AMI OPT-OUT: POLICIES, PROGRAMS AND IMPACTS ON BUSINESS CASES

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The last year has been quite significant for the advanced metering infra-structure (AMI) / smart grid market, which creates an array of operational, cost-savings, and societal benefits for electric utilities and the customers they serve. According to the Edison Foundation Institute for Electric Efficiency, at the end of 2011, approximately 27 million "smart meters" had been installed in the United States, replacing existing analog/non-wireless meters at residences and businesses across our country. That number is predicted to double to 65 million smart meters installed by 2015.

As AMI moves into its "second wave" of deployment, however, the first half of 2012 has also been a transformational period due to the emergence of a thorny political and business problem that has entered into the equation—namely, what to do about customers who reject (or "opt out" from) the installation of a smart meter and the impact this rejection may have on the calculated benefits for a utility's broader customer base?

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The concept of "opting out" from AMI refers to those utility customers who choose not, or outright refuse, to receive a wireless, two-way communication-enabling smart meter from their incumbent utility or who otherwise take steps that would force their utility to disable the smart meter's wireless communications capability. Just a year ago, it would have been difficult to identify any U.S. utility that had a formal Opt-Out program in place. Now, mostly as a result of state regulatory mandates to do so, an increasing number of utilities are developing such programs and assessing of the many complex implications of allowing customers to "opt out."

This white paper examines the following issues related to AMI Opt-Out programs: 1) the latest policy trends that are emerging in those states that have current regulatory proceedings addressing utility AMI Opt-Out programs; 2) the specific program offerings and related costs allocations that have been posited by U.S. electric utilities; and 3) an introduction to the impacts that an Opt-Out program may have on a utility's AMI business case.

In what has become a volatile discourse in many states, these issues are unfolding alongside what appears to be an increasing mobilization of smart meter opposition groups that not only are demanding the right to decline a smart meter but also refusing to pay any extra costs to exercise that right. Opting out from AMI program is a complex topic. Some utilities have gone on record stating that Opt-Out programs represent the opening of a "Pandora's Box" that will lead to further complications, backlash, and uncertainty. Others say that a well architected Opt-out strategy can help stop the opposition from gaining traction, while providing an option for a non-wireless meter and covering the costs for this more expensive option.

There are no easy answers and every utility must make a decision that is based on its own unique situation and the cost implications around various options. We have developed this white paper to enable better decision making by identifying the current trends, options, and remaining issues around Opt-Out programs within the electric industry.

OPPOSITION AND REBUTTALS

In a recent white paper, we examined current policymaking around customer data privacy in utility AMI deployments. Electric utilities across the United States are developing their own corporate policies and infrastructure safeguards to ensure that personally identifiable information (PII) of customers is protected; however, concerns about data privacy—along with concerns about alleged health risks associated with the fact that smart meters use a radio frequency (RF) to transmit data—are prompting some customers to actively refuse to have a smart meter installed at their residence. Extreme examples have some citizens physically obstructing a meter installer from removing their analog meter.

The basis for opposition to smart meter deployment is fairly consistent, regardless of the location in which that opposition is taking place. Utilities can respond to the concerns about data privacy gaps that may be created by the installation of smart meters by incorporating infrastructure protocols such as the ones being

developed by the National Institute of Standards and Technology (NIST). Responding to the claims of perceived health risks, however, gets a bit trickier as very few studies have been done specifically on RF emissions from smart meters, given how nascence of the technology. There have been no proven cases of health problems directly tied to a smart meter, and yet the opposition continues to base its resistance on unfounded claims (along with the privacy argument).

The electromagnetic wave spectrum is divided into ionizing radiation, such as ultraviolet and X-rays, and non-ionizing radiation, such as ultrasound and radiofrequency (RF), which includes WiFi, cell phones, and smart meter wireless communication. According to the World Health Organization, electromagnetic sensitivity is a claim is characterized by a variety of non-specific symptoms (e.g., fatigue, tiredness, nausea, heart palpitations, etc.) that afflicted individuals at-tribute to exposure to electromagnetic fields.

On January 19, 2012, the American Academy of Environmental Medicine sent a letter to the California Public Utilities Commission (within the context of an Opt-Out program proceedings discussed in greater detail below) opposing the installation of wireless smart meters in homes and schools. The academy said that "chronic exposure to wireless radio frequency radiation is a preventable environmental hazard that is sufficiently well-documented to warrant immediate preventative health action." On the other hand, in 2011 the California Council on Science and Technology released the results of its study on the health impact of RF from smart meters. It concluded that, when properly installed and maintained, wireless smart meters result in less RF exposure than microwaves and far less exposure than cell phones. The Electric Power Research Institute (EPRI) also has analyzed smart meter RF levels and found that the RF field levels from the smart meters studied are below the exposure limits stipulated by the FCC. As important, the report found that as the system currently operates, nearly 99.9 percent of the meters transmit one percent or less of the time, and 99 percent of the meters transmit less than four-tenths of one percent of the time.

Most utilities, however, have refuted these arguments by stating that smart meters comply with federal radio frequency limits and produce far less exposure than other household appliances and electronics such as cell phones, baby monitors, and microwave ovens. Radios on smart meters are typically a quarter-watt to one watt and operate only about one percent of the time (an average of 86 seconds a day), compared to cell phones that have two- to three-watt radios and are active for significantly longer durations.

Exposure levels from smart meters would be extremely low, as typically a smart meter is only active for an average of 86 seconds a day. Even studies on products that have more much active and longer RF durations (such as cell phones) have not proven a conclusive causal link to cancers of the brain, nerves, or other tissues. According to the Federal Communications Commission, there is no conclusive link between cancer and exposure to radio frequencies, regardless of the device emitting the RF, and, as of this writing, there have been no conclusive safety studies conducted on smart meters. The fact that there have been no conclusive studies specific to smart meters, however, actually creates the crux of the problem, and the opposition has become far more emotionally driven than based in scientific fact.

Generally speaking, opposition groups of citizens or city governments can take legal steps to delay or obstruct an incumbent utility's smart meter deployment. One of the most prominent examples is the Naperville (Illinois) Smart Meter Awareness Group that has filed a complaint in the U.S. District Court for the Northern District of Illinois to seek a stay in the City of Naperville's installation of smart meters. So far, the federal judge overseeing the case has denied the injunction to stop the project. Briefs are still being researched and filed, and the lawsuit is ongoing.

Despite these legal maneuverings, opposition groups or city governments cannot mandate that a utility provide an Opt-out option for its customers. This is something that a state regulatory commission can mandate, however, and this was illustrated by the recent decision of the California Public Utilities Commission (CPUC) requiring the three IOUs in the state to provide Opt-Out programs for their customers. PG&E, SCE and SDG&E willingly participated in the development of these programs under the belief that their customers should have a choice. As is usually the case, though, the "devil is in the details," as these programs now move into a phase of assigning costs for declining to participate in the smart meter program.

It is important to note that regulatory policy on AMI Opt-out is being developed solely at the individual state level. There are no federal regulatory proceedings on AMI Opt-out at the present time, although that could certainly emerge if the Federal Energy Regulatory Commission (FERC) or another federal entity becomes involved. There is a relevant judicial case involving the City of Naperville, Illinois, that could have broad industry implications. The Naperville Smart Meter Awareness group (NSMA) filed a Complaint for Injunctive Relief in United States District Court for the Northern District of Illinois Eastern Division, (Case No 11-cv-9299). The group is seeking a stay of the installation of smart meters in the City of Naperville until an alternative option for customers is available.

No group of states, however, has thus far set a precedent for how Opt-out customers will be handled. There is an emerging regulatory divide on the issue of whether or not to allow Opt Out—and whether and how costs should be assigned. That will likely be the focus of policymaking in the near term.

CURRENT REGULATORY PROCEEDINGS

Many state PUCs are still in a "considering" mode when it comes to Opt Out; others have issued an absolute mandate for it. As is usually the case, California is once again on the forefront of this issue. The CPUC decision enables customers across the state to either keep their current meter or, if they have already had a smart meter installed, to change it back to the type of meter that was previously in place (e.g., electro-mechanical analog meter). It is noteworthy to recall that the CPUC had previously rejected PG&E's initial plan to install smart meters in all homes but turn off wireless capability in homes of customers concerned about RF exposure. PG&E had wanted to pursue this option so that smart meters will remain available in homes after objecting customers have moved out. Clearly the CPUC did not believe that approach went far enough and favored with opponents who contended that the devices still might present RF threats, even with the radio-transmitting capacity turned off.

There are a number of U.S. states that should be considered "trendsetters" on AMI Opt Out policy. California is certainly a leader, but there are others that are worth nothing as well.

STATE	**POLICY**
Maine 	The Maine PUC allows customers to opt out of receiving a smart meter with fees attached. The Maine Supreme Court is hearing oral arguments in a case to oppose the fees. The Maine case also included a challenge that any affixed fees should be shared by all ratepayers. The Maine PUC responded that the AMI meter has become the standard practice in the state, and customers who desire alternatives to the utility's standard meters, and only those customers, must pay the incremental costs of the alternative meter.
Maryland 	In May 2012, the Maryland PSC issued an order allowing individuals who are opposed to smart meters to defer installation until the PSC issues a final, permanent order on whether or not to al- low Opt Out.

Texas 	The Texas PUCT opened a proceeding to evaluate the feasibility of having an Opt-Out program; however, currently AEP, which operates in Texas among other states, does not allow Opt Out across its multi-state service territory.
Vermont 	Driven by the state legislature. A law was passed in May 2012 (S. 214) that includes provisions allowing customer to choose not to have a wireless smart meter, or have one that was previously installed removed, at no cost.

What is rather fascinating is how many large utilities are moving forward with full deployment without having any Opt Out plan in place. Consider these examples:

- In the state of Ohio, about 110,000 smart meters have been installed in the central part of the state by AEP Ohio, a subsidiary of American Electric Power. Duke Energy Ohio has installed about 56,000 meters in the southwestern part of the state. Neither utility has a formal Opt-Out program developed as of this writing.
- Baltimore Gas & Electric (BGE) is scheduled to begin its three-year, $482-million rollout of 1.3 million digital meters this summer and yet has developed no Opt-Out program. As of this writing, the Maryland Public Service Commission is scheduled to consider whether or not to require the state's utilities to have an opt-out provision.
- Detroit Edison, a subsidiary of DTE Energy, has already installed more than 700,000 smart meters, part of an overall plan to eventually place 2.6 million electric meters across its southeastern Michigan service territory, and yet it does not have a formal Opt Out plan in place. In fact, as recently as January 2012, DTE remained adamant that it has no intention of allowing customers to decline a smart meter. In the four months that have followed, requests from communities and citizen groups have prompted the Michigan Public Service Commission to launch an investigation into DTE's smart meter plan. Now, in an abrupt turnaround that was included in a March report to the MSPC, DTE Energy has established that an upcoming tariff filing with the Michigan commission reportedly will include details of the plan—and how much more customers will have to pay if they

want to keep their old mechanical meters—along with addressing how DTE will deal with customers who have received a smart meter and now want it removed.

By comparison, FPL Energy, which has deployed about 3.1 million meters in its Florida service territory, has stated that while it has no mechanism in place for customers to opt out of the meters, it would be willing to postpone its deployment plan until it decides upon an appropriate solution. This is an interesting approach that might be problematic for other utilities facing installation milestones or other metric requirements associated with their AMI plan regulatory approvals. Other utilities (Duke Energy is one example) remain steadfast in developing no plan whatsoever. Whether or not they will be able to stay on that path, given what appears to be increasing public resistance, remains to be seen.

From a policymaking perspective, these disparate activities at the state level do have the potential to create a national standard. If there are common denominators emerging, they would likely fall into the following categories:

- Utilities "forced" to offer Opt Out. An example is DTE Energy, which first said it would not have an Opt Out offering and then made an abrupt turnaround on the subject after public and regulatory pressure.
- Customers who want to Opt Out must pay additional fees, but that will impact participation rates: It is fairly clear that if Opt-out costs are allocated to customers, the participation rate drops significantly. One example is PG&E, which originally estimated that between 40 and 60 percent of its customer population would Opt Out. Once fees were affixed to customers, that estimate dropped to three percent.
- Fees are being challenged: On this issue, Vermont is the regulatory "wild card," as the state PUC's decision to disallow Opt Out fees could set a new precedent.
- AMI functionalities are not extended to those who Opt-out: Those who are given the right to Opt Out could forfeit their right to Peak Time Rebate and other Demand Response programs that require a smart meter. These customers may still achieve benefits through non-wireless smart meters, but analog meters generally cannot support the benefits of AMI.

OPT-OUT PROGRAM OPTIONS

It is often the case that one utility's regulatory filing can serve as a representative case study of broader approaches taken across the industry. Central Maine Power (CMP) offers such an example with regard to creating an AMI Opt-Out program. Under a mandate from the Maine Public Utilities Commission, CMP is offering two different options in its Opt-Out program, each with its own costs. As was the case with Detroit Edison, CMP was a utility that as recently as last year was on record stating that it would not allow any of its customers to opt out of its smart meter installation program, arguing that letting some customers use alternative devices would limit the benefits of smart meters for everyone else. Now, CMP will be offering

the following options: 1) a smart meter with transmitter off will carry an initial charge of $20 and a monthly charge of $10.50; 2) an existing analog meter option will carry the initial charge of $40 and a monthly charge of $12. CMP also includes a subsidy for low-income customers that reimburse those customers for 50 percent of the costs for their selected option. Interestingly, the first option being offered at CMP is rather similar to the PG&E proposal that was rejected by the CPUC in California (as noted above).

CMP offers a useful case study on the options that may be vetted for Opt-Out programs, as it defined several different approaches in its regulatory filings. In its regulatory filing to the Maine Public Service Commission last year, CMP examined three alternatives to full-scale smart meter deployment:

- Keeping mechanical meters: allowing those customers who want to opt out to keep their existing analog meters, with the realization that the old meters can't perform any of the newly required functions, such as monitoring voltage and remotely checking outages. CMP posited that there would be considerable costs associated with this alternative, which it had yet to fully calculate.
- Hard-wired meters: CMP also suggested that, while it would be physically possible to hook smart meters to phone lines instead of having them function wirelessly, this alternative would also be quite expensive, with the costs estimated by CMP to be in the range of $53 million over 23 years. This is because of the need to maintain equipment in rural areas and develop separate software to handle unique data collection.
- Relocate smart meters to another part of a house or residence so that the meter is set up at a distant location on a property. CMP estimated that the costs associated with this alternative would vary considerably, ranging from $750 to $5,000 per individual residence, representing a total of $18 million over its 20-year deployment (the least expensive option in CMP's estimations, by the way).

CMP has also remained consistent in its position that, regardless of the Opt-out options it develops, the costs should be borne only by those customers choosing to opt out (and not the entire rate-base population). Following are various utility Opt-Out program options that have been submitted to utility commissions across the country:

ALTERNATIVES TO SMART METER	DESCRIPTION / CONSIDERATIONS	UTILITIES PURSUING THIS OPTION (*)
Nothing (no Opt-out option offered)	Utilities exchanging existing analog meters for "smart meters" offer no alternative to their customers.	Duke Energy, AEP, SMUD, Southern Company, Dominion, CenterPoint, Oncor, PEPCO, PPL
Allowing customers to keep their existing analog meter with no smart meter upgrade	Similar to what has been standard practice with analog meters, this approach would require a utility to conduct a manual reading the existing meter for cumulative usage. Another concern is that electromagnetic analog meters are no longer being manufactured by the major meter vendors.	Central Maine Power, Central Vermont PS, Burlington (Vt.) Electric, PG&E, SCE, SDG&E
Providing a smart meter with no radio	This approach would require a utility to conduct a manual meter read to retrieve interval usage data. In addition, the meter would need to be re-programmed to accommodate TOU or other DSM tariffs.	City of Naperville (Ill), Glendale (California) Water & Power
Providing a smart meter with its radio function turned off	This approach would require a utility to conduct a manual meter to obtain interval usage data. The radio function could be activated for subsequent residents at the premise.	Central Maine Power
A non-wireless smart meter	A smart meter that is connected to a phone line	NV Energy

** Based on data compiled as of May 2012. Many utilities are revising their approach toward AMI Opt-Out programs, so this information is subject to change.*

UTILITY PROGRAM TRENDS

The steps taken by a handful of utilities that have either voluntarily developed an Opt-Out program or have been forced to do so by their regulating public utility commission have amounted into some emerging trends toward defining Opt-Out program options. Using the data collected thus far, it appears that the utilities that are planning or developing an AMI Opt-Out program have estimated anywhere from one to five percent of their of their total meter population to opt out. Obviously, the larger the scale of the deployment, the larger the number of customers that would be included in a utility's estimate.

Here are some specific figures from utilities across the country:

- NV Energy expects about 7,500 customers to opt out among its total deployment of 1.3 million smart meters.
- Pacific Gas & Electric (PG&E) has had 4,400 opt outs among more than 6 million customers, but in some re-ports the utility has indicated it could see as many as 145,000 customers opt out of the smart meter program.
- San Diego Gas & Electric (SDG&E) has predicted that 3,000 customers will opt out of the utility's AMI program, while anti-smart meter groups have predicted the number will be closer to 5,000. Either way, that represents less than one percent of SDG&E's 1.4 million customers.

- Southern California Edison (SCE) predicted that 60,000 of its customers will opt out, about one percent of its 4.9 million customer accounts.
- As noted above, Central Maine Power assumes that 1.5 percent (9,000 total) of its customers may want to opt out.

The other growing trend is that, as in the case with PG&E, customers who choose to opt out will have to pay a price to do so. The logic behind this is that smart meters bring certain benefits to the entire rate-base population, benefits that a utility typically has calculated in the business case submitted for regulatory approval to proceed with the smart meter roll-out. If a certain segment of the rate-base population is allowed to opt out, ratepayers in general will lose out on some of those quantifiable benefits (savings), and those choosing to opt out should bear the responsibility for those costs.

Opponents increasingly are saying "no way" to this approach, arguing that they should not have to pay for an analog (non-wireless) meter that, for decades, had been affixed to their property essentially at no cost. This is the crux of the issue that will likely continue to be the focus of regulatory proceedings in individual states across the U.S. in the months ahead.

Nevertheless, the trend emerging presently is that utilities are outlining related costs to be borne by those customers opting out in their program applications. Consider the following examples:

- Central Maine Power (CMP has provided an option for its customers to choose a digital smart meter with the wireless transmitter turned off, which carries an initial fee of $20, plus a monthly charge of $10.50. Keeping an existing mechanical meter will cost $40 up front, and $12 a month.
- Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Edison would all impose a one-time fee of $75 for opting out, plus a $10 monthly charge. Customers at the three utilities will be able to get their previous meters, either analog, or non-wireless digital, re-installed. The utilities noted that these costs are subject to adjustment upon conclusion of a second phase of regulatory proceedings in which issues regarding the actual costs associated with offering an analog Opt-out option will be addressed. In other words, the utilities are reserving the right to increase those fees once they get a better handle on the actual costs of having to maintain analog equipment inventories for a segment of their customers. Citizens of the City of Naperville, Illinois., will have the option to formally select the non-wireless meter alternative but also with affixed fees: 1) a one-time cost of $68.35 to provide a non-standard smart meter with wireless functionality removed and 2) a monthly cost of $24.75 to manually collect interval energy information from the meter for billing and utility operation purposes.

While the examples above do represent a trend toward charging customers who want to opt out from AMI, Vermont legislative policy recently skewed in the other direction. In a measure passed by the state

legislature, Vermont citizens who don't want wireless smart meters on their homes or businesses can now opt out of the technology for free. Utilities in the state had wanted to charge customers $10 a month if they declined to have the new meters installed.

Opposition groups, even when successful in establishing an Opt-Out program, continue the fight against having any additional costs associated with the retention of the analog meter. They have made the argument that the meter that was on a residence for 20 or 30 years without an accompanying cost should not now suddenly result in a $20 to $30 monthly charge. For example, the CMP program is being challenged through the judicial system in Maine, in which the state's Supreme Court is examining two key issues. First, several justices have been openly skeptical of the Maine Public Utilities Commission's decision not to address the health and safety of the wireless-enabled meters. Second, appellants in the case are arguing that the Maine PUC was negligent in approving the fee requirements of CMP's Opt-Out program and are asking the court to overrule that decision. If the court is unwilling to overturn its decision, appellants have asked the case be remanded to the PUC for evidentiary hearings with a stay on opt-out fees at least until a full investigation is completed.

OPERATIONAL IMPACTS OF OPT-OUT PROGRAMS

Despite the increase of regulatory proceedings of Opt Out provisions and the development of specific utility programs, there are still a number of operational impacts that have yet to be resolved or significantly addressed at an industry-wide level. These impacts can pose a number of "hidden costs" that many utilities may not be fully capturing if they don't vet the impacts completely:

- **Need for new tariff structures:** New rate and / or rider structures would have to be created across multiple customer classes to allow customers to be billed for their Opt Out election. This will require new Opt-out rate components for each applicable rate class, as well as new cost recovery and / or fee tracking mechanisms.
- **Scarcity of analog meters:** Analog meters are no longer being manufactured in the U.S.; replacement and maintenance is a growing concern.
- **Creation of "holes" in a mesh network:** Often in AMI deployments, communication with meters depends on a mesh configuration (a particular meter will often communicate with the backbone network through another meter rather communicating directly with a network receiver). Thus, customers who opt out create "holes" in that mesh. This could mean that neighbors of an Opt Out customer may also have a lower quality service than they otherwise would have or the cost of extra received that must be incurred to compensate for the holes in the network.
- **Theft and tampering:** Analog meters fail to register consumption at very low loads; thus, they are susceptible to tampering and theft.

IMPACT ON THE AMI BUSINESS CASE

Standard practice for AMI deployment is for a utility to first articulate the business case justifying the pursuit of deploying smart meters. Most utilities base their AMI business case on savings achieved through peak load reductions and energy conservation, plus O&M savings (e.g., reduction of meter reading costs). Also included in the business case are greater efficiencies with regard to meter reading, handling of service orders, management of outages, enhanced customer service, and quicker resolution of billing issues. Most AMI business cases are "sold" on the basis of lowered costs and improved benefits. The concern is that allowing certain customers to not have a smart meter defeats the economies of scale associated with installing advanced meters and improving energy management.

Most AMI business cases were developed without consideration of Opt-Out programs. As has been indicated in this white paper, the development of Opt-Out programs is a rather new phenomenon in the scope of AMI deployments, and thus most utilities have yet to take the steps to re-evaluate their AMI business cases but may find the need to do in the near term, perhaps as a result of a regulatory mandate. What these utilities may find is that there are number of potential impacts that Opt-Out programs can have on the AMI business case, depending in large part on the size of the deployment.

The fundamental objective in re-evaluating an AMI business case is the overall level of impact caused by an Opt-Out program, and how this impact is increased or decreased by the specific Opt-out options that a utility may offer. As a general rule, utilities should be concerned about the extent to which the decision of a relatively small group of customers to opt out from AMI will reduce the public benefits and increase the costs of the AMI program, thus diminishing the overall value of the program that the utility may have previously articulated to its stakeholders.

Traditional, analog electromechanical meters do not support AMI communications with smart appliances, improved home energy management systems, or time-varying and discounted electric vehicle charging. Further, Opt-Out pro-grams will have an impact on utility systems used to manage energy demand and respond to power outages, given that smart meter data can be used by utility engineers to view distribution transformer loading to properly size the equipment and to monitor voltage levels remotely.

AMI OPT-OUT: POLICIES, PROGRAMS AND IMPACTS ON BUSINESS CASES

AMI Opt-Out programs can impact a utility's business case in two significant ways:

INCREASED COSTS	REDUCED BENEFITS
Labor Costs	Energy Savings
Operational Costs	Operational Savings
Incremental Costs	Supply Side Savings
Project Costs	Outage Detection
	Other Projected Operational Improvements

Baltimore Gas & Electric (BGE) addressed these impacts in its recent filing to the Maryland Public Service Commission, stating its smart grid business case was built, along with other factors, on the elimination of meter reading costs. BGE has argued that, using a one-percent opt-out rate as an example, the annual operational cost impact to its smart grid business case is projected to exceed $1.3M in higher meter reading costs and additional meter reading infrastructure expenses per year. Additionally, BGE has estimated that an Opt-Out program in its service territory would result in approximately $12 million in incremental capital costs including;

- Upgrade of current meter reading system
- Cost to update customer care, metering and billing systems with opt-out functionality
- Cost to upgrade and operate additional network communications

Altogether, BGE is estimating that the collective estimated impact of these costs could exceed $28 million over 10 years, and in its pending rate case BGE is seeking approval from the Maryland PSC that those customers who choose to opt out should contribute to the cost associated with this option through a onetime set up fee and a monthly charge commensurate with the costs of setting up the new process and maintaining meter readers and the meter reading sys-tem.

In addition to the increased capital and operational costs noted above, BGE also projected that there would be proportionately reduced benefits realized from peak demand reductions, energy conservation impacts, and associated capacity and energy price mitigation savings. These adverse impacts would not only apply to the customers opting out of AMI/smart grid but also to all other BGE customers.

Another interesting regulatory dynamic that will need to be addressed in some jurisdictions is the extent to

which some states will want to make TOU rates the default rate plan for residential customers. How that can be possible if a segment of the customer population does not have smart meters remains to be seen. In fact, in its ruling the CPUC has reserved the right to revisit the Opt-Out program concept altogether in future proceedings to "ensure that this opt-out option does not impede the full implementation of net metering, demand response and smart grid."

In addition, part of the justification for smart meter deployment is that analog meters are not practical for the long term; they are becoming obsolete and thus costlier to repair and maintain. Plus, in most business cases, utilities calculate the benefit of saving millions of dollars on manual meter reading costs. For instance, PG&E has initiated a second proceeding with the CPUC after it began searching for companies that make analog meters and was not successful. The utility reportedly came upon a company that refurbishes analog meters and has a collection of them in stock, but the costs to gather and calibrate the old meters in the field for use again were higher than buying refurbished meters from other vendors.

STEPS UTILITIES CAN AND SHOULD TAKE NOW

All utilities, regardless of their size or status of their AMI deployment plans, should be thinking proactively about Opt Out strategies. These are immediate steps that all utilities should consider:

- Know the true costs of opting out: Each utility will face a unique cost impact, based on its own scenario, and thus should calculate the costs for systems integration, meter selection, maintaining multiple systems, revision of internal processes, etc. that will result from various Opt-out options.
- Assess your customer base: Smart meter opposition is not being driven by one specific socio-economic group. Opposition to smart meters can cut across your entire service territory, but it is possible to be proactive in determining where opposition pockets might surface.
- Understand the art of messaging: Regardless of the option that you select, strategic communications need to be developed, both for the utility's approval entity (regulatory commission or city council) and specific community groups within your service territory.

CONCLUSION

The remainder of 2012 will likely see an increase of activity and policymaking around the topic of AMI Opt-out. The venue for both will likely be specific utility regulatory proceedings in individual states. It also is likely that an increasing number of state public utility commissions will either mandate that utilities under their jurisdiction create Opt-Out programs or at least submit a filing to consider options that may be viable. The activity on both fronts will create additional perspective on this topic for those utilities in which AMI deployment has not yet officially begun. As noted in this white paper, the impact of Opt-Out programs on

individual AMI business cases can be significant depending on the scale of a utility's deployment. If your utility has not yet prepared an AMI business case, you would be wise to include opt-out contingencies in your model.