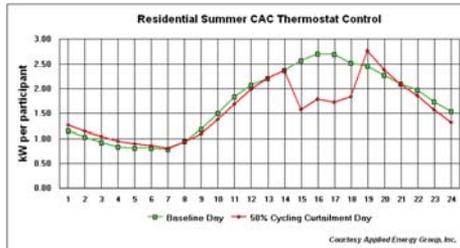


AMR/AMI: A Win-Win Situation for Utilities, Suppliers and Customers?

Ultimately, achieving a successful outcome for AMI will require enthusiastic customer buy-in of utility smart metering initiatives

By: Edmund P. Finamore, President, ValuTech Solutions

Given the slow moving drama currently playing out in California and Ontario, Canada, the so called front lines of smart metering deployment, some people may wonder if implementation of Advanced Metering Infrastructure (AMI) technology is really worth all this effort. Armed with sophisticated demand response study results that appear to confirm load shifting's potential, energy suppliers, AMI technology vendors, ISOs/RTOs and other supply side interests have for sometime been claiming that utility supply side programs, through a variety of incentives and penalties, can shape customer demand for energy, and in doing so can help balance the nation's energy supply. Washington has recently backstopped this assertion through enactment of the 2005 Energy



Policy Act, which tightens Federal Energy Regulatory Commission (FERC) oversight, promotes reliability standards, encourages investment in new facilities and recommends other measures to improve the nation's overall energy picture. With so much attention being focused on this issue, AMI must be good for the customer, right?

Would it be almost blasphemous to suggest at this stage that the intensity of the smart metering debate smacks of a little industry self interest? At first glance, the cooperative enthusiasm of an industry that stands to benefit from a mandated solution could tend to make one question the motives of some participants (remember Enron?) who are otherwise best known for, shall we say, their extremely competitive nature. Indeed, the normally cannibalistic tendencies of many high tech industries suggests that an unholy alliance exists among vendors, energy producers, regulators and other supply siders who believe, with the aforementioned demand response studies to back them, that achieving energy balance can best be accomplished by influencing customer behavior through implementation of

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load shifting and curtailment programs, and by implementing their enabling technologies.

Customer Enthusiasm Missing

What appears to be missing is a similar enthusiasm on the part of the customers who in the end must pay for high energy costs. It's true the California State-wide Pricing Pilot results appeared to confirm some public interest in load shifting and dynamic pricing alternatives. But I've yet to pick up a newspaper and find a customer testimonial enthusiastically announcing he has just saved \$3 for the month by delaying the dishwasher cycle or washing clothes at night. So do we know if customers care? I suspect they do, if not for saving the \$3 ice cream money then for some other more altruistic motive like "it's good for the country".

A fellow consultant of mine, Larry Barrett of Barrett Consulting Associates, has studied this phenomenon for many years, and claims there is a body of evidence that suggests people do care about using less energy, particularly if they are properly compensated in the process. "Significant numbers of customers are interested and willing to adjust their living habits if properly informed and reasonably compensated," claims Larry. "The problem is that utilities presume to know what choices their customers want, instead of simply asking them. If customers were consulted more, utilities would achieve much higher customer satisfaction levels than they do today. Utilities need to hear from the customer what options they will consider, and Barrett Consulting Associates is currently commissioning a study to do exactly that."

Some industry insiders are not quite so sure customers will participate. One well known expert provides some anecdotal evidence in a recent publication which describes a mid-70s program he once participated in, and where he laments the fact that "the \$1 to \$2 monthly net savings after deducting the metering charge was simply not worth the hassle." I'm convinced that

he is not alone in this regard, and there are many similar stories if one is willing to search for them.

I also suspect that much of the ongoing policy and solutions debate taking place is slightly over the head of many consumers, and for many people the concept of electric demand is difficult to grasp. Discussions of high technology AMI solutions with reference designs and open standards used for monitoring and controlling electrical load to support some utility dynamic pricing initiative are probably quite daunting for most. It seems easier to defer such decisions to the utilities or regulatory commissions and then rely on their good intentions. In this confusing high tech environment, one could incorrectly conclude that continued silence implies acceptance.

Avoiding the AMI Train Wreck

So what do we make of all this? Is the push for residential smart metering destined to go the way of Hillary Clinton's national health care plan? Will it sink under its own weight? I don't think so. There are just too many good ideas being considered and too much hard work has been performed for these initiatives to simply fade from the public scene. Fundamentally, the concept of automatically reading a utility meter

and remotely monitoring building energy usage is too good of an idea to simply cast aside.

As I gaze out of my office window at a building nearby, it seems difficult to accept the continuing prospect of a utility employee manually reading its meter in an age when my son routinely text messages friends and downloads music to his iPod. Many would argue that the iPod technology is much more rewarding. In contrast, many of AMI's economic benefits are not yet sufficiently recognized and accepted by consumers to be included by utilities in the hard dollar savings column of their AMI business case studies.

Something must be done to better educate consumers, to fairly allocate the benefits of demand response programs among all parties, and then to have all stakeholders share in the cost of implementation. To the degree that utilities and system operators benefit from operating savings and improved system reliability provided by demand response programs, they should be prepared to accept their fair share of the smart metering costs. Customers should not be expected to blindly embrace a technology and required change in living habits without being sufficiently convinced of the benefits for themselves and the general public. And they should be fairly compensated. What is their participation actually worth? Utilities should



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attempt to find out more specifically from the customers themselves what the residential market will actually accept.

And what about the societal benefits? If market forces were permitted to work, a host of new generating facilities would spring up guaranteeing an abundance of generating and transmission capacity in every geographical market. But that's not the world we live in. Environmental, safety, zoning and other restrictions have all contributed to the industry's current tight energy supply. All citizens have a stake in resolving this problem and ultimately should accept some obligation in paying for the solution. Unless the communal benefits are better appreciated and included in the benefits side of the equation, AMI may be headed for a train wreck that could affect the utility industry for many years to come.

OpenAMI's Important Role

An organization called OpenAMI, of which I am a member, has taken on the unenviable task of developing AMI standards and promoting rapid adoption of AMI technologies to support load management efforts primarily taking place in the California market. Through development of various design principles and use cases, the OpenAMI Task Force has made significant progress in what has become a long hard slog to develop the necessary standards to accelerate AMI implementation. Some AMI enthusiasts believe that implementing such standards is necessary to reduce smart metering equipment costs and accelerate AMI implementation.

Working with the California Energy Commission, California Public Utility Commission and various standards groups, OpenAMI has taken on the challenge of reconciling a divergence of views involving the technical sophistication of AMI systems, required vs. optional features, communications options and other issues potentially having a significant impact on the costs and benefits of AMI implementation. If their efforts lead to the availability of additional utility and customer benefits while at the same time helping to reduce implementation costs, then the public will have been well served.

It remains to be seen just what effect additional consumer benefits will have on increasing customer interest, or if they will engender wide scale acceptance of smart metering technology. While the Energy Policy Act of 2005 requires utilities to offer time based rate schedules, and obligates state utility commissions to study the potential for requiring time-of-use metering, it appears that mandated smart metering for most U.S. markets is still a long ways off. OpenAMI's efforts can best influence the outcome of regulatory proceedings in the California market and across the nation if their effort is seen as a customer focused rather than industry supported initiative that produces clear advantages for the customer. The organization's mission statement contains some very positive objectives in this regard for AMI stakeholders, in particular the ones related to reducing technical risk, lowering cost and empowering consumers. A little more focus on the customer side of the equation would be welcomed and would help to balance out their overall mission.

While traditional AMI functions such as load control continue to be viewed as largely utility centric features, other benefits such as energy management and appliance monitoring could be supported that would provide real added value for the customer if implemented and priced properly. Utilities must do a better job of articulating the energy saving benefits to be gained through the introduction of AMI alternatives that use energy management gateways, home energy management systems and in-home displays. "Attractive" time-of-use rates should be implemented that adequately reflect the real value customers place on modifying living habits and cutting back on energy usage. After all, improving energy efficiency and reducing energy waste are objectives that are as important to

effective energy planning as shifting the time when that energy is used.

Some Suggestions

So it appears we are engaged in an approach to managed energy consumption that seems to be in the public interest, but which has thus far not fully convinced regulators and customers that the benefits are worth the cost. The industry has not adequately promoted the benefits of smart metering technology for energy conservation and other uses that go beyond demand response. In fact, it could be argued that years of studies, pilot programs, regulatory proceedings, etc. have in some ways clouded our understanding of the broader energy supply issues that got us here in the first place.

So how can the industry recapture the momentum that is needed to win the public over and in the process convince utility regulators that favorable regulatory treatment of smart metering technology is in the public interest? It won't be easy, but a win-win strategy can still be salvaged if some common sense steps are considered:

- Utilities should develop a better message that smart metering technology will support energy efficiency and energy conservation programs that can save the customer real money. Customers continue to view load shifting as something they are asked to do to help utilities out. Hence, the luke warm reception when only minimal savings are offered (witness Puget Sound Energy). More focus on benefits is certainly needed.
- Utilities should offer up some real dollar savings to customers that reflect the true value of load shifting when compared to other supply side solutions. Business case assumptions should place greater value on intangibles such as supply risk management, deferred new generation, predictable off system energy purchases, expensive wind and solar alternatives, avoided rights-of-way issues, and other avoided or delayed costs.
- Arguments in favor of smart metering implementation should be clearly communicated to the public, and not obscured or sidetracked over side issues such as who owns and pays for the metering, monthly meter charges, or how many usage blocks are appropriate for a time-of-use rate. Customers will usually act in their own best interest if they understand the basic issues at hand, but will frequently do nothing if the alternatives and benefits are not clearly understood.
- While the work of organizations such as OpenAMI is very important, it should not

obscure the simple message that smart metering technology can benefit customers by supporting functions that promote efficient energy use and save the customer money. Advocacy groups should be touting the energy saving potential that advanced AMI solutions such as home energy management systems can create.

- Utility regulators should be more receptive to arguments advocating favorable rate base treatment of smart metering technology. It should be obvious by now that reduced meter reading costs alone cannot normally justify advanced AMI. However, additional benefits such as improved system reliability, deferred construction and better customer service, though hard to quantify, are real and should be treated more favorably by regulators in future rate proceedings.
- Utilities should be encouraged to explore different options for reducing customer energy use and should be compensated for these efforts by regulators through use of creative rate making measures that reward these types of programs. Rewarding utilities for promoting energy efficiency would encourage them to sweeten the customer benefits of load shifting and time-of-use.

Adoption of residential smart metering technology has been a painfully slow process in California and across the country, in part due to the industry's preoccupation with the rate making process rather than achieving the desired outcome. Few good ideas are ever adopted without the enthusiastic support of the general public, and an "energized" and motivated customer base could make the difference. A win-win result in California and elsewhere can still be achieved if the industry's message is less focused on technical issues and instead emphasizes the individual and collective potential for significant customer benefits that AMI can provide. ■

About the Author

Ed Finamore is Founder and President of ValuTech Solutions, a management consulting firm specializing in utility automation and AMR. With over 30 years of utility industry related experience, Mr. Finamore has participated in many utility automation projects and has authored many articles on automation systems including AMR. He is a licensed professional engineer in the Commonwealth of Pennsylvania, and can be reached at 412 299-5684 or EFinamore@valutechsolutions.com.



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