

HOME COMFORT, CONVENIENCE AND ENERGY CONSERVATION CONVERGENCE OR COLLISION COURSE?

By Niraj Bhargava

Connecting the consumer to the smart grid – many are suggesting that this is the ultimate goal. Thought leaders no longer need to convince utility executives of the merits of the smart grid, nor of the huge benefits of going the last leg beyond the smart meter into the home. They get it. However, does the challenge really end with home connectivity?

The conservation challenge is well understood by utilities today: supply is short, demand keeps climbing. Grids are at capacity, and peak consumption can be as much as 40 percent above off-peak levels. But will we succeed in reaching our peak management goals by simply connecting the consumer to the smart grid?

In contemplating possible technology solutions, some industry players are approaching demand response (DR) from within a traditional paradigm – i.e., at a distance from the consumer, taking a top-down approach. Many providers are only deploying inexpensive load switches or remotely controllable smart thermostats inside the home that allow for off-site regulation of consumer power consumption. A significant issue with this is that it takes control away from the consumer: a provocative notion, especially where personal comfort or convenience are concerned. Witness what happened earlier this year in California.

In San Francisco, state officials announced in mid-January 2008 that they would temporarily abandon their plan to legislate and install remote-controlled thermostats in all homes and commercial buildings. An article published by the San Francisco Chronicle reports:

“New building-efficiency standards... would have required new buildings to include remote-controlled thermostats that could allow utilities to control a building’s air-conditioning or heating during power emergencies.

“After a public outcry, commission officials last week said the regulation would be revised so that the devices would still be required, but configured so that customers could override outside control by utilities.

“But the agency backed off even more this week by announcing that the proposed remote-controlled thermostats would be dropped entirely from the 2008 edition of the building-efficiency standards.”

The home belongs to the consumer. It is his ultimate decision on what he will accept and use. On top of this, there are three distinct industries inside the home – heating, ventilation and air conditioning (HVAC); home automation; and energy – all aggressively marketing leading-edge home management technology to the consumer. Unfortunately, there is a risk that these technologies will not be compatible. To be consumer-centric and therefore provide a sustainable solution, each of these three industries should not be considered in isolation.

THE HOME COMFORT INDUSTRY – HVAC

The HVAC industry is large, mature and competitive, and its equipment generally drives over 50 percent of home energy use. Most players in this industry embrace the notion that their value proposition is all about providing comfort to the consumer. Climate control and management are at the heart of the proposition with a sophisticated set of options, differentiators and alternatives. The industry has innovated and evolved from the days of mechanical solutions and controls, to electronic and digital, to now embracing communications.

Decades of change and competitive offerings have created an endless array of combinations of equipment, control and comfort offerings. And the consumers who have invested in this technology are not about to relinquish their comfort and the benefits they have come to expect.

THE HOME CONVENIENCE INDUSTRY – HOME AUTOMATION

Relative to HVAC, few would call the home automation industry mature. A couple of decades ago, pundits predicted this industry would grow very quickly. It didn’t. Ten years ago we heard the same thing, with isolated growth, most of which was driven by high-income consumers.

Today, however, this industry is at the tipping point, with high bandwidth to the Internet approaching ubiquity. With the digital highway available to all, the door is open for a host of associated offerings. Consequently, the home automation industry has many new and growing players, all proposing the benefits of the connected home, and it is reaching out to the mass market. Some believe that it is connectivity that is driving the home automation industry, but what it really is selling is convenience – convenience that not only means remote control and access, but also ways to simplify consumers’ hectic schedules.

THE HOME ENERGY CONSERVATION INDUSTRY – UTILITY-DRIVEN

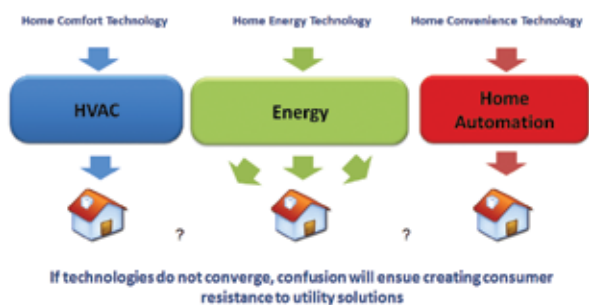
Energy conservation has many facets driving its adoption. Rising costs are clearly driving conservation interests, as are very real societal concerns around carbon reduction and climate change. But for utilities, the drivers are peak demand management to offset supply-side costs, and enhancing customer value. Most utilities can develop and present a compelling business case for the widespread adoption of demand response systems, which require deployment of in-home technology, smart thermostats and utility-defined home networks. However, as utilities move into the home, and progress from pilots to full deployments, they need to be cognizant of the other very real drivers of in-home technology.

THE HOMEOWNER – WHAT REALLY MATTERS

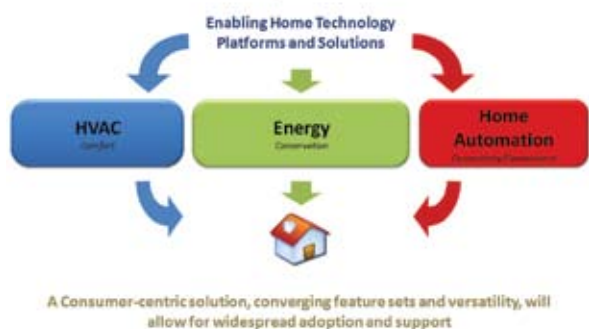
These three industries offer different propositions: comfort, convenience and conservation – and the consumer will

demand them all without wanting to compromise one for another. New home technology provides plenty of promise for value to the homeowner; however, if the proposition only offers one, or worse still, the homeowner receives competing offers from each of the parties, they will resist. Acceptable solutions are those that will achieve broad-based adoption, and will offer the consumer all three benefits, without forcing them to choose and compromise their needs.

Are the industries colliding?



A Convergence Formula



THE WINNING UTILITY APPROACH

As many utilities search for the best methodologies and technologies that will include the consumer as part of their solutions, they must ensure the balance of efficiency, comfort and convenience. The consumer interface is likely to be some form of gateway or smart thermostat, capable of two-way communication between a residence and a utility. It will communicate with smart meters, monitoring use in real time and allowing control over home energy consumption.

Having established that consumption patterns must change, and that utilities cannot expect consumers to allow the utility to enforce arbitrary changes by remote control of home systems, it is clear that the way forward must involve co-operation between consumers and their power providers, with consumer-centric solution sets.

Engaging consumers while respecting their various needs is one component of a successful initiative, and delivers the business benefits of minimising resistance, forging brand loyalty and securing customer retention. Of course, the interests of consumers include those of the utilities'. Providers need to ensure that their businesses can thrive, energy use is sustainable, and that growing consumer needs are met in a realistic, cost-effective and manageable way.

By embracing technology

solutions that span the energy, HVAC, and home automation industries, exponentially greater benefits can be realised. Utilities can draw on the experience of the home automation and HVAC industries to help lead to this success. The choice should be to contract technology and solution providers that can demonstrate an understanding of the consumer, and the three critical home technology benefit packs that are highlighted here.

As the California example discussed earlier illustrates, if utilities take control of consumers' thermostats, there likely will be resistance. As the HVAC industry has discovered, 'comfort' is a personal decision, and utilities also have to take this into consideration. Although some utilities will offer an over-ride feature, this is a minimum requirement, and not a total solution. The greater issue for the consumer is who is maintaining control and under whose terms.

An additional lesson that can be drawn from the HVAC industry is to adopt a broad perspective on comfort. Comfort is more than temperature; it has many other facets, including humidity control, air quality, and ventilation.

In the case of home automation, perhaps the greatest challenge that utilities should consider from here is that of convenience. To illustrate this point: currently, the majority of consumers don't program thermostats they already have. Often regarded as either too complicated or too inconvenient to set or reset, they have succumbed to the phenomenon of the flashing VCR clock, blinking out 12:00 incessantly because no one can be bothered to do anything about it.

Extrapolating from this, it's fair to assume the utility must look for new in-home technology that emphasises ease of use and convenient control over both comfort and energy use. It is not as simple as adding more 'features' to a programmable thermostat. The home automation industry is pushing the boundaries on how to make consumers' lives easier. Even the most sophisticated smart grid will stay 'dumb' in the eyes of the public if consumers don't find it effortless to leverage.

THREE INTERLINKED INDUSTRIES: ALL PARTS OF THE SOLUTION

As utilities and consumers come together, so too should the best practices and trends of the energy, HVAC, and home automation industries. All of these industries have a footprint and evolving technology offerings for the consumer home, as all have a vested interest in adoption. Automating, interconnecting and delivering converged intelligence to these homes will simplify, streamline and ultimately make users more likely to take advantage of the tools at their disposal. This must be kept in mind as utilities begin crossing the threshold into the consumer home and assessing the response on the other side. The ultimate success of smart grid and demand response solutions requires a consumer-centric solution; anything less may just be a setback to the realisation of critical objectives. We cannot afford to make this error. **MI**



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ABOUT THE COMPANY: Energate's home energy management platform lets consumers and utilities manage energy use and reduce peak demand without sacrificing comfort and convenience. Building upon 25 years of HVAC industry experience, Energate smart thermostats offer equipment interface technology and comfort control algorithms. Energate's corporate offices are in Ottawa, Canada with sales offices in California and Texas, USA.

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