



Peak Load Management Alliance

Real-Time Decision Making with Smart Data & Analytics

**November 16th, 2011
Chattanooga, TN**

About Calico

Calico Energy provides a unified operations center that connects data, devices, software engines and applications. Through centralized reporting and powerful analytics, this “hub” enables intelligent decision making as well as control of targeted energy resources and grid assets.

Insight - improves decision making by unifying all relevant data

Control - centralizes control for utilities to manage load programs.

Flexibility - enables diverse program strategies – today and in the future

Impact - improves experience and reduce costs



Data: Lifeblood of Utilities

- Determine current system loads throughout distribution infrastructure. What distribution equipment is stressed? Can it be fixed now?
- Identify malfunctioning assets to optimize and reduce field crew deployment
- Identify the cost/benefit of utility asset investments
- Obtain unified view of financials, operations, etc. – in real-time
- Target customers based on numerous attributes for programs



The Importance of “Real-Time” Decision-making

- What could the impact be if you had near real-time analytics?
 - Cost reduction
 - Real-time, targeted load control
 - Verification of program performance
 - Avoidance of outages
 - Customer service

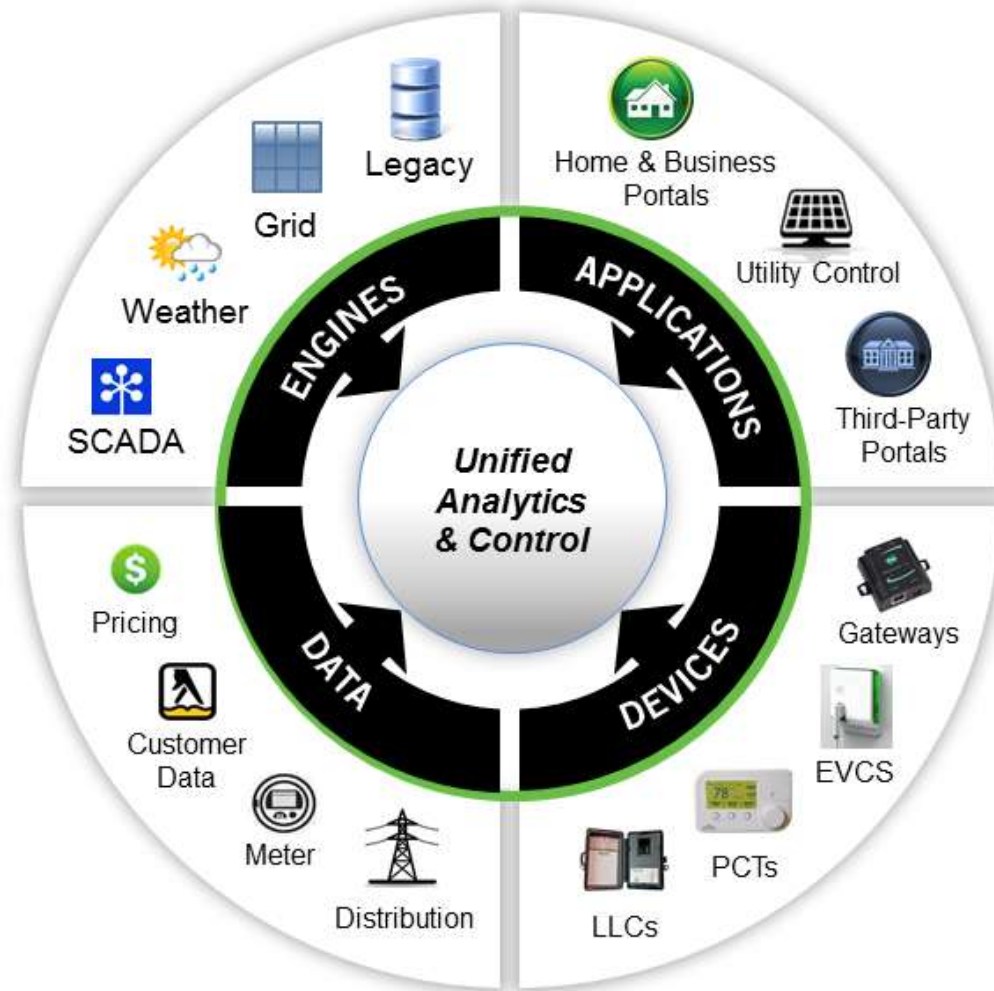
Siloed Systems Barrier



... and the Difficulties are Expanding!



Unified Operations Center



Benefits of the Unified Operations Center

Insight

- **Single, intuitive UI**
- Ability to **correlate dispersed information** exposes risk, loss, capacity, and inefficiency
- **System-wide data collection, aggregation, and layering capabilities** provide valuable insights:
 - ROI of programs and equipment
 - Remotely monitor device health to reduce truck rolls, optimize staffing
 - Identification of link between infrastructure and end points
 - Identification of available load reduction
 - Ability to quantify regulatory compliance through detailed reporting

Optimize – create optimized asset control, pricing, and demand and usage reduction strategies based on insight gained from analytics

Execute, test, and fine-tune programs in real-time

Case Study: System-Wide Integration

Challenges:

- Enabling a complex AMI residential 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

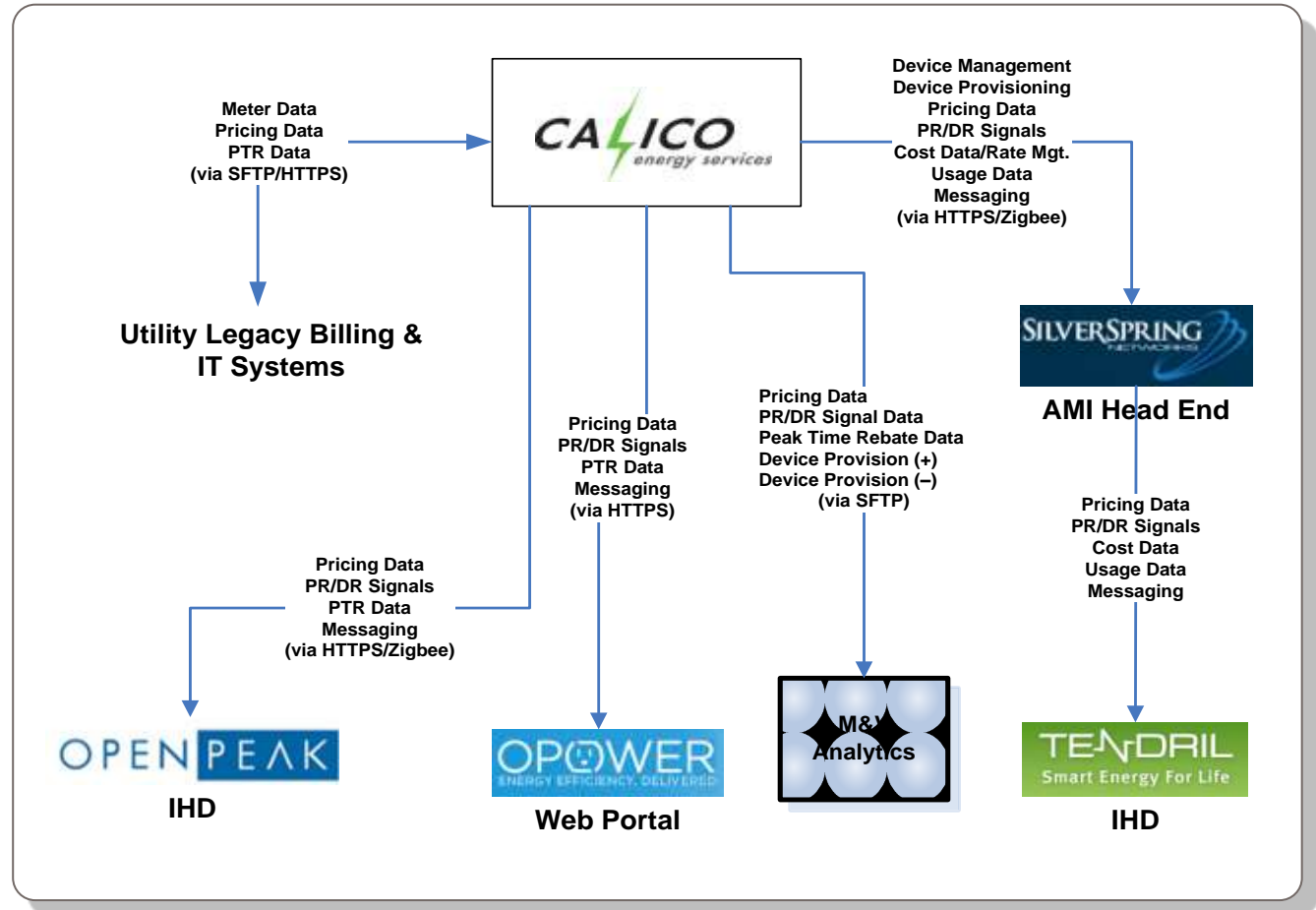
Solution: EIS OpCenter™ Energy Data Management Platform

Solution Components:

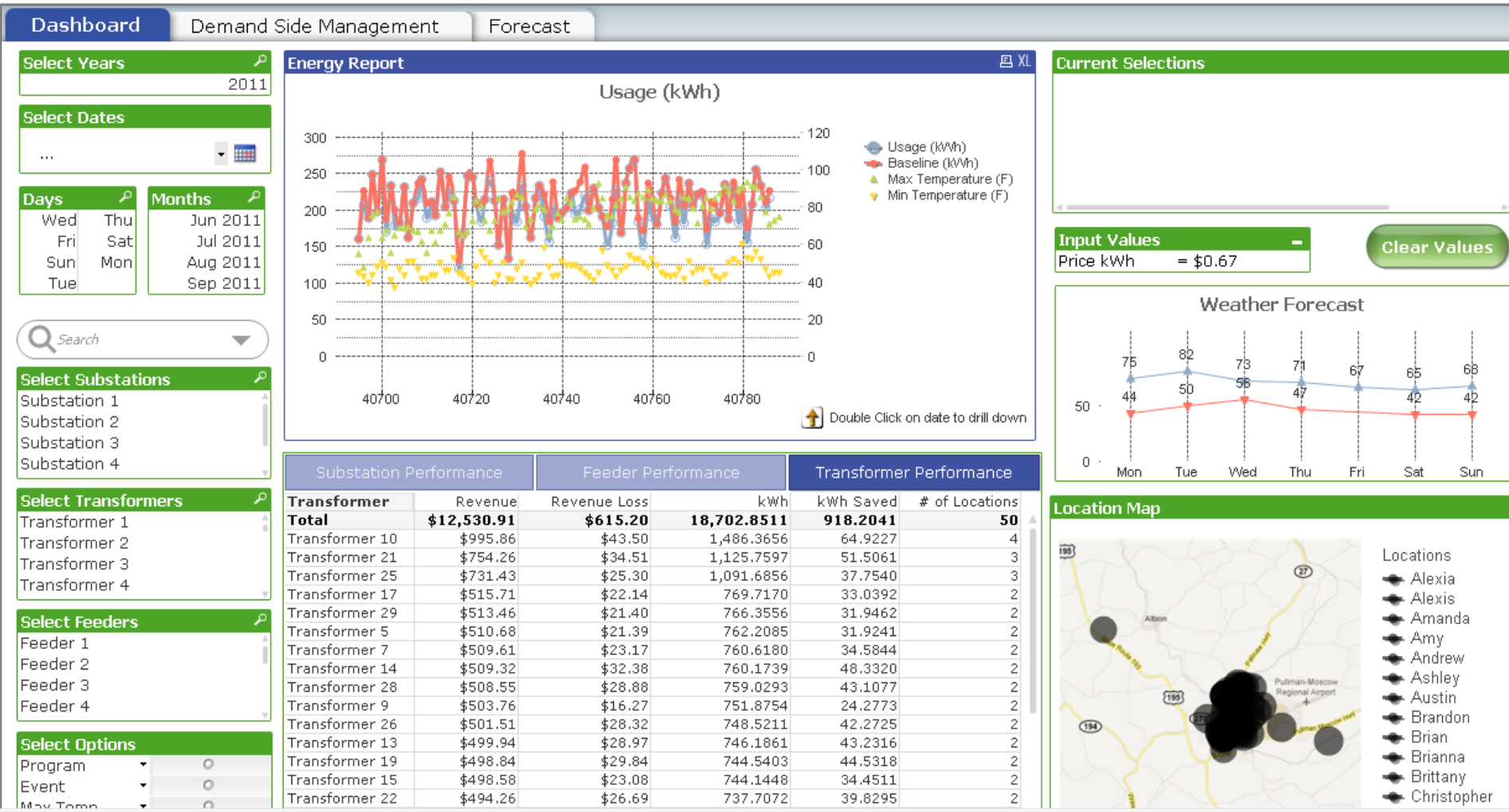
- Utility Legacy Billing Systems
- Utility Legacy IT Systems
- Utility EIS OpCenter™ Command and Control Software
- Calico EIS Central™ Energy Data Warehouse
- Calico EIS Web Services™
- OPower Web Portal
- Open Peak IHD
- MV&A System
- Silver Spring Head-End
- Tendril IHD

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



Dashboard Visibility



Predictive Analytics

Dashboard • Demand Side Management Forecast

Forecast based upon the last temperature of forecasted date.

Select Alternative Date or Temperature Range.

Select Forecast Variables

Substation

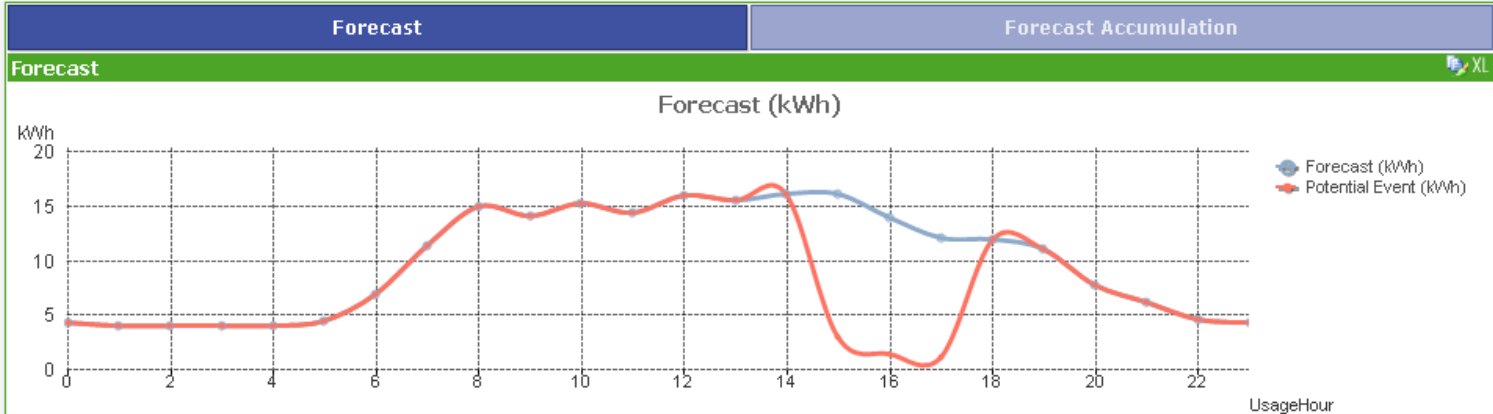
Feeder

Transformer

Signal Value

Date Ranges 07/20/11

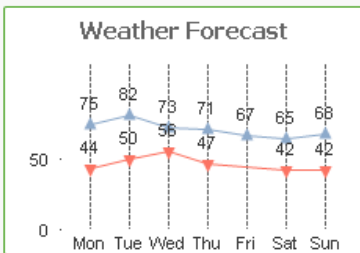
Temp Ranges 74



Substation Performance		Feeder Performance		Transformer Performance	
Substation	Revenue	Revenue Loss	kWh	kWh Saved	# of Locations
Total	\$11.26	\$2.05	201.6019	36.7026	50
Substation 6	\$3.76	\$0.68	67.3300	12.2576	18
Substation 4	\$3.36	\$0.61	60.0968	10.9441	12
Substation 5	\$2.39	\$0.44	42.8137	7.7923	12
Substation 3	\$1.34	\$0.24	24.0801	4.3822	7
Substation 1	\$0.41	\$0.07	7.2813	1.3264	1

Forecast Selections

UsageDate



Estimated: Savings v. Costs

Signal Value	Est. Cost Ratio	Est. Revenue	Est. Saved Generati...	Est. Incentives	Est. Baseline (kWh)	Est. Actual (kWh)	Est. Save kWh	Est. % Particip...
	0.0000488249	\$11.26	\$0.29	\$605.00	238.3045	201.6019	36.7026	96.3%
1	0.0000605112	\$1.95	\$0.05	\$95.00	41.3925	35.0144	6.3782	97.3%
2	0.0000412441	\$2.66	\$0.07	\$190.00	56.3955	47.7074	8.6882	97.3%
3	0.0000400894	\$4.62	\$0.12	\$140.00	97.7866	82.7233	15.0633	97.0%
4	0.0000461072	\$1.26	\$0.03	\$120.00	26.5674	22.4832	4.0842	95.0%
5	0.0000561725	\$0.76	\$0.02	\$60.00	16.1625	13.6736	2.4888	95.0%

Benefits of Real-Time Analytics

Discover. Model programs, management strategies, and reports in minutes. Identify & justify new ways to capture load, reduce costs, and increase revenues. Detect theft.

Assess. Determine what contribution DSM and EE programs can have to the situation based on a variety of variables. Establish quantifiable metrics for business & rate cases.

Strategize. Better plan, target, define & validate energy management programs.

Simplify. Reduce complexity. Correlate dispersed information to expose risk, loss, capacity, and inefficiency. Automate and support time-consuming decisions & analysis.

Optimize. Create optimized asset, pricing, demand, power purchase, and usage reduction strategies based on insight gained from analytics. Target specific customer segments for programs based on multiple attributes.

Achieve. Realize operational efficiencies, optimized field staffing, reduced costs, and improved business value.



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QUESTIONS?