Advanced Metering Infrastructure (AMI) Project Update

Board of Directors Presentation

January 11, 2018
Outline

- Background
- Project Objectives and Goals
- Project Approach
- Consultant Selection Process
- Recommendation & Next Steps
Background

Manual Meter Reading

CIS Implementation

AMI Pilot

AMI Business Case

AMl Deployment Project

~85 years

2012

2013 - 2015

2016

Today
Staff identified the following Primary Goals for the AMI Project.

- Revenue Continuity
- Customer Engagement
- District Absorption
- Operational Enhancements
- Implementation Schedule
## Proposed Project Approach

<table>
<thead>
<tr>
<th>Task</th>
<th>Phase 1 FY17/18</th>
<th>Phase 2 FY18/19</th>
<th>Phase 3 FY19/20</th>
<th>Phase 4 FY20/21</th>
<th>Phase 5 FY21/22</th>
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<tr>
<td>Preliminary Design</td>
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<td>Final Design</td>
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<td>Proof of Concept</td>
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<td>Full Roll-out</td>
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⭐ - Anticipated Board input milestones.
ACWD is taking comprehensive approach to Phase 1.

- Pathway to success.
- Industry Research:
  - Interviewed Agencies.
  - Visited Agencies.
  - Member of Regional Utility Metering Group.
  - Attended seminars.
  - Discussions with primary consultants.
  - Researched primary vendors.
  - Reviewed best practices.
Three key lessons-learned were identified from our Industry Research.

- Deep dive into:
  - Infrastructure Selection
  - Business Process Review
  - Customer Engagement
Infrastructure Assessment:

A top-to-bottom infrastructure assessment to establish the best-fit AMI Technology is essential to Project success.

*MDMS = Metering Data Management System
Business Process Re-engineering:

AMI adoption will be an all-District effort.
Customer Engagement Strategy:

AMI is our opportunity to engage our 84k (approx.) customers and enhance their ACWD experience.
The developed RFP Scope of Work reflects the complexity of planning an AMI project.
The developed RFP Scope of Work reflects the complexity of planning an AMI project.

Design Study:
- Needs Assessment
- Alt. Analysis
- Risk Management
- Permitting Review
- PoC Definition
- Estimates

Phase-1 Scope of Work

- IT Preparation
- CEQA
- Communications Feasibility
- Public Outreach
- Business Processes
The developed RFP Scope of Work reflects the complexity of planning an AMI project.
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- IT Preparation:
  - Lifecycle
  - Integration Needs
  - Deployment Plan

- Communications
  - Feasibility

- Design Study

- Public Outreach

- CEQA

- Business Processes

- Phase-1 Scope of Work
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Phase-1 Scope of Work

- IT Preparation
- CEQA
- Communications Feasibility
- Public Outreach
- Design Study

Business Processes:
- Staffing Assessment
- Training Needs
- BPR All Departments
Staff completed a rigorous consultant evaluation process.

- Cross-departmental Effort.
- Evaluation Process:
  - Proposal Evaluation Matrix.
  - Consultant Team Interviews.
  - One-on-One Interviews.
  - Clarifications.
EMA ranked highest by unanimous decision.

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<tr>
<th>Method of Approach</th>
<th>EMA Inc</th>
<th>Util-Assist</th>
<th>UtiliWorks</th>
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<tbody>
<tr>
<td>Project Understanding</td>
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<td>Scope of Work</td>
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<td>Level of Effort</td>
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<th>Experience and Qualifications</th>
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<td>Project Manager</td>
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<td>Project Team</td>
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<th>Schedule</th>
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<td>Completion Date</td>
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<td>Ranking</td>
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Summary of EMA’s Strengths:

- Experience and proven performance.
- Best-fit for our comprehensive approach.
- Multi-disciplined expert team.
- Cradle-to-grave project support.
Confirming Level of Effort and Cost

- LoE vs Scope.
- Phase 1 vs. Total LoE.
- AMI Business Case.
- AMI Industry norms for Prof. Services.
Next Steps

Recommendation:
By motion, authorize the General Manager to execute a Professional Services Agreement with EMA, Inc in an amount not to exceed $922,743 for the Advanced Metering Infrastructure Project, Job 10062.
Questions

Jason Ching – Project Engineering Supervisor
Ben Egger – Project Engineer
University of North Carolina Study: Water Sales and Pricing

January 11, 2018
Study Overview

- Ten agencies participated
- Evaluated the effect of price signals on pre-drought consumption levels
- Also evaluated the effect of price signals and other factors on water savings during the drought (June ‘15 – May ‘16 reporting period)
- Analysis was focused on residential customers
- Two primary data sources:
  - Detailed consumption and pricing data supplied by participating agencies
  - Conservation, pricing, weather, and socio-economic data available from statewide databases
Study Objectives

The study was intended to do the following:

1. Provide agencies with insights on the relationship between rate structure, price signals, conservation measures, and customer usage
2. Identify pricing and usage trends that help guide future conservation efforts

The study was not the following:

1. A cost of service study
2. An analysis of individual customers
3. An effort to identify a preferred rate structure
Study Limitations

Please keep the following limitations in mind as we review a number of charts displaying study results:

- Statistical correlation does not prove causation. Further, the study is limited to bivariate analyses.
- Much of the data was self-reported by utilities and is likely not 100% accurate; although we consider the data reliable for the purposes of this study.
- California public agencies are required to set rates based on the cost of service; therefore, the drought only affected pricing decisions within that framework.
- The study period was during the drought:
  - It is unclear how pricing may affect consumption or the extent to which study results are applicable in normal conditions.
  - There is no mechanism to control for conservation resulting from public messaging and social responsibility.
Study Results

Water systems that charged higher bills for 10 ccf of water use had lower average residential water use in 2016

Statistically significant at the 1% level

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017), California American Water Company’s survey of California water rate structures. Residential GPCD was calculated by the Water Control Board using water systems’ self-reported water production data.
Study Results

There was no correlation between how much was charged for 10 ccf of water use and the cumulative savings achieved during the conservation period.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016), California American Water Company’s survey of California water rate structures. Savings were calculated by the Water Control Board using water systems' self-reported water production data.
Study Results

Higher volumetric water rates were strongly associated with lower residential per-capita water use in 2015

Statistically significant at the 0.1% level

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Sources: CA Water Control Board’s June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017), CA Water Control Board’s EAR water rates survey. Residential GPCD was calculated by the Water Control Board using water systems' self-reported water production data, and rates were self-reported by the water systems.
Study Results

**Water systems that had steeper tiered rate differentials also had lower per-capita residential water use in 2016**

Statistically significant at the 7% level

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board's June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017), California American Water Company's survey of California water rate structures. Residential GPCD was calculated by the Water Control Board using water systems' self-reported water production data. The ratio for uniform rate structures is 1.
Study Results

High water production savings were achieved under all types of rate structures

There was no statistically significant correlation between any rate structure design and the cumulative savings achieved between June 2015 and May 2016

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016), California American Water Company's survey of California water rate structures. Savings were calculated by the Water Control Board using water systems' self-reported water production data.
Study Results

*Water systems that started with a higher level of per-capita water use were able to achieve greater savings than water systems with more efficient customers.*

Statistically significant at the 0.1% level

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Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016) and June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017). Savings and residential GPCD were calculated by the Water Control Board using water systems’ self-reported water production data.
Study Results

Cumulative savings achieved were not associated with how much more (in $) residential customers had to pay when using more than average levels of consumption in 2015.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

Sources: CA Water Control Board's May 2016 Supplier Conservation Compliance (June 21, 2016), CA Water Control Board's EAR water rates survey. Savings were calculated by the Water Control Board using water systems' self-reported water production data, and rates were self-reported by the water systems.
Study Results

There was no correlation between how much water rates (at 10 ccf) increased from the start to the end of the conservation period and the cumulative savings achieved.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016), California American Water Company’s survey of California water rate structures. Savings were calculated by the Water Control Board using water systems’ self-reported water production data.
Study Results

The difference between the highest tier water rate and the lowest tier water rate charged during the mandatory conservation period was not associated with greater or lower cumulative savings.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board's May 2016 Supplier Conservation Compliance (June 21, 2016), California American Water Company's survey of California water rate structures. Savings were calculated by the Water Control Board using water systems' self-reported water production data. The ratio for uniform rate structures is 1.
Study Results

The number of watering days per week during the mandatory conservation period was not associated with the cumulative savings achieved by the end of the period.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016) and June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017). Savings were calculated by the Water Control Board using water systems' self-reported water production data. Number of watering days were self-reported monthly by water systems.
Study Results

*Water systems that issued more warnings during the mandatory conservation period were able to achieve greater cumulative savings during that period*

Statistically significant at the 0.1% level

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Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Sources: CA Water Control Board's May 2016 Supplier Conservation Compliance (June 21, 2016) and June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017). Savings were calculated by the Water Control Board using water systems' self-reported water production data. Number of warnings issues were self-reported monthly by water systems.
Study Results

Water systems serving communities with larger household sizes achieved lower cumulative savings than systems serving lower household size communities.

Statistically significant at the 0.1% level.

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Sources: CA Water Control Board’s May 2016 Supplier Conservation Compliance (June 21, 2016), U.S. Census Bureau 5-year American Community Survey 2010-2015. Savings were calculated by the Water Control Board using water systems' self-reported water production data.
Study Results

Average residential water use in June 2016 was, on average, higher in communities that had higher temperatures during that month than in other communities.

Statistically significant at the 0.1% level

Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Sources: CA Water Control Board's June 2014 - June 2017 Urban Water Supplier Report Dataset (August 1, 2017), NOAA PRISIM. Residential GPCD was calculated by the Water Control Board using water systems' self-reported water production data.
Conclusions

- Water systems with higher demands pre-drought achieved more water savings during the drought
- Water systems were able to achieve significant water savings regardless of rate structure
- Price increases during the drought were not correlated with water savings
Conclusions

- Number of warnings and penalties issued was correlated with water savings during the drought
- Stronger price signals were associated with lower pre-drought water use
Questions?