Advanced Metering Infrastructure

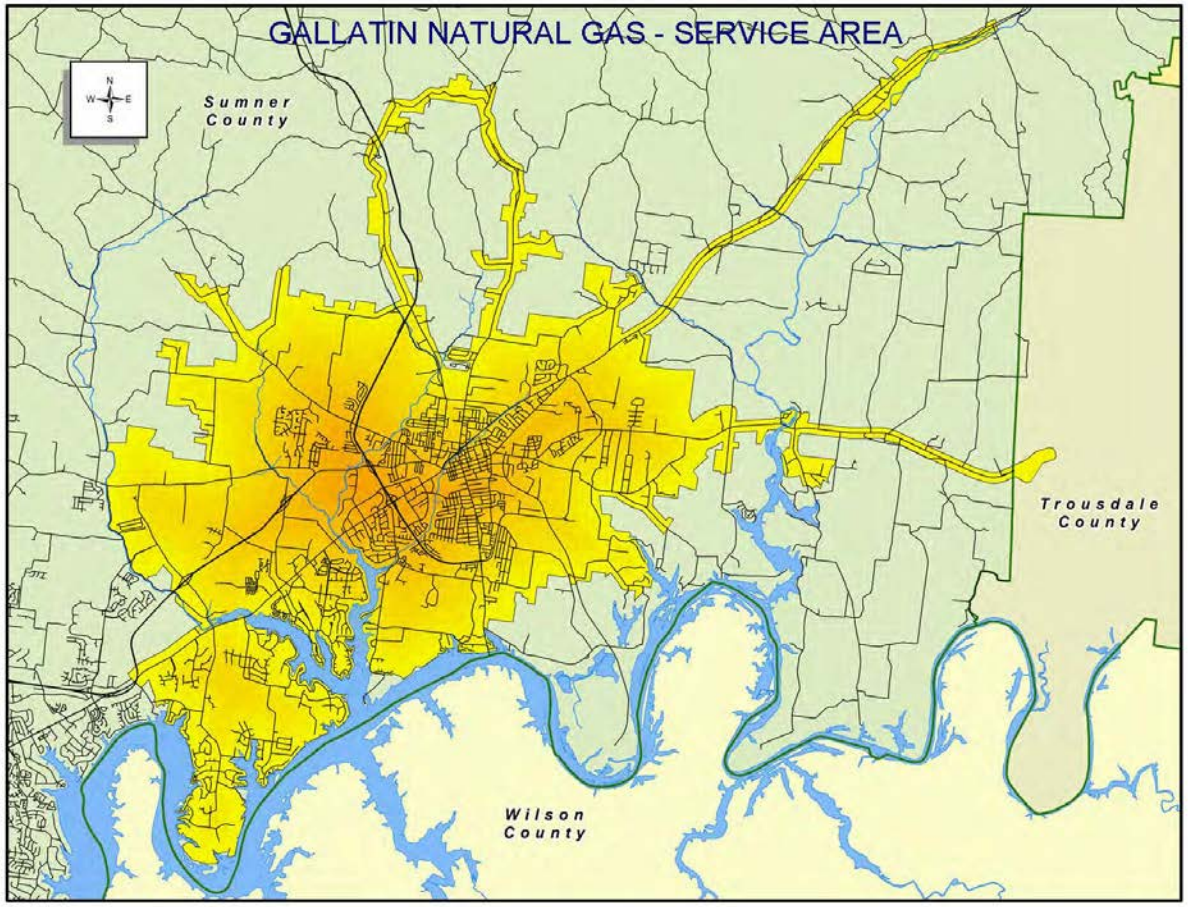
Automated Meter Reading Presentation to the Gallatin Lions Club

May 28, 2019

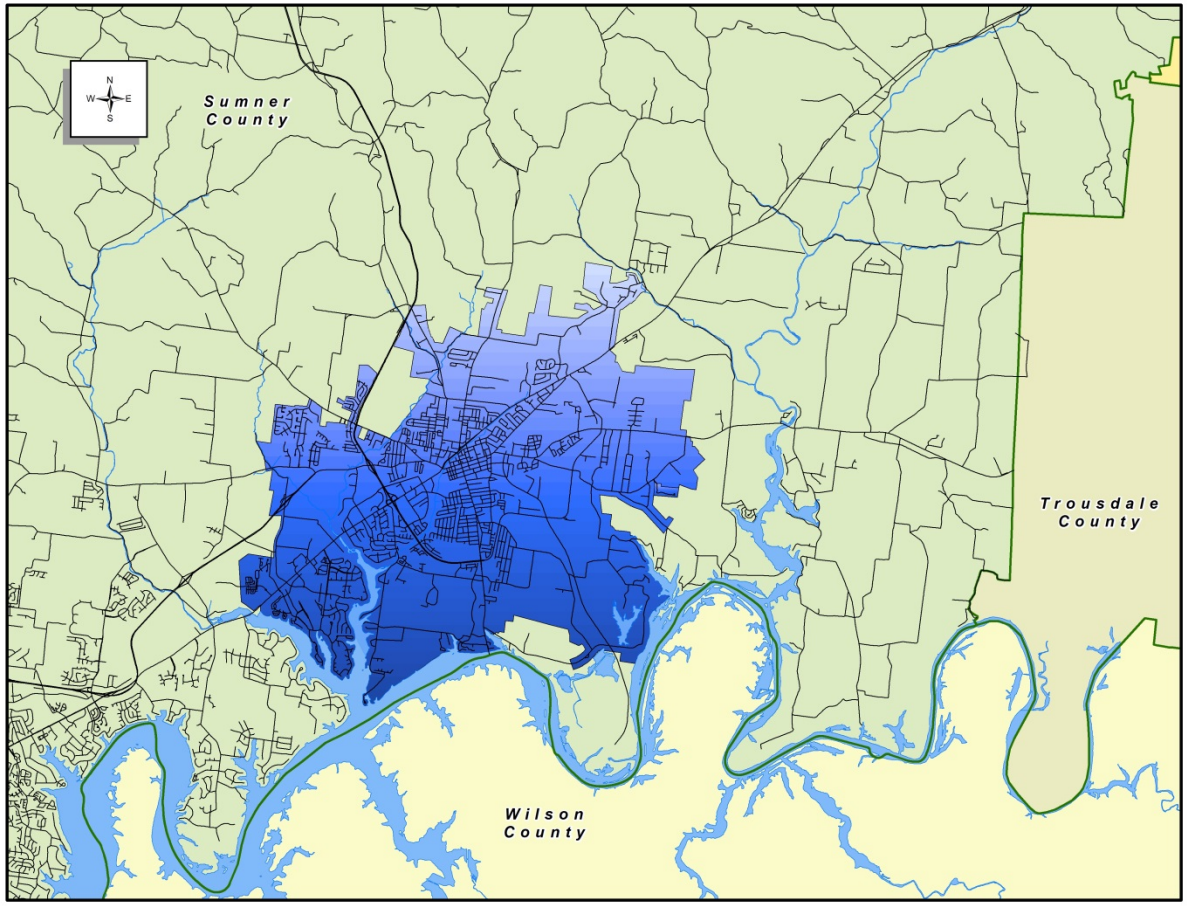
Current Meter Reading Process

- Manual Reading of Approximately **15,445** Natural Gas Meters and **14,665** Water Meters Each Month.
- Meters are Read By Five Meter Readers in 6 Cycles with 21 Routes – 21 Reading Days Per Month
- Due to System Growth a Fifth Meter Reader Was Added – Starting July 2016
- System is Adding Approximately 1,000 New Meters Annually

Gallatin Natural Gas Service Area



Gallatin Water Service Area



GPU's Advanced Metering Project

- Like many utilities throughout the U.S. and abroad, GPU is making the switch to advanced meters.
- Advanced meters digitally record and automatically deliver meter reading information back to the utility without the need for someone to visit homes and businesses.
- Advanced meters have added functionality and provide important notifications for events such as leaks, tampering and high usage. This information is sent back to GPU's offices using a private and secure radio channel.

Advanced metering will improve operations and help GPU to serve its customers better.

AMI Key Benefits

- Time
  - Time Required to Read Meters
  - Time Required Process Meter Readings and Usage
- Customer Service
- Improved Accuracy
- Reduced Exposure to Risk
  - Meter Readers – Employees on Customer Property
  - Exposure to Hazards
  - Less Driving
- More Accurate Accounting of Water and Gas Loss
- Wear and Tear on Equipment and Vehicles

Operational Benefits

- Meter Reading Reduction
- Re-Read Reduction
- Move In/Move Out Read Reduction
- Billing Services and Exception Handling Reduction
- Theft Identification Revenue
- Annual Meter Replacement Savings
- Outstanding Payments/Write Off Reduction

The AMI Project

- Initial Presentation to Gallatin City Council
  - July 25, 2016
  - Estimated Project Costs – $8.0M to $8.5M
- September 2016 – Entered in to Agreement with Utiliworks Consulting to Provide RFP Development and Evaluation Services, along with a Stakeholder Communication Program, and Project Management Services.
- Request for Proposals Released December 2016

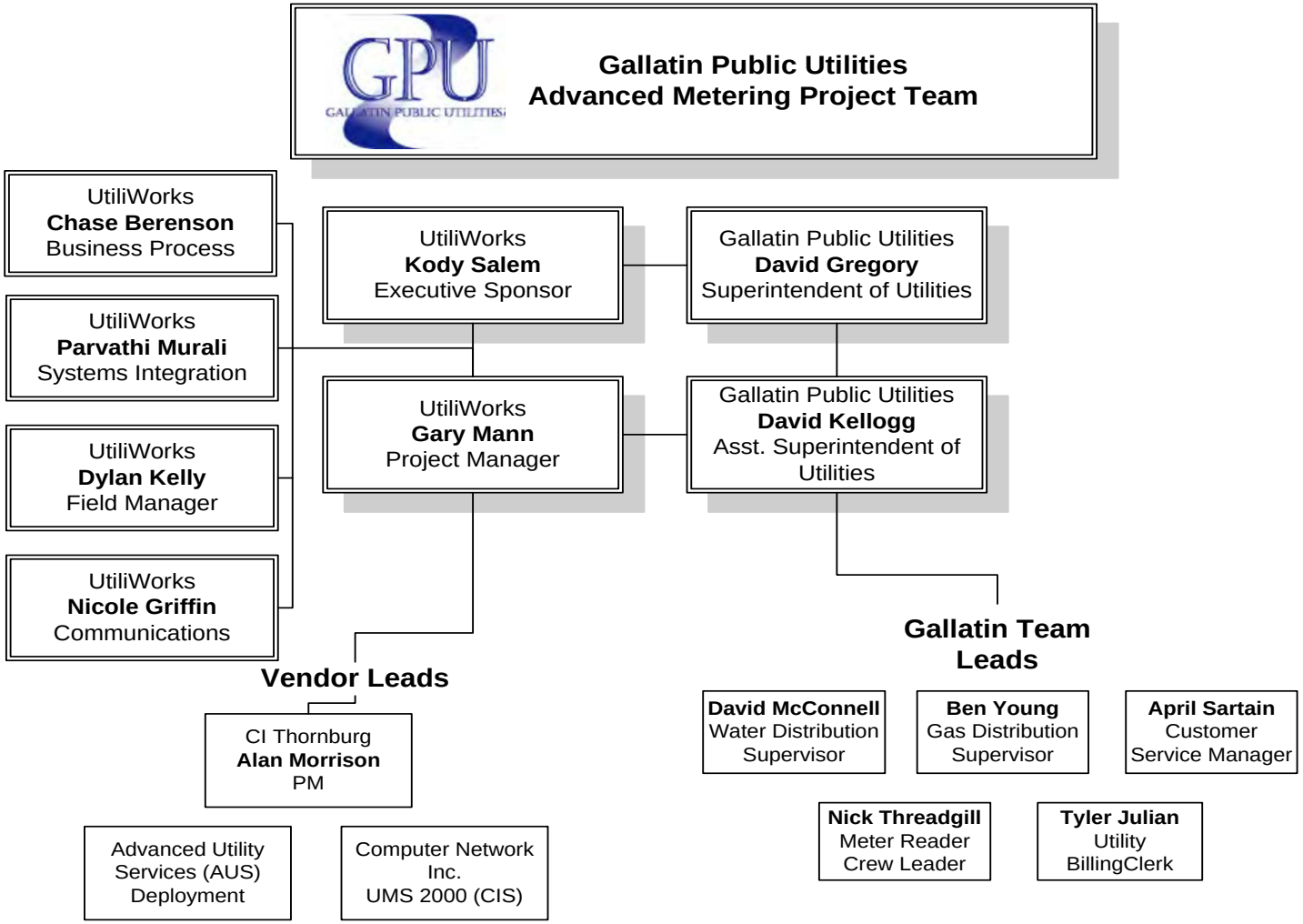
The AMI Project

- Request for Proposal Responses Due By January 20, 2017
- The Request for Proposals were Evaluated and Short List Presentations were Made February 21-22, 2017
- On May 11, 2017 the AMI Evaluation Committee Selected CI Thornburg Company (Sensus)
- Contract Process was Completed on November 28, 2017

The AMI Project

- Pre-Construction Conference was Held on February 22, 2018
- Equipment Installation Began in May 2018
- Estimated 18-24 Month Installation Process
- Currently Approximately 80% Completed

Project Team



Project Solution Vendors

- **Network** – Sensus Flexnet – Regional Network Interface (RNI)
- **Advanced Meters** – Sensus iPerl and Sensus SmartPoints
- **Meter Data Management System (MDMS)** – Sensus Analytics (SA)
- **Customer Portal** – Sensus Analytics
- **Meter Installation** – Advanced Utility Services
- **Program Management** – UtiliWorks Consulting, LLC. And C.I. Thornburg

Proposal Evaluation Steps Taken

- From January 20 – February 1, 2017, the GPU AMI evaluation committee reviewed and evaluated six (6) proposals, including:
  - three (3) for turn-key AMI and installation services
  - two (2) for MDMS-only services
  - one (1) for Customer Portal software
- The vendors with top proposal responses (Tier 1/Short List) were invited to present in Gallatin, TN from February 21-22.
- The following criteria were used in evaluation:
  - Company Information and Experience
  - Technical Solution and Implementation Approach
  - System Cost
  - Overall Proposal Response and Professionalism

References and Final Vendor Decision

- The next phase of evaluation included follow up questioning, reference checks and site visits for the top vendor: CI Thornburg.
  - Hartsville – March 9, 2017
  - Hendersonville – March 14, 2017
  - Lenoir City – March 22, 2017
  - Murfreesboro – March 23, 2017
  - Shelbyville – April 17, 2017
  - Brentwood – by phone
  - KUB – by phone
  - Nashville (Sensus direct) – by phone
- There was a unanimous decision on May 11, 2017 by the GPU AMI evaluation committee to select CI Thornburg (Sensus) for proceeding with contract negotiations.
- Scope of Work was finalized in September, 2017.
- Final contract and negotiations completed November 28,2017.

CITGO / Sensus Solution Overview

- Sensus FlexNet AMI Network, 900 MHz (licensed) frequency
- 6 base stations (M400)
  - Communication system is designed so that at least 98% of the meters can communicate with at least two base stations
- Water meters to be replaced with Sensus meters (iPERL and OMNI)
- Gas meters to be retrofit with new index and endpoint
- Advanced Utility Systems (AUS) to perform installation services
- No lid replacement will be required
- Total contract Value= $ 6,543,724.80

AMI Questions

How Does Advanced Metering Work?

Advanced meters digitally record and automatically deliver meter reading information back to GPU through a private and secure radio channel. These new meters also provide GPU with important notifications for events, such as leaks, tampering and high usage, which allows us to improve operations and customer service.

1 The Advanced Meter

Customers will either receive a new advanced meter or have their current meter enhanced.

2 The Radio Network

Meter readings and important service alerts are wirelessly delivered.

3 Gallatin Public Utilities Operations

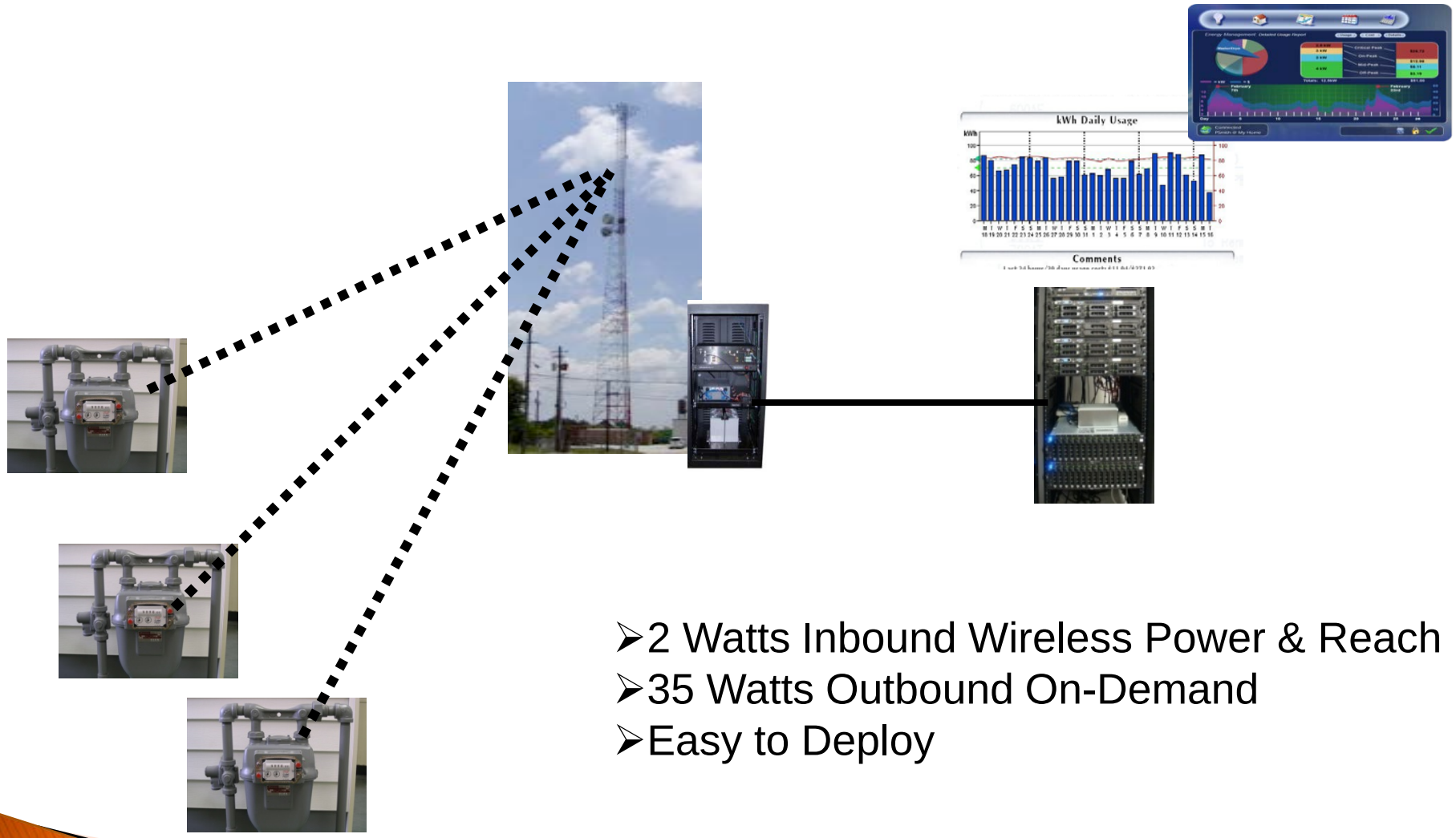
The utility receives the metering information and can streamline billing and other operational processes.

Do Advanced Meters Use Radio Frequency?

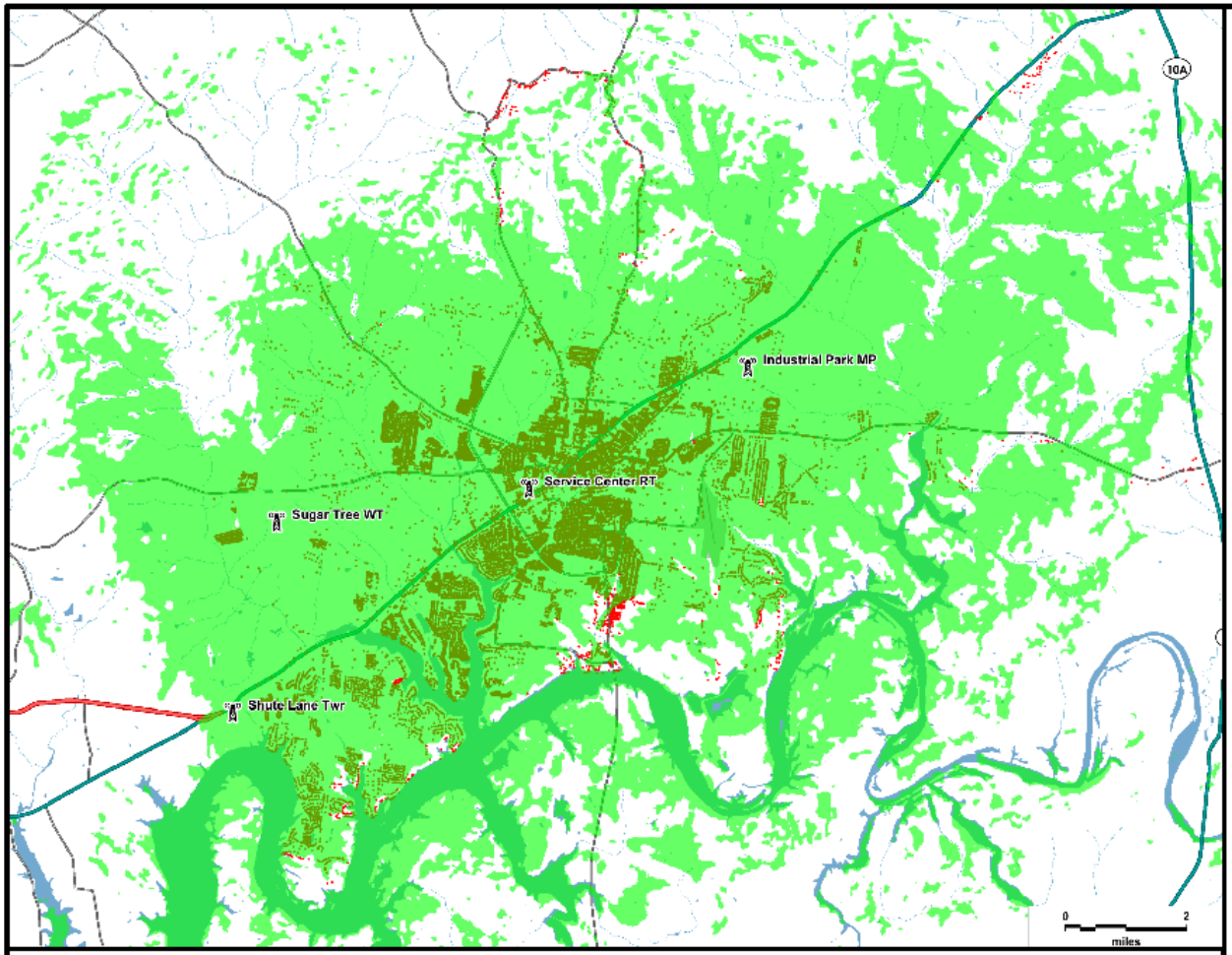
GPU's advanced meters use radio waves in the 900 MHz licensed spectrum to wirelessly deliver metering information. They transmit for a fraction of a second and typically six times a day. These meters exceed health and safety standards set by the Federal Communications Commission and emit far less energy than many common household items. National health experts, including the American Cancer Society and the World Health Organization, have also published research studies indicating there is no evidence that radio frequency from advanced meters pose a health risk.

Average Exposure to Radio Signals Compared to an Advanced Meter

Advanced Two-Way Gas & Water Metering



- 2 Watts Inbound Wireless Power & Reach
- 35 Watts Outbound On-Demand
- Easy to Deploy



This propagation study is based on actual information provided by the utility pertaining to meter type, meter location, potential antennae height on structure, structure height, and structure location. Any changes, deletions and/or additions that are not provided to the design engineers during the creation of this design may result in a study that does not correlate to actual field conditions.

For all tower mounted antennas, a minimum antenna standoff of 3' is required from the tower.

FlexNet Design

Propagation Analysis

Gallatin, TN
Gallatin Public Utilities

RF Engineer: Hameed Chaudhry
Date: 6/21/16
Version: 2

BTS Best Server Coverage
Industrial Park MP
Service Center RT
Shute Lane Twr (Panel, 70°)
Sugar Tree WT

FSK: 13
Meter Type: Water/Gas
SmartPoint Location: Pitset/Outdoor

Attenuation applied due to meter location: 5dB/0dB

Category	
Meters Above Covered Threshold	28,780
Meters Below Covered Threshold	416
Meters Read @ Contract RIS Rate	28,348
Total Meters Analyzed	29,196

LEGEND

BTS
Meters
Coverage ≥ -106 dBm

SENSUS

Customer Name: Gallatin Public Utilities	**Date:** 6/21/2016	**RF Engineer:** Hameed Chaudhry
City/State or Country: Gallatin, TN	**Meter Type:** Water/Gas	**Version:** 2
Number of Meters Analyzed: 29,196	**Smart Point Location:** Pitset/Outdoor	**FSK and Attenuation Value:** 13 FSK with 5dB/0dB Attenuation

BTS Name	**Latitude**	**Longitude**	**Total Structure Height** (Feet)	**Proposed Antenna Centerline** (Feet)	**Base Antenna Type**	**Base Antenna 3dB Beamwidth** (Degrees)	**Base Antenna Azimuth** (Degrees) (Values are True North. Please apply declination adjusts at time of construction.)	**Base Antenna Mechanical Tilt** Downtilt (+) Degrees Uptilt (-) Degrees	**Preferred Antenna Installation Azimuth** (Direction)	**Meters Above Covered Threshold**	**Meters Below Covered Threshold**
Industrial Park MP	36.414406	-86.397537	NA	90	BCD-87010-EDIN-0-25	Omni	Omni	0	SW	23,104	6,092
Service Center RT	36.385521	-86.462173	NA	136	BCD-87010-EDIN-0-25	Omni	Omni	0	S	25,604	3,592
Shute Lane Twr	36.332241	-86.549779	NA	70	WPA-70090-8CF-EDIN-0	92	70	0	NE	16,750	12,446
Sugar Tree WT	36.377548	-86.536789	185	70	BCD-87010-EDIN-0-25	Omni	Omni	0	E	23,126	6,070

The meter counts indicated for the individual sites are cumulative in nature, and coverage overlap is involved.

Best Server Coverage	>> Best Server Coverage is the Composite Coverage for all above sites proposed >>	28,780	416
Meters Read @ Contract RIS Rate		**28,348**	

Notes:

The study was ran using PitSet Water/Outdoor Gas meter parameters.

Used Planet 5.8 and the latest model and parameters at 13 FSK with 5dB/0dB attenuation.

v2 (v1) meter file had 21,196 total meter addresses; 21,196 addresses were Geocoded; 0 addresses were non-Geocoded.

Uncovered meters are shown in tab below.

Network: BaseStations / Meters

FlexNet Base Station

Rack Mounted Base Station In Weather Proof Enclosure

Omni Directional Antenna

Gas Smart Meter

- **Proven Long Range Performance**
- **2 Watts of Power**
- **Top of Hour Intervals – Standard**
- **20 Year Battery and Unit Warranty**
- **True Two-Way Operation**
  - On Demand Readings
  - Firmware Updates / New Features
- **AES-256 Encryption end-to-end**
- **Configurable Alarms**
- **Hermetically sealed electronics/battery**
- **Models for all Current Gas Meter Manufactures**

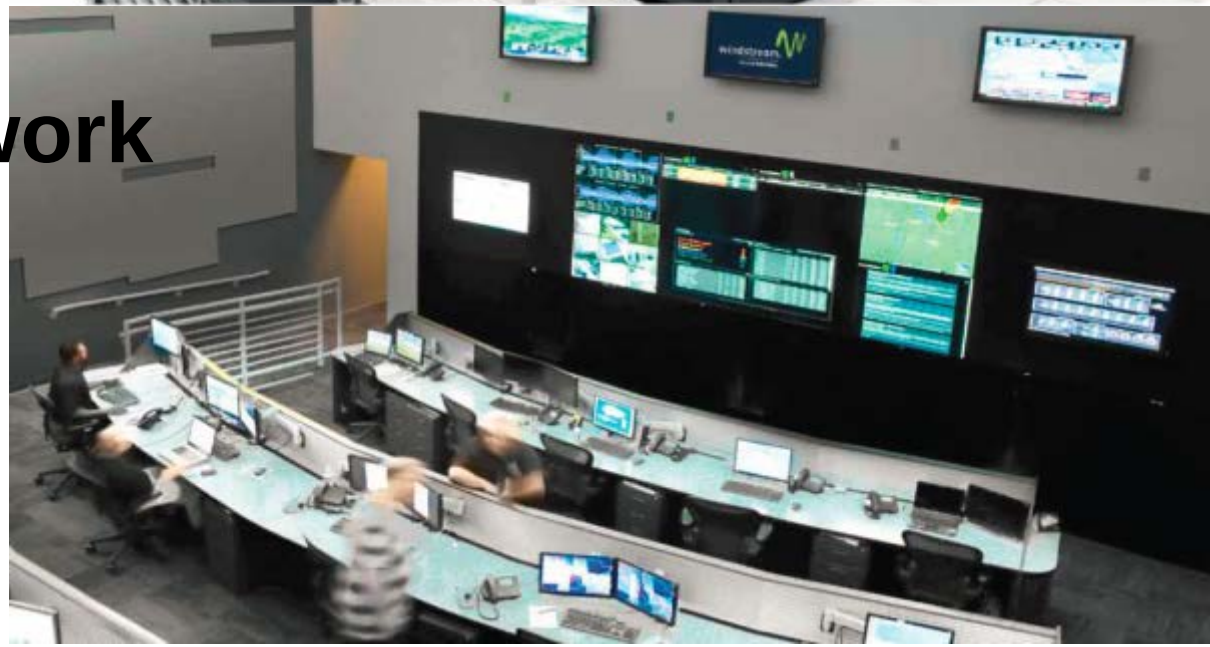
Gas Alarms

- Reverse Flow: The reverse flow alarm indicates the endpoint has detected gas flowing in the reverse direction through the meter.
- Low Battery: The battery voltage is sampled immediately prior to every transmission. If the voltage is less than the threshold (default 3.3V), the low battery alarm raised.
- Magnetic Tamper: The magnetic tamper alarm indicates the endpoint has detected an attempt to tamper with the meter reading by application of a magnet.
- Tilt Tamper: The tilt tamper indicates the endpoint has detected tampering by tilting the endpoint. The endpoint hardware contains a tilt switch that closes if the endpoint is tilted more than 30 degrees beyond vertical.
- Cut Wire: Wire connecting a Gas Corrector to the 3 Port Remote has been cut or come loose
- Corrector Alarm: A Gas Corrector is indicating an alarm

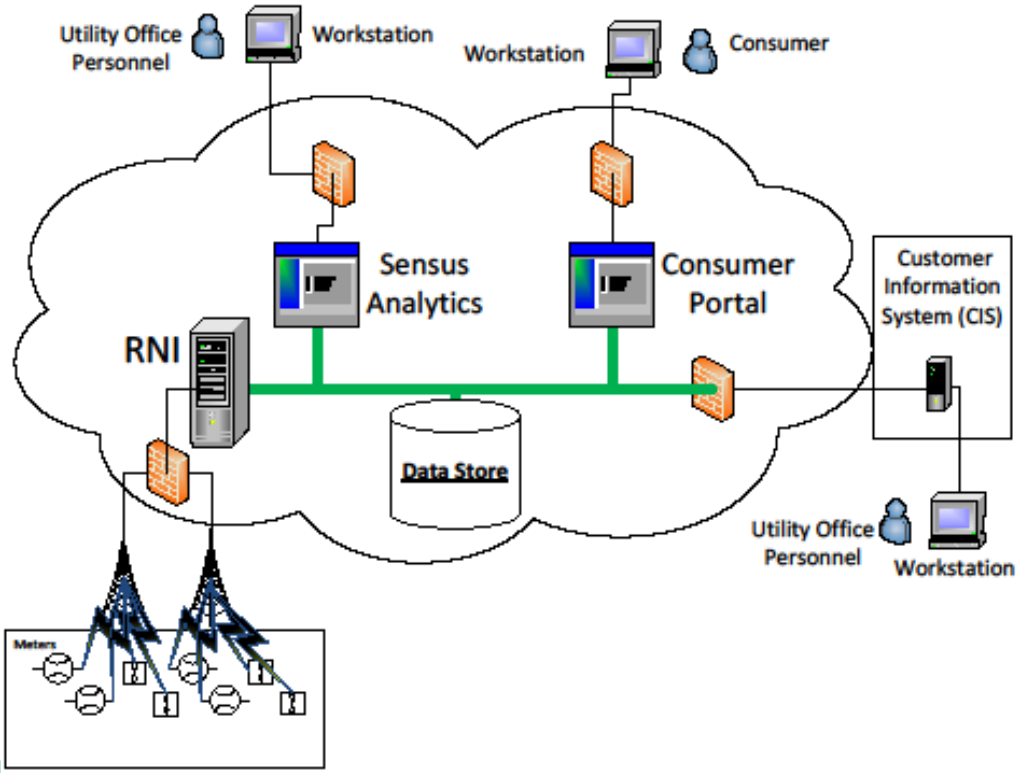
…an intelligent water management system

Managed Service's with 3 Data Centers

Hosted RNI (Regional Network Interface)

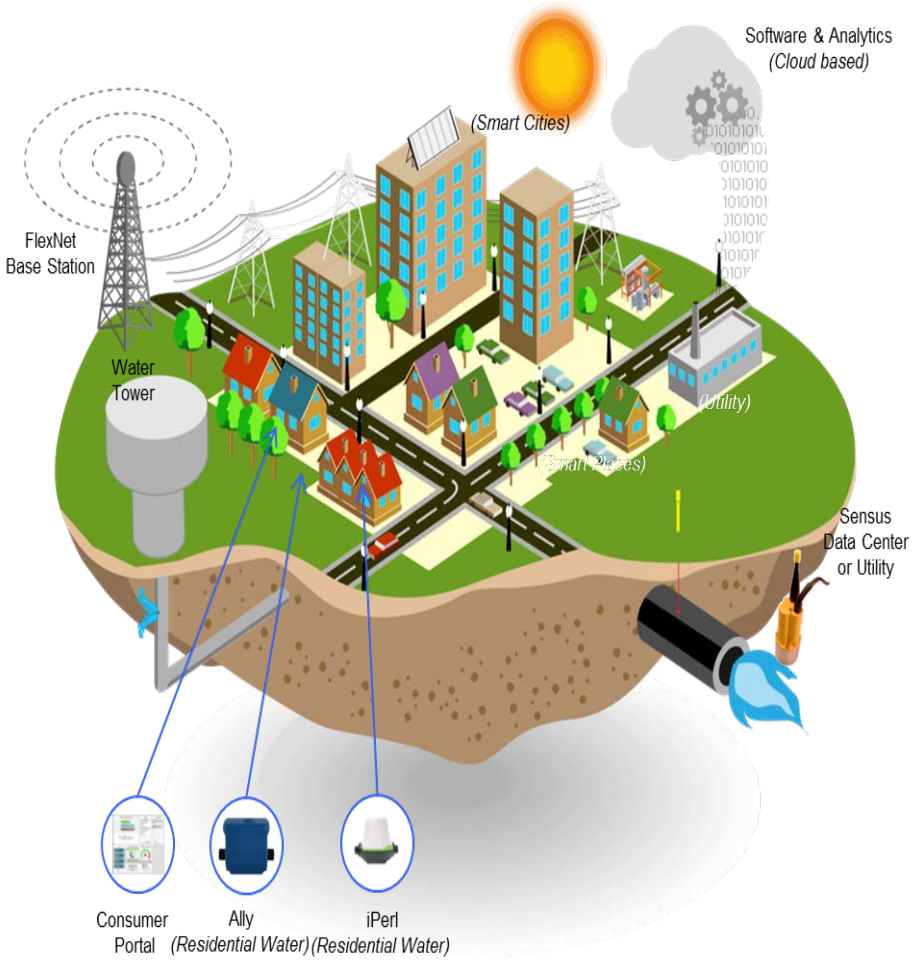


Network Architecture

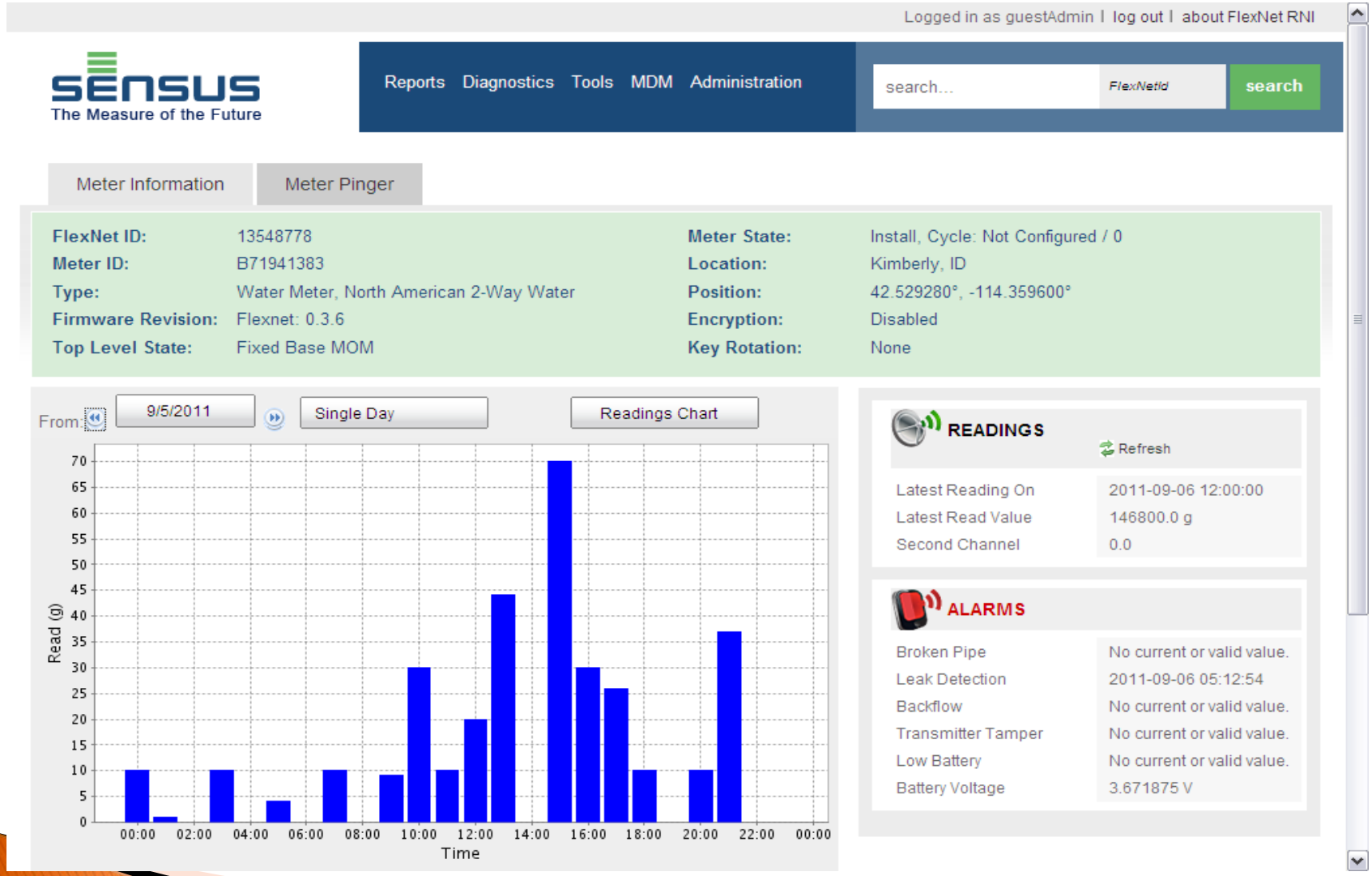


SENSUS ADVANTANGE

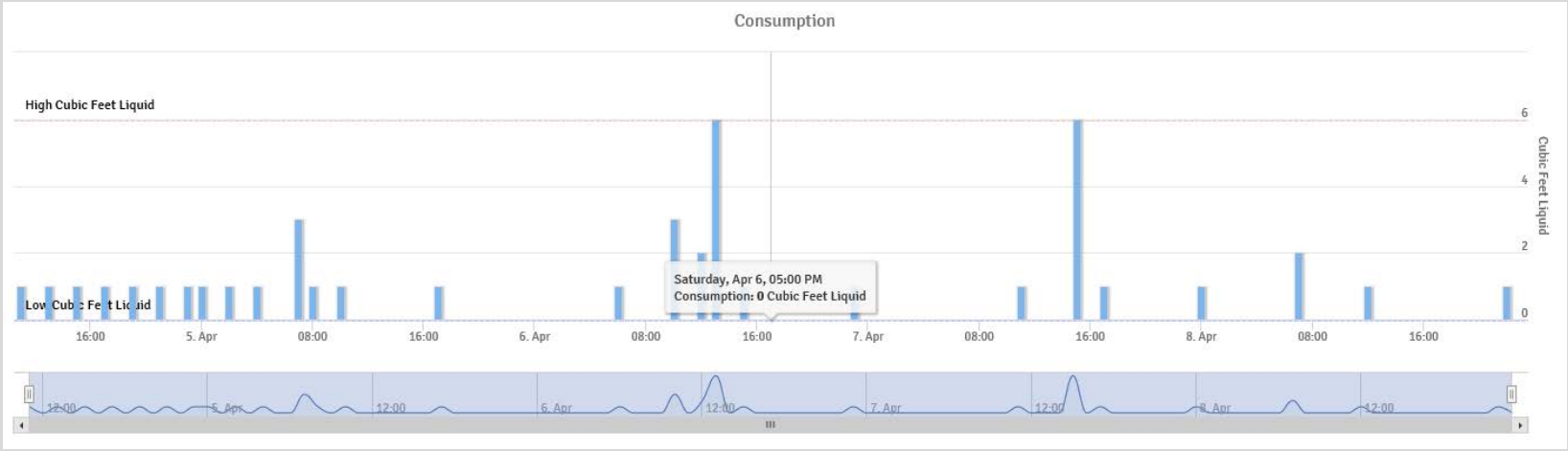
- Limitless Possibilities…
  - SCADA
  - Acoustic Leak Detection
  - Pressure Sensors
  - Temperature Sensors
  - Distribution Automation
    - Pump Controls
    - Monitoring
  - Street Lighting
  - Remote Shut Off
  - Home Area Network
    - Messaging



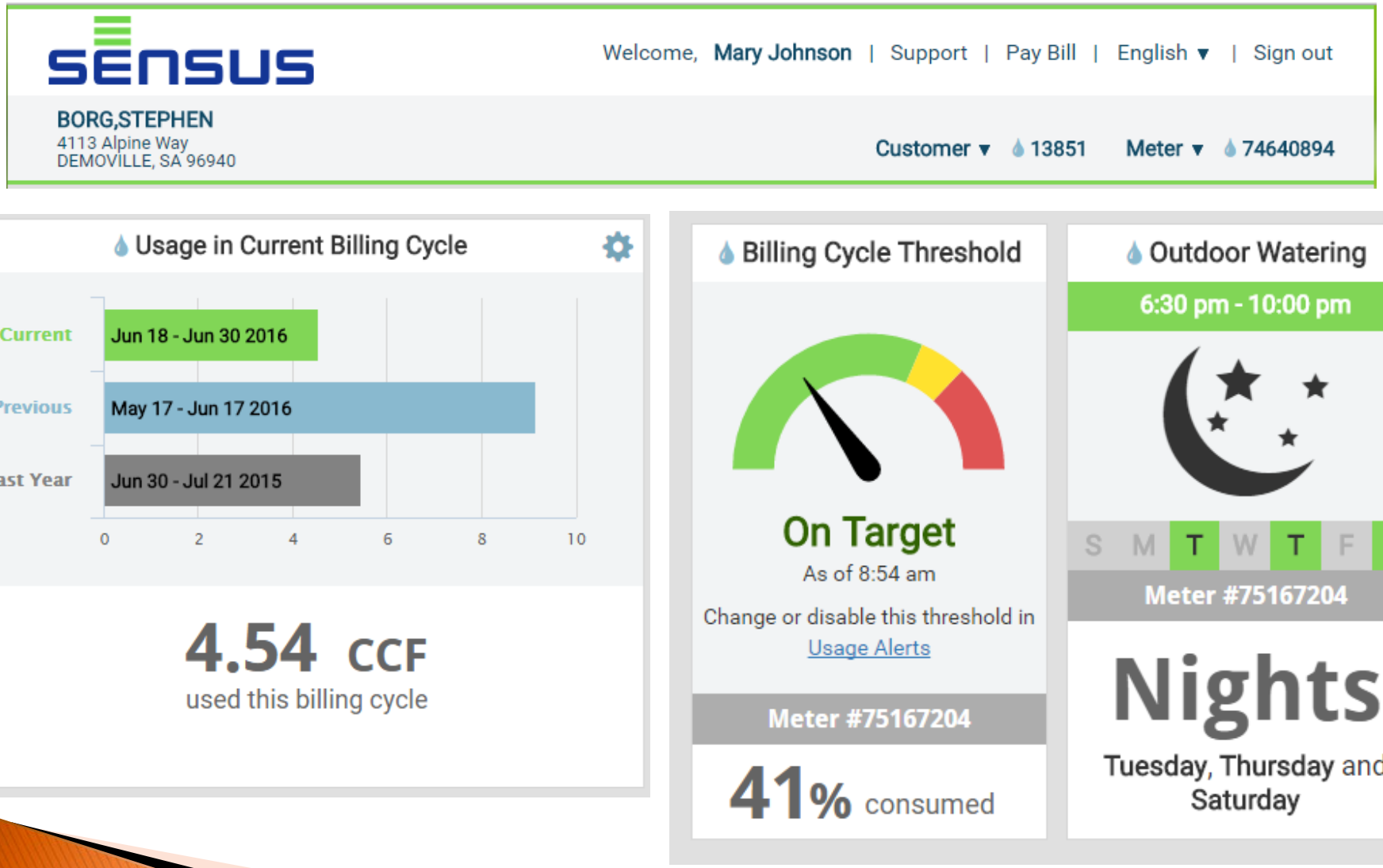
Individual Meter Information



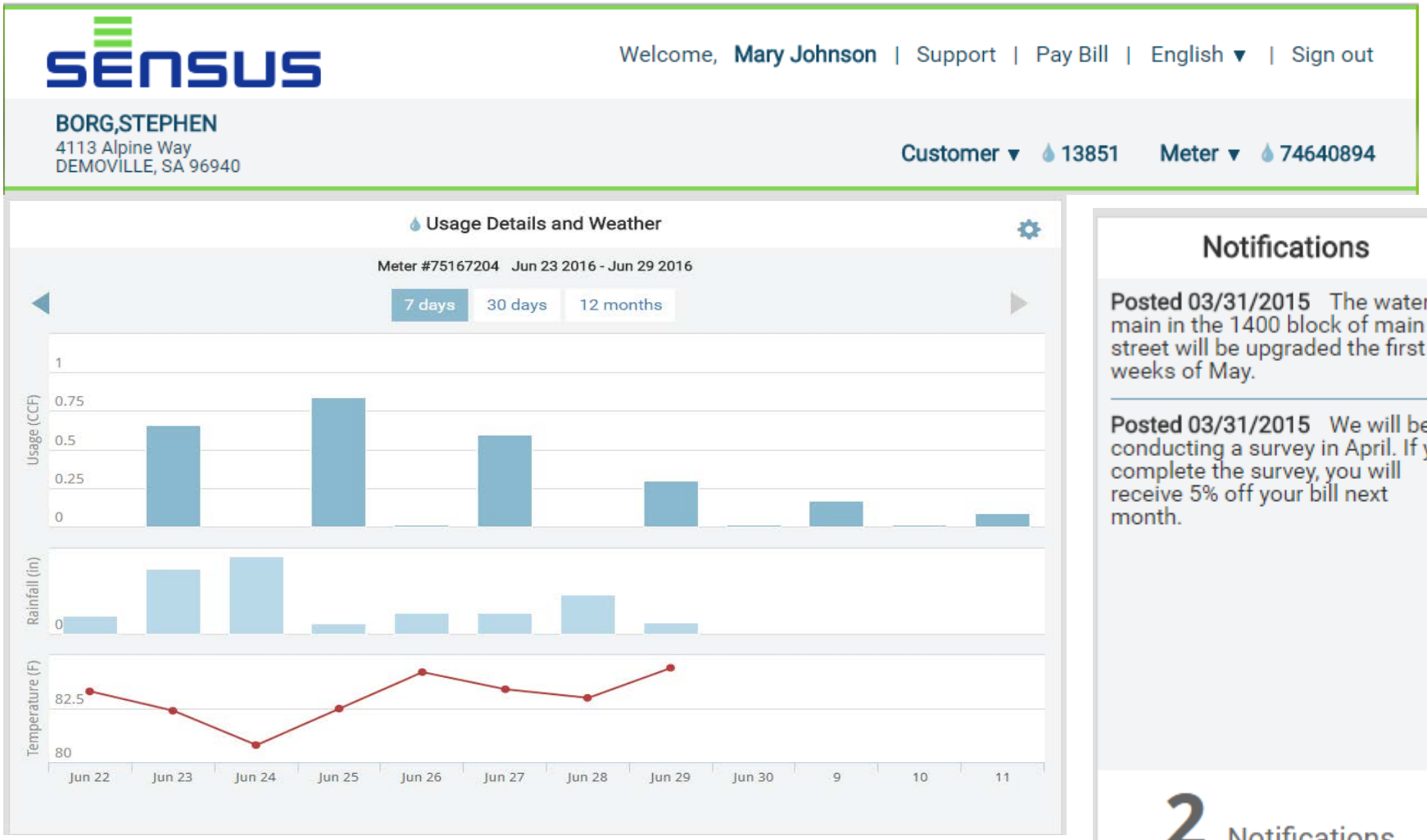
Usage History Examples



FlexNet Customer Portal



Customer Portal



Customer Portal

- Customer Connect
  - Publishing utility news and conservation information
  - Email, SMS and Phone Call capabilities for events and notification on:
    - System Alerts
    - Leak/Broken Pipe Alarms
    - Usage amounts above household budgets
      - Assigned by the user.
  - Interactive Communication with customers

Customer satisfaction is improved when the Customer Service Representative (CSR) can resolve issues quickly and efficiently. MDM takes care of the background integration and places metering data right at the finger tips of the CSRs.

Customer Benefits

- Customer Portal Access
- Usage History
- Alerts/Alarms – Leaks, High Usage, Etc.
- E-mail, Text, Telephone Notifications

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):	Advanced Metering Infrastructure												Application Number:	13			
Application Period:	3/28/2018 thru 4/23/2019					This Period				Total Project						Application Date:	4/24/2019
A					B	B1	B2	B3	B4	C	D	E	F	G	H	I	
Item		Contract Information				Qty. Installed This Period - Water	Value of Work Installed This Period - Water	Qty. Installed This Period - Gas	Value of Work Installed This Period - Gas	Quantity Installed Water	Value of Work Installed - Water	Quantity Installed Gas	Value of Work Installed - Gas	Value of Work Installed - Total	Percent Complete	Balance to Finish (B - G)	
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)												
Item A - AMI Network Software, Training, Documentation and Project Management																	
A1a	AMI Head End One Time Setup Fee - RNI SaaS Setup Fee	1	EA	$7,725.00	$7,725.00					1/2	$3,862.50	1/2	$3,862.50	$7,725.00	100.0%		
A1b	AMI Head End Setup Fee -RNI Annual SaaS Fee Year 1	1	EA	$8,000.00	$8,000.00					1/2	$4,000.00	1/2	$4,000.00	$8,000.00	100.0%		
A2a	MDM One Time Setup Fee - Analytics Setup Fee	1	EA	$3,750.00	$3,750.00					1/2	$1,875.00	1/2	$1,875.00	$3,750.00	100.0%		
A2b	MDM One Time Setup Fee - Analytics Enh. SaaS Fee Year 1	1	EA	$6,375.00	$6,375.00					1/2	$3,187.50	1/2	$3,187.50	$6,375.00	100.0%		
A2c	MDM One Time Setup Fee - Text Messaging Block	1	EA	$0.00	$0.00					1/2		1/2			100.0%		
A3a	Consumer Portal One Time Setup Fee - Core (1500 Cust.)	1	EA	$6,250.00	$6,250.00					1/2	$3,125.00	1/2	$3,125.00	$6,250.00	100.0%		
A3b	Consumer Portal One Time Setup Fee - System Setup	1	EA	$6,250.00	$6,250.00					1/2	$3,125.00	1/2	$3,125.00	$6,250.00	100.0%		
A3c	Consumer Portal One Time Setup Fee - CIS Integration Fee	1	EA	$12,500.00	$12,500.00					1/2	$6,250.00	1/2	$6,250.00	$12,500.00	100.0%		
A3d	Consumer Portal One Time Setup Fee - Training	1	EA	$2,250.00	$2,250.00					1/2	$1,125.00	1/2	$1,125.00	$2,250.00	100.0%		
A4	Training and Documentation	1	EA	$6,000.00	$6,000.00					1/2	$3,000.00	1/2	$3,000.00	$6,000.00	100.0%		
A5	Project Management	1	EA	$45,000.00	$45,000.00					Partial	$15,000.00	Partial	$15,000.00	$30,000.00	66.7%	$15,000.00	
Item B - Ongoing System Costs																	
	This Section removed and not part of this Contract.																
Item C - AMI Hardware & Software - Base Station Infrastructure																	
C1	Data Collectors	6	EA	$24,700.00	$148,200.00					3	$74,100.00	3	$74,100.00	$148,200.00	100.0%		
C2	Basestation Extended WarrantyPlan	6	EA	$1,750.00	$10,500.00					3	$5,250.00	3	$5,250.00	$10,500.00	100.0%		
C3	Installation of Service Center Site	1	EA	$6,900.00	$6,900.00					1/2	$3,450.00	1/2	$3,450.00	$6,900.00	100.0%		
C4	Installation of Shute Lane	1	EA	$8,518.00	$8,518.00					1/2	$4,259.00	1/2	$4,259.00	$8,518.00	100.0%		
C5	Installation of Sugar Tree	1	EA	$8,915.00	$8,915.00					1/2	$4,457.50	1/2	$4,457.50	$8,915.00	100.0%		
C6	Installation of Industrial Park	1	EA	$32,500.00	$32,500.00					1/2	$16,250.00	1/2	$16,250.00	$32,500.00	100.0%		
C7	Installation of Water Plant Site	1	EA	$8,115.00	$8,115.00					1/2	$4,057.50	1/2	$4,057.50	$8,115.00	100.0%		
C8	Installation of Columbia Gulf Gas	1	EA	$14,270.00	$14,270.00					1/2	$7,135.00	1/2	$7,135.00	$14,270.00	100.0%		
C9	Sierra Wireless Modem	6	EA	$750.00	$4,500.00					3	$2,250.00	3	$2,250.00	$4,500.00	100.0%		
Item D - AMI Network and Deployment Tools																	
D1	Handheld Programming Device (Trimble Nomad 1050)	1	EA	$7,157.00	$7,157.00					1/2	$3,578.50	1/2	$3,578.50	$7,157.00	100.0%		
D2	Command Link Programmer	1	EA	$500.00	$500.00					1/2	$250.00	1/2	$250.00	$500.00	100.0%		
Item E - Sensus Water Meters																	
E1	1/2" iPerl Meter	3	EA	$110.00	$330.00											$330.00	
E2	5/8"x3/4" iPerl Meter	14,708	EA	$110.00	$1,617,880.00	1,249	$137,390.00			11,583	$1,274,130.00			$1,274,130.00	78.8%	$343,750.00	
E3	1" iPerl Meter	239	EA	$165.00	$39,435.00	46	$7,590.00			236	$38,940.00			$38,940.00	98.7%	$495.00	
E4	1-1/2" Omni T2 Turbo Meter	9	EA	$755.00	$6,795.00					3	$2,265.00			$2,265.00	33.3%	$4,530.00	
E5	2" Omni T2 Turbo Meter	40	EA	$895.00	$35,800.00					47	$42,065.00			$42,065.00	117.5%	-$6,265.00	
E5-1	2" Omni C2 Turbo Meter	212	EA	$1,178.00	$249,736.00	22	$25,916.00			73	$85,994.00			$85,994.00	34.4%	$163,742.00	
E6	3" Omni T2 Turbo Meter		EA	$1,116.00													
E7	4" Omni T2 Turbo Meter	1	EA	$2,172.00	$2,172.00											$2,172.00	
E8	4" Omni C2 Compound Meter	29	EA	$2,625.00	$76,125.00											$76,125.00	
E9	6" Omni T2 Turbo Meter	3	EA	$3,984.00	$11,952.00											$11,952.00	
E10	6" Omni C2 Compound Meter	12	EA	$4,536.00	$54,432.00											$54,432.00	
E11	8" Omni T2 Turbo Meter		EA	$6,640.00													
E12	8" Omni C2 Compound Meter		EA	$7,327.00													
E12-1	8" Omni F2 Fire Meter	4	EA	$11,285.00	$45,140.00											$45,140.00	

Progress Estimate - Unit Price Work

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A					B	B1	B2	B3	B4	C	D	E	F	G	H	I
Item		Contract Information				Qty. Installed This Period - Water	Value of Work Installed This Period - Water	Qty. Installed This Period - Gas	Value of Work Installed This Period - Gas	Quantity Installed Water	Value of Work Installed - Water	Quantity Installed Gas	Value of Work Installed - Gas	Value of Work Installed - Total	Percent Complete	Balance to Finish (B - G)
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)											
E13	10" Omni T2 Turbo Meter	2	EA	$8,656.00	$17,312.00											$17,312.00
E13-1	10" Omni F2 Fire Meter	1	EA	$16,142.00	$16,142.00											$16,142.00
Item F - Water Meter Radio Transmitters																
F1	520M Single Port Radio Transmitter	15,268	EA	$98.00	$1,496,264.00	1,317	$129,066.00			11,943	$1,170,414.00			$1,170,414.00	78.2%	$325,850.00
Item G - Gas Meter Indices and Radio Transmitters																
G1	175	270	EA	$105.00	$28,350.00							170	$17,850.00	$17,850.00	63.0%	$10,500.00
G2	225&250	3,163	EA	$105.00	$332,115.00			85	$8,925.00			2,643	$277,515.00	$277,515.00	83.6%	$54,600.00
G3	275	9,812	EA	$105.00	$1,030,260.00			196	$20,580.00			5,947	$624,435.00	$624,435.00	60.6%	$405,825.00
	20% Retainage Not Billed on PR #4 and PR #5 (One Time Only)	1,048	EA	$21.00												
G4	415	343	EA	$105.00	$36,015.00			1	$105.00			234	$24,570.00	$24,570.00	68.2%	$11,445.00
G5	425	117	EA	$105.00	$12,285.00							110	$11,550.00	$11,550.00	94.0%	$735.00
G6	500	1	EA	$225.00	$225.00											$225.00
G7	600	12	EA	$225.00	$2,700.00							15	$3,375.00	$3,375.00	125.0%	-$675.00
G8	630	18	EA	$225.00	$4,050.00							9	$2,025.00	$2,025.00	50.0%	$2,025.00
G9	750	26	EA	$225.00	$5,850.00							28	$6,300.00	$6,300.00	107.7%	-$450.00
G10	800	83	EA	$225.00	$18,675.00							24	$5,400.00	$5,400.00	28.9%	$13,275.00
G11	880	63	EA	$225.00	$14,175.00							48	$10,800.00	$10,800.00	76.2%	$3,375.00
G12	1000	44	EA	$225.00	$9,900.00							26	$5,850.00	$5,850.00	59.1%	$4,050.00
G13	1400	3	EA	$225.00	$675.00							1	$225.00	$225.00	33.3%	$450.00
G14	1500	1	EA	$225.00	$225.00											$225.00
G15	1600	1	EA	$225.00	$225.00							1	$225.00	$225.00	100.0%	
G16	2000	3	EA	$225.00	$675.00											$675.00
G17	2300	1	EA	$225.00	$225.00							1	$225.00	$225.00	100.0%	
G18	3000	15	EA	$225.00	$3,375.00							6	$1,350.00	$1,350.00	40.0%	$2,025.00
G19	4300	1	EA	$225.00	$225.00											$225.00
G20	5000	9	EA	$225.00	$2,025.00											$2,025.00
G21	10000	2	EA	$225.00	$450.00											$450.00
G22	8c	14	EA	$250.00	$3,500.00											$3,500.00
G23	2M	36	EA	$250.00	$9,000.00											$9,000.00
G24	3M	31	EA	$250.00	$7,750.00											$7,750.00
G25	5M	16	EA	$250.00	$4,000.00											$4,000.00
G26	11M	4	EA	$250.00	$1,000.00											$1,000.00
G27	16M	1	EA	$250.00	$250.00											$250.00
G28	T35	1	EA	$250.00	$250.00											$250.00
G29	Gas Regulator (Includes Filter Change)	1	EA	$75.00	$75.00											$75.00
Item H - Water Meter Installation																
H1	1/2" iPerl Meter	3	EA	$32.00	$96.00											$96.00
H2	5/8"x3/4" iPerl Meter	14,708	EA	$32.00	$470,656.00	1,249	$39,968.00			11,583	$370,656.00			$370,656.00	78.8%	$100,000.00
H3	1" iPerl Meter	239	EA	$34.00	$8,126.00	46	$1,564.00			236	$8,024.00			$8,024.00	98.7%	$102.00
H4	1-1/2" Omni T2 Turbo Meter	9	EA	$235.00	$2,115.00					3	$705.00			$705.00	33.3%	$1,410.00
H5	2" Omni T2 Turbo or C2 Compound Meter	252	EA	$235.00	$59,220.00	22	$5,170.00			120	$28,200.00			$28,200.00	47.6%	$31,020.00
H6	3" Omni T2 Turbo Meter		EA	$395.00												

Progress Estimate - Unit Price Work

Contractor's Application

For (Contract):	Advanced Metering Infrastructure												Application Number:		13	
Application Period:	3/28/2018 thru 4/23/2019					This Period				Total Project					Application Date:	4/24/2019
A					B	B1	B2	B3	B4	C	D	E	F	G	H	I
Item		Contract Information														
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)	Qty. Installed This Period - Water	Value of Work Installed This Period - Water	Qty. Installed This Period - Gas	Value of Work Installed This Period - Gas	Quantity Installed Water	Value of Work Installed - Water	Quantity Installed Gas	Value of Work Installed - Gas	Value of Work Installed - Total	Percent Complete	Balance to Finish (B - G)
H7	4" Omni T2 Turbo or C2 Compound Meter	30	EA	$695.00	$20,850.00											$20,850.00
H8	6" Omni T2 Turbo or C2 Compound Meter	15	EA	$875.00	$13,125.00											$13,125.00
H9	8" Omni T2 Turbo or C2 Compound Meter	4	EA	$995.00	$3,980.00											$3,980.00
H10	10" Omni T2 Turbo or C2 Compound Meter	3	EA	$1,400.00	$4,200.00											$4,200.00
H11	Drill Lid for Mounting of 520M	15,268	EA	$5.00	$76,340.00	1,085	$5,425.00			11,654	$58,270.00			$58,270.00	76.3%	$18,070.00
H12	Replace Lid with Composite Lid	1	EA	$25.80	$25.80											$25.80
Item I - Gas Meter Indices and Radio Transmitters Installation																
I1	175	270	EA	$22.00	$5,940.00							170	$3,740.00	$3,740.00	63.0%	$2,200.00
I2	250	3,163	EA	$22.00	$69,586.00			85	$1,870.00			2,643	$58,146.00	$58,146.00	83.6%	$11,440.00
I3	275	9,812	EA	$22.00	$215,864.00			196	$4,312.00			5,947	$130,834.00	$130,834.00	60.6%	$85,030.00
	Installation not billed on PR #4 and PR #5	1,048	EA	$22.00												
I4	415	343	EA	$22.00	$7,546.00			1	$22.00			234	$5,148.00	$5,148.00	68.2%	$2,398.00
I5	425	117	EA	$22.00	$2,574.00							110	$2,420.00	$2,420.00	94.0%	$154.00
I6	500	1	EA	$22.00	$22.00											$22.00
I7	600	12	EA	$22.00	$264.00							15	$330.00	$330.00	125.0%	-$66.00
I8	630	18	EA	$22.00	$396.00							9	$198.00	$198.00	50.0%	$198.00
I9	750	26	EA	$22.00	$572.00							28	$616.00	$616.00	107.7%	-$44.00
I10	800	83	EA	$22.00	$1,826.00							24	$528.00	$528.00	28.9%	$1,298.00
I11	880	63	EA	$22.00	$1,386.00							48	$1,056.00	$1,056.00	76.2%	$330.00
I12	1000	44	EA	$22.00	$968.00							26	$572.00	$572.00	59.1%	$396.00
I13	1400	3	EA	$22.00	$66.00							1	$22.00	$22.00	33.3%	$44.00
I14	1500	1	EA	$22.00	$22.00											$22.00
I15	1600	1	EA	$22.00	$22.00							1	$22.00	$22.00	100.0%	
I16	2000	3	EA	$22.00	$66.00											$66.00
I17	2300	1	EA	$22.00	$22.00							1	$22.00	$22.00	100.0%	
I18	3000	15	EA	$22.00	$330.00							6	$132.00	$132.00	40.0%	$198.00
I19	4300	1	EA	$22.00	$22.00											$22.00
I20	5000	9	EA	$22.00	$198.00											$198.00
I21	10000	2	EA	$22.00	$44.00											$44.00
I22	8c	14	EA	$22.00	$308.00											$308.00
I23	2M	36	EA	$22.00	$792.00											$792.00
I24	3M	31	EA	$22.00	$682.00											$682.00
I25	5M	16	EA	$22.00	$352.00											$352.00
I26	11M	4	EA	$22.00	$88.00											$88.00
I27	16M	1	EA	$22.00	$22.00											$22.00
I28	T35	1	EA	$22.00	$22.00											$22.00
Item J - Gas and Water Options																
J1	Cathodic Protection Test Point	1	EA	$550.00	$550.00											$550.00
J2	Rectifier Controller	9	EA	$2,100.00	$18,900.00											$18,900.00
J3	Sentry Point Software	1	EA	$21,000.00	$21,000.00											$21,000.00
J4	Smart Gateway	1	EA	$350.00	$350.00											$350.00
J5	Ally Remote Disconnect Water Meter	1	EA	$450.00	$450.00											$450.00

Progress Estimate - Unit Price Work **Contractor's Application**

For (Contract):	Advanced Metering Infrastructure														Application Number:	13	
Application Period:	3/28/2018 thru 4/23/2019					This Period				Total Project					Application Date:	4/24/2019	
A					B	B1	B2	B3	B4	C	D	E	F	G	H	I	
Item		Contract Information				Qty. Installed This Period - Water	Value of Work Installed This Period - Water	Qty. Installed This Period - Gas	Value of Work Installed This Period - Gas	Quantity Installed Water	Value of Work Installed - Water	Quantity Installed Gas	Value of Work Installed - Gas	Value of Work Installed - Total	Percent Complete	Balance to Finish (B - G)	
Bid Item No.	Description	Item Quantity	Units	Unit Price	Total Value of Item ($)												
J6	Mechanical Meter with Electronic Register	1	EA	$92.00	$92.00											$92.00	
J7	Dual Port Radio Transmitter	1	EA	$155.00	$155.00											$155.00	
Item K - Performance & Payment Bonds																	
K1	Performance & Payment Bonds	1	EA	$48,712.00	$48,712.00					Partial	$33,270.00	Partial	$15,442.00	$48,712.00	100.0%		
Total					**$6,611,159.80**		**$352,089.00**		**$35,814.00**		**$3,282,520.50**		**$1,380,510.50**	**$4,663,031.00**	70.5%	**$1,948,128.80**	