

Realizing the promise of the Smart Grid Through Secure Integration

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October 14, 2012

* Demand Response Management System



Data: Lifeblood of Utilities



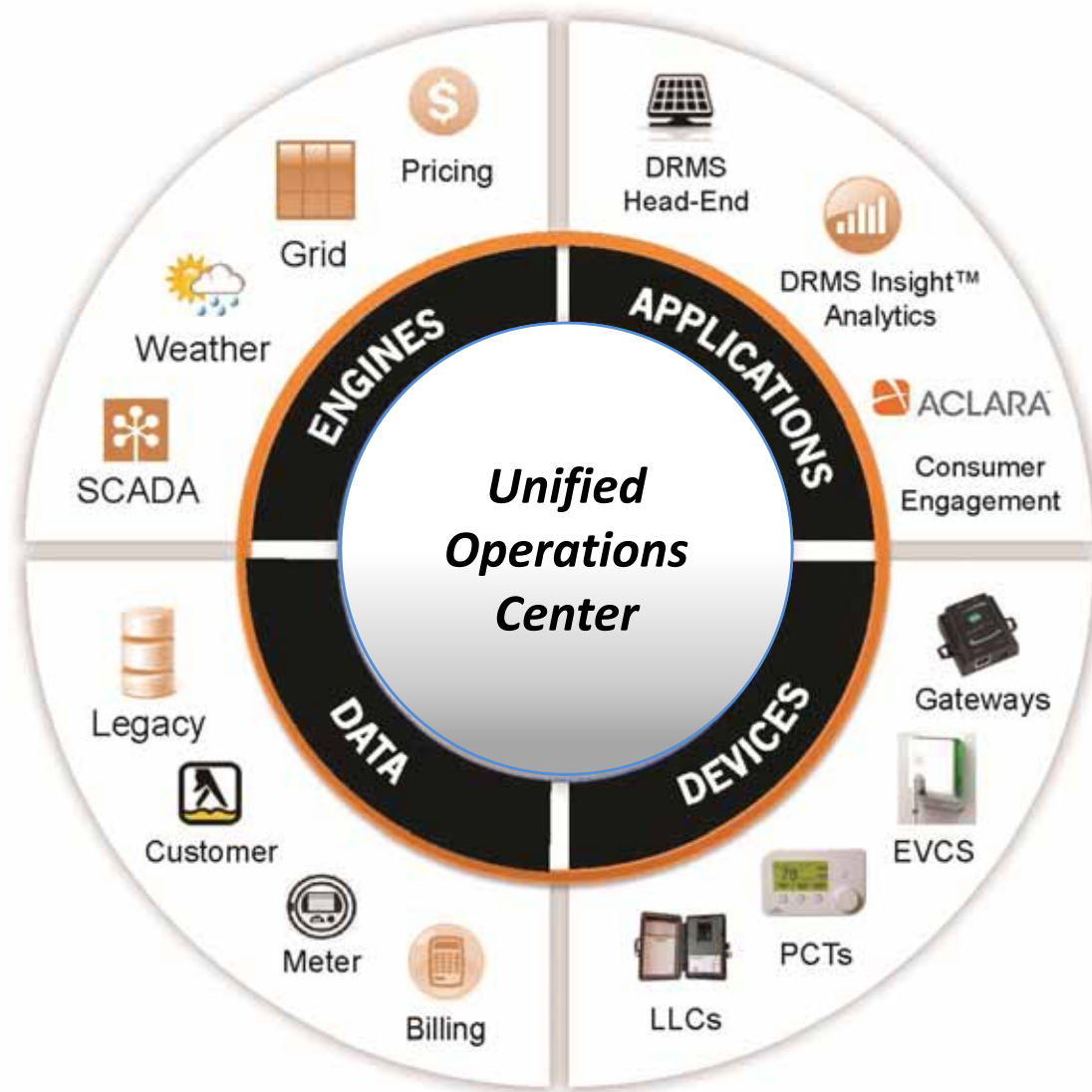
Siloed Systems Barrier



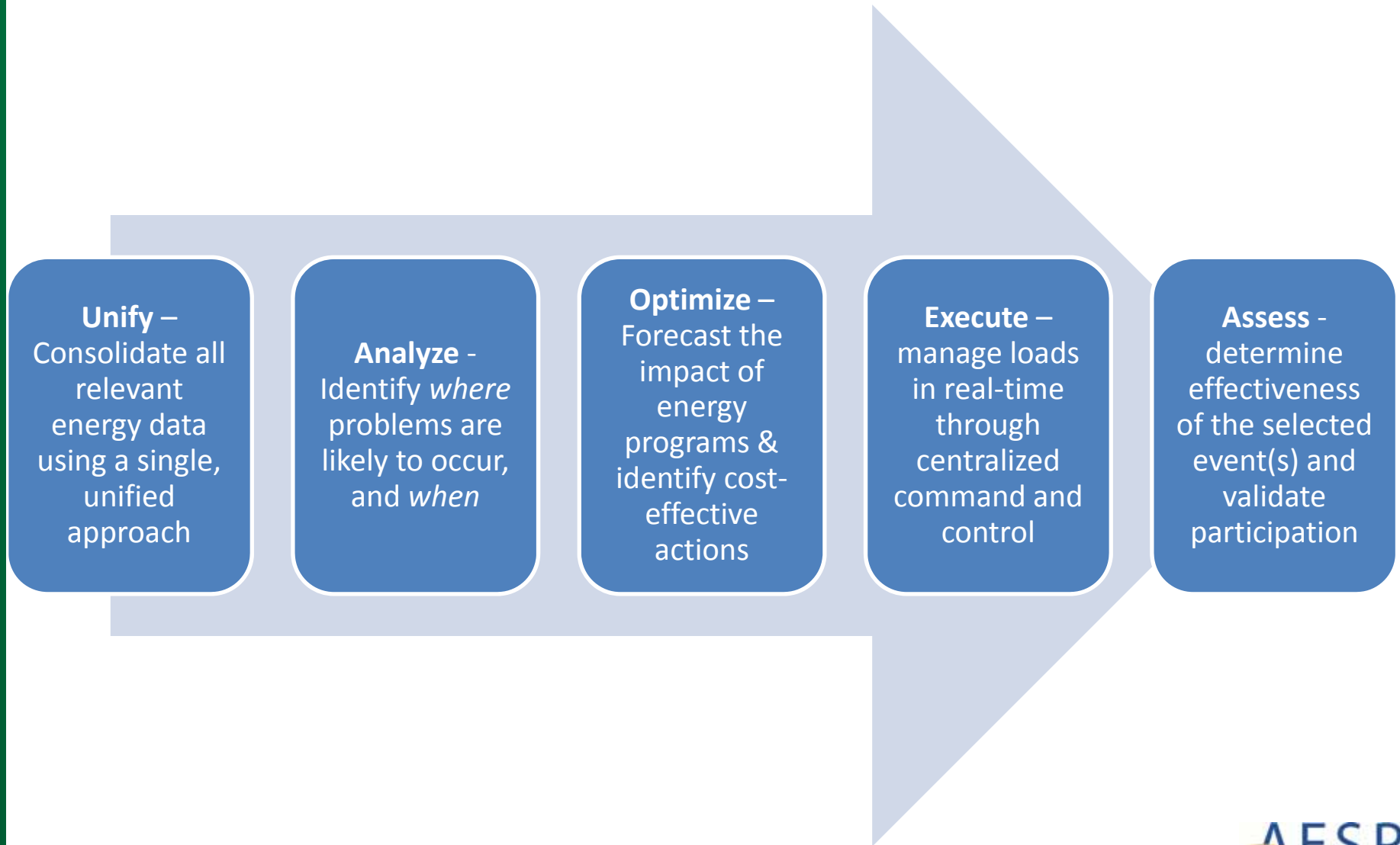
... and the Difficulties are Expanding!



Solution: Unified Operations



Five Steps to Unified Analytics & Control



Dashboard Analytics - Visibility &

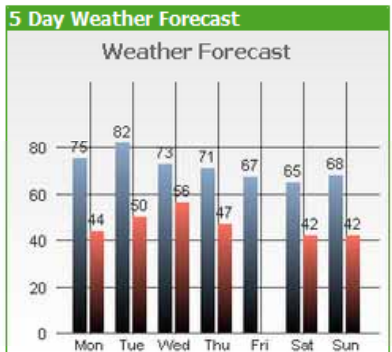
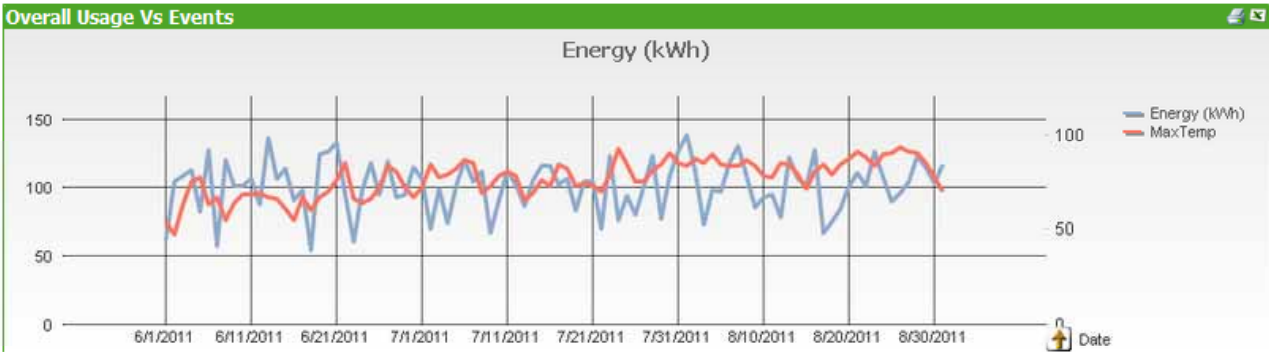
Dashboard | Program Overview | Cost Benefit | Forecast | Program/Event Analysis | Program/Event Data | Data Input

Select Years
2011

Select Dates
...

Days
Wed Thu Fri Sat
Sun Mon Tue

Months
Jun 2011 Jul 2011
Aug 2011 **Sep 2011**



Select Substations

- Substation 1
- Substation 3
- Substation 4
- Substation 5
- Substation 6

Select City

- Aurora
- Naperville
- Bolingbrook
- Plainfield

Select Zip

- 60502
- 60563
- 60440
- 60585

Select Program

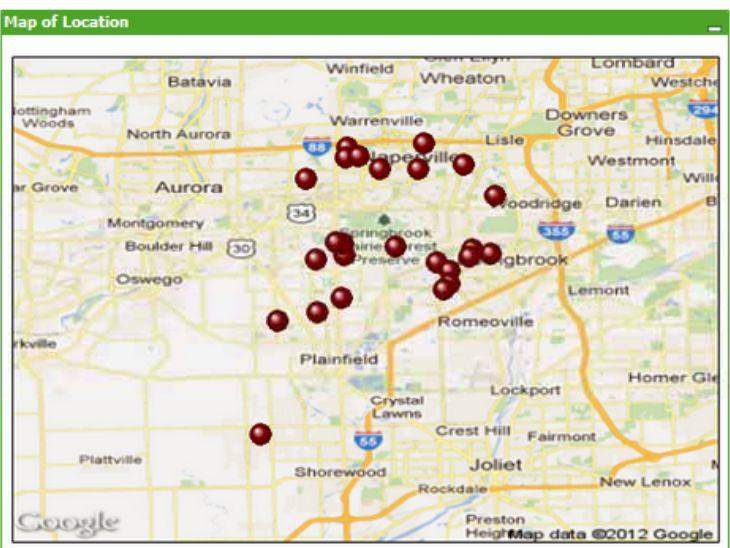
- A/C Cycling Program
- A/C Temp Setback P
- Baseboard Heater Pr
- Irrigation Load Shift

Highest Usage Days

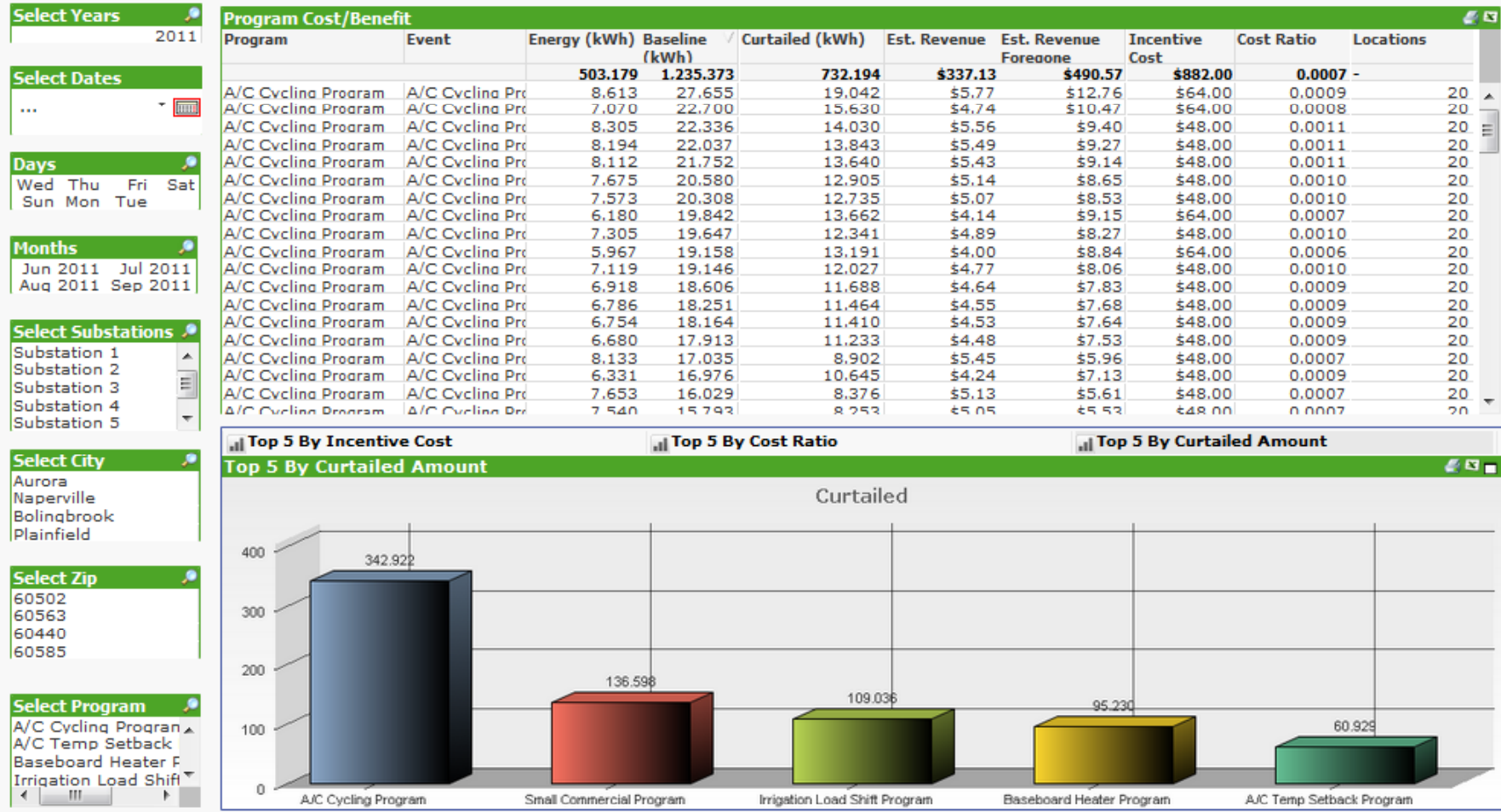
UsageDate	Day	Total Usage
9,310.0		
08/01/11	Sun	139.1
06/13/11	Fri	136.6
06/21/11	Sat	132.7
08/07/11	Sat	130.8
06/06/11	Fri	127.2
08/16/11	Mon	127.2
06/20/11	Fri	126.5
08/23/11	Mon	126.2
07/31/11	Tue	126.0
06/19/11	Thu	124.2
07/23/11	Mon	123.6
08/28/11	Sat	123.3
07/28/11	Sat	123.3
08/13/11	Fri	122.2
07/06/11	Fri	120.2
06/08/11	Sun	120.0
06/27/11	Fri	119.4
06/25/11	Wed	118.3
08/06/11	Fri	117.8
08/31/11	Tue	116.9
07/16/11	Mon	116.3
07/15/11	Sun	115.4
06/30/11	Mon	114.9
08/29/11	Sun	114.3
06/15/11	Sun	113.4
06/04/11	Wed	112.9

Usage By Zip

Zip	City	Total Usage	Total Locations	Usage per Location
		9,310.018	25	392.364
60502	Aurora	337.710	1	337.710
60440	Bolingbrook	2,627.388	7	375.341
60563	Naperville	4,855.722	13	373.517
60585	Plainfield	1,489.198	4	372.299



Strategize / Optimize – select the right resources



Forecast the Need for Events

Dashboard | Program Overview | Cost Benefit | **Forecast** | Program/Event Analysis | Program/Event Data | Data Input

Select Substations

- Substation 1
- Substation 2
- Substation 3
- Substation 4
- Substation 5
- Substation 6

Select City

- Aurora
- Naperville
- Bolingbrook
- Plainfield

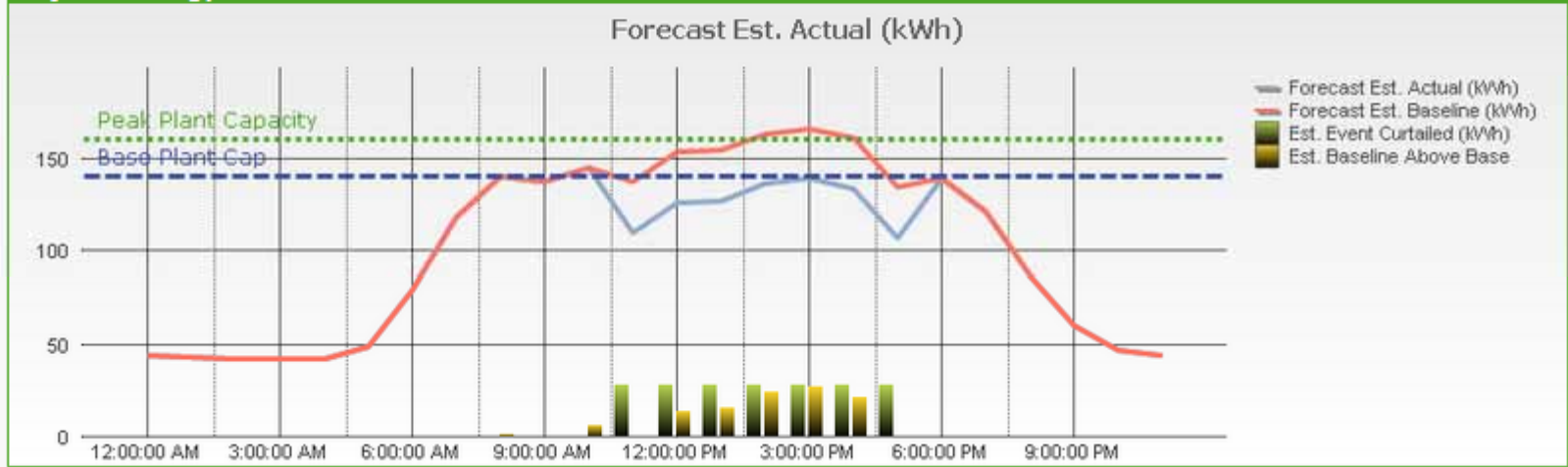
Select Zip

- 60502
- 60563
- 60440
- 60585

Select Program

- A/C Cycling Program
- A/C Temp Setback Program
- Baseboard Heater Program
- Irrigation Load Shift Program
- Small Commercial Program

Projected Energy for the next 24 Hours



Metrics by Hour

Time	Forecast Est. Baseline (kWh)	Forecast Est. Actual (kWh)	Est. Event Curtailed (kWh)	Est. Need Above Base Cap. (kWh)	Est. Need Above Peak Cap (kWh)
	2,452,632	2,261,423	191,209	105,458	11,309
12:00:00 AM	43,747	43,747	-	-	-
1:00:00 AM	42,575	42,575	-	-	-
2:00:00 AM	42,423	42,423	-	-	-
3:00:00 AM	42,113	42,113	-	-	-

Program Subscribers

Program	Subscribers	Average Curtailable (kWh) per	Average Curtail... (kWh)	Cost Ratio
	25	1,746	19,480	0.00076
Baseboard Heater Program	4	1,204	4,816	0.00074
A/C Temp Setback Program	5	0,992	4,962	0.00077
A/C Cycling Program	16	3,041	48,661	0.00077

City Subscribers

City	Subscribers	Average Curtailable (kWh) per	Average Curtailable (kWh) per	Cost Ratio
	25	1,705	8,804	0.00077
Naperville	13	1,480	19,238	0.00075
Aurora	1	3,066	3,066	0.00077
Plainfield	4	1,006	4,023	0.00077
Bolingbrook	7	1,270	8,890	0.00077

Zip Code Subscribers

Zip Code	Subscribers
	25
60563	13
60502	1
60585	4
60440	7

Execute the event

Programs **Events** Rates Baseline Locations Reports Community Users Operations

List Events **Create Event**



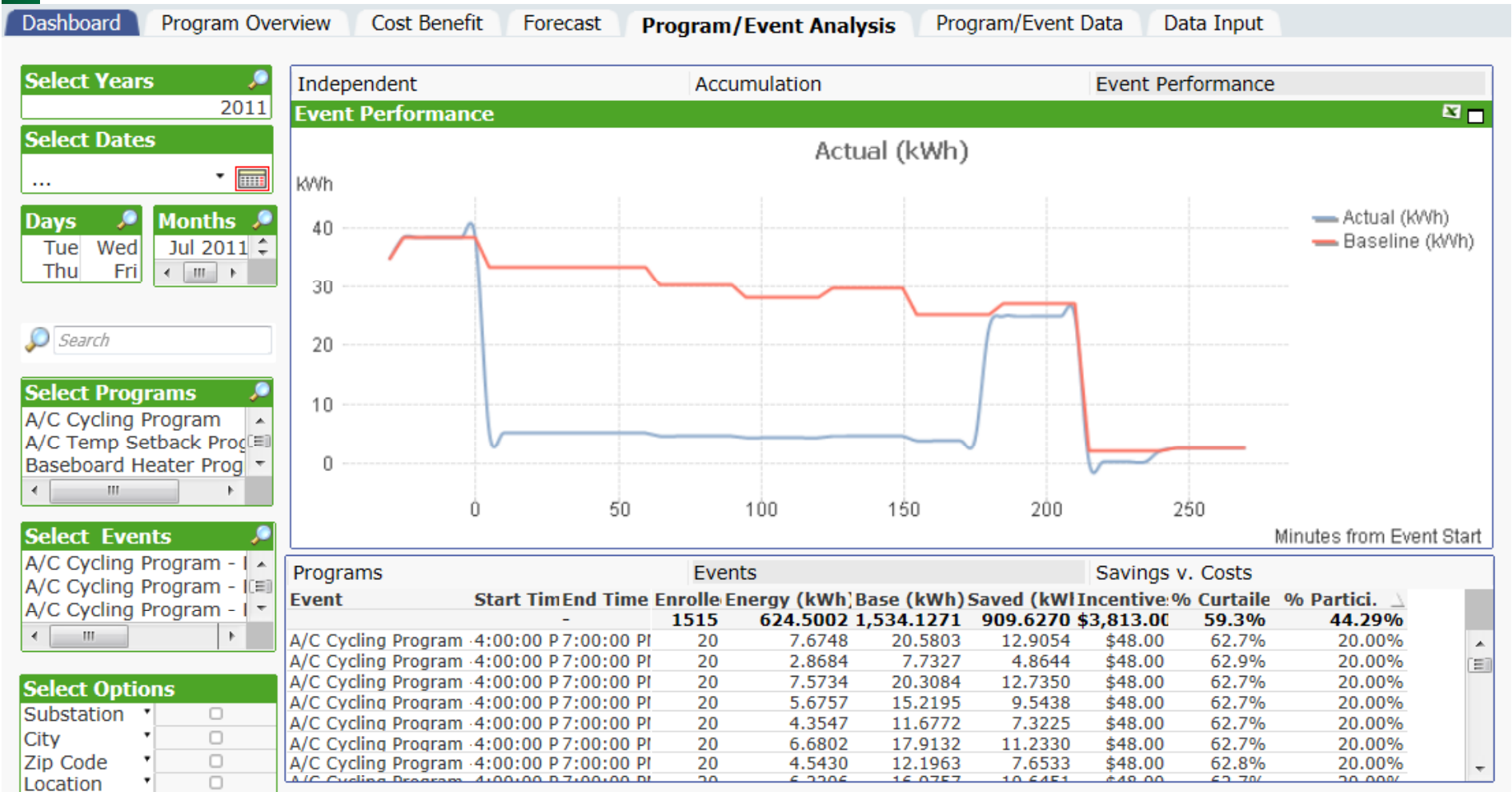
Create DR Event

Multi-step wizard to create a new Demand Response event associated to a DR Program

- Event Details**
- Customer Filters
- Load Control
- Curtailement Groups
- Notification
- Event Summary

Name	<input type="text" value="AC Cycling for Feb 16"/>
Description	<input type="text" value="We will reduce the energy your Air Conditioning unit uses for a maximum of 2 hours between 11 and 5 pm. This is event is part of the AC Cycling program you enrolled in and will result in a \$7 payment to your account."/>
Date	<input type="text" value="2/16/2012"/>
Start time	<input type="text" value="11:00"/>
End time	<input type="text" value="17:00"/>
DR Program	<input type="text" value="AC Cycling Program"/> ▼
Priority	<input type="text" value="7"/> ▼
Incentives	\$ <input type="text" value="07"/> . <input type="text" value="00"/> <input type="radio"/> kWh <input type="radio"/> kW <input checked="" type="radio"/> Event

Assess event performance



Profile: Typical IOU

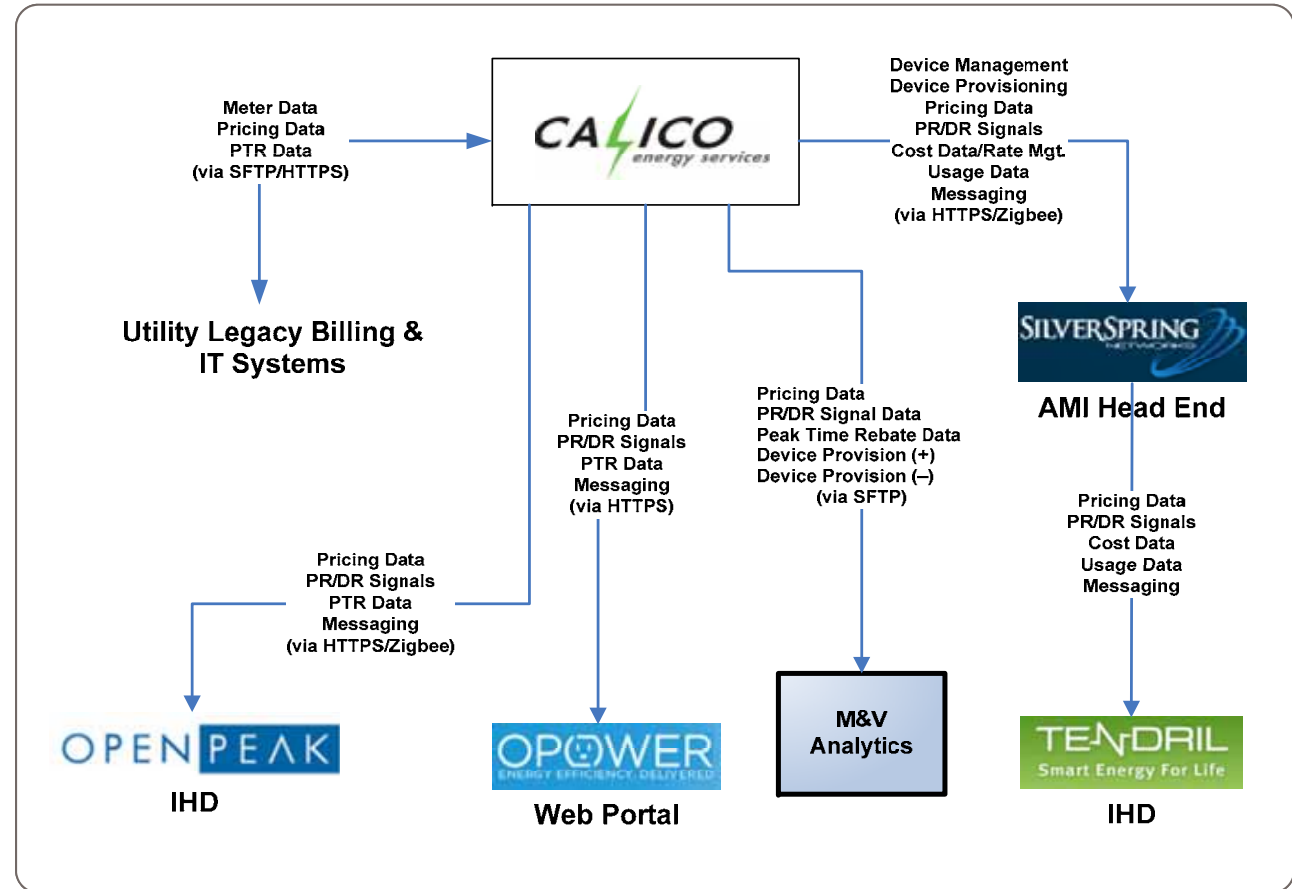
Challenges:

- Enabling a complex residential AMI program with Demand Response, Price Response, and Advanced Rate Structures
- Reducing peak demand and increasing customer awareness
- Establishing a single point of view to energy data and system control across different vendor solutions

Solution: *EIS OpCenter™* Energy Data Management Platform

Benefits

- Integrated, single-point access to energy data from each solution component (above)
- Ability to push energy data, pricing signals, usage, DR signals, messaging, etc. to all systems
- Collection of energy usage data for more than 130,000 residents
- Demand Reduction
- Improved customer communications

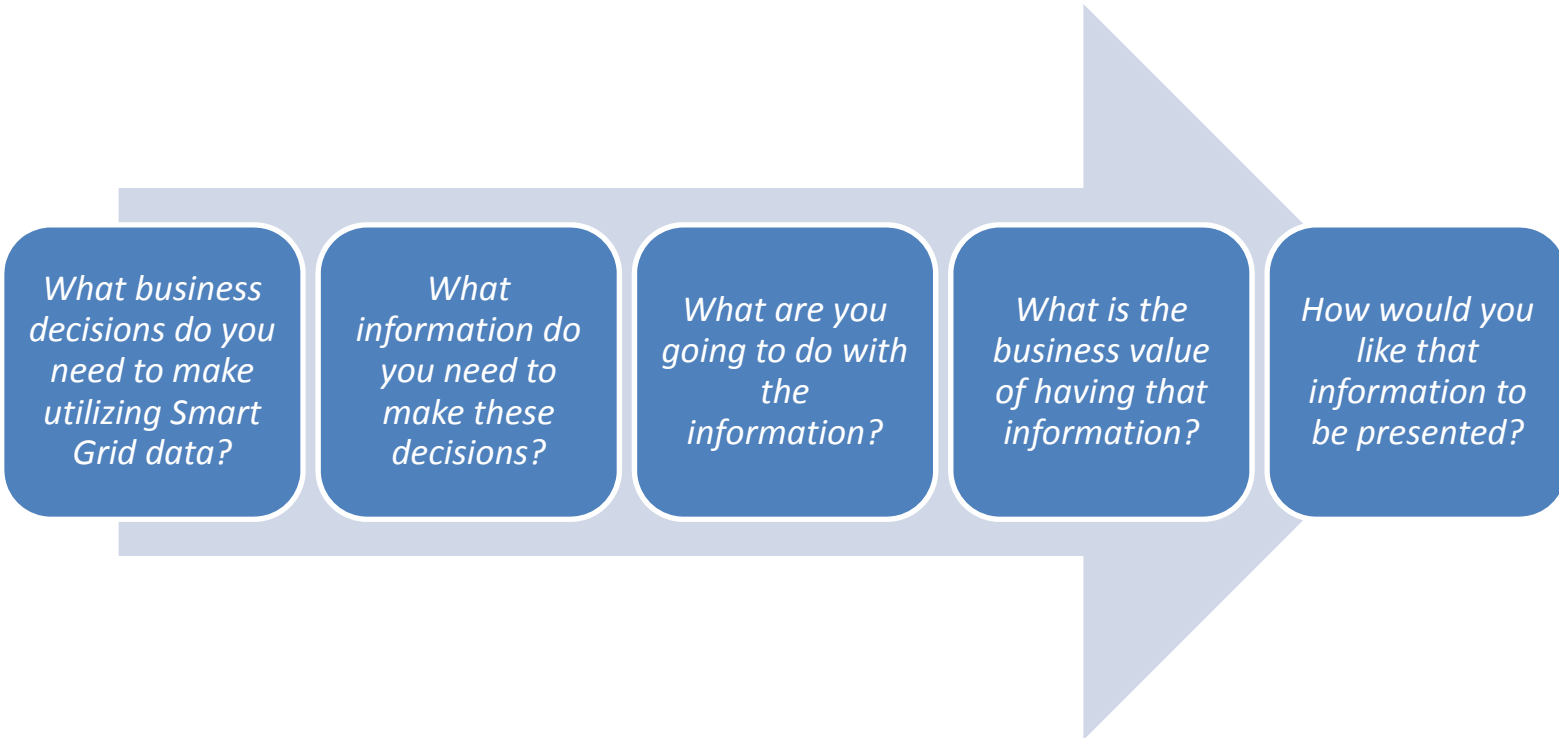


Criteria for Technology Selection

- **Interoperability** – Must be able to integrate easily with existing energy data systems, devices, and applications. Open architecture that supports current industry standards.
- **Flexibility** – the solution should utilize a SOA and work with all required data, devices, engines, and applications.
- **Intelligence** – just having access to more data isn't helpful. The right system must be able to mine, analyze, and distill information in a way that enables you to make better decisions, manage energy, and reduce costs.
- **Track record** – if it hasn't been deployed beyond pilot stage, it isn't proven.
- **Adaptability** – Provides value for all stakeholders; programs should be expandable and adaptable for future needs and requirements.
- **Adoptability** – Must be simple to use, effective, and provide a clear value for utilities and their customers.
- **Automation** – Must be able to automate energy management for customers. Changing behavior is too expensive, unreliable, and time consuming.

Call to Action

Answer the following questions to determine the urgency of finding and deploying a unified analytics and control solution.



Benefits of Smart Data & Analytics

- **Unify and Discover.** Layer and compare diverse data sets in a configurable dashboard. Discover new opportunities to optimize energy, reduce costs, and quantify the impact of energy management programs.
- **Analyze and Optimize.** Plan, target, define & validate energy management programs. Create optimized strategies from insights.
- **Quantify and Validate** the impact of energy management programs – including load control, DR, and load shifting. Surgically limit load reduction in your distribution infrastructure.
- **Dynamically manage energy.** View data from devices, engines, and applications in near real time.
- **Simplify.** Reduce complexity. Correlate dispersed information to expose risk, loss, capacity, and inefficiency. Automate and support time-consuming decisions & analysis.
- **Achieve.** Realize operational efficiencies, optimized field staffing, reduced costs, reliability, and business value.



Save the Dates

Jan. 28-31, 2013

AESP's 23rd National
Conference & Expo
Orlando, FL

Apr. 29-May 1, 2013

AESP's Spring Conference
Dallas, TX

For more information - www.aesp.org

