

# ADVANCEDmeter

**AWWA CA-NEVADA CONFERENCE  
SOCALGAS WATER ENERGY NEXUS AMI PILOT DISCUSSION  
MARCH 22, 2016**

Presented by: Dave Mercer (SoCalGas), Monique Delmar (SoCalGas), Dave LaJeunesse (Aclara), Christine Boyle (Valor Water Analytics)

# SoCalGas Advanced Meter Project

- SoCalGas is upgrading existing natural gas meters with a communication device – the Advanced Meter
- Automatically reads and transmits hourly gas usage information on a “next day” basis
- Provides more frequent and detailed natural gas use information to **help customers better control costs and manage gas use**
- Deployment to complete in 2017



PHOTOS FOR DISCUSSION PURPOSES ONLY

# SoCalGas Advanced Meter Project Network Deployment Status



**INSTALLATIONS**  
Meter Transmission Units  
4,926,616  
**82% Complete**

**NETWORK**  
Data Collector Units  
3,541\*  
**77% Complete**

\* Installation status as of 3/17/2016

# SoCalGas Shared Network

---

The Shared Network service offering will leverage the Advanced Meter (AM) Data Collection Unit (DCU) Network Infrastructure to transmit meter and sensor data for other utilities within the SoCalGas service territory.

## Why Shared Network?

- Large service territory overlapping hundreds of water utilities
- More robust coverage for water utility than having network just within own territory
- Water utility does not need to build or maintain network infrastructure; quick ramp up for endpoint installations
- Sifter technology to separate water data from gas data

# SoCalGas Shared Network Pilot

The Shared Network Pilot is a partnership between SoCalGas, Aclara and participating water utilities to evaluate the concept of a Shared Network on a small scale.

Water Energy Nexus (WEN) AMI Pilots build off the shared network pilot and by adding an analytics component for combined water and gas data.



## SoCalGas key goals for the Shared Network Pilots

- *Prove technology*
- *Determine support effort and costs*
- *Identify potential joint conservation opportunities*
- *Gather feedback from utility partners & identify any required enhancements*
- *Determine value in combining gas analytics with water analytics for identification of hot water leaks (WEN AMI Pilot)*

# Shared Network Pilot – Overview

---

## Who are the players?

- **SoCalGas** will provide AMI network for water utility to transmit their meter data
- **Aclara** will provide MTUs, hosted HeadEnd, integration services and technical support to water utility
- **Valor Water Analytics** will provide analytics services to both water utility and SoCalGas for WEN AMI Pilots

## Key Pilot terms:

- Existing & planned SoCalGas network coverage only (no new DCUs for Pilots)
- Separate contract agreements with each company
- 12 month term for network sharing
- Aclara hosted HeadEnd

# Aclara Overview



Serving **780+** utilities including 40 of the largest 100

Over **27 million** endpoints deployed with over a billion readings per day.

**99%** customer retention rate - Customer loyalty.



# About the Communications Network Meter Transmission Units (MTUs)

*Usage is still recorded in the traditional way, it's a new communication device that transmits the information electronically*



- Does not change the functionality of the meter; No remote connect / disconnect capabilities
- Device is **off** most of the time
- Securely transmits 12 hours of data 4 times per day to a Data Collector Unit (total “on” time is less than 2 minutes per year)
- Waterproof construction – fully submersible
- Through-the-lid antenna option for vault & traffic installations



# About the Communication Network Data Collection Units (DCUs)

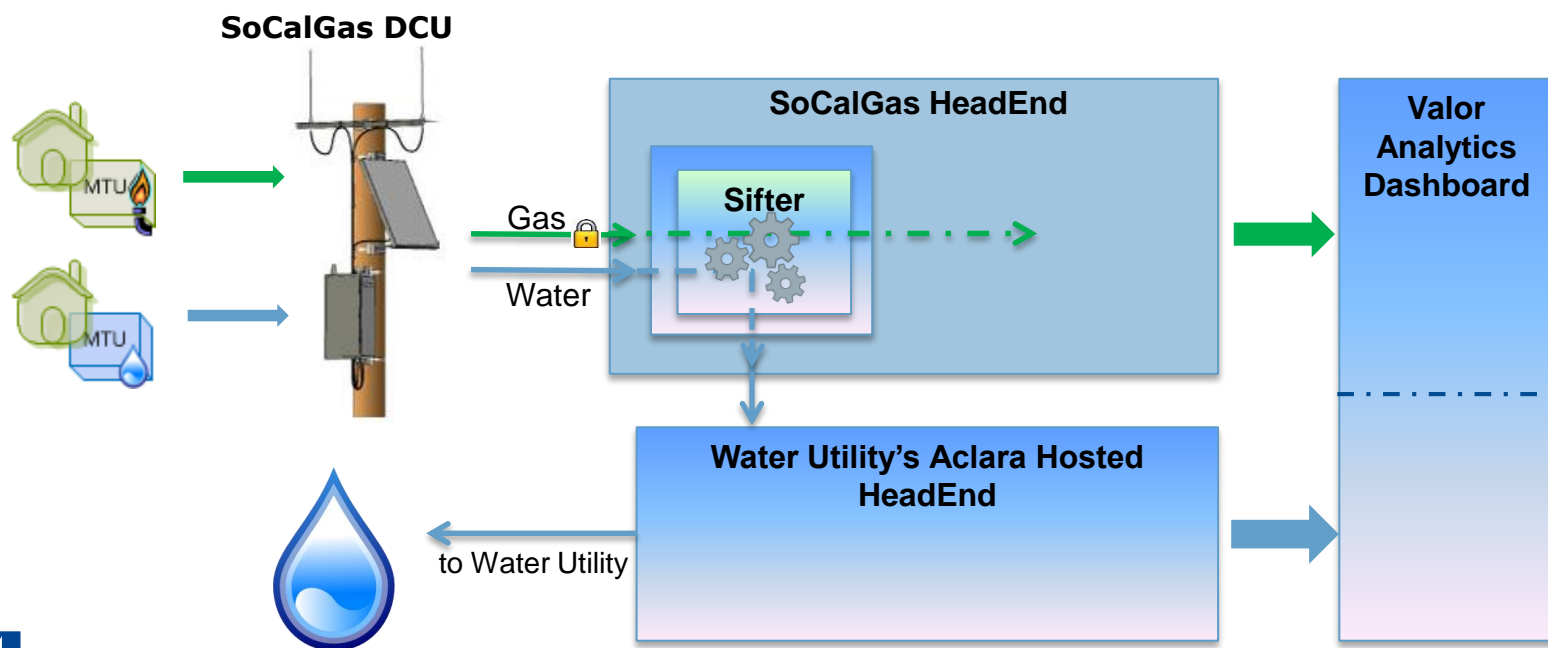


- SoCalGas installing approximately 4,600 Data Collector Units (DCUs) throughout SoCalGas' service territory
- Built-in Redundancy: advanced meters will communicate with two to three (or more) DCUs
- DCUs collect data from MTUs over licensed frequency
- DCUs transmit data back to SoCalGas HeadEnd via cellular backhaul (Verizon/AT&T)
- DCUs do not distinguish between water and gas data

# WEN AMI Proposed Pilot Technical Details

The SoCalGas Shared Network Pilot Solution is built around a software component called the Sifter. The Sifter was developed by Aclara and separates water reads from gas reads. The water reads are transferred to Aclara via a secure FTP initiated by SoCalGas.

For WEN AMI Pilots, data from the Pilot MTUs will be securely transmitted from both water and gas utility to Valor Water Analytics for combined analytics.



# SoCalGas Shared Network – Pilots Underway

---

## Current pilot participants:

### Standard Network Sharing AMI Pilot

Los Angeles Department of Water and Power

- Piloting 525 endpoints; installations began October 2015 and estimated to be complete in March 2016

City of Santa Monica

- Will be piloting 50 endpoints, 1<sup>st</sup> installation scheduled March 29<sup>th</sup> 2016

And More...

### WEN AMI Pilot

San Gabriel Valley Water Company (IOU)

- Will be piloting 500 endpoints, 1<sup>st</sup> installations targeted Q2/Q3 2016

# Water Energy Nexus AMI Pilot - Collaborative Analytics

Feedback received during the January 19<sup>th</sup> CPUC AMI Pilot Workshop encouraged SoCalGas to enhance the network sharing pilot to include collaborative analytics between the water and gas utility, specifically with regard to hot water leaks.

## Summary of SoCalGas Analytics in 2015

### Of 953 facilities reviewed in 2015

- 58% Occupied
- 42% Vacant

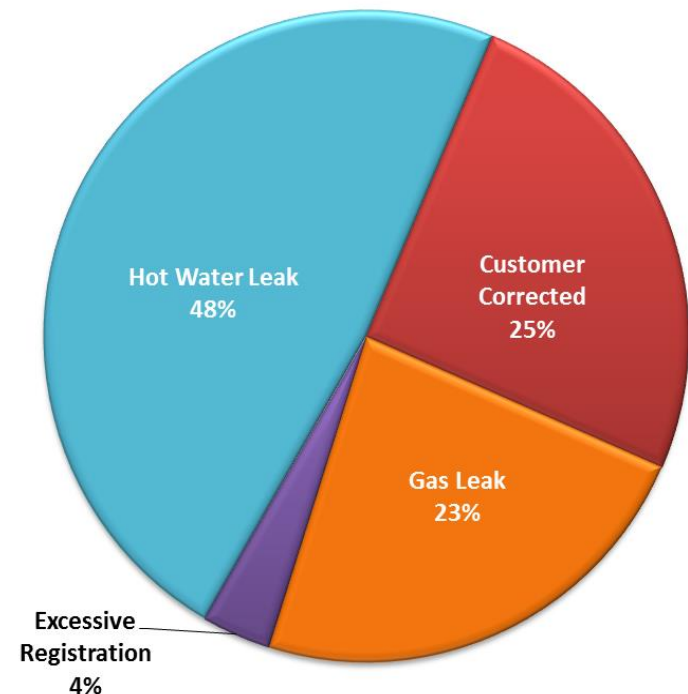
### Occupied Facility Results:

Hot Water Leak –48%

Customer Corrected – 25%

Gas Leak – 23%

Excessive Registration –4%



# Water Energy Nexus AMI Pilots

## Collaborative Analytics

### Valor Water Analytics

### Introduction

- Water tech company based in San Francisco, CA
- Vision: Valor's mission is to transform utility data flows worldwide into actionable decision making through innovative technology.
- Clients in California, Florida and Georgia
- 4 Core Data Analytics Products
  - Apparent Loss Locator
  - SMART Targets
  - Cutoff Analyzer
  - Water Rate Simulator
- Value-Add Products
  - Hot Water Leak Detector (via gas data)
  - Water-Energy Nexus Calculator
- New products in development pipeline



**VALOR WATER**  

---

**A N A L Y T I C S**

# Water Energy Nexus AMI Pilots

## Collaborative Analytics

### Background – Shared Network Pilot

### Benefits of Integrated Analytics

AMI Data Analytics and Proactive Action allows utilities to *detect* and...

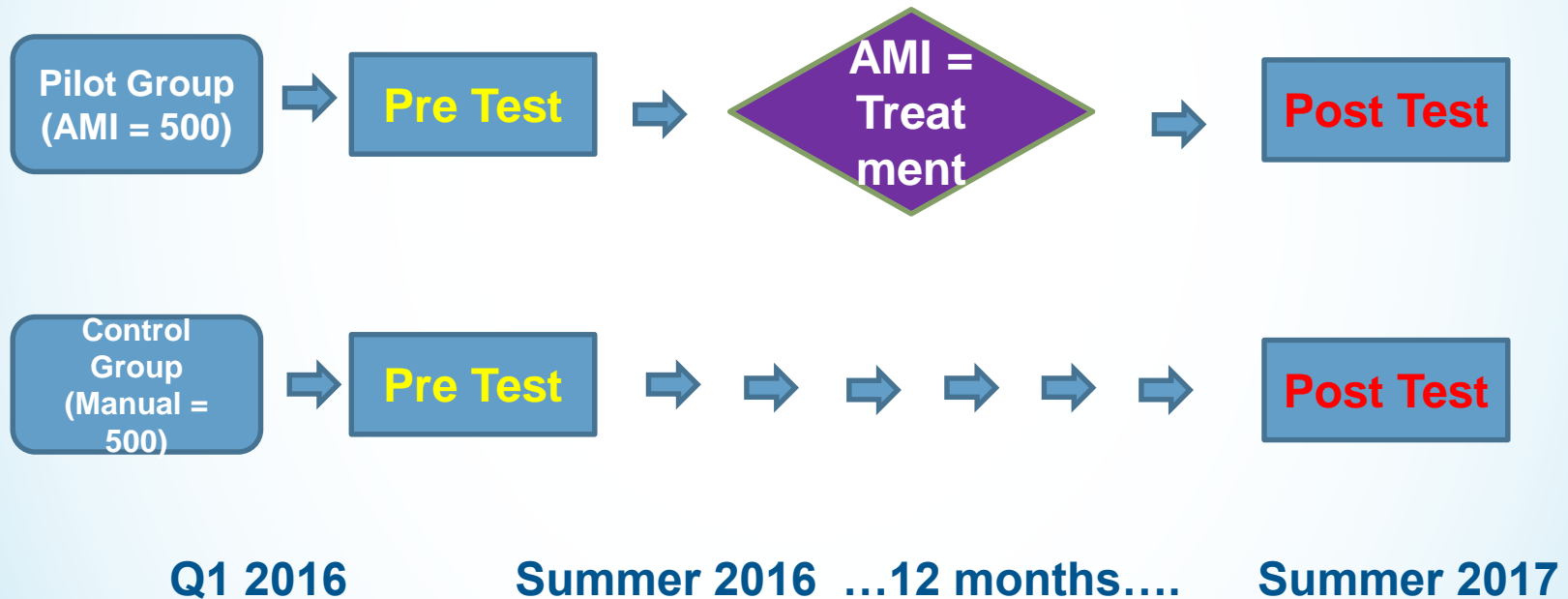
- *Address* apparent water losses (reduce non-revenue water)
- *Reduce* GHG emissions / *Increase* energy savings
- *Improve* process efficiency
- *Enhance* conservation efforts

...to a greater extent that can be done with data analytics from only one AMI utility source

# Experimental Framework

Pilot Meter Selection + Matching "Control Group"

**Research Question: What are the water + energy savings associated with pilot AMI meter technology in SoCal Gas / San Gabriel Valley Water Company joint service areas?**



# Water Energy Nexus AMI Pilots

## Collaborative Analytics

### Measuring Water & Energy Savings

### Performance Savings Metrics

#### SoCalGas

##### Hot Water Leaks / Water Loss Reduction

Gallons, percentage saved, by month and cumulative

Based on action to resolve (not only detect)

##### Energy Reductions and Emissions

Therms, percentage saved, by month and cumulative

Tons CO<sub>2</sub>, percentage saved, by month and cumulative

#### San Gabriel Valley Water Company

##### Leaks and Other Apparent Losses (non hot water)

Gallons, percentage saved, by month and cumulative

Based on action to resolve (not only detect)

##### Conservation

Gallons, percentage saved, by month and cumulative (weather normalized)

##### Energy Emissions Reductions

Therms, percentage saved, by month and cumulative

KwH, percentage saved, by month and cumulative

Tons CO<sub>2</sub>, percentage saved, by month and cumulative



# San Gabriel Valley Water Company – Pilot Details



- Territory covered
  - San Gabriel Valley - 48,000 meters, conservation target of 16%
  - Fontana - 45,000 meters, conservation target of 28%
- Planning to pilot 500 endpoints between these two areas
  - Pilot installations targeted for Q2 2016
  - Focus on proving technology, impacts on service operations, costs, benefits
  - Includes consumer engagement program to help customers manage usage, comply with state mandates
  - Includes analytics software to identify losses on the customer side of the meter
  - No integration with billing system at this time – will continue to read meters during the pilot

# Thank you