



Homeland
Security

United States Coast Guard



U.S. Coast Guard Advanced Metering Program

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Civil Engineering Unit Providence
14 November 2013



Agenda



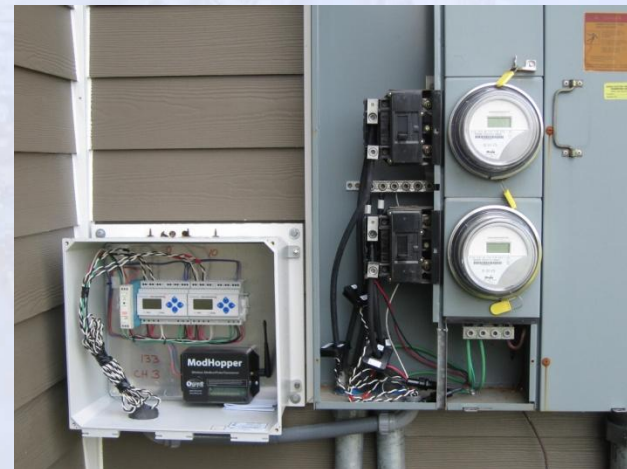
- History of USCG Metering Program
- Description of Equipment
- Current Data Management System
- Metering Lessons Learned
- Questions



History of Metering Program



- \$8M Project Funded through the American Recovery and Reinvestment Act (ARRA)
- Awarded in September 2010 and completed in October 2012
- Installed 2900+ pieces of equipment nationwide at over 200 Coast Guard units
 - Buildings greater than 5,000 S.F.
 - Cutter Shore Ties
- Efforts were coordinated out of Civil Engineering Unit Providence in collaboration with the CG Office of Energy Management

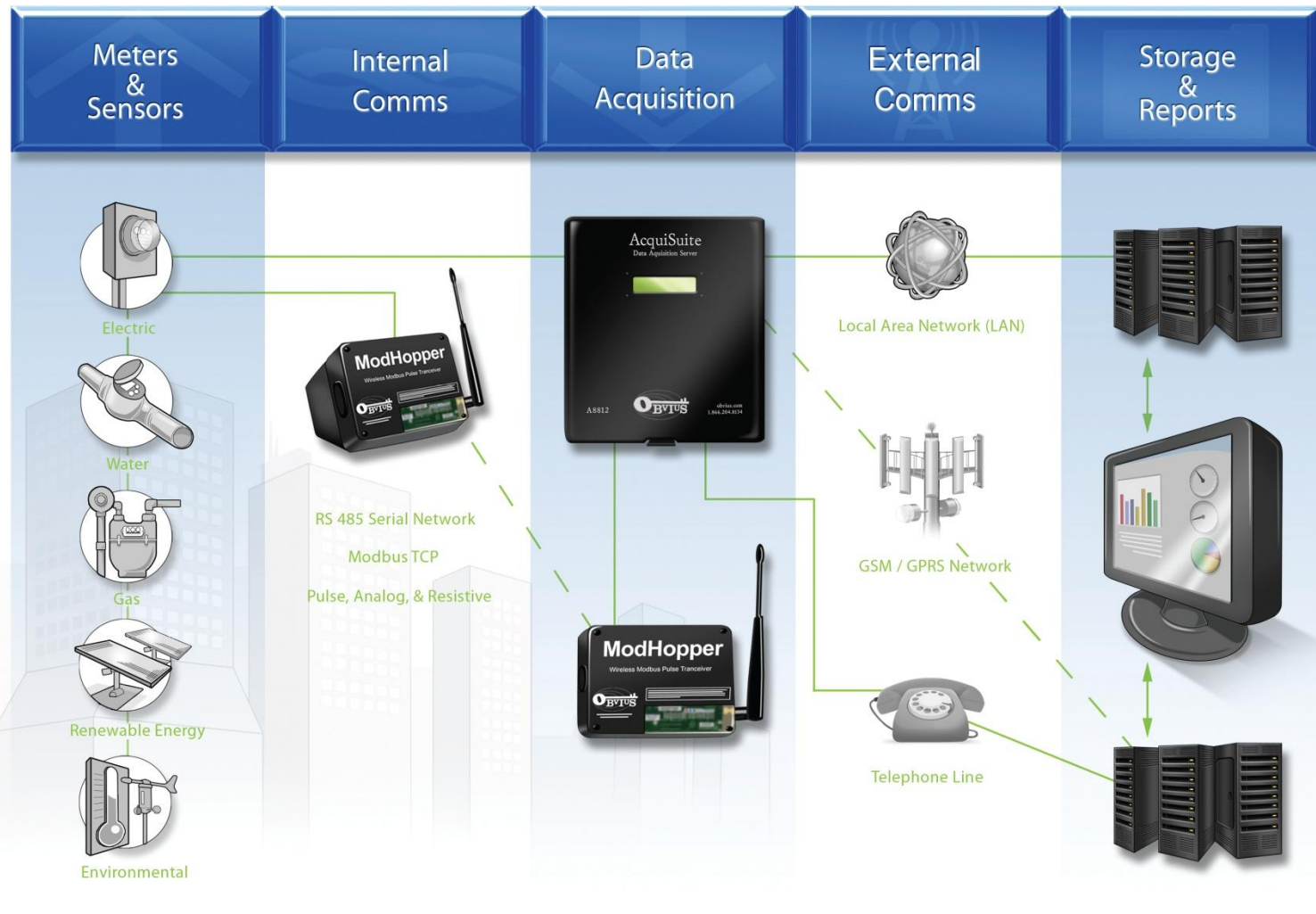


Description of Equipment



System Architecture

Energy Information Made *Obvius*



- Obvius Metering Components
- Wireless system (RF)
- Readings taken every 15-minutes
- Data uploaded at least every 24-hours from the DAS
- Current transducers output 26 variables (i.e. kW, kWh, volts, amps, power factor).
- Low Failure Rates
- Captures approx. 60%-70% of the CG infrastructure

Data Management System



BUILDING MANAGER ONLINE

24001.00.26645.SEAMANSHIP TRAINING BUILDING.ELECTRIC 1

Status | Graph | Configuration | View Data | Export Data

Device Number: 2
 Device Type: Veris H8036-0800-3, Full-Data, Modbus, 800 Amp
 Status: OK
 Date/Time of last upload: Wednesday, September 25 2013 4:19:28 EDT
 Date/Time of last reading: Wednesday, September 25 2013 4:15:00 EDT

Function	Current Reading
Energy Consumption	247012.31 kWh
Real Power	5.25 kW
Reactive Power	1.156 kVAR
Apparent Power	5.375 kVA
Power Factor	0.9762
Voltage, Line to Line	209.4 Volts
Voltage, Line to Neutral	120.5 Volts
Current	14.9 Amps
Real Power phase A	0 kW
Real Power phase B	2.766 kW
Real Power phase C	2.453 kW
Power Factor phase A	0
Power Factor phase B	1
Power Factor phase C	0.9142
Voltage phase A-B	210.2 Volts
Voltage phase B-C	209.3 Volts
Voltage phase C-A	208.9 Volts
Voltage phase A-N	120.8 Volts
Voltage phase B-N	120.6 Volts
Voltage phase C-N	120 Volts
Current phase A	0 Amps
Current phase B	22.3 Amps
Current phase C	22.3 Amps
Average Demand	5.375 kW
Minimum Demand	5.125 kW
Maximum Demand	6.875 kW

OBVIUS
 3300 NW 211th Terrace, Hillsboro OR 97124
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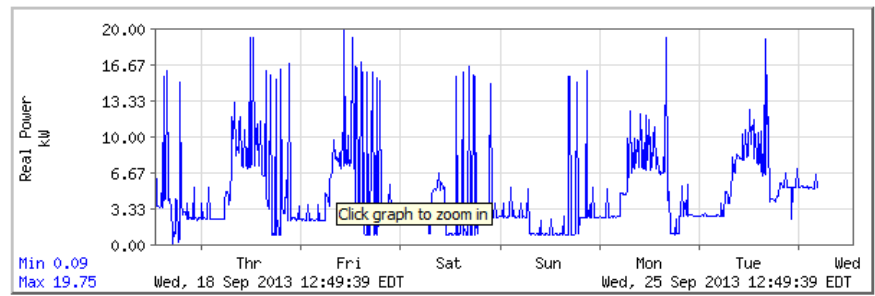
- Provide trended data over a selected period of time
- Monitor energy consumption
- Alarm notification when set parameters are exceeded
- Investigate potential problems

24001.00.26645.SEAMANSHIP TRAINING BUILDING.ELECTRIC 1

Status | Graph | Configuration | View Data | Export Data

Pick Start Date: Sep 18 2013 12:00
 Pick End Date: Sep 25 2013 12:00

8hr, 1dy, 1wk, 1m, 1yr | Real Power | Update Graph



- Identify buildings or campuses that would benefit from the implementation of energy conservation measures
- Track and validate savings as projects are implemented

Metering Lessons Learned



- Replacement/Installation Expense - requires use of commercial electrician; CG facilities are small and are not staffed with required level of expertise
 - Old infrastructure - difficult to segregate utility use to the building level
 - Utility Feeds - difficult to meter utility owned transformers (multiple tenants, use agreements, etc.)
 - At times, must still use revenue meter information
- Configuration Control - units must use same equipment for it to be supportable & compatible with the DMS
- Coast Guard Network - all equipment connected to the intranet must undergo extensive testing
- DMS Selection - many products are web-based which pose security concerns to the network infrastructure and are expensive to customize
 - Store & Manage data within the firewall
 - Decreases cost significantly

Questions?

