

Connecting Conservation with Comfort



Putting the Consumer on the Smart Grid



Utilities across North America are facing a stark new reality. Not only are they grappling with rapid growth in demand, skyrocketing costs, and an aging supply and transmission infrastructure, but they are also facing major environmental challenges in expanding the power generation capacity. In response, utilities are driving energy conservation and management programs that reduce and/or shift energy consumption. For a number of the leading edge utilities, a key initiative is the creation of a “smart grid.”

In many cases, at the core of the smart grid is the deployment of Advanced Metering Infrastructure (AMI), which includes smart meters at the energy users’ premises. AMI systems require large investments, and utilities are recognizing that in order to maximize their return on their AMI investments they need to leverage AMI to move beyond the meter and communicate with systems in the home. This allows utilities to control demand when and where necessary and, more importantly, launch innovative programs such as variable pricing supported by home solutions that empower the consumer to automatically manage their own energy use.

Energate works with AMI and Demand Response partners to deliver the home energy management systems that meet the unique needs of utilities.

There are many different models for Demand Response programs. Increasingly, however, these initiatives fall into one of the following three categories.

Direct Load Control

In this type of program, the utility directs the load management systems in the home to interrupt or decrease demand. Smart thermostats are directed to adjust the temperature by a certain number of degrees (i.e., a pre-defined setback or setup). These events allow the utility to shed load due to an emergency management situation or avoid high peak demand prices.

Energate’s smart thermostats allow the utility to define a desired adjustment either in terms of the number of degrees of offset, or a specific

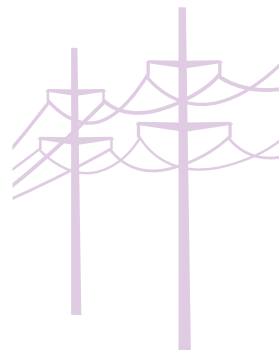
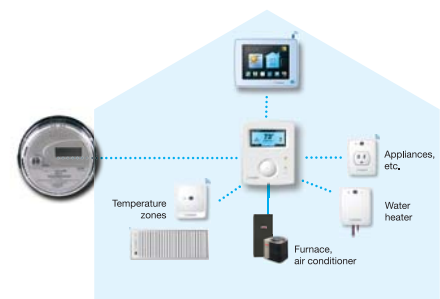
Advanced Metering Infrastructure...

Beyond the Meter

Energate's Home Energy Management Platform integrates seamlessly into the entire power infrastructure.



Power Generation

Transmission & Distribution
(Includes Power Marketers & Brokers)

Home Energy Management Systems

temperature. The utility can control whether or not a user override is allowed. In addition, the smart thermostat provides the utility with notification that the adjustment has been implemented and, just as important, a message can be sent to the consumer explaining the rationale for the changes made to the settings.

This type of program provide utilities with good control of consumption; consumers, however, have little control over the changes being made and may experience discomfort because of the changes. Consumers may be less engaged in the program and unaware of the direct energy savings.

Time of Use Rate Programs

Many utilities have already moved or are moving to implement Time of Use (TOU) pricing as a means of reducing their peak load requirements. In this type of program, the utility incents energy consumers to shift their usage to off-peak times through higher rates at specific times of the day. In addition, the utility may need to impose load controls to deal with emergency situations or events.

ENERGY USE	RATE A
NOW: 3.726 KWH	BREAKDOWN
TOTAL ENERGY	RATE KWH
580 KWH	A: 88
ESTIMATED COST	B: 89
\$ 39.20	C: 383
LAST MONTH	D: 20
	EXIT

With Energate's smart thermostats, utilities maximize the value of these programs for themselves and their consumers.

For Utilities:

- Download and repeat a weekly rate schedule
- Get confirmation when load control occurs
- Communicate to users when rates change
- Send unscheduled Critical Peak Pricing events

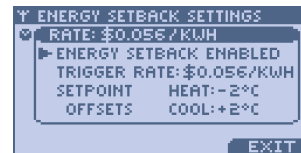
For Consumers:

- See the current electricity rate and any active setpoint adjustments
- Create different setpoint adjustments for each rate tier and for Critical Peak Price events
- See and understand their total energy use in each rate tier

Using Energate smart thermostats, a TOU program engages and encourages the consumer to conserve energy and reduce peak demand through pricing signals. Consumers can make an informed trade-off between higher energy costs and their desired comfort level. Utilities can better recover the cost of peak energy use and reward those consumers who shift their load off-peak.

Real-Time Pricing

An evolution of the TOU program is the ability to move from repeatable time of day price schedules to dynamic pricing that reflects the actual costs of electricity. Energate smart thermostats empower consumers to automatically trigger setpoint adjustments when prices exceed thresholds. As with the TOU program, the utility may need to impose load controls to deal with special circumstances.



Energate works in partnership with AMI companies to ensure the necessary constant communication between the home energy management systems and the smart meter on the AMI network.

Dynamic pricing allows utilities to match costs with prices, and a real-time pricing program using Energate solutions allows consumers to respond automatically to price changes. This type of program optimizes supply and demand on a real-time basis, representing the ultimate goal of a Demand Response program.

Connecting Conservation With Comfort

Energate's home energy management controls and systems can be used to support many varieties of Demand Response programs. We work directly with utilities and AMI partners to ensure the solutions deployed meet the unique needs of each utility. For consumers, Energate home energy management systems provide a more engaging, satisfying, and empowering experience, allowing them to manage their energy use conveniently and comfortably.

About Energate

Energate is a leading provider of advanced energy management solutions for residential and small business applications. Our products interface to the smart grid in support of demand response programs.

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