of solutions that support data-driven decision making. We are full system integrators for both proprietary and open networks, giving our clients the most comprehensive solutions partner in the industry.

We operate several brands under the MeterSYS enterprise, including Metering as a Service®, our fully outsourced AMI service program, MeterSERV™, our AMI post-deployment operations service program, SentiSYS™, our AMI/IoT integrated platform, MeterSOFT™, our integrated device data management system (DDMS™), and MeterSOURCE™, our supplies distribution service for AMI and IoT through our verified partner program.

The team presented by MeterSYS to the Town of Federalburg will be the team involved in all elements of the full-service implementation and maintenance program.

MeterSYS Team Experience Diversity

MeterSYS builds a team based on diversity of backgrounds with professionals committed to properly designed AMI systems with sustainable operations over the life cycle of the technology asset.

Our core team selected for the Town of Federalburg’s Advanced Metering Infrastructure Full-Service Program will include professionals with diverse backgrounds including:

- Local Government Professionals
- United States Army and Air Force
- Project Management Professional (PMP)
- AMI Manufacturer’s Representative
- Investor Owned Utility (IOU) Senior Managers
- International Technology Market Consulting
- Metering Certified Field Technicians

In addition, the MeterSYS team is comprised of experienced specialists in AMI finance, procurement process management, and smart Town applications that provide the most innovative design team in the industry.



The Town of Federalburg needs and will benefit from a focused team of AMI experts with the resource capacity



and commitment to meeting the critical design requirements of the utility. Through our diversity of experiences, the Town may be confident that its goals for AMI will be achieved through effective engagement, proper operational analysis, and system maintenance standards.

Integrated Team of AMI Subject Matter Experts

MeterSYS incorporates specialists within the firms staffing group along with customized engagement of contractor subject matter experts to bring the highest quality of experience and expertise to our AMI projects. For the Town of Federalsburg, our team will be focused on technical specifications, technology interfaces, system performance and internal/external stakeholder engagement as core components of the implementation and AMI maintenance program.

II. *Submitter History*

PROJECT MANAGER- IMPLEMENTATION

The Town of Federalsburg is about to embark on a transformational Automated Metering Infrastructure Full-Service Program. A project of this type requires creative and innovative thought leaders who understand the technology and local government operations. Andy Honeycutt, Managing Director and CEO of MeterSYS will serve as Implementation Project Manager for this engagement.

Andy brings to MeterSYS clients 25 years of management experience in the public and private sectors. Andy served as a municipal manager in North Carolina for over a decade and as a regional manager for Progress Energy (now Duke Energy), receiving intensive training in utility operations. He provides executive project leadership at MeterSYS and is a trusted resource for local government clients in the evaluation and implementation of advanced metering technologies.



*Implementation Project
Manager- Andy
Honeycutt*

Andy's core competencies include: AMI Technology Solutions, Business Case Assessment, Meter Solution and Network Design, AMI Procurement and Implementation, Financial Analysis, and Contract Negotiations. Andy holds a B S in Public Administration from Appalachian State University, a Certification in Leadership from Duke University's Fuqua School of Business and completed the Corporate Community Involvement Program at Boston University.



PROJECT MANAGER- MAINTENANCE

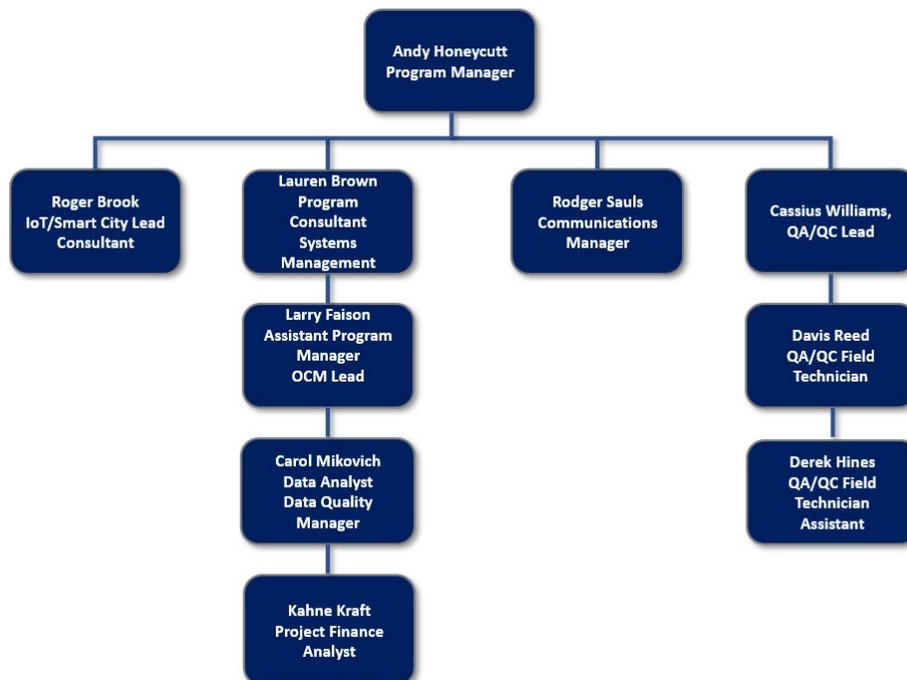
Sustainability of operations is critical to the success of AMI whether operated by the utility or through a Metering as a Service collaborative partnership. Cassius Williams leads our field operations for MeterSYS and will manage all aspects of network and meter performance on the system.

Cassius holds an MS in International Relations from Troy University and has over 20 years of Project Management, Leadership Training, and Supervisory Management experience. He proudly served our country in the US Army organizing and coordinating 25 globally focused projects.



*Maintenance Project
 Manager- Cassius
 Williams*

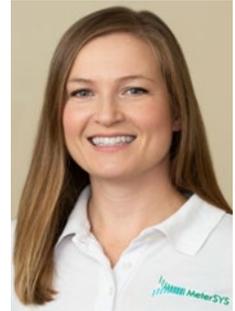
Based on our understanding of the Town’s goals for the AMI Full-Service Program, we present the following additional Key Personnel and Resources that will serve under the leadership and direction of Andy Honeycutt, Project Manager. Critical to the success of any long-term metering infrastructure service program, MeterSYS provides staffing for areas of communication/public engagement, data quality, infrastructure performance quality, network management, financial management, and systems interfacing and reporting.





Consulting Support Team

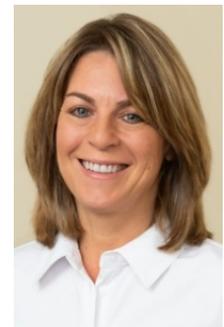
AMI Solution Consultant (Lauren Brown): Responsible for leading the MeterSYS utility billing, and MDMS teams for an effective integration of the mass meter change out and synchronization files as well as data sharing between work order management systems, GIS, and the customer portal. Lauren is skilled in leading systems interfacing initiatives across a myriad of utility billing and meter applications. She is Vice President of MeterSYS and serves as the firm's Chief Project Officer. Lauren holds an MPA with a focus on Public Policy as well a BA from UNC-Wilmington and has managed multiple AMR and AMI implementations.



Assistant Program Manager (Larry Faison): As an experienced public administrator including leadership of water, electric, and gas utilities, Larry will be providing a supporting role for data collection of all critical customer service business processes, policies, rates, issues, and operational metrics. Supporting the effective internal and external rollout of AMI, Larry leads project management infrastructure including project schedules, tasks tracking, the project management portal within Zoho, and is responsible for the communications planning and implementation efforts. Larry holds an MBA from Campbell University, and a BS from Virginia Tech. Prior to MeterSYS Larry served in multiple city management roles most recently as City Manager of Monroe, North Carolina.



Data Analyst (Carol Mikovich): In Carol's role as Systems Data Analyst, she will be providing technical reporting and analytics for data and field quality measures on behalf of the Town and the implementation team. Carol collaborates on the planning and design of systems integration projects and serves as a liaison between internal business units and external entities to support reporting and analytics efforts. She gathers and executes business requirements through Data Collection, Cleansing, and Analysis for optimizing systems integration projects and ensuring data integrity and performs UAT testing, as well as daily monitoring of AMI system for optimal reporting. Carol holds a B.S. Management Science with a Concentration in Production and Operations from Rider University.



Financial Analyst (Kahne Kraft): Kahne leads MeterSYS financial management efforts as a Consulting Analyst and Project Finance Administrator responsible for Financial and Budgetary Management, including invoice and Pay App validation and authorization. She provides QC oversight of project financials and works closely with the project management team to ensure data quality, accuracy, and validation of project financials elements, and coordinates with vendor on any data discrepancies and actions required for resolution in a timely manner. Kahne facilitates payment processing and account management in coordination with the client. Kahne is in the process of receiving her BS in Business Administration from the University of North Carolina at Pembroke.





III. Financial Stability

MeterSYS was organized in 2015 as a North Carolina Limited Liability Company and is governed by an Advisory Board along with Andy Honeycutt who serves as President of the company, Lauren Brown serves as Vice President, and Rodger Sauls who serves as Secretary. The Company is financially well positioned with double year over year revenue growth for 4 of the past five years. MeterSYS maintains healthy capital reserves providing financial stability for its operations and has established a strong cooperative relationship with a leading infrastructure funding partner providing access to significant resources for Metering as a Service projects of all sizes. MeterSYS has served over 40 customers and is currently managing 12 AMI projects with a focus on full metering technology and organizational process change management.

Meter Programming Financial Analysis Summary

The following outputs are generated from a proprietary AMI feasibility model application developed to provide capital and operational expenditure estimates, both direct (cost savings) and indirect (efficiency gains) benefits to determine the business case for AMI over the expected fifteen-year useful life of the Town of Federalburg AMI Program.

Assumptions

<u>Annual Growth Rate</u>	
Meters	1.00%
Benefits	6.5%
OpEx	2.5%
Labor	4.0%
Consumption	1.0%
	8.3%
<u>Water Meters</u>	
Residential	1,200
Commercial/Industrial	130
Governmental	20
	1,350
<u>Total Water Meter Lids/Enclosures</u>	
Composite	-
Cast Iron	1,450
Concrete	-
<u>Retail Sales</u>	
Annual Water Revenue (Consumption Only)	\$ 390,000
Annual Sewer Revenue (Consumption Only)	\$ 450,000
Estimated Meter Inaccuracy	5.5%
Total 90+ Delinquency	\$ 9,750



Capital Estimates

Advanced Metering Infrastructure- Non MaaS	Cost
Implementation	
Total Network	\$ 259,250
Total Meter Equipment	\$ 213,595
Total Meter Labor	\$ 119,050
Total Applications	\$ 55,000
Professional Services Total	\$ 114,784
OpEx Year 1	\$ 38,680
Contingency	\$ 87,646
Total Estimates- For Planning Purposes Only	\$ 888,006

Benefits Based on Assumptions

Direct Revenues and Cost Reductions (AMI) \$ 74,660: Meter Replacement, Fleet, Theft, Water Revenue Recovery, Delinquency Management, Water Loss

Indirect Value Benefit of Smart Metering (AMI) \$94,504: Billing Exception Handling, Customer Service, Non-pay Disconnect, Re-reads, Meter Reading

Financial Metrics	
NPV	\$ 1,624,169
IRR	23.4%
ROI	66.8%
Payback Period (Years)	10
Total CapEx During Deployment (000's)	\$ 849

Financial estimates are based on assumptions and may be updated based on the Town’s direction and need. Costs associated with Metering as a Service would be determined through development of a Service Level Agreement based on unique operational objectives of the Town of Federalsburg.



IV. AMI Full-Service Program Capabilities

Task 1. Program Management

Program Management

Our firm has developed a predictable, comprehensive approach to full turn-key implementation program management associated with organizational business process changes as an outcome of the new reading automation. With our direct AMI experience, our consulting team is skilled in leading the implementation process in coordination with Utility staff. We utilize user-friendly program management applications (Zoho / Sharepoint) along with PowerBI for data validation and presentation.

Program Management Tools

Our experienced Program Manager and Project Team will coordinate the update of a detailed project plan and accompanying project charter to guide and manage all tasks and services associated with the project. The project plan identifies each individual task via a detailed work breakdown structure that includes the level of effort required to complete tasks, a timeline for completion of tasks, dependencies (predecessor and successor relationships), responsible party (vendor, client, etc.) and the status of each task. The plan will be developed in cooperation with the entire project team and managed consistently for performance throughout the duration of the project.

MeterSYS will convert all relevant Vendor activities into a Task and Milestone plan within Microsoft Project and then into Sharepoint and/or Zoho Projects based on user (Project Team) preferences. Zoho is a web-based, team accessible tool which will be used throughout the project to monitor progress and update project stakeholders on project status. The project plan will be maintained by MeterSYS with regular input from the Utility project lead and all Vendor project leads. The plan will be available for all team members to view on Zoho and SharePoint.

Project Kick-Off and Progress Meetings

The MeterSYS Project Team Members will hold a Kick-off meeting with the Town, selected Contractor, and all other relevant parties for everyone to develop a full understanding of the scope of the project and critical milestones. The goal is for everyone to walk away with clearly defined desired capabilities of the AMI system, interfacing Town systems, known obstacles and mitigation of obstacles, chain of command, and preferred methods for communication. A project of this length and size requires clearly defined roles and accountability for optimum success.

Project Management Plan and Staffing

Based on direction from Town Staff, MeterSYS will be able to finalize and formalize a Construction Management Plan. While some aspects of the plan are fixed, input from all involved project participants is recommended to ensure buy-in and compliance. We regularly review the installation schedule, available inventory, cash flow projections, and overall project timeline to predict and provide appropriate staffing for installation. This is done in conjunction with the Contractor, the Town Project Manager, and any other impacted parties.

Task 2. Program Administration

Safety and Security Monitoring



Maintaining safety of the Town's customers, workforce, and the public is paramount for timely completion of the project. While the selected Contractor is responsible for creating an emergency response plan for their team, MeterSYS will review to ensure compliance with all Local, State, and Federal requirements. MeterSYS will conduct daily safety inspections of the staging site(s) and random inspections of installers in the field. Safety violations will be handled with recommended disciplinary actions that match the infraction, with remediation ranging from repeating mandatory safety briefings to removal of employee or organization when necessary.

Client-based Advocacy and Internal Reviews

MeterSYS utilizes the review process to keep projects on target and the goals of the client in the forefront. Our Program Manager conducts ongoing internal reviews with the prime contractor, the technology manufacturer, and the installation subcontractor to ensure that scope, costs, and timeline are being managed appropriately. Documents are submitted for team review to ensure completeness before being submitted to management for final review and approval. Each document is reviewed by the Management Team and Executive Team to ensure completeness and accuracy.

Issue and Risk Management

The goal of the team is to assess any issues arising from the Project and understand its impact to the Metering Technology Implementation Program of Work early as reasonable and practical, and work to mitigate the problem prior to it becoming a risk to the Program of Work. MeterSYS will maintain, in cooperation with the Project Team, a Risk Register that highlights potential threats to the successful completion of the AMI program.

Organizational Change Management (OCM)

Based on a foundation of public administration, MeterSYS program team members will work with key functions within the Town of Federalsburg to identify OCM needs at various milestones throughout the project timeline. While the priority is the successful implementation of AMI across the service territory, our experiences with organizational change during testing and full implementation phases have necessitated a best practice of establishing organizational change management components as part of the AMI rollout. Pre-planning will aid in the natural and successful transition of manual metering tasks to an automated environment seamlessly and predictably.

Project Financial Management

MeterSYS maintains oversight of the Project Budget and reviews each invoice for accuracy and to ensure alignment with the contract and expected project cashflow as presented by the Utility. MeterSYS provides a detailed report with each submission for payment that tracks all project financials with supporting invoice numbers and cumulative information, allowing for a larger picture of where the project stands financially at any time. Our process also involves monitoring the spend for allowances for cost of time and materials work related to meter replacement. We have found that setting thresholds and monitoring these additional costs holds the installer accountable and prevents cost overruns.

Document Management

MeterSYS utilizes the web-based document management system Zoho Projects. Zoho is a user-friendly, encrypted, and access-controlled platform that encourages partnership and communication of all project entities. Zoho automates document processes such as revision tracking, search, and retrieval, and allows for team collaboration by way of comments, tagging, and ease of document sharing. As document control, storage,



retention, and maintenance for accuracy and contract compliance is critical for a project like this one, so is applying other project management tools for a successful deployment. Zoho allows for a well-balanced project management solution offering project scheduling, attaching documentation related to each project and task, customized notifications of task assignments and document uploads, and the project manager will have the ability to define project tasks, assign them to the team, and follow up on in-progress tasks.

Comprehensive Quality Program- Quality Assurance/Quality Control (QA / QC)

MeterSYS will work with the Town to develop and implement a QA / QC program and hold each Program participant responsible for their own internal QC responsibilities related to their contracted scope of work with the Utility. We will ensure management elements are in place to hold vendors accountable for QC. At a minimum, it is expected that Vendors’ QC efforts will consist of plans, procedures, and the organization necessary to assure adequate control (inspection) and delivery of quality for materials, workmanship, installation procedure compliance and operations covering both on-site and off-site work. At a minimum, MeterSYS and other vendors will provide and adhere to the following:

- QC documentation to cover the scope of the work
- Designated QC personnel
- Checklists approved by person completing the work and by QC personnel accepting the work

The MeterSYS Program Manager will have responsibility for the overall Quality Program in close coordination with the Utility Project Lead. Management responsibility includes establishing a high-level presence and environment to facilitate activities and a fundamental commitment to quality including, but not limited to:

- Continual oversight of Contract language for accountabilities in work quality and performance
- Periodic meetings with the Project Team and reporting to track quality status
- Review of vendor project quality control plans, test results, and status reports
- Conduct periodic QA audits of Vendors’ QC activities. Oversight will take the form of checking contractor supplied documentation; witnessing contractor operations, inspections, and tests; performing independent inspections and tests to verify results



Task 3. Inspection

Field Install and Data Quality Assurance

Our QA program is an onsite meter inspection of typically 5% of each installed route and conducted when a route’s completion percentage is achieved as directed by the Utility or contractually. Route installation data is downloaded from vendor generated installation files and reformatted for MeterSYS processing.



Each route is loaded into Google Earth, then meters are selected based on location to achieve a 5% sample over the entire route and/or any specifics from the customer.

Selected meters are loaded into MeterSYS WOMS, iForms, then assigned to Field Technicians to conduct QAs in the field. Each meter is captured as an individual record that contains all installation data specific to that meter, to include account information, serial numbers, name of installer and any issues noted by installer.

Field technicians thoroughly inspect the entire installation site to verify proper installation as well as the conditions of the immediate installation area. All findings are captured by data entry and images. Unsatisfactory findings are categorized as Return to Installer or Return to Utility as required and are serviced and tracked utilizing the same record from the initial QA. Additionally, unsatisfactory findings are presented to the MeterSYS Program Manager via email, within one business day and is on the agenda for each project call with the customer and vendor.

Data Quality Management

Data quality management is crucial to a successful AMI implementation and the data integration process. MeterSYS performs data quality audits through each phase of the project to minimize risk and to adhere to the reliability, performance, and customer expectations of a smooth transition.

MeterSYS routinely collects, reviews, and analyzes data in detail to inform key business decisions. The data is collected from multiple data sources throughout the project, including but not limited to, the Utility's Customer Information System (CIS), Work Order Management System (WOMS), Meter Data Management System (MDMS), and the installers Work Order System. We ingest, cleanse, and analyze the data for maximizing performance, planning, and expectations throughout the project. Our goal is to minimize risk and exposure to the Utility due to erroneous or conflicting data, and to ensure the project is completed on time and within budget with little to no impact to the Utility or customers.

Routine automated reports are generated to track production and other key areas throughout the project. The built-in automation tools provide an extra layer of validation, as the platform is designed to reject data errors. Examples include incorrect field formatting, null/duplicate values for required fields, or identifying data values entered differently amongst the multiple data sources. Customized processes can be implemented to meet the client's requirements.

Comparison of Install Configuration Data Against Work Order Example

A key area focus of our data quality management process is conducted during the Deployment phase. We consistently monitor performance to ensure production levels are met and conduct extensive quality checks on the data collected at the time of meter install. We ensure the meter data is commissioned and "heard" accurately in the RNI and matches other information provided by installers and the CIS database. MeterSYS will compare data from Peak Workflow and the RNI database to ensure data matches and is within expectations. Photographs are inspected for clarity and accuracy. Inconsistencies discovered are documented, reported, and tracked to resolution.

Additionally, data integrity is as essential for post-deployment as it is during implementation. Receiving full, accurate, and complete data at time of install allows a client to easily manage and service the equipment post-deployment. Capturing the pit conditions, location coordinates, and lid types provide insight into the network performance and are critical to effectively utilizing the AMI functionality while troubleshooting. We continually



monitor the work order system to ensure the data is captured in full and work closely with the install team if additional information is required.

Examples of data quality audits conducted by MeterSYS include:

- In the project planning phase, MeterSYS conducts a thorough analysis of the current metering system to identify the quantity of meters to be replaced within budget; provide recommendations based on results. We assist the customer on interpreting their data if limited data is available in their current work order system.
- Routinely monitor the final reads entered by the install team at time of changeout; compare the final read to the previous read to confirm usage is consistent. This is a critical metric as a high/low consumption difference would impact the customer's bill.
- Identify meter installations that have been completed, but not commissioned to the network; we routinely confirm installations are completed in full and that all transmitters are reporting on the network within the expected timeframe.
- At project closeout, we work to identify any locations or installations that were missed by comparing current CIS and read files with the installation database to ensure the project is completed in full and to the Utility's satisfaction.

Task 4. Meter Reading and Software Integration

Aligned with the RFQ, we will follow best practices for systems integration, configuration and management utilizing the following elements of performance from our SME team.

Analysis Phase

The Analysis stage (aka Requirements Analysis) is intended for MeterSYS facilitate a documented set of Functional and Non-functional requirements for the AMI software, CIS, WOMS, and other prioritized support applications based on existing functionalities and user/organizational priorities. With the integration efforts fully underway, our role will be to augment the processes outlined in the plan documents and offer best practices where data disconnects and other impedances to the proper synchronization between Utility Billing and the MDMS occur and to highlight the key requirements of the metering and billing staff for utilization.

Design Phase

The next stage is the Design phase. During the design phase, the systems team will complete the high-level design of the software and system interfaces to be able to deliver each defined Functional and Non-Functional requirement. The Design phase will include updated systems diagram for the intended solution, inclusive of interfaces with other systems and representative of the existing AMI architecture. Each requirement will have traceability and include any required inputs, processes, and outputs. During the final stage of the Design phase, the Technical Services team will perform a review of each requirement and perform a step-by-step review of how the technical architecture meets each requirement.

Implementation Phase/Integration/Testing

For purposes of facilitating proper rollout of the AMI system as analyzed and designed, implementation will involve coordination of the prioritized testing plan that compliment, rather than contradicts, the fixed design of



the critical systems. The CIS will continue to act as the system of record and therefore all interfaces shall reflect the inherent hierarchies. MeterSYS has established a formal process for sign-off of the systems design and testing phases and includes as-built and future architectures for reference through user acceptance testing. The Town’s DBA will provide the critical guidance as to the testing parameters allowed for acceptance.

Once testing has been completed and systems implementation has been accepted, MeterSYS will coordinate with software vendors the training programs aligned with organizational readiness, organizational capacity, and systems competency progression needs for proper transition of the systems into active use.

AMI Systems Data Management

The main value for investing in AMI is not the data but the application of the data to existing workflows or creating new processes and procedures to accommodate AMI data, is an area that utilities implementing AMI tend to struggle with. A key benefit from partnering with MeterSYS is that our team is very comfortable in the entire workflow of the data involved with AMI. Data oversight, issue identification, and risk reduction are the focus of our quality control and validation measures. These skills are transferred to the utility through focused training and work sessions, where collaboration with staff allows the best practices to be tailored to the utility.

Task 5. Installation Closeout

The quality assurance and quality control efforts applied throughout the project should present minimal needs for further optimization of installs but will be a focus of the closeout process. Compliance with all aspects of warranty and installation terms and conditions will be addressed and all financials will undergo final deep scrutiny to assure program dollars were appropriately applied and qualify any final adjusting change orders as part of the financial workbook closeout.

MeterSYS will focus on organizational adoption of the new technology through resource assessments and the application of KPIs for longevity of system performance. The program team will evaluate any outstanding needs for policy or ordinance alignment with the new business processes associated with advanced metering infrastructure and the shift in organizational resources.

To highlight value of the investment, MeterSYS will work with Town staff to inform Town leadership of the benefits of AMI and the results of the program, the advantages to customer engagement, and the enhancements of operational efficiencies through automation.

Post Deployment Maintenance Program

Just as important as the implementation and integration of a new AMI system is the ongoing maintenance and oversight that ensures the system operates in a manner that allows the utility to maximize their investment in the technology. By design, the MeterSYS Metering as a Service (MaaS) program provides our





utility clients with a level of performance that is unsurpassed in the water industry. This program delivers not only a quality metering solution, but also ensures that system performs at a very high level as required by the utility.

Through our MaaS program, MeterSYS accepts responsibility for planning, coordination, implementation, maintenance, and operation of a fully deployed AMI metering network for all water accounts served by our utility clients based on predetermined and mutually agreed terms that will be spelled out in a Scope of Work Document complete with a Chart of Services and Response Times. MeterSYS shall make available qualified and authorized personnel to support the maintenance and operation of the Town’s AMI Network and respond to Town inquiries and support needs upon request within a predetermined number of monthly/annual service hours allocated as part of the fees for service outlined in the contractual agreement.

The following is an outline of the ongoing maintenance portion of a typical MaaS Program of Work. While individual items can be added or deleted, this provides a solid foundation upon which the maintenance portion of our program is built.

[Chart of Services](#)

System Maintenance	MeterSYS Service Details
System Monitoring (Network, Smart points, Meters, MDM)	Hourly consumption and system-wide operational oversight
Meter Field Service Inspection	Audits to troubleshoot field conditions of approx. 30% of meter population per year
New Meter Node Installation	Installation of new meter nodes; setup and verification of smart point within the AMI network and MDM
Meter Maintenance and Repair	System test engineering; meter battery usage/SNR monitoring; repairing, testing, and calibrating water meters (up to 2") as required for optimal performance
Equipment Warranty and Stock Management	RMA Management and Inventory Controls (meter, smart point, box, lid, setter)
Alarms and Alerts Management	Standard reports with support include: alarms -leak detection, tampering, network failure, back flow; operations- high/low settings, zero consumption, historical consumption
Ongoing and Scheduled System Inspections	Including collector and antenna inspections
System Historical Data Management	Maintain records regarding meter history, repairs, and maintenance
Reporting	MeterSYS Service Details
Defined Standard Alarms and System Settings	Dependent on Town priorities i.e., seasonal, vacant, irrigation,



Meter Rereads and Exception Validation	Weekly demand read and meter reporting failure troubleshooting report and issue resolution
Billing File and MDM Reports	Transfer of reviewed and qualified read file to Billing and Collections
Records and Report Generation Based on Customer Inquiries	Makes notes to customer accounts dependent on utilities work order system
Additional Reporting	Standard reports to include consumption, leak detection, theft, metrology, battery
Troubleshooting	MeterSYS Service Details
Meter and Smart point Performance Monitoring and Repair	Routine report and response action for infrastructure performance
Network Oversight and Troubleshooting	Specific failures covered: backhaul failure; collector power failure; equipment failure; antenna issues; configuration errors
Software Operational Issues	Software issues covered: MDM settings conflicts; hosting issues; log-in and permission settings; version compatibility
Supports Required Response Criteria	To include a to-be-determined issue prioritization and response
Customer Communication and Staff Training	MeterSYS Service Details
Customer Education of AMI Technology	Supports routine educational communications and presentations for customers on AMI technologies
Training and Support of Customer Service Staff	Support Town billing staff in routine data
Supports Customer Communication Information	Creation of public communication for website, bill insert, door knocker, etc. to share updates and project advances, in addition to customer-specific account changes
Staff Education and Training	Creation of training around support and smart metering project for all Town staff to be knowledgeable; level of internal communication support to be determined by Town
Software/Licensing	MeterSYS Service Details
MDM Configuration and Access	Set-up and testing of MDM based on requirements of Town
Customer Portal Design and Configuration	Design and functionalities are vendor specific
Hosting Management	Fully managed through third-party agreements



Software and System-wide Firmware	Fully supported
Third-party Integrations	Support to include Utility Billing, WO Management, Payment processing, etc.
Version Updates	Review and disclosure of upgrade notes and issue resolution
Backup, DR, Privacy/Security Oversight	Covered through third-party support agreements
Data Controls	Covered through third-party support agreements

Infrastructure- Fixed Network

Because MeterSYS has experience with all leading North American AMI solutions, the choice of network and meter type is driven by the requirements and operational objectives of the utilities we serve. Our responsibility as a technical expert in AMI is to inform our clients of the strengths and weaknesses of each potential solution so that through proper analysis, the best overall technology value is achieved.



MeterSYS always specifies full two-way functionality from the head-end system to the meter and designs network for redundancy of coverage with the added benefit of AMR functionality should there be any experienced outages of the network.

Metering: All MeterSYS projects have meters and MIUs (radios) with an expected useful life of 15 years from the date placed in service. This is consistent with the AWWA’s position on AMI operational period expectations. For network devices, we expect no less than 7 years from the in-service date and, for capital projects, advise a capital replacement plan for network infrastructure (gateways) at year 10.

For radios (MIUs), our offerings shall be free from defects in manufacture and design for a period of twenty (20) years from the “date of shipment” (such period being the “Warranty Period”). The manufacturer will repair or replace a nonperforming MIU free of charge for the first ten (10) years and at a discount off the then-current contract price or the then-current list price, whichever is less, during the remaining ten (10) years.

V. References:

MaaS Reference 1	
Company Name:	Town of Candor, NC
Address:	214 S. Main Street, Candor, NC 27229
Contact Person:	Tammy Kellis, Town Clerk
Email Address:	TownClerk@TownofCandorNC.com



Telephone:	(910)-974-4221
Project Name:	Town of Candor - Metering as a Service Implementation and Maintenance Services
Dates Work Performed:	Contract Award and AMI Project Start: August 2017 Install Completion: September 2017 MaaS Contract Term: 6 Years

MaaS Reference 2	
Utility Name:	Town of Kenansville, NC
Address:	141 Routledge Rd, Kenansville, NC 28349
Contact Person:	Anna West, Finance Officer
Email Address:	finance@kenansville.org
Telephone Address:	(910)-447-4735
Project Name:	Town of Kenansville - Metering as a Service Implementation and Maintenance
Dates Work Performed:	Contract Award and AMI Project Start: March 2018 Install Completion: September 2018 Contract Term: 10 years

MaaS Reference 3	
Company Name:	Town of Mt. Gilead, NC
Address:	110 West Allenton Street, Mt. Gilead, NC 27306
Contact Person:	Daniel Medley – Public Works Director
Email Address:	dmedley@mtgileadnc.com
Telephone Address:	(910)-439-5111
Project Name:	Town of Mt. Gilead - Metering as a Service Implementation and Maintenance
Dates Work Performed:	Contract Award and AMI Project Start: July 3, 2018 Installation Completion: November 2018 Contract Term: 4 Years



Client	FEASIBILITY & BUSINESS CASE ANALYSIS								PROCUREMENT AND IMPLEMENTATION					AMI OPTIMIZATION		
	Current State Assessment	Field Inventory Survey	Network Design Site Survey	Financial Modeling/ROI	Propagation Studies	Requirements Mapping	System s Implications	Findings Summary	Procurement	Pilot Deployment	Implementation	Utility Billing and MDMS Integration Services	AMI Customer Portal	Network Optimization	Revenue Analysis	Systems Standardization
Aberdeen, NC				✓	✓					✓						
Beaufort County, NC	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Belmont, NC	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Candor, NC*	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		
Carthage, NC	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓				
Coats, NC	✓	✓		✓	✓			✓	✓		✓	✓				
Clayton, NC	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Dunn, NC	✓	✓		✓	✓	✓	✓	✓	✓	✓						
Emporia, VA		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓			
Fuquay-Varina, NC	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Gateway Services CDD, FL	✓	✓	✓				✓	✓								
Goldsboro, NC	✓			✓	✓	✓	✓	✓	✓		✓					
Halifax County Service Authority, VA	✓	✓		✓	✓	✓	✓									
Harnett Regional Water, NC	✓		✓		✓		✓	✓			✓	✓	✓			
Hendersonville, NC											✓	✓	✓	✓	✓	✓
Holly Springs, NC											✓			✓		
Kenansville, NC*	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		
Las Virgenes, CA										✓	✓	✓				
Lenoir, NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Manhattan Beach, CA	✓				✓	✓		✓	✓							
Mt. Gilead, NC*	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		
Pico Rivera, CA				✓	✓	✓		✓	✓							
Pilot Mountain, NC				✓		✓		✓	✓		✓	✓				
Raeford, NC	✓			✓	✓	✓	✓	✓	✓		✓	✓				
Sanford, NC	✓		✓	✓	✓	✓		✓		✓						
Sawmills, NC	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓					
Southport, NC	✓	✓		✓	✓	✓	✓	✓	✓		✓			✓	✓	✓
Sun N Lake Improvement District, FL								✓								
Troy, NC					✓	✓	✓	✓	✓	✓	✓					✓
Union County, NC	✓	✓	✓	✓	✓	✓	✓	✓		✓						
Valdese, NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

*Metering as a Service Clients

Other References

- Craig Jones, Las Virgenes Municipal Water District, Calabasas, CA (818) 251-2131
- Patty Dressen, Asst. Finance Director, Town of Holly Springs, NC (919) 557-3910
- Steve Ward, Director, Harnett Regional Water, Harnett County, NC (910) 893- 7575
- Radford Thomas, Public Utilities Director, Town of Lenoir, NC 828-757-219 ext. 3701

METERING AS A SERVICE[®] BY METERSYS



AMI DEPLOYMENTS MADE EASY WITH THE INDUSTRY'S MOST TRUSTED PARTNER

SERVING CUSTOMERS SINCE 2015

As the original Metering as a Service (MaaS) provider, MeterSYS has partnered with public water agencies to implement Advanced Metering Infrastructure (AMI) technology previously considered to be too expensive or too complex for small and mid-sized utilities.

As operators of AMI systems for utilities since 2015, we lead the industry in innovation and performance for metering and billing operations and Beyond the Read automation.

WHAT IS METERING AS A SERVICE?

We work with each utility client to develop a customized service program to ensure each utility receives the level of design and support they seek from MeterSYS. Unlike other firms that advertise "subscription" metering services, MeterSYS provides our clients with a tested and unique AMI service tailored to the priorities of each utility. We guide the utility through the entire process, providing a streamlined approach customer-designed and fully supported. From planning to ongoing support, MeterSYS Metering as a Service is delivered by professionals experienced in managing AMI performance for public utilities.

METERSYS MaaS PROVIDES UTILITIES WITH ESSENTIAL BENEFITS INCLUDING:

- ✓ Replaces costly upfront capital investment with affordable and fixed annual service fees
- ✓ Accelerates AMI implementation and reduces implementation and support risks
- ✓ Operates with high performance accuracy and reliability
- ✓ Increases utility revenues and lowers operational costs
- ✓ Provides utilities with real time data, analytics, and insights
- ✓ Enables higher levels of customer responsiveness and customer service
- ✓ Maintains "like new" operational performance through monthly service programs



DESIGN

We will design a custom AMI plan that will take you from project inception to deployment of your new AMI system that is scalable to your utility. Depending on your topology and density, we will provide a solution best suited for your needs.



BUILD

We provide all the AMI equipment, software, and services to limit disruption to your utility's business operations. Our experienced team will install the advanced meters, endpoints, network and infrastructure, and integrate the utility billing and meter data management systems.



FINANCE

Our program will eliminate upfront capital purchases and allow the costs of the AMI equipment, maintenance, and ongoing support to be amortized over a portion of the useful life of the asset. The AMI costs will shift from CapEx to OpEx for more predictability and affordability, while providing transparency in financials planning.



OPERATE

We provide real-time field support operations, disaster recovery readiness, and enhanced reporting analytics to ensure your new AMI system is operating at the optimal performance level. We hold our networks and all provided services to the highest level.



MAINTAIN

We provide system remote monitoring, network performance troubleshooting, and long-term planning. Although, staff will receive professional and ongoing training from our experienced team, you will benefit from annual maintenance and support for your new network to ensure staff are never left to manage the solution alone.

FOR MORE INFORMATION OR TO SCHEDULE A FREE CONSULTATION WITH ONE OF OUR METERSYS SMART SOLUTIONS SPECIALISTS, visit our website at www.MeterSYS.com or call us at 844.881.8656.