Lisa Madigan Opinion Editorial: ComEd Experiment Too Expensive for Consumers

Chicago Tribune, June 21, 2011

Last month, as the Illinois General Assembly's spring session rushed to a close, ComEd, Ameren and their army of lobbyists were able to muscle a bill through the legislature that will mean a decade of higher prices for consumers if it becomes law. That must not happen.

The bill mandates up to $3.76 billion in spending on dubious plans to upgrade the electric grid and replace customers' electric meters with so-called smart meters. While ComEd and Ameren will do the spending, we'll be footing the bill thanks to large annual rate increases — about 9 percent a year. The utilities want to experiment with expensive and unproven smart grid technology, yet all the risk for this experiment will lie with consumers. The utilities cleverly crafted a law that poses no risk for them and guarantees them huge profits.

ComEd and Ameren have failed to prove there's an urgent need for this excessive spending. In fact, even utility executives admit doubts about the benefits of these investments and question whether they are worth the cost. John Rowe, the CEO of ComEd's parent company, Exelon, recently said of the smart grid:

"… it costs too much, and we're not sure what good it will do. We have looked at most of the elements of smart grid for 20 years and we have never been able to come up with estimates that make it pay."

Wow! Really? Then why are ComEd and Ameren pushing so hard to have us pay for this technology?

I believe this legislation is nothing more than a thinly veiled attempt by ComEd and Ameren to protect their revenues for the next decade at great expense to consumers. It would guarantee these monopolies a yearly profit of 10 percent or more.

So far, most legislators have bought the utilities' smart sell and slick ad campaign.

Their pitch is that smart meters will allow consumers to monitor their electricity usage, helping them to reduce consumption and save money. But the $63 million smart grid pilot program consumers are currently paying for has turned in disappointing results that reinforce what Rowe already knows. On hot summer days, people continue to run their air conditioners no matter how much information they have from their smart meter.

Consumers don't need to be forced to pay billions for so-called smart technology to know how to reduce their utility bills. We know to turn down the heat or air conditioning and shut off the lights. The utilities have shown no evidence of billions of dollars in benefits to consumers from these new meters, but they have shown they know how to profit.

I think the only real question is: How dumb do they think we are?

Lisa Madigan is the Illinois attorney general.

http://lisamadigan.org/Newsroom/lisainthenews/item/2011-06-lisa-madigan-opinion-editorial-comed-experiment-too

Court of Appeals, State of Michigan

ORDER

In re Application of Consumers Energy to Increase Electric Rates

Docket No. 317434; 317456

LC No. 00-017087

Peter D. O'Connell
Presiding Judge

Karen M. Fort Hood

Michael F. Gadola
Judges

The Court orders that the motion for reconsideration is DENIED.

O'Connell, P.J., would GRANT the motion for reconsideration and issue his attached opinion to clarify the previous opinion, *In re Application of Consumers Energy to Increase Electric Rates*, unpublished opinion per curiam of the Court of Appeals, issued April 30, 2015 (Docket Nos. 317434; 317456).

Gadola, J., writes separately to make clear to the parties that the scope of the remand from this Court remains as set forth in *In re Application of Consumers Energy to Increase Electric Rates*, unpublished opinion per curiam of the Court of Appeals, issued April 30, 2015 (Docket Nos. 317434; 317456).

A true copy entered and certified by Jerome W. Zimmer Jr., Chief Clerk, on

JUL 22 2015
Date

Chief Clerk

STATE OF MICHIGAN

COURT OF APPEALS

ATTORNEY GENERAL,

Appellant,

v

MICHIGAN PUBLIC SERVICE COMMISSION,

Appellee,

and

CONSUMERS ENERGY COMPANY,

Petitioner-Appellee.

UNPUBLISHED

No. 317434
Public Service Commission
LC No. 00-017087

MICHELLE RISON, ANN DEROUIN, MITCHELL DEROUIN, BILLIE J. PREKLESIMER, JOYCE HORNESS, MARCUS HORNESS, MIKE KEMPF, SANDY KEMPF, DAN MARTIN MILLS, CHERYL MCKINNEY, GLORIA GARDNER, KERRY KRENTZ, HEATHER WITKOWSKI, CHRISTINE HUNT, SCOTT BRASPENNINX, and PAM DAZEY,

Appellants,

v

MICHIGAN PUBLIC SERVICE COMMISSION,

Appellee,

and

CONSUMERS ENERGY COMPANY,

Petitioner-Appellee.

No. 317456
Public Service Commission
LC No. 00-017087

Before: O'CONNELL, P.J., and FORT HOOD and GADOLA, JJ.

O'CONNELL, P.J.

These cases involve two issues of first impression in Michigan. First, the scope of the Michigan Public Service Commission's (PSC) authority when analyzing rate increases for the utilities, and second, the standing of the individual appellants to pursue this appeal. For the reasons stated in this opinion, I believe the Michigan Supreme Court should grant leave and clarify these important jurisprudential issues before we remand this case to the PSC.

These cases come to this Court with an unconventional procedural history. The individual appellants did not participate in the proceedings below, but because MCL 462.26(1) allows a "party in interest" to appeal as of right from an order of the PSC "fixing any rate or rates, . . . regulations, practice or services," a prior panel of this Court determined that the individual appellants had standing to appeal. On appeal, the individual appellants raise issues that the proceedings below only partially addressed. Further, they claim that the Attorney General's interest in the case below was significantly different than their interests on appeal. Because we were unable to fully resolve in their entirety the individual appellants' and Attorney General's issues on appeal, we remanded this case to the PSC for further proceedings.

In our prior opinion, I voted to remand this case to the PSC. *In re Application of Consumers Energy to Increase Electric Rates*, unpublished opinion per curiam of the Court of Appeals, issued April 30, 2015 (Docket Nos. 317434 & 317456). In part, that vote was because of the strange procedural history of this case and because the individual appellants did not have an opportunity to present their case to the PSC. The PSC then filed a motion for reconsideration

This opinion is an attachment to the order denying reconsideration in Docket Nos. 317434 and 317456.

of our prior opinion. I write to clarify why I voted to remand this case to the PSC for further proceedings.

In its motion for reconsideration, the PSC requests that the State of Michigan forego any further hearings in these cases.[1] It contends that no further hearings are necessary concerning the advanced metering infrastructure (AMI) smart meter program. The PSC implies that our prior remand instructions, in essence, exceed the scope of its responsibility. Specifically, the PSC contends that it has conducted sufficient hearings as it relates to "cost of service principles" on all issues and it need not conduct further hearings.

In part, the PSC is correct: it has conducted hearings on cost of service principles. But it appears, based on the lower court record, that the prior hearings were limited only to monetary issues. In my opinion, a cost benefit analysis has more than one dimension.[2] Because the PSC

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[1] As a result of our prior remand opinion, I fully expected the PSC on remand to grant the individual appellants a full and fair due process hearing so that they would have their day in court and would be able to air their concerns about the AMI program. In our form of government, the least a governmental body should do is listen to its citizens and provide a forum to allow them to air their grievances. Unfortunately, in its motion for reconsideration, the PSC claims it has already done so: "What this Court is requiring the Public Service Commission to do on remand has already been done." The PSC claims, "The Commission has already 'thoroughly' addressed the issues this Court remanded." First, if the above statements were correct, I would not have voted to remand this case for further proceedings. Second, the individual appellants in Docket No. 317456 have not had the opportunity to present any evidence to the PSC. I for one am curious to see what proofs will be presented. I concede a hearing was held below, but supplementing this record with additional facts and conclusions of law that actually support the PSC's ultimate decision and giving the individual appellants their day in court is a fundamental requirement of our form of government.

[2] As the United States Supreme Court has recently stated, " 'cost' includes more than the expense of complying with regulations; any disadvantage could be termed a cost. . . . including, for instance, harms that regulation might do to human health or the environment." *Michigan v*

has not weighed the burdens, benefits, costs, and advantages of the entire AMI program, I am convinced that its decision is not supported by competent, material, and substantial evidence. See *In re Applications of Detroit Edison Co*, 296 Mich App 101, 115; 817 NW2d 630 (2012).

Notwithstanding the PSC's arguments, the individual appellants, and in part the Attorney General, argue on appeal that the utility and the PSC's cost-benefit analysis is flawed. The individual appellants argue that the opt-out program violates federal and state laws governing disability and ask the PSC to consider additional health, safety, privacy, and disability-related cost issues, including that smart meters may place individuals with electro-sensitivity issues, pacemakers, and heart-related issues in danger. On reconsideration, the PSC is adamant that its only responsibility is to approve tariffs based on the cost-of-service principles. The PSC argues that it has adequately completed its responsibility in this regard and need not conduct any further proceedings.

For the reasons stated in this opinion, I conclude that a cost-benefit analysis should include health, safety, and privacy issues. Since the individual appellants have standing to appeal the PSC's order and have not had the opportunity to present these issues to the PSC, I would deny the PSC's request to forego further hearings on these important matters.

I. FACTS REGARDING JURISDICTION

EPA, ___ US ___; ___ S Ct ___; ___ L Ed 2d ____ (2015); slip op at 29. "Consideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages and the disadvantages of agency decisions." *Id.* While the holding in that case is not specifically applicable to this case, the general principle regarding nonmonetary costs applies.

In a June 28, 2013 order, the PSC approved the application of petitioner-appellee Consumers Energy Company (Consumers) "for authority to continue the advanced metering infrastructure (AMI) program and implement a non-transmitting meter provision." This program involves the use of transmitting meters, informally called "smart meters," which employ a cellular-based communications system to record and transmit the amount of electricity used by a customer. In Docket No. 317456, multiple pro-per appellants appealed from the June 28, 2013 order of the PSC in Case No. U-17087. In Docket No. 317460, Matthew Crehan filed a claim of appeal from the same June 28, 2013 PSC order. On August 19, 2013, this Court entered an order consolidating these two appeals with the Attorney General's appeal from the June 28, 2013 order in Docket No. 317434.

On appeal, the pro-per appellants and Crehan (collectively, the individual appellants) are concerned that smart meters create potential health and privacy issues. Appellants also contend that the charges to participate in an "opt-out" program, a program to avoid having smart meters installed on their homes, are excessive.

In a motion to dismiss, Consumers argued that the individual appellants are not aggrieved parties with standing to appeal under MCR 7.203(A)(2) because they did not intervene in the PSC proceedings in this matter. In essence, since they did not participate below, Consumers argued they cannot participate in this appeal. In addition, Consumers argued that the individual appellants are not aggrieved parties because they have failed to allege or demonstrate a concrete or particularized injury arising from the June 28, 2013 order. Consumers argued that the present Case, No. U-17087, was limited in scope "to the economics of fixing [Consumers's] electric

rates and the reasonableness of charges contained within [Consumers] AMI opt-out tariff as they relate to cost-of service principles."

Consumers also asserted that the purpose of the present case was not to decide whether Consumers could install smart meters on any particular residence in its service territory. Consumers further argued that the Attorney General fully represented the interests of the individual appellants as "purported Consumers Energy customers" in the proceedings below, and that the Attorney General continues to represent the appellants the Attorney General's appeal in Docket No. 317434. In support of this position, Consumers noted that the Attorney General filed a notice of intervention in the proceeding for and on behalf of the people of the State of Michigan and that the Attorney General stated in that notice of intervention that the interests of Consumers' ratepayers is a public one "being common among virtually all ratepayers" in Consumers' service area. From this, Consumers argues that any appeal by the individual appellants based on the lawfulness of the PSC's rate decisions would be "unjustifiably redundant and outside the scope of what the law provides for the right to appeal an order" and that the right to appeal such an order would significantly impede the regulatory process.

On October 4, 2013, the PSC filed a concurrence in support of Consumers' motion to dismiss. The PSC additionally argued in order to have standing to appeal the PSC's order, a party must have an interest in the subject matter of the litigation and must show that the order directly affects the party's rights or property. While acknowledging that it is clear that the individual appellants have an interest in the AMI program, the PSC asserted they did not establish a direct relationship between them and Consumers' investment in AMI program.

Crehan did not file an answer to the motion to dismiss, but the pro-per appellants in Docket No. 317456 filed an answer and supporting brief. The pro-per appellants argued that they are aggrieved parties within the meaning of MCR 7.203(A)(2) because the June 28, 2013 order requires them to pay "unjust fees" to escape from a "known harm" of health and privacy issues with the AMI program. They claimed that research published in peer-reviewed journals shows that the type of radiation emitted by smart meters can "wreak havoc" with the human nervous system and "interfere with calcium transport on cell membranes," and this new source of radiation adds to what may already be excessive levels from cell towers and other sources. Appellants further indicate that some appellants are "electro-sensitive," evidently indicating that they are or may be particularly at risk from negative health effects from the smart meters, and that the PSC failed to provide them reasonable accommodation under the Americans with Disabilities Act, 42 USC 12111 *et seq*, or the Persons with Disabilities Civil Rights Act, MCL 37.1101 *et seq*. In addition, the pro-per appellants claimed that they would "present a prima facie case, based on publicly available articles in professional journals, that the intent of the smart meters is to establish a regime of detailed monitoring and ultimately control of how homeowners can use electrical energy" and seek to establish "the much publicized fact that the industry plans to use the new smart meters to communicate with a new generation of 'smart appliances' now being developed by Whirlpool and others."

The pro-per appellants maintained that the Attorney General did not represent their interests below because he focused entirely on rate and cost issues, not the health and privacy concerns that appellants allege can only be addressed by preserving the right of customers to keep an analog meter as the defined opt-out meter. Further, the pro-per appellants disagree with

Consumers' statement that the proceeding below was limited to fixing rates. Finally, the pro-per appellants claimed that they were not given fair notice or opportunity to participate in the proceeding below. In specific response to the PSC's answer, the pro-per appellants indicated that it is not necessary for them to have a direct financial stake in Consumers' investment in AMI in order to be aggrieved by the unjust fees they must pay to avoid their health and privacy concerns.

II. PRIOR RULING ON JURISDICTION

In a prior order, this Court denied the motion to dismiss the appeals in Docket Nos. 317456 and 317460. *In re Application of Consumers Energy to Increase Electric Rates*, unpublished order of the Court of Appeals, issued December 6, 2013 (Docket Nos. 317460 and 317456). This Court's rational was that MCL 462.26(1) allows "any common carrier or other party in interest" to appeal as of right to this Court from orders of the PSC "fixing any rate or rates, fares, charges, classifications, joint rate or rates, or any order fixing any regulations, practices, or services." The Court entirely rejected Consumers' standing argument because we reasoned that requiring a person or entity to become a party to the case in order to appeal the order would render the words "in interest" in the phrase "party in interest" nugatory or mere surplusage. See, e.g., *Johnson v Recca*, 492 Mich 169, 177; 821 NW2d 520 (2012). The Court concluded that, by using the broader phrase "party in interest" instead of merely "party," the Legislature has allowed persons other than those who were parties to the proceedings below to appeal the relevant types of orders to this Court.

Consumers cited *American States Ins Co v Albin*, 118 Mich App 201, 210; 324 NW2d 574 (1982), lv den 417 Mich 955 (1983), in support of its position that a party must have intervened in the PSC proceedings to be an aggrieved party with standing to appeal. But this Court noted that *American States Ins Co* is distinguishable because it involved an appeal from circuit court proceedings. This Court reasoned that, regardless of what is required to constitute an aggrieved party with standing to appeal from a circuit court case, the Legislature has specifically provided in MCL 462.26 that a "party in interest" may appeal from the relevant type of order.

Further, this Court concluded that the appellants and Crehan had a concrete and particularized interest in this appeal. The order allowed Consumers to charge customers to retain their analog meters—an "up front" fee of $69.39 before the smart meter was installed or $123.91 after installation—as well as an additional $9.72 monthly charge. At minimum, it appeared to this Court that those charges directly affected appellants and Crehan.

Finally, this Court concluded that Consumers and the PSC had established no basis to dismiss the individual appellants' appeals on the basis that they are required to accept the Attorney General's representation of their interests. It is a well-established practice for natural persons to act in pro per in this Court. This Court, therefore, concluded that appellants had jurisdiction to pursue their appeals.

III. CURRENT APPEAL

After hearing oral arguments on April 10, 2015, this panel issued the following opinion:

In these consolidated cases, the Attorney General and Michelle Rison, et al., appeal a June 28, 2013 order issued by the Michigan Public Service Commission (PSC) approving an application by Consumers Energy Company (Consumers Energy) for a rate increase to continue funding, among other things, its advanced metering infrastructure (AMI) program, and approving tariffs for customers who elect to opt-out of the AMI program. For the reasons below, we affirm the stipulation and order for the rate increases in Docket No. 317464, but because of the numerous issues raised on appeal in Docket No. 317456 concerning tariffs for customers who elect to opt-out of the AMI program, we remand those issues to the PSC and direct the PSC to conduct a contested case hearing on the opt-out tariff. We direct the PSC to issue a detailed opinion with sufficient facts and conclusions of law that allows this Court to review the entire scope of the unusual opt-out tariff.

I. BACKGROUND

Several years ago, Consumers Energy began implementing an AMI[1] program in Michigan. On November 4, 2010, the PSC issued an order in Case No. U-16191 that approved Consumers Energy's pilot AMI program, but required Consumers Energy to meet certain conditions, such as providing information on the benefits and costs of the program, before approving full deployment of the AMI program. In *In re Application of Consumers Energy Co to Increase Rates*, unpublished opinion per curiam of the Court of Appeals, issued November 20, 2012 (Docket Nos. 301318 and 301381), this Court affirmed the PSC's decision regarding Consumers Energy's pilot AMI program. On June 7, 2012, the PSC issued an order in Case No. U-16794 authorizing Consumers Energy to proceed with Phase 2 of its AMI deployment program. In that case, the PSC adopted $44.8 million in expenditures for the AMI program in Consumers Energy's rate base.

On September 19, 2012, Consumers Energy filed an application requesting rate relief in the case underlying this appeal, Case No. U-17087, to cover, among other things, its ongoing investments associated with the AMI program. In addition, Consumers Energy sought approval of opt-out tariffs for customers who did not wish to participate in the AMI program. On October 19, 2012, an administrative law judge (ALJ) granted intervenor status to the Attorney General.

[1] An AMI meter, also known as a smart meter, is capable of collecting near-real-time data on a customer's energy usage and reporting the data to the utility at frequent intervals. *In re Applications of Detroit Edison Co*, 296 Mich App 101, 114; 817 NW2d 630 (2012).

On May 7, 2013, the parties filed a settlement agreement in which they agreed to an annual rate increase of $89 million. However, in the agreement, the Attorney General reserved two issues for future resolution, including (1) a request to the PSC "to direct Consumers Energy to suspend the [AMI] program," and (2) an objection "to the amount of the 'opt-out' fee." The PSC entered an order on May 15, 2013, approving the settlement agreement. Thereafter, the Attorney General challenged the PSC's continued support of Phase 2 of Consumers Energy's AMI program and challenged Consumers Energy's application for approval of its opt-out tariffs.

In response, Consumers Energy argued that it prepared an updated business case analysis for its AMI program in March 2012, and that the analysis indicated a 20-year positive net present value (NPV) of $42 million for the AMI program. Consumers Energy noted that the Attorney General also sought suspension of its AMI program in Case Nos. U-16191 and U-16794 on the ground that the cost/benefit analysis used in each case was flawed, but that the PSC rejected the Attorney General's request in each case. The Attorney General argued that the PSC should suspend Consumers Energy's AMI program until a cost/benefit analysis showed that the program would bring value to customers. The Attorney General asserted that its analysis showed that the AMI program had a negative NPV, and that Consumers Energy's testimony regarding savings from the AMI program was speculative.

On June 28, 2013, the PSC issued an order approving Consumers Energy's continuation of the AMI program and approving Consumers Energy's opt-out tariffs. The Attorney General (Docket No. 317434) and Michelle Rison, et al. (Docket No. 317456)[2] now appeal from the PSC's June 28, 2013, order.

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[2] Appellants in Docket No. 317456 were not parties to the proceedings below. These appellants claim entitlement to an appeal as of right under MCL 462.26(1), which states the following:

> Except as otherwise provided . . . any common carrier or other party in interest, being dissatisfied with any order of the commission fixing any rate or rates, fares, charges, classifications, joint rate or rates, or any order fixing any regulations, practices, or services, may within 30 days from the issuance and notice of that order file an appeal as of right in the court of appeals. . . .

Appellants claim they are parties in interest under the statute because they are customers of Consumers Energy who will be required to pay tariffs under the opt-out program. The phrase "party in interest" in MCL 462.26(1)

II. STANDARD OF REVIEW

The standard of review for PSC orders is narrow and well defined. Pursuant to MCL 462.25, all rates, fares, charges, classifications and joint rates, regulations, practices, and services prescribed by the PSC are presumed, prima facie, to be lawful and reasonable. *Mich Consol Gas Co v Pub Serv Comm*, 389 Mich 624, 635-636; 209 NW2d 210 (1973). A party aggrieved by an order of the PSC has the burden of proving by clear and satisfactory evidence that the order is unlawful or unreasonable. MCL 462.26(8). To establish that a PSC order is unlawful, the appellant must show that the PSC failed to follow a mandatory statute or abused its discretion in the exercise of its judgment. *In re MCI Telecom Complaint*, 460 Mich 396, 427; 596 NW2d 164 (1999). An order is unreasonable if it is not supported by the evidence. *Associated Truck Lines, Inc v Pub Serv Comm*, 377 Mich 259, 279; 140 NW2d 515 (1966).

A final order of the PSC must be authorized by law and must be supported by competent, material, and substantial evidence on the whole record. Const 1963, art 6, § 28. A reviewing court gives due deference to the PSC's administrative expertise and is not to substitute its judgment for that of the PSC. *Attorney General v Pub Serv Comm No 2*, 237 Mich App 82, 88; 602 NW2d 225 (1999). "Whether the PSC exceeded the scope of its authority is a question of law that we review de novo." *In re Complaint of Pelland against Ameritech Mich*, 254 Mich App 675, 682; 658 NW2d 849 (2003).

III. DOCKET NO. 317434

In Docket No. 317434, the Attorney General argues that the PSC erred in approving the continuation of Phase 2 of Consumers Energy's $750 million AMI program because the record lacked competent, material, and substantial evidence demonstrating that the costs of the AMI program outweighed its benefits. The PSC first argues that the Attorney General lacks standing to challenge the June 28, 2013, order in this case. A party must be aggrieved by a lower court's decision in order to have standing to bring an appeal from that decision. MCR 7.203(A); *Federated Ins Co v Oakland Co Rd Comm*, 475 Mich 286, 290-291; 715 NW2d 846 (2006). "To be aggrieved, one must have some interest of a pecuniary nature in the outcome of the case, and not a mere possibility arising from some unknown and future contingency." *Federated Ins Co*, 475 Mich at 291 (quotation marks and citation omitted).

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is undefined in the statute, and it is unclear whether this phrase permits any *person* with an interest in the proceedings to file an appeal as of right, or whether it requires that such a person first be a *party* to the proceedings to claim such an appeal. On remand, the PSC shall determine if these parties have standing to proceed below.

MCL 462.26(1) provides that "any common carrier or other party in interest, being dissatisfied with any order of the commission fixing any rate or rates, fares, charges, classifications, joint rate or rates, or any order fixing any regulations, practices, or services, may within 30 days from the issuance and notice of that order file an appeal as of right in the court of appeals." The Attorney General gave notice of intervention and was granted intervenor status in this case below. The Attorney General had the statutory right to intervene to represent the interests of the people of the state, MCL 14.28, and he stated that he intervened because the case would affect rates paid by Consumers Energy's customers. The June 28, 2013, PSC order approved, among other things, opt-out tariffs for Consumers Energy's customers. Thus, the Attorney General was a party in interest with standing to appeal the order under MCL 462.26(1).

Although the Attorney General has standing to bring this appeal, we conclude that the stipulation to the $89 million increase forecloses any objection that the Attorney General has to the rate increase.

As part of Case No. U-17087 underlying this appeal, the Attorney General was permitted to contest Consumers Energy's requested rate increase associated with the 2013 through 2014 portion of Phase 2 of its AMI program. See MCL 462.26(1). However, we determine that the Attorney General, on appeal, may not contest the rate increase because the parties stipulated in the May 7, 2013, settlement agreement to an $89 million revenue increase that covered, in part, Consumers Energy's ongoing investments in its AMI program. The agreement stated the following:

> The Attorney General has requested the Commission to direct Consumers Energy to suspend the Advanced Metering Infrastructure ("AMI") program, and in the event the program continues, has objected to the amount of the "opt-out" fee. These issues are not resolved as part of this settlement. The parties request the Commission to address these issues based upon the initial and reply briefs filed pursuant to the schedule established by the Administrative Law Judge in this case. *The parties agree that the $89.0 million annual revenue increase and associated rates specified in this Settlement Agreement shall not be affected by the Commission's ruling on this issue.* . . . [Emphasis added.]

Because the Attorney General stipulated to the $89 million rate increase that covered, in part, the 2013 through 2014 portion of Phase 2 of Consumers Energy's AMI program, the Attorney General has not presented any issues warranting relief.

IV. DOCKET NO. 317456

A. AUTHORITY TO APPROVE AMI OPT-OUT PROGRAM

Appellant customers contend that the PSC lacked the statutory authority to impose an opt-out program on customers who do not wish to participate in the AMI program, and that the PSC should have considered an opt-in program instead. Because this issue was not raised below, we review the unpreserved claim for outcome-determinative plain error. *In re Application of Consumers Energy Co*, 278 Mich App 547, 568; 753 NW2d 287 (2008).

The PSC possesses only those powers conferred upon it by the Legislature, and thus has no authority to make management decisions on behalf of utilities. *Union Carbide Corp v Pub Serv Comm*, 431 Mich 135, 148-150; 428 NW2d 322 (1988) (holding that the PSC lacked authority to forbid the operation of a facility). However, under MCL 460.6(1), the PSC has broad authority to regulate reasonable rates for all public utilities. Within its ratemaking authority, "[t]he PSC has discretion to determine what charges and expenses to allow as costs of operation." *Ford Motor Co v Pub Serv Comm*, 221 Mich App 370, 375; 562 NW2d 224 (1997).

In this case, the PSC's June 28, 2013, order approved tariff rates for customers who elected either to retain a standard meter or to replace a transmitting AMI meter with a standard meter. The approved rates were based on the PSC's determination of the actual costs associated with maintaining equipment and services for customers with non-transmitting meters. A decision to impose charges and expenses based on a utility's costs of operation is well within the ratemaking authority of the PSC. *Ford Motor Co*, 221 Mich App at 375. Accordingly, the PSC did not exceed its statutory authority.

B. IMPOSITION OF FEES ON OPT-OUT CUSTOMERS

Appellant customers argue that the PSC's approval of the tariffs requiring customers who opt-out of the AMI program to pay a one-time charge of either $69.39 or $123.91 and a monthly charge of $9.72 was unjust, unreasonable, and unsupported by evidence in the record. At oral argument before this Court, the parties raised numerous arguments regarding whether the tariff amounts approved by the PSC represented the actual costs associated with continued use of analog meters, and whether any of these costs were already accounted for in the utility's rates. Unfortunately, it appears that these issues were given only cursory analysis in the PSC lower court record. We conclude that the record on this issue is inadequate to support an informed decision by the Court at this time. Accordingly, we remand this issue to the PSC to conduct a con-

tested case hearing on this significant issue.[3] The parties are entitled to present their positions, and the PSC shall issue a written opinion on its findings of fact and conclusions of law.

Docket No. 317434 is affirmed. Docket No. 317456 is affirmed in part, reversed in part, and remanded for further proceedings consistent with this opinion. We do not retain jurisdiction.

[3] On remand, the PSC should clarify the purpose and nature of the opt-out tariff by addressing whether the tariff represents a reimbursement for costs of service, or whether the tariff constitutes something more akin to a tax, sanction, or penalty imposed upon customers who choose to opt out of the AMI program.

IV. THE PSC'S MOTION FOR RECONSIDERATION

In its motion for reconsideration, the PSC contends that no further hearings are necessary concerning the smart meter program. I disagree. In my opinion, there are two reasons why this case must be remanded.

First, the Attorney General's two main concerns have not been adequately addressed in this lower court record.[3] The PSC and Consumers Energy advance the notion that smart meters

[3] In the initial settlement agreement, the Attorney General reserved two issues for future resolution, including (1) a request to the PSC "to direct Consumers Energy to suspend the [AMI smart meter] program," and (2) an objection "to the amount of the 'opt-out' fee." While the Attorney General expediently agreed to resolve these issues from the existing record, in my opinion this lower court record is inadequate to form any meaningful understanding of these complex issues. In its motion for reconsideration, the PSC emphasizes that it is only necessary to call "one witness" to satisfy its burden on review. I do not disagree with this statement. Of course, if the PSC only allows one witness to testify, they only hear one side of the issue. The recent opinion in *The Detroit Edison Co v Stenman* implies that the only evidence presented regarding issues of privacy, safety, and health in that case was a staff report, not even the testimony of a witness. *The Detroit Edison Co v Stenman*, ___ Mich App ___; ___ NW2d ___ (2015); slip op at 2. Reliance on a staff report, without allowing appellants the opportunity to present evidence, is hardly a thorough testing or consideration of the appellants' concerns. The

will save the public money on their utility bills. Unfortunately, this argument is inherently illogical: how can smart meters save money when Consumers seeks to add millions of dollars to the base rate to fund the AMI program? It appears, as the Attorney General argues and as in other states, that the smart meter program actually increases rates.[4] Remand is necessary for the PSC to articulate the total cost of the AMI program.

I am concerned that under the opt-out program, those who opt-out must pay either a penalty, tax, or a fee for the privilege of retaining their non-smart meters. This Court, in its prior opinion, approved the PSC's order allowing costs to fund the AMI smart meter program to be added to the utility's base rate. At first glance, it appears the opt-outers are required to pay twice for the privilege of retaining their non-smart meter. The first payment is in the form of a penalty, tax, or fee to avoid having a smart meter installed on their home,[5] and the second payment is of continued costs associated with the AMI smart meter program that eventually will be added to the base rate.[6]

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point remains that the PSC did not clearly identify the purpose and nature of the opt-out tariff as it is intertwined with the base rate increase. It appears some customers are being charged twice for the same service.

[4] The Attorney General's office represents both the PSC and the consumer, a potential conflict of interest. Any reference to the Attorney General is to the consumers' argument, not the PSC's argument.

[5] In essence, this is a do-nothing tariff.

[6] One rationale for the opt-out tariff is the cost of retaining meter readers to read the non-smart meters. However, no explanation is put forth why that cost is not included in the approved tariff that will be added to the base rate or why that cost is allocated to the few who have decided to retain their current meter. Business decisions are generally the providence of the utility, unless the utility's decision, in essence, is a penalty to force compliance with an unwanted meter. Of concern is the PSC's approval of the opt-out tariff as it affects those customers who do not accept the change imposed by the utility. Why penalize those few individuals who do nothing,

Why both charges? On remand, the PSC should answer that question. In the case of the opt-outers, they receive no benefit from the AMI smart meter program and must actually pay to be excluded from it, but then the opt-outer must also share in the costs of the program because of the increase to the base rate. From this lower court record, I cannot discern the reason to approve a tariff that is associated with the base rate of the AMI program and, at the same time, penalize those individuals that choose not to be associated with the AMI program. As we stated in our prior opinion:

> Appellant customers argue that the PSC's approval of the tariffs requiring customers who opt-out of the AMI program to pay a one-time charge of either $69.39 or $123.91 and a monthly charge of $9.72 was unjust, unreasonable, and unsupported by evidence in the record.

From this lower court record I am unable to discern the genesis, the reasons, or the rational for such an unprecedented double tariff. Contrary to the PSC's argument in its motion for reconsideration, the PSC did not address whether a double-tariff exists in this case. The quote the PSC provides in its motion does not support its assertion. Also, the Attorney General argued that more than a cursory cost benefit analysis should be provided to justify this program. At this time, the lower court record supports the Attorney General's concerns. On remand, I would require the PSC to articulate a factual basis and a detailed analysis of its reasons for selecting this methodology and to further articulate and supplement their prior opinion why these costs are not already included in the base rate associated with the AMI program.

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especially those citizens who have pacemakers and implant devices being exposed to smart meters that are not UL certified safe for these devices. Electro-sensitivity may prevent some citizens from installing smart meters or visiting homes that have working smart meters.

I am also greatly concerned that the opt-out costs are actually a penalty imposed to force the opt-outers to comply with the AMI program. On remand, the PSC is charged with the task of determining if this new cost is a penalty, a tax, or a legitimate fee. See *Bolt v City of Lansing*, 459 Mich 152, 161-162; 587 NW2d 264 (1998) (criteria to be considered when distinguishing between a fee and a tax). Also see *Nat'l Federation of Indep Business v Sebelius*, ___ US ___, ___; 132 S Ct 2566, 2595-2596; 183 L Ed 2d 450 (2012) (distinguishing between a tax and a penalty). The PSC's implied finding that it is a fee/tariff rather than a penalty or a tax is not supported by even a scintilla of evidence in this lower court record. Just because the PSC says it is so on appeal does not make it so.[7]

Second, the appellants in Docket No. 317456 have not had the opportunity to present any evidence to the PSC. If we were to grant the PSC's motion for reconsideration, these appellants would be denied procedural due process.[8] An extensive hearing where all are invited to air their

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[7] Merely stating something does not make it true. The "it is because we say it is" philosophy has no place in judicial jurisprudence. See *Webster v Reproductive Health Servs*, 492 US 490, 552; 109 S Ct 3040; 106 L Ed 2d 410 (1989) (BLACKMUN, J., concurring in part and dissenting in part); *Council of Organizations & Others for Ed About Parochiaid v Governor*, 216 Mich App 126, 136; 548 NW2d 909 (1996) (O'CONNELL, J., dissenting). If there are not valid health, safety, and privacy issues associated with the AMI program, why have an opt-out program?

[8] The Michigan and United States Constitutions provide that no person shall be deprived of property without due process of law. US Const, Am XIV; Const 1963, art 1, § 17. The essential purpose of due process is to ensure fundamental fairness. *Reed v Reed*, 265 Mich App 131, 159; 693 NW2d 825 (2005); *Lassiter v Dep't of Social Servs of Durham Co*, 452 US 18, 24; 101 S Ct 2153; 68 L Ed 2d 640 (1981). Due process requires that a party receive notice of the proceedings against it and a meaningful opportunity to be heard. *Al-Maliki v LaGrant*, 286 Mich App 483, 485; 781 NW2d 853 (2009). In this case, if the PSC is allowed to implement the smart meter program and charge customers to opt out of the program without considering the public's concerns, it has denied the public a meaningful opportunity to be heard.

concerns about the smart meter program may persuade the public that the "fox is not watching the henhouse,"[9] and more importantly, that sufficient safeguards are in place to implement the smart meter program.

Some citizens are alarmed over the potential health, safety, privacy, and cost issues associated with the smart meter program. To Consumers Energy and the PSC's credit, it appears that they both are minimally aware of the public concern over the smart meter program; otherwise, they would not have instituted the opt-out program and the opt-out tariff.[10]

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[9] As Judge GRIFFIN noted in *Attorney General v Mich Pub Serv Comm*, 243 Mich App 487, 508; 625 NW2d 16 (2000), while quoting *State ex rel Allain v Mississippi Pub Serv Comm*, 418 So 2d 799, 783 (Miss, 1982), "[i]t is also readily apparent that in performing their duties, the agencies will from time to time make decisions, enter orders, take action or adopt rules and regulations which are, in spite of good intentions, either illegal or contrary to the best interests of the general public." Sometimes in cases involving governmental agencies, a conflict of interest between the public and an agency may arise.

We should all be aware of the frailties inherent in the PSC's genetics. It is expected to protect the public's interests while working closely with the utilities that it is supposed to protect those interests from. This situation is often referred to as putting the fox in charge of the henhouse. A fox-and-henhouse situation arises when a person in charge of making a decision may have a conflict of interest. *In re Grand Jury Subpoenas*, 454 F 3d 511 (CA 6, 2006). See *Freeman v Town of Hudson*, 549 F Supp 2d 138 (D Mass, 2012) ("If I was a farmer, I would not put the fox in charge of the henhouse because all the hens would disappear.").

[10] This presents another unanswered question. In a prior order the PSC directed investor-owned utilities to "make available an opt-out option, based on cost-of-service principles, for their customers." While Consumers argues in favor of the opt-out program in this case, it is possible that the utilities are not concerned with the "non-existent" privacy and health issues connected to the AMI program. If that is correct, it is only the PSC that is responsible for the opt-out program. But why, then, has the PSC mandated an opt-out program if the individual appellants' concerns have no merit? If this reasoning has any merit, then logically it follows that the only reason for the opt-out program is to raise money for the utilities. It is important to mention that, while the utilities have complied with the PSC opt-out program, the individual appellants are outraged over the cost of this unique and unusual program. I for one encourage the PSC and the utilities to resolve this question on remand.

Consumers Energy and the PSC deserve credit for attempting to alleviate citizens' health, safety, and privacy issues by instituting the opt-out program. This awareness and concern bodes well for the citizens of Michigan.

As well as the potential health issues, at oral arguments, appellants argued that smart meters may in fact be the instrument of monitoring, listening, and viewing activities in individual's homes. They also argued that smart meters are networked and, without proper security measures, anyone, including the government and hackers, could monitor a customer's activities. I would find it disconcerting, if true, that a smart meter in conjunction with a smart television might allow others to listen and record private conversations in one's living room.

Though it may turn out that the appellants' concerns are unfounded, they should at least have the opportunity to present their case to the PSC before they are charged (and possibly double-charged) for opting out of the AMI program.[11] And in my opinion, even Consumers Energy should implement best practices, especially since Consumers Energy is installing smart devices on all private homes it services, in some cases against the wishes of the owner of the home. On remand, I would direct the PSC to allow appellants to address their concerns over the

[11] I note that 50 years ago, only a few brilliant minds were concerned about the health hazards of smoking, and we have only recently become aware of the health hazards of second-hand smoke. I suspect there is no need to mention the health hazards of lead-based paint or radium-painted glow-in-the-dark watches produced from 1917 to 1926. At the time, all of these products were not considered health hazards. I for one am not personally concerned about the AMI smart meter program, but as an elected state official, I can understand the concerns of Michigan's citizens. In my opinion, these citizens deserve the opportunity to present their evidence and view to the tribunal.

privacy, health, safety, and cost benefits issues associated with the AMI program at the hearing.[12] And, if these concerns are valid, I would require the PSC to impose safeguards as a condition to any further funding of the AMI program.

On reconsideration, the PSC dogmatically requests that we reject the appellants' Fourth Amendment constitutional issues associated with the smart meter program. I note that constitutional issues are not within the providence and jurisdiction of the PSC. The PSC does not have authority to determine constitutionality. *In re Fed Preemption of Provisions of the Motor Carrier Act*, 223 Mich App 288, 299; 566 NW2d 299 (1997). However, weighing the costs and benefits of the AMI smart meter program before allowing the utilities to pass the burdens of the program on to the customer is within the PSC's purview.

While it may be argued that the health, safety, and privacy issues associated with the AMI program are not the PSC's concern, I ask the rhetorical question, "if not the PSC, then who"? The PSC does have the power to incentivize decisions through its ratemaking authority, though it cannot directly order a utility to make a specific decision. *Consumers Power Co v Pub Serv Comm*, 460 Mich 148, 158; 596 NW2d 126 (1999). Consumers Energy seeks a rate increase to install a grid of smart meters that can communicate with IP addresses to anyone who has the technology to receive and send the signals. By requiring the costs of this controversial program to fall on the shoulders of the public instead of on the utilities, the PSC is implicitly

[12] I would loathe to discover 20 years from now that these concerns are valid. Historically, it is less burdensome to address these issues as they arise than to attempt to reform 20 years of ill-conceived policy decisions.

deciding that the public's concerns regarding the costs of the AMI program have no merit. In conjunction with its rate-making authority, the PSC can, and in my opinion should, flush out the nonmonetary costs and benefits of this innovative technology and implement best practice before allowing utilities to place these controversial devices on each home in Michigan at the public's expense.

While the appellants have standing to appeal the PSC's order, the present record is simply not adequate for us to answer the appellants' questions on appeal. Because of the significant statewide issues raised by appellants in this case, I would remand this case for further proceedings consistent with this concurrence and our prior opinion, and I would retain jurisdiction. I would caution the PSC that these issues are of great concern, not just locally, but also nationally and internationally.

/s/ Peter D. O'Connell

This opinion is an attachment to the order denying reconsideration in Docket Nos. 317434 and 317456.

March 11, 2011

Exelon's Rowe knocks smart grid same day ComEd exec talks it up to lobby lawmakers

By: Steve Daniels

(Crain's) — On Tuesday, Commonwealth Edison Co. President Anne Pramaggiore testified in Springfield in favor of a bill that would allow ComEd to automatically hike electricity rates annually in part to recover the $1.5 billion it will cost to install so-called smart meters in Chicago-area homes and businesses.

That same day her boss, Exelon Corp. CEO John Rowe, responding to a question after giving a speech in Washington, D.C., on federal environmental policy, expressed skepticism that such an investment would be worth it to consumers. "Smart grid we are reluctant to embrace, because it costs too much and we're not sure what good it will do," he said.

Mr. Rowe's off-the-cuff response before the American Enterprise Institute, a pro-free-market think tank, isn't the first time Exelon has sent conflicting messages to its many constituencies, based on the audience it's talking to.

But his remarks are sure to provide fodder to opponents fighting ComEd's bill, which would largely sideline the Illinois Commerce Commission, the regulatory body that scrutinizes and decides on such requests, in favor of an automated system that permits the utility to increase prices annually based on a formula. The ICC then would be allowed an after-the-fact review that consumer advocates say would substantially reduce the agency's oversight.

Mr. Rowe was asked at the Washington event why utilities are reluctant to embrace installing smart meters in homes and businesses unless governments subsidize the investment.

Smart meters are designed to allow utilities to get real-time usage and outage information from customers that can enable them to respond more quickly to problems. In addition, the meters theoretically should enable customers to save money on their bills, for example, by planning their heavy power usage during low-demand periods.

"The real issue is, are we doing the customers more good by putting money into more advanced electronics, or would we do them more good by putting the same money into replacing more old cable?" Mr. Rowe said, according to a transcript of the talk. "To me, that's an unknown answer. If I had to choose, I'd bet on the cable."

Meanwhile, Ms. Pramaggiore, who's tasked with convincing legislators to allow for automatic rate hikes by centering the message around job creation and the need to modernize the local power grid, was testifying before state House and Senate committees that the bill would "buy a smart grid, and the benefits from the investment more than offset the cost."

In her testimony, she said the portion of the rate hike associated with modernizing the grid would amount to $3 per month above normal increases over the coming decade. "After the $3 investment over 10 years, we expect a reduction of $2 per month as a result of lower costs to ComEd from deployment of advanced meters," she said.

Asked to explain the apparent discrepancy, ComEd CEO Frank Clark said in an e-mail that Mr. Rowe and Ms. Pramaggiore's positions are "consistent." He noted that Mr. Rowe said that smart grid can bring customer benefits and that Illinois' current pilot approach makes sense.

"While smart grid technology can be costly and doesn't yield sufficient cost savings to pay for itself, when the technology is combined with a traditional grid modernization program, as ComEd has outlined in the proposed legislation, it can deliver even greater benefits and offset the costs to customers," Mr. Clark said.

Consumer advocates like the Citizens Utility Board support smart meters in concept but are opposed to ComEd's formula rate-making approach to pay for them. They say rollout of such meters must be carefully planned to ensure customers can use them to save on their electric bills.

http://www.chicagobusiness.com/article/20110311/NEWS11/110319957/exelons-rowe-knocks-smart-grid-same-day-comed-exec-talks-it-up-to-lobby-lawmakers

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January 17, 2014

Mark D. Marini, Secretary
Department of Public Utilities
One South Station, Fifth Floor
Boston, MA 02110

Re: D.P.U. 12-76-A – Investigation into Modernization of the Electric Grid

Dear Secretary Marini:

Enclosed for filing are the Initial Comments submitted on behalf of NSTAR Electric Company ("NSTAR Electric"), and Western Massachusetts Electric Company ("WMECO")(collectively, "Northeast Utilities" or the "Companies") in response to the straw proposal issued by the Department of Public Utilities (the "Department") in relation to the modernization of the electric distribution grid in Massachusetts. Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, D.P.U. 12-76-A (December 23, 2013)("Straw Proposal"). The Straw Proposal was issued by the Department based on its review of the Massachusetts Grid Modernization Stakeholder Working Group Process: Report to the Department of Public Utilities from the Steering Committee ("Grid Modernization Report").

NSTAR Electric and WMECO were pleased to participate in the Grid Modernization Stakeholder Working Group and appreciate the opportunity to offer these Initial Comments in response to the Department's Straw Proposal. The Companies look forward to continuing to actively participate in the on-going grid modernization proceedings.

Thank you for your attention to this matter.

Sincerely,

Danielle C. Winter

Danielle C. Winter

Enclosures

cc: Alison Lackey, Esq., Hearing Officer
Benjamin Davis, Director, Electric Power Division

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid	)	D.P.U. 12-76-A

INITIAL COMMENTS OF NORTHEAST UTILITIES
EXECUTIVE SUMMARY

NSTAR Electric Company ("NSTAR Electric") and Western Massachusetts Electric Company ("WMECO") (collectively, "Northeast Utilities" or the "Companies") are committed to the cost-effective modernization of the electric distribution grid with focus on four specific objectives designated by the Department of Public Utilities ("Department"): (1) to reduce the effects of outages; (2) to optimize demand, including reducing system and customer costs; (3) to integrate distributed resources; and (4) to improve workforce and asset management. These four objectives are beneficial to customers in today's operating environment. With certain modifications, the Department's Grid Modernization Straw Proposal represents a viable starting point for achievement of these objectives and the Companies' look forward to further proceedings in this docket to advance those elements.

The principle outcome of the Straw Proposal, however, is a mandate for the Companies to initiate the accelerated implementation of a particular technology choice, Advanced Metering Infrastructure ("AMI"). The Department's decision to mandate AMI comes without due consideration of key issues such as the immense cost attached to the technology choice; whether customers are willing and able to pay the price of this technology choice; whether the functionality provided by the technology choice will be utilized by customers or is even sought by customers; whether the imposition of significant costs on distribution customers for this

technology conflicts with other policies encouraging bypass of the distribution system through increased penetration of distributed resources; whether investment in distribution upgrades needed to accommodate distributed energy resources is a better investment of customer dollars given the relatively small incremental benefit afforded by AMI; and whether other issues such as market alternatives, time-varying rates, and cyber-security should be resolved *before* there can be any rational determination that this technology is a good choice for customers. The technology choice is made although there is no evidence that this is a good choice for customers. Conversely, there is ample evidence that this technology choice will be unduly costly for customers and that the objectives of grid modernization are achievable with technologies and strategies that rank substantially higher in terms of cost-effectiveness. For customers who will pay the price of this system, there is no rational basis for this technology choice.

Rather than furthering grid-modernization objectives, the Department's mandate to implement AMI creates an intractable obstacle to grid modernization. The mandate precludes NSTAR Electric and WMECO from designing and implementing grid modernization plans that are best suited to customers and that mitigate the cost that customers will bear for progress. The Straw Proposal also denies the option of targeted cost recovery for any grid modernization initiatives other than AMI. In order to support the accelerated implementation of grid-modernization plans, the Companies require targeted cost recovery to engage in the installation of technologies beyond what can be accommodated by current levels of capital investment fully dedicated to more traditional safety and reliability objectives.

The Department should adopt the Companies' recommendations set forth below. The recommendations will achieve the four objectives of grid modernization in a manner that is cost-effective for customers. There should be no other result for this proceeding.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid	)	D.P.U. 12-76-A

INITIAL COMMENTS OF NORTHEAST UTILITIES

I. Introduction

These initial comments are submitted on behalf of NSTAR Electric and WMECO in response to the straw proposal issued by the Department in relation to the modernization of the electric distribution grid in Massachusetts. Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, D.P.U. 12-76-A (December 23, 2013) (hereinafter "Straw Proposal"). The Straw Proposal was developed by the Department on the basis of the Massachusetts Grid Modernization Stakeholder Working Group Process: Report to the Department of Public Utilities from the Steering Committee ("Grid Modernization Report").[1]

Northeast Utilities supports the Department's efforts to address the important issue of grid modernization and generally views the Straw Proposal as a viable start in balancing the range of competing interests brought forth in the Grid Modernization Working Group

[1] On October 2, 2012, the Department issued its Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, D.P.U. 12-76 (the "Notice of Investigation"), commencing an investigation into the modernization of the electric distribution grid. The Department subsequently convened the Grid Modernization Working Group, comprised of the Massachusetts Distribution Companies, the Department of Energy Resources ("DOER"), the Office of the Attorney General ("Attorney General"), the New England Independent System Operator ("ISO-NE") and other stakeholders. NSTAR Electric and WMECO were active participants on the GMWG Steering Committee and other committees and participated in the preparation of the Grid Modernization Report. Northeast Utilities submitted written comments on the Grid Modernization Report on July 24, 2013.

("GMWG"). In the Straw Proposal, the Department identifies four grid-modernization objectives, which are to: (1) reduce the effects of outages; (2) optimize demand, including reducing system and customer costs; (3) integrate distributed resources; and (4) improve workforce and asset management. D.P.U. 12-76-A at 3. All four of these objectives are valid, reasonable and appropriate in light of today's operating environment. In these comments, Northeast Utilities offers certain recommendations as a means to better align the Straw Proposal with the interests of customers, who are the intended beneficiaries of the grid-modernization objectives.

As an initial note, significant time and resources were expended in the GMWG reviewing the costs and benefits of AMI. This dialogue established that there are a host of critical issues to be addressed before it will be possible to determine whether AMI is appropriate for implementation by the Companies, including evaluation of the impact of its sizeable cost and lack of attendant benefits. The six-month technical review conducted off the record for this proceeding cannot be duplicated here in 25 pages. However, there is no rational basis for the implementation of AMI. Among many other considerations, achievement of the Department's four grid-modernization objectives does not require the implementation of AMI, despite the Department's suggestion that it does. Therefore, the Companies' comments below recommend that the Department modify the Straw Proposal to eliminate the requirement to implement AMI as part of the required Grid Modification Plans ("GMPs"), along with a few other changes.

II. Analysis and Recommendations for the Straw Proposal

A. Overall Approach

The Department's decision identifies the goals and objectives of a modern electric grid, while expressly delineating that investment decisions relating to system planning and the

implementation of new technologies will remain within the responsibility of the electric companies. D.P.U. 12-76-A at 10, 12. This construct is vital because it will allow NSTAR Electric and WMECO to develop and implement GMPs that will benefit customers, while leveraging investments in technology previously made to modernize the distribution system. Allowing design flexibility will enable the Companies to deploy resources optimally; to develop and implement GMPs that encompass a workable strategy for achieving measurable progress in relation to the Department's four, overarching grid-modernization objectives; and to meet the core obligation to provide safe and reliable service at a reasonable cost. The flexibility to develop a company-specific plan based on company-specific circumstances is an element of the Department's Straw Proposal, which should not be changed or diminished in the final result.

B. Comprehensive Advanced Metering Plans

1. Advanced Metering Functionality

The Straw Proposal requires NSTAR Electric and WMECO to include a CAMP in the first GMP submitted to the Department following the issuance of a final decision in the Grid Modernization proceedings.[2] D.P.U. 12-76-A at 3, 18. The Straw Proposal further specifies a list of seven advanced metering functionalities that must be included in the CAMP. Id. at 11-12. In explaining its decision to require electric companies to develop and submit a CAMP, the Department asserts that advanced metering functionality is a "basic technology platform for grid modernization that *must be in place* before all of the benefits of grid modernization can be fully realized." Id. at 12 (emphasis added). In addition, the Department asserts that electric companies will make "individual choices about technology and systems, *but must meet the objectives and requirements*." Id. (emphasis added). The Department further directs that the

[2] The Straw Proposal directs that the CAMP should consist of: (1) a technology proposal and implementation plan; (2) a business case with a benefit-cost analysis; (3) a request for pre-authorization of investments; and (4) a request for a mechanism to allow for more timely cost recovery than is typically available. Id. at 18.

CAMP submitted by each electric company should be designed to achieve the designated advanced metering functionality within three years of the plan's approval.[3] Id. Together, these predicates and associated directives, along with other requirements contained in the Straw Proposal, have the effect of mandating the accelerated implementation of AMI on the faulty basis that the benefits of grid modernization cannot be achieved without its implementation. This outcome is flawed and therefore undermines the integrity of the Straw Proposal.

An Advance Metering System is not a "basic technology platform" for grid modernization and is not needed to realize "all of the benefits of grid modernization." The Department identified four objectives for grid modernization, all of which can be achieved without the implementation of an advanced metering system. Meters do not reduce the number of outages; metering systems are not the only option for optimizing demand or reducing system and customer costs; and metering systems are not necessary to integrate distributed resources or to improve workforce and asset management. Therefore, it is not correct that advanced metering functionality is a "basic technology platform" that must be in place before all of the benefits of grid modernization can be fully realized, as the Department suggests. Id. at 12.

In fact, there are non-metering technologies that the Companies have implemented, or can implement in the future within a grid-modernization plan, that would tangibly advance the grid-modernization objectives set by the Department. For example, utilizing SCADA-enabled smart switches will both reduce outages and mitigate the effects that outages have on customers. Substation monitoring, remote controls and microprocessor relays can mitigate the impact of widespread outages; manage load constraints; and help to optimize the use of assets in real time. As a means to optimize demand, the installation of automated capacitor banks increases system

[3] The Department states that it will consider proposals to implement advanced metering functionality over a longer term so long as an alternative timeline is provided.

efficiency and reduces costs. Direct control of load or generation can be employed to manage system peaks. In order to allow for the integration of distributed resources, sensors and systems for advanced load flow models that allow for more distributed resources on a circuit can be installed. As for improving workforce and asset management, next generation mapping and outage management systems increase the efficiency of response to outages, while communications, sensors and systems provide system level situational awareness and enhanced safety. Therefore, it is clear that the Companies would be able to identify and implement a suite of non-meter technologies and processes, in addition to those already implemented, in order to advance the Department's grid-modernization objectives *without* the implementation of an advanced metering system.

There is also an important dynamic involved in relation to the integration of widespread distributed energy resources to the electric power grid. Industry study conducted by entities such as the Electric Power Research Institute shows that the electric distribution grid will require substantial investment to be positioned for the integration of distributed energy resources.[4] Therefore, grid-modernization efforts have to be closely coordinated with policies that are encouraging the growth of distributed energy resources. Finite capital resources available for grid modernization should be aimed at this integration effort before any additional monies are expended on metering capabilities that provide limited and/or speculative incremental benefits over current metering technology (following many years of investment in those systems).[5] Moreover, the growth of distributed generation and current subsidies results in the *bypass* of the electric distribution system by potential electric customers leaving fewer and fewer customers to

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[4] *Value of an Integrated Grid: Utilizing Utility-Scale and Distributed Energy Resources*, at 1 (January 6, 2014).

[5] NSTAR Electric and WMECO have deployed Automated Meter Reading ("AMR") drive-by meter reading capabilities deployed throughout their service territories.

pay for it. This creates a pricing crisis in practical terms for both residential and business customers remaining on the system. Huge additional investments to the distribution system will only have the effect of exacerbating the issue for customers.

Accordingly, not only is there a flaw in the Department's premise that an advanced metering system is a "basic technology platform" for grid modernization, but also the implementation of a costly, advanced metering system is at odds with policies designed to promote the growth of distributed energy resources. In directing the implementation of AMI, the Department's Straw Proposal does not address or consider this juxtaposition to any degree. However, immense, near-term investments in advanced metering systems should not be mandated without (1) methodical, valid analysis of the associated costs and benefits; and (2) the development of a plan to solve the detrimental impact of cost-shifting driven by the pervasive installation of distributed energy resources.

There Is No Rational Basis for Department-Mandated Implementation of AMI. The Straw Proposal is structured so that, given current technology alternatives, AMI is the only strategy that will satisfy all seven of the advanced metering functionalities required of the CAMP. Two criteria in particular dictate the implementation of AMI to satisfy the complete set of funtionalities. Specifically, it is impossible to collect customer interval data in near real-time (i.e. hourly), which could also be usable for settlement in the ISO-NE energy and ancillary service markets, absent the implementation of AMI. The same is true for the required functionality that enables two-way communication between customers and the Companies.[6] Throughout the GMWG, Northeast Utilities consistently raised the concern that the costs associated with AMI are currently astronomical, while the incremental benefits for customers are

[6] Two-way communication is feasible on an opt-in basis. From a practical perspective, to deliver the service to all customers on an opt-out basis, the Companies would need to deploy an AMI communications infrastructure.

small in comparison. The Companies will not repeat all of the dialogue that has occurred here due to space constraints; however, the ultimate conclusion has not changed. There are better technologies in which to invest customer funds for the achievement of grid-modernization objectives. The decision to implement AMI goes against the best business judgment of the Companies and cannot be rationally cost justified in terms of a net benefit for the overall customer base that will pay for the investment over the long term. Some of the significant concerns left unaddressed by the Department in the Straw Proposal include the following:

First, the mandated implementation of AMI is not a prerogative within the Department's discretion. The specification of particular technologies or technological platforms is an issue within the management judgment of the Companies and which would only be undertaken on the basis of all relevant investigation and analysis. For this reason alone, mandated AMI implementation is not the correct manner in which to advance the Department's identified grid modernization objectives. Rather than a rush to judgment, the Department should carry through with the acknowledgment that flexibility at this stage is advisable and that the Companies should be allowed to design their GMPs in a manner that provides cost-effective benefits to customers with the seven functionalities serving as long-term guidelines rather than short-term mandates.

Second, the Department has not given any credence to the concern raised in the GMWG that the implementation of AMI is a costly undertaking at this time and there is no cost justification that can support the implementation of AMI. As identified by Northeast Utilities throughout the GMWG process, an AMI roll-out is problematic due to the extraordinary cost associated with, at best, a modest increase in functionality. The implementation of AMI involves significantly more than the replacement of meters. An AMI roll-out would require either the significant enhancement or replacement of the following systems: Communications

Infrastructure used to transmit communications from the meter to the Companies; Meter Data Management System used to collect, store and process interval data and enable ISO settlement; Meter Asset Systems used to store information about all meter assets; Customer Information System ("CIS") used to calculate and present bills with time varying rates ("TVR");[7] ISO and Load Research Systems used to interface with internal metering, CIS and ISO processes; the Outage Management System used to utilize meter-level data to support restoration efforts; and any company-owned home technology systems, e.g., usage displays and thermostats. The Companies' media and call center capabilities would also need to be enhanced to address any AMI implementation. Costs would also exist in relation to the meters, associated technologies and related systems that are currently in place and that would have to be retired before the end of their useful life. Northeast Utilities estimates, conservatively, that the price tag for an AMI roll-out, including the recovery of existing investment on the Companies' books would likely approach, and possibly exceed, $1 billion over the course of the CAMP implementation – all of which is to be borne by customers *who may or may not be interested in interacting with the distribution system at the level implicated by AMI technology.*

Third, even if there is any chance that the cost of implementing AMI can be justified, it cannot be justified without resolution of the Department's investigation into TVR and other issues tied to the cost-benefit analysis. The Department may believe that it can work through the TVR investigation quickly to expedite the development of cost-benefit analyses in time for mid-year filings of the GMPs. However, TVR is a complex concept worthy of in-depth analysis and consideration. A key consideration is whether or not the supply component would be subject to TVR, considering this part of the business is unregulated. If not, it is questionable as to how

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[7] TVRs can include time-of-use rates, critical peak pricing, peak-time rebates, and real time pricing. D.P.U. 12-76-A, at 34.

effective TVR would be if it only affects half of a customer's electric bill. The development of a company-specific TVR proposal, including but not limited to the type and design of a TVR mechanism that best achieves grid-modernization objectives; which rate classes would be affected; whether TVR would be mandatory and, if so, for which rate classes; and how best to educate customers as to the opportunities and mechanics of the proposed TVR mechanism, are issues that are critical to the development of a TVR proposal that will take time to evaluate, present and decide. Without the Department's final determinations regarding TVR, the Companies cannot begin to develop a valid cost-benefit analysis for the required CAMPs.

Similarly, without resolution of the Department's investigation into cyber-security, it is not possible for the Companies to develop a suitable CAMP. AMI introduces a brand new portal into the Companies' information systems, significantly increasing the cyber-security risk. Currently, the only mandatory standard for electric distribution company cyber-security is the North American Electric Reliability Corporation Critical Infrastructure Protection ("NERC-CIP"), which applies only to bulk power systems and not to the electric distribution systems and metering infrastructure subject to the Department's jurisdiction.[8] D.P.U. 12-76-A at 35-36. In its investigation into cyber-security, the Department stated that it intends to explore whether or not to use existing standards to assess the Companies' cyber-security practices and, if warranted, could expand the investigation to broader cyber-security planning and risk management. Id. It is reasonable to assume that such an investigation could lead to the implementation of a series of cyber-security planning and risk management mandates. Implementation of these mandates

[8] There are voluntary cybersecurity recommendations and guidelines for electric distribution companies including: (1) the National Institute of Standards and Technology ("NIST") Interagency Report ("NISTIR") 7628, entitled, "Guidelines for Smart Grid Cyber Security;" (2) the United States Department of Energy's "Risk Management Process;" and (3) the Electricity Subsector Cyber Security Capability Maturity Model ("ES-C2M2"). Id. at 36. Additionally, NIST is developing a critical infrastructure security framework in response to the President's executive order on cybersecurity. Id.

would necessarily involve significant costs as they would affect all aspects of the Companies' distribution systems and related IT systems. These costs must be incorporated into the cost-benefit analysis for AMI.

It is also premature to assume that AMI can provide for large-scale conservation voltage reduction ("CVR"). D.P.U. 12-76-A at 11. Unlike many other grid modernization technologies and processes, CVR was not extensively discussed or analyzed during the course of the GMWG. CVR is an intricate and potentially problematic issue that affects, in addition to meters, numerous aspects of a distribution system warranting far more investigation than is contemplated under the Straw Proposal. To date, no major utility in the United States has implemented a large-scale CVR program, nor has such a program been introduced in Massachusetts to enable the Companies to gain either direct or indirect experience with such an initiative. The requirement to include a large-scale deployment in the CAMP without allowing for the proper investigation to determine the appropriateness of such a program is arbitrary and, most likely, will result in the expenditure of significant funds by customers for, at best, minimal benefits. Rather than the premature requirement of CVR, the Department should allow the Companies to exercise their expertise to evaluate CVR to determine if it is appropriate for implementation.

Fourth, there is no evidence that customers are willing to pay for the limited incremental functionality gained through implementation of AMI. In fact, there is evidence to the contrary. For example, industry studies show that only 46 percent of customers are aware of the concept of "smart metering," and of that percentage, 33 percent associate smart metering with complaints of meter inaccuracy, higher customer bills, invasion of privacy and health concerns. In the Companies' experience, even very large customers with sophisticated energy-management capabilities prefer *stabilized, fixed and/or predictable rates* to assist in managing their business

or personal interests rather than time varying rates. Certain customer segments, particularly the commercial and industrial sector, have significant reservations about AMI and TVR. Many customers have a deep aversion to technology that links them to the "grid" in a way that they perceive as an invasion of their privacy and/or detrimental to their health.

In addition to concerns about customer interest, the Department is requiring the implementation of costly infrastructure that would have to be paid for at the very same time that the Department's policies seek to allow customer exits from the distribution system to take advantage of distributed energy resources. No analysis of this dynamic has been undertaken; nor has any quantification whatsoever of customer bill impacts. Customers value price and reliability above all else and the implementation of AMI serves neither of these objectives.

Moreover, the Department should also consider the results and experiences of recent and ongoing pilots before blindly moving forward with an AMI mandate. Smart metering pilot programs across the country have produced similar results in terms of showing a lack of customer interest. Even the most successful residential time-of-use pricing programs have no more than 50 percent participation by the residential customer base. For example, NSTAR's Smart Energy Pilot has seen significant participant degradation relative to the initial number of customers installed. As reported to the GMWG, NSTAR Electric made 53,000 customer contacts in an attempt to enroll customers in its smart grid program; only 3,600 customers enrolled; only 2,700 customers were installed and approximately 40 percent of those 2,700 initial participants were removed or dropped out of the pilot by May 2013. PSE&G's "myPower" pricing pilot saw similar results in which 27 percent of participants were either removed or dropped out (excluding the control group). Roll-outs of AMI require careful consideration of the different implementation challenges, including customer perception about bills, security and

health-related issues. Market research will help to assess what functionalities are important to the different customer classes and whether or not those customers will view the achieved functionalities as worthy of the anticipated costs. Given the level of expenditures associated with AMI, it is prudent for the Companies to determine what the market will bear prior to designing their CAMPs. Failure to do so could result in decreased customer interest in grid modernization and other negative impacts. The success of the Companies' GMPs relies heavily on the participation of those who will ultimately bear the costs of those efforts.

Fifth, in mandating AMI, the Department has failed to consider the role that competitive markets should play in grid modernization and the costs that competitive market providers and other market participants have already invested in grid modernization efforts. For instance, home energy automation solutions like smart thermostats and appliances are advancing at a rapid pace and, in many cases, are leverage existing communications infrastructure such as broadband the internet. Rather than duplicating these expenditures and predetermining that the preferred communication should be enabled through the ill-considered implementation of AMI, the Companies should be afforded the flexibility to design GMPs that leverage the expenditures for the benefit, not to the detriment, of customers.

Last, but not least, there is little confidence that the incremental benefits of moving to an AMI platform will be sufficient to warrant the cost. Customers have already supported the investment associated with the installation of AMR metering technology and the incremental benefit afforded by AMI arises from the communications element, not from the metering element. Operational savings were realized with the implementation of AMR and are not further available with the implementation of AMI. This means that the incremental benefit of AMI is largely limited to the communications element, which can be addressed in other ways without

incurring the cost of the meter. Given that the grid modernization technology sphere is a dynamic, rapidly evolving marketplace, it is also unclear whether the incremental benefits, if any, would begin accruing to customers prior to the implemented AMI platform being rendered obsolete. In any event, the cost remains unjustified by the benefits.

Recommendation: The Companies recommend that the Department modify its mandate regarding implementation of the CAMP to establish the seven functionalities as optional, long-term guidelines for CAMPs, rather than required elements. In addition, the Department should reaffirm that electric companies retain the discretion to structure GMPs to incorporate components identified by the Companies as furthering the four grid-modernization objectives, subject to the approval of the Department. This flexibility will allow the Companies to design GMPs that are cost-effective, beneficial and assist in the continued modernization of the grid thus enabling the Companies to continue to provide safe and reliable service to customers.

2. CAMP Cost-Benefit Analysis

The Straw Proposal requires CAMPs to include a cost-benefit analysis using the business case approach, assessing all costs and benefits, including those that are difficult to quantify, as advocated by the Clean Energy Caucus in the Grid Modernization Report. Id. at 20; Grid Modernization Report at 82. Before it pre-authorizes the CAMP, the Department must find that the benefits, quantified and un-quantified, exceed the costs. D.P.U. 12-76-A at 20. However, the Department states that the Companies should not include any costs incurred for existing meters and associated systems in the CAMP cost-benefit analysis, which would be retired from service prior to the end of their useful lives pursuant to the CAMP. Id. Under the Straw Proposal, the Companies are required to base their CAMP cost estimates on various sources, including vendor quotes. Id.

Earlier in these comments, Northeast Utilities described the need to understand the costs and benefits associated with any mandates resulting from the separate TVR and cyber-security investigations. Additionally, it is necessary to have as much precision and specificity as practicable regarding the quantification of benefits associated with the CAMP, especially since the Department, in subsequent cost recovery proceedings, will evaluate the CAMP expenditures in light of the projections in the cost-benefit analysis. Id. at 21. The Companies understand the Department's position regarding the desire to include un-quantified benefits in the CAMP analysis to ensure robust CAMPs designed to help achieve the Department's grid modernization objectives. However, given that the Companies' ability to recover costs will be based in part on comparison to the original cost-benefit analysis, it is critical to quantify as many of the benefits as is practicable in order to avoid reliance on skewed cost-benefit analyses results and the potential for disallowance of cost recovery in subsequent proceedings. Failure to do this could lead to conservative CAMPs to minimize the risk of the disallowance of otherwise prudently incurred costs based on an overgenerous inclusion of un-quantified benefits in the initial CAMP cost-benefit analysis.

Furthermore, in ascribing a weight to un-quantified benefits, it is important to consider the time period over which the CAMP benefits are anticipated to accrue. Given that the Straw Proposal requires each GMP to cover a 10-year period and be updated in the Companies' base distribution rate cases, which must occur no less often than every five years pursuant to G.L. c. 164 §94, benefits that will not accrue until well in the future may not be appropriate for inclusion in the cost-benefit analysis given the likelihood a updating the CAMP due to changing technologies, processes and other related issues.

The Straw Proposal also requires the Companies to include projections about electricity and peak-load savings from the implementation of TVR, along with the underlying assumptions, in the CAMP cost-benefit analysis. Id., at 34. In recognition of the complexities involved with developing TVRs, the Department will open a separate investigation into TVRs in the near future to examine the optimal approach to rate design. Id. Northeast Utilities supports the Department's plan to conduct a separate investigation into TVRs and looks forward to actively participating in that investigation. The Companies agree that TVR is a complex concept worthy of in-depth analysis and consideration (see above). In the event that the Department chooses not to accept the Companies' recommendation that the Companies' develop their GMPs and CAMPs following the conclusion of the TVR investigation, the Companies believe that it is premature to include any projections of TVR-induced electricity and peak-load savings in the CAMP cost-benefit analysis prior to the conclusion of the investigation. Such projections would have to be based almost entirely on assumptions, as opposed to measureable facts, rendering them questionable, at best. As noted above, given that future cost recovery is based, in part, on a comparison to the CAMP cost-benefit analysis, any TVR savings projections would likely be very conservative which would tend to skew the results of the cost-benefit analysis. It is more appropriate to forego inclusion of TVR savings in the cost-benefit analysis and rely, in the future, on TVR savings projections that are grounded in experience following the conclusion of the separate TVR investigation, and the Companies' determination of the most appropriate TVR to implement in their respective service territories.

As for the costs to be included in the cost-benefit analysis associated with the CAMPs, it is necessary for the Companies to retain the discretion to select technically qualified vendors from whom the Companies' would seek cost information. Given that future cost recovery of

CAMP expenditures rests, in part, on comparison to the original CAMP cost-benefit analysis, it is critical to only include reliable cost estimates from vendors. Given their relationships with vendors, the Companies are best suited to determine which vendors' cost estimates are to be included in the CAMP cost-benefit analysis.

Lastly, Northeast Utilities strongly disagrees with the Department's determination that the costs associated with any meters and associated systems, such as those enumerated above, that are retired prior to the end of their useful life under the CAMP should not be accounted for in the CAMP cost-benefit analysis. The costs that currently exist on the Companies' books in relation to existing meter plant support existing functionality. The implementation of AMI infrastructure will duplicate this functionality to some, perhaps a significant, extent. Therefore, if the costs existing on a company's books are excluded from the cost-benefit analysis, then the benefit of functionality that is duplicated by AMI infrastructure must also be excluded or the result is a double-counting of benefits. In order to ensure that the Companies are implementing CAMPs where the costs are justified by the benefits (see D.P.U. 12-76-A at 3, 20), all associated costs must be included in the analysis or duplicative benefits must be eliminated from the analysis. Otherwise, the cost-benefit results will be skewed eliminating a rational basis for the investment decision.

Additional study and analysis is needed to assure that there is a solid business case for this colossal investment; yet, the Department is mandating implementation *within three years*, unless an exception is approved. The Department has indicated that it will undertake separate TVR and cyber-security investigations to resolve issues implicated in the implementation of AMI infrastructure; however, these aspects represent only part of the analytical foundation that

would be needed to support this investment decision. Any cost-benefit analysis, developed on the short timeline envisioned by the Straw Proposal, would be seriously deficient.

In addition, Northeast Utilities respectfully requests that the Department's pre-authorization of the Companies' CAMPs, discussed in greater detail below, also constitutes an endorsement of the Companies' decision to retire the meters and associated systems and obviates the need for further review of the Companies' decision in future cost recovery proceedings. The Companies acknowledge that they would bear the burden of demonstrating that the costs associated with the removal were prudently incurred.

C. Cost Recovery

During discussions with the GMWG, Northeast Utilities made it clear that cost recovery would need to be aligned with the objectives of the GMP in order to allow for its implementation, including the installation of technologies that would not otherwise be undertaken without the GMP, or would be undertaken on a time frame different from the timeframes laid out by the Department for the GMP. The Straw Proposal provides that the Companies may request implementation of a capital expenditure tracking mechanism for their proposed CAMP expenditures; however, the cost-recovery opportunity appears to be directly contingent upon the implementation of AMI. D.P.U. 12-76-A at 18. In allowing for this cost-recovery, the Department stated that it was seeking to remove perceived impediments to grid modernization. Id. However, because the Department has linked its cost-recovery option to the implementation of AMI, the Department has in effect created a recovery mechanism for the most expensive grid-modernization technology with the least certain benefits, without any evidence to support that this is the appropriate end-state for the Companies' distribution systems and

customers. The availability of a cost-recovery mechanism for a system that is unwarranted by a business case is not removing any impediments to grid-modernization efforts.

If the Department is truly seeking to accelerate the deployment of cutting-edge grid modernization technologies to achieve the delineated grid-modernization objectives and functionalities in the near term rather than through a traditional capital investment plan cycle, the Department must allow for implementation of a cost-recovery mechanism outside of the traditional rate case arena. Restricting the bulk of grid modernization efforts to traditional ratemaking treatment will limit the scope and breadth of the Companies' GMPs, where targeted cost recovery for these efforts would, instead, foster innovation and lead to more robust GMPs aimed towards more fully achieving the Department's delineated grid modernization objectives. Without targeted cost recovery, the grid-modernization initiatives contained in the Companies' GMPs will be forced to compete for funds with more traditional capital investments necessary to maintain the safety and reliability of the Companies' distribution systems. There is a finite pool of funds for capital projects and efforts such as vegetation management and system hardening[9] which provide a more immediate improvement to reliability and safety may be prioritized ahead of grid modernization initiatives whose benefits accrue over the longer term. In order to avoid this constraint on GMPs, the Department must extend targeted cost recovery to the grid-modernization initiatives contained in the Companies' GMPs, conditioned on the Companies' adherence to any mandated targeted cost recovery mechanism elements.

Regarding the form and required elements of the targeted cost recovery mechanism, specifically the requirement that the Companies bear the burden of demonstrating that all of the costs they seek to recover through their capital expenditure tracking mechanisms are incremental

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9 The Straw Proposal states that, while vegetation management and system hardening may improve reliability and prevent outages, these types of initiatives are not grid-modernization functionalities. D.P.U. 12-76-A at 10.

to those recovered in base rates, Northeast Utilities supports the use of the incremental test utilized by Bay State Gas Company d/b/a Columbia Gas of Massachusetts ("Bay State") in its targeted infrastructure recovery factor ("TIRF").

D. Pre-Authorization

In the Straw Proposal, the Department states that, if it approves the CAMP, its pre-authorization "endorses" the Companies' decision to proceed with the investment plan. D.P.U. 12-76-A at 18. The Department states further that the pre-authorization of the CAMP obviates the need for "further review of the Companies' decision or timeline for making the CAMP investments in subsequent cost recovery proceedings, although the Companies must still demonstrate to the Department's satisfaction that the CAMP investments are used and useful and that CAMP costs were prudently incurred. Id. at 18-19.

Northeast Utilities supports the direction that the Department has taken in relation to the CAMP preauthorization and the Department's "endorsement" prior to the expenditure of funds and the commitment of resources. The Companies understand this to mean that, following the pre-approval, there will be no subsequent second-guessing as to whether it was reasonable and prudent for the Company to implement the CAMP, while appropriately requiring an after-the-fact demonstration that the actual CAMP expenditures were reasonable in terms of prudent management of construction costs. However, two concerns are raised by this paradigm. First, the Department cannot leave open the determination as to whether the investments are "useful" to customers. Because technologies for grid modernization are evolving quickly and the Department is pushing the electric companies to implement cutting edge technologies on an accelerated basis, the "usefulness" of investments may be called into question after the fact, even though an electric company is executing its Department-approved GMP. Whether investments

are actually in service is a threshold that can only be met after installation and is appropriately deferred to a cost-recovery proceeding, where costs will be reviewed for reasonableness. Second, the Department must extend this treatment to all elements of the GMPs (not just the CAMP) so that the Department's approval of the GMP eliminates the need for further review of the Companies' decisions or timeline for making the GMP investments in any subsequent GMP-related cost-recovery proceeding. Without these two changes, the Companies would be forced to expend funds and commit resources based on a Department approval that might not withstand the test of time.

E. Grid Modernization Metrics

In order to evaluate the Distribution Companies' implementation of their respective GMPs and CAMPs and progress towards the Department's identified grid modernization objectives, the Department intends to develop company-specific implementation metrics and a standard set of targeted, statewide performance metrics for GMPs. Id. at 29. At this time, the purpose of the metrics will be to record and report relevant information without a determination of whether it may be appropriate to connect such metrics to financial penalties and rewards in the future. Id. Under the Straw Proposal, each electric company must include: (1) infrastructure metrics that track its implementation of grid modernization technologies or systems; and (2) performance metrics that measure progress towards the objectives of grid modernization. Id. at 29-30.

Northeast Utilities is supportive of performance-based metrics within the context of the GMPs as a means of providing information regarding progress towards grid modernization objectives. The Companies emphasize that these performance-based metrics must be based on grid modernization functions completely under their control and that the Companies'

performance under the metrics is measured using quantitative and objective, rather than subjective, criteria. It is important that valid performance indicators are created and a discernible correlation between Company efforts and progress towards grid modernization objectives is established. This principle will enable an equitable review of the Companies' progress and will provide a solid basis for determining whether modifications should be made to the GMPs.

F. Separate TVR Investigation

As noted above, the outcome of the TVR investigation is inextricably intertwined with the design of the GMPs and CAMPs. Given this and the Companies' need to develop and implement grid modernization initiatives that are designed to achieve the Department's identified grid modernization objectives, the Companies respectfully request that the Department initiate the separate TVR investigation and allow the Distribution Companies to apply the guidance and benefits of that investigation to their initial GMPs, including CAMPs.

G. Cyber-security

The Department also intends to explore, in the context of grid modernization, issues related to cyber-security, privacy, and access to meter data in a separate proceeding. D.P.U. 12-76-A at 4. The Straw Proposal requires all GMPs to describe the Distribution Companies' strategies for ensuring cyber-security, privacy, and safeguards in the sharing of meter data in conjunction with their grid modernization activities. Id. at 31. The Companies are supportive of the Department's determination to address cyber-security, privacy, and access to meter data in a separate proceeding and look forward to actively participating in that proceeding. As noted above, it is critical for the Companies to know the outcome of that investigation and to apply any directives to their GMPs and CAMPs. Northeast Utilities also stresses the critical nature a safeguarding this information and cautions against wide public dissemination of NSTAR Electric and WMECO's specific proposals to ensure that their respective electric distribution systems and related systems are safe from cyber-

attacks. Although the Companies acknowledge that it is important for the Department to be apprised of their plans and procedures, public dissemination of this information weakens the Companies' ability to safeguard their systems and customer information.

H. Research and Development

In its efforts to ensure continued grid modernization and the adoption of new grid modernization technologies, the Department requires the Distribution Companies to provide information about their current research and development ("R&D") activities. Id. at 32. Both NSTAR Electric and WMECO have developed robust and beneficial relationships with vendors, academic institutions and research entities to ensure that they are continually apprised of new or improved technologies and processes, including grid modernization technologies and processes, which enable the Companies to continue to provide safe and reliable service to their customers. By leveraging these relationships, the Companies gain the benefit of the vendors' and institutions' expertise and experience with both emerging and newly developed technologies and processes that, in turn, enables NSTAR Electric and WMECO to make informed decisions about which processes and technologies are best suited for short and longer-term safety and reliability needs. Although Northeast Utilities believes that its approach to R&D is the currently the most appropriate method, if the Department were to require the Companies to conduct grid modernization technology R&D in furtherance of grid modernization objectives, then recovery of any R&D costs would be appropriate for recovery from customers.

III. Conclusion

NSTAR Electric and WMECO are committed to fulfilling their obligation to provide safe and reliable service for their customers. Further enhancing the resiliency and safety of the distribution system through grid modernization is an important and complex issue. The

Companies appreciate the opportunity to comment on the Department's Straw Proposal and look forward to continuing to actively participating in the on-going grid modernization proceeding.

Appendix A

Specific Questions from the Department

1. Has the Department provided the correct directives to electric distribution companies on grid objectives?

In the Straw Proposal, the Department identifies four grid-modernization objectives, which are to: (1) reduce the effects of outages; (2) optimize demand, including reducing system and customer costs; (3) integrate distributed resources; and (4) improve workforce and asset management. D.P.U. 12-76-A at 3. All four of these objectives are valid, reasonable and appropriate "directives" in light of today's operating environment. The Department's specific directives regarding the requirement to develop and implement a Comprehensive Advanced Metering Plan ("CAMP") meeting seven pre-designated criteria that can only be met with the implementation of Advanced Metering Infrastructure are not the "correct directives" for electric distribution companies. The Companies have addressed the reasons for this conclusion in their comments on the Straw Proposal.

2. Has the Department established appropriate priorities and timelines for grid modernization?

The Companies have offered several recommendations relating to the requirement and timing of the submission of a CAMP. In sum, the Companies recommend that the Department modify its mandate regarding implementation of the CAMP to establish the seven functionalities as optional, long-term guidelines for CAMPs, rather than required elements. In addition, the Department should reaffirm that electric companies retain the discretion to structure GMPs to incorporate components identified by the Companies as furthering the four grid-modernization objectives, subject to the approval of the Department. This flexibility will allow the Companies to design GMPs that are cost-effective, beneficial and assist in the continued modernization of

the electric grid; thereby creating a regulatory construct consistent with the Companies' public service obligation to provide safe and reliable service to customers.

In addition, as described in the Companies' comments, the pending investigations by the Department into TVR and cyber-security should be completed before requiring the submission of a CAMP. This will ensure that assumptions of costs and benefits are aligned with outcomes of those proceedings. The timeline set out by the Department for filing of a CAMP is likely too aggressive to allow for reasonable consideration of these important issues.

3. Is the Department's requirement to achieve advanced metering functionality appropriate?

The Department's requirement to achieve advanced metering functionality is not appropriate, particularly where the seven functionalities identified by the Department are made mandatory. The Companies provide extensive comments on this question in Section II.B.1 - Advanced Metering Functionality. In summary, an Advanced Metering System is not a "basic technology platform" for grid modernization and is not needed to realize "all of the benefits of grid modernization."

4. Which aspects of the benefits cost analysis should include industry-wide figures?

The cost-benefit analysis should incorporate company-specific information wherever practical and feasible. If industry-wide figures are used, emphasis should be placed on using information that represents actual deployments rather than estimated deployments. Care must be taken with industry-wide figures as that data would likely include inherent biases and differences that would skew the results, making it difficult to compare actual results to the initial analysis.

5. Which aspects of the benefits cost analysis should be company-specific?

Please see the response to Question 4.

6. **Has the Department established the correct categories of benefits associated with achieving advanced metering functionality?**

At this point in time, the Companies do not have additional comments regarding the categories proposed by the Department. However, as explained in section II.B.2 - CAMP Cost-Benefit Analysis, the Companies emphasize the need to include all cost impacts created by the technology implementation.

7. **Should the Department establish a targeted cost recovery mechanism for CAMP investments?**

Please see the Companies' comments in section II.C - Cost Recovery.

8. **Should the Department review and approve a cost-tracking accounting system in advance of allowing a targeting cost recovery mechanism?**

Please see the Companies' comments in section II.C - Cost Recovery.

9. **What aspects of a cost recovery mechanism should the Department establish?**

Please see the Companies' comments in section II.C - Cost Recovery.

10. **Should the Department establish an offset to O&M expenses to recognize cost savings from grid modernization technologies?**

Offsets to O&M expenses may or may not be applicable or appropriate and should be evaluated in the context of a company's cost recovery proceeding.

11. **Should the Department adopt metrics in this proceeding?**

Please see the Companies' comments in section II.E – Grid Modernization Metrics.

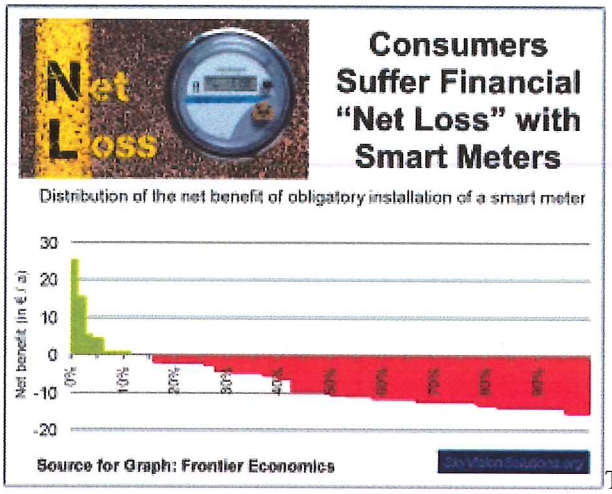
12. **What information or standards on cyber-security, if any, should apply to GMPs?**

Please see the Companies' comments in section II.G – Cyber-security.

Vast Majority of Consumers Suffer Financial "Net Loss" with Smart Meters

Posted on February 16, 2016 by SkyVision Solutions

by K.T. Weaver, SkyVision Solutions



This article provides specific information to counter claims made by smart meter proponents that smart meters provide consumers with financial benefits, i.e., saving energy and reducing their utility bill. In addition, this article presents information to help disentangle how policy makers conflate the topics of grid modernization, smart meter deployments, and sound environmental policy.

Inflated or False Claims on How Smart Meters Help Consumers Save Money

As an attempt to convince consumers that smart meters are "good" for them, they are fed propaganda-like messages regarding "consumer empowerment" by smart meter proponents. In short, and as stated by the Attorney General for the state of Illinois:

"The pitch is that smart meters will allow consumers to monitor their electrical usage, helping them to reduce consumption and save money. ... Consumers don't need to be forced to pay billions for so-called smart technology to know how to reduce their utility bills. We know to turn down the heat or air conditioning and shut off the lights."

We certainly *do not need* to spend billions and billions of dollars on smart meters for the consumer to know that if you start shutting off switches or changing the thermostat setting that you can save energy. The whole concept is actually quite absurd. For those consumers who *do want* more detailed usage information, there are a number of products available online or at your home improvement store that can provide the same or better information than with a smart meter.

To help counter some of the claims, ridiculous as they may be as to how smart meters are somehow needed to help consumers save money, I have already written a number of articles highlighting studies and auditor-general reports that reveal that smart meters offer no net benefits to consumers. Among the past articles supporting this assertion are the following:

- 'Smart' Meters Have Failed and Were a Dumb Investment, an article which includes reference to the Ontario auditor-general report demonstrating that the $1.9-billion smart metering initiative has yet to realize any benefits, i.e., "Benefits Not Yet Realized" [1];
- Smart Meter Rollout a Waste of Money, According to Study, referencing the study by Kathryn Buchanan, "The Question of Energy Reduction: The Problem(s) with Feedback." [2];
- President Obama Touts 'Smart Meters' at Clean Energy Summit, an article referencing a study demonstrating that real-time information feedback at the household level does not lead to a decrease in electricity use [3];
- Consumers and Environment Unlikely to Benefit from Smart Meters, Confirms Latest Research, where research results from the Kellogg School of Management were reported that neither consumers nor the environment necessarily benefit from smart meter deployments [4];

- Smart meters giving Victorian consumers 'no benefit' on electricity bills, auditor-general says, referencing another auditor-general report that a $2 billion smart meter deployment has resulted in "no overall benefit to consumers" [5]; and
- Families Punished by 'Smart' Meters and TOU Rates, Recent Study Confirms, highlighting an Australian study showing that time-of-use electricity rates have inequitable financial and social impacts for households with children [6].

Adding to the research and auditor-general-type reports covered in the above articles, I will now introduce the results of two (2) additional reports that apparently have been ignored by smart meter proponents and policy makers.

A 2011 report for the BEUC, the European Consumer Organization [7], found it **not to be true** that smart meters will help households reduce energy consumption by up to 15% (as claimed by earlier reports). An analysis of six (6) scientific studies on "the use of meters reveals that the actual energy savings average between 2-4% in the best cases where consumers have clearly opted for their use." More specifically, the findings were as follows:

*"From the six scientific studies, we see that **in best cases a consumption reduction of 2-4%** can be expected in the **short term**. ... The best cases include a smart meter that is linked to an IHD (direct feedback) or to accurate billing, with energy efficiency advice."*

"[S]mart meters are not instruments that deliver energy savings by themselves. Even with advanced functions as an IHD, consumers who are not already minimally interested by energy issues do not appropriate [or make use of] smart meters."

*"We have seen that current systems of feedback associated with smart meters can yield to a reduction of 2-4% of electricity consumption **when consumers have opted for its use**."*

*"**No effect is observed when smart meters are installed without the explicit agreement of consumers**. And the vast majority of consumers are today probably not interested in any kind of feedback."*

*"In conclusion, without a prior motivation to save energy, **feedback is useless**. Besides motivation, capabilities such as knowledge, money and skills are important factors to effectively [make use of] feedback and accordingly change energy-using habits. As many experiences show a 'drawback' effect, the motivation towards energy savings must be frequently restored. But the sole presence of an IHD [in addition to the smart meter] is not enough to maintain the attention."*

*"**An obligatory smart meter rollout is therefore not advised**."*

At this point, I should probably just say, "I rest my case." But there is an additional study that provides an even more detailed analysis.

In 2011, Frontier Economics Ltd of London investigated the economic potential of using smart electricity meters for German households [8]. This study assessed "the overall economic benefit and the respective costs that would be generated by the installation of smart meters in various types of household."

Frontier Economics developed a model based on 200 different types of households in order to assess which consumers could financially benefit from smart meters. The differentiation was made according to the expected energy-saving potential through different characteristics of the households: size of the dwelling, number of persons, electricity consumption, affinity for technologies, and readiness to use a smart meter. A somewhat unique aspect of this model was to take into account the diversity of consumers, not only regarding consumption but also regarding motivation and skillfulness.

Some of the conclusions of the Frontier Economics study are as follows:

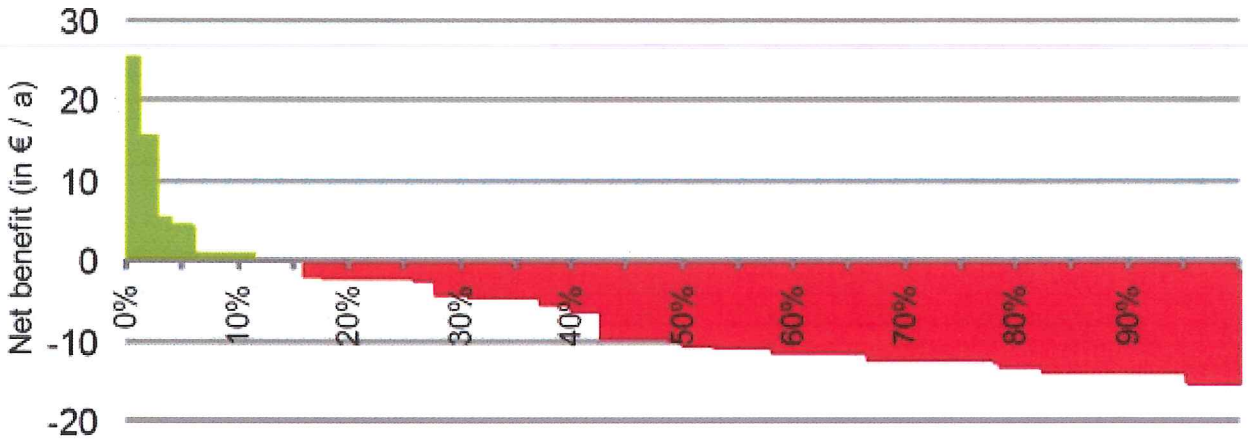
*"**Net benefits will be maximised if households retain the freedom to decide whether to install a smart meter**, and choose which technology to install. ... Ultimately, households themselves are best placed to identify whether the installation of a smart meter is worthwhile, and which technology option will be most effective."*

"The highest net benefits in our analysis are generated by those scenarios in which households are granted complete freedom of choice. These scenarios benefit from the fact that due to the significant heterogeneity across households, individual households are best placed to decide whether a smart meter is worthwhile and which technology option will deliver the greatest benefit."

*"**Mandatory national roll outs always result in a negative net benefit.**"*

To further illustrate that mandatory deployment of smart meters results in a financial "net loss" for households, review Figure 5 below from the Frontier Economics report.

Figure 5. Distribution of the net benefit of obligatory installation of a smart meter



Source: Frontier Economics.

"Figure 5 presents an example of the net benefits (i.e. the benefits after deducting installation and operational costs) per household in the 'Mandatory rollout EDL 40' scenario (where all German households are obliged to have an EDL 40 meter installed).

The green area indicates those households for which the benefits would exceed the costs in this scenario. ***Net benefits are only positive in around 15% of households****. The red areas in Figure 5 represent the* ***net loss*** *in those households that are obliged to have a smart meter installed even though the expected advantages do not justify installation costs."*

Whether or not the costs associated with smart meter installations *could* result in a net benefit for consumers depends on a number of factors, including:

- Annual household electricity consumption;
- Specific consumption patterns based upon the types of appliances existing within the home and when they are used based upon the nature of the consumers in the home;
- Motivation to conserve energy which is typically also dependent on the ability to make additional investments that not all consumers can afford; and
- Load shifting potential or ability for each household.

Most components of household consumption (cooking, lighting etc.) cannot be easily shifted since they are always required at specific times in the day. As such, only a small proportion of household consumption can potentially deliver load reduction or shifting benefits.

Figure 6 shows a comparison of different smart meter deployment scenarios considered by Frontier Economics. **A forced or mandatory deployment always delivers negative results**. Only in voluntary or selective deployments can smart meters be economically justified. In those cases, consumers are either motivated to conserve energy and/or have sufficient means and load profile to engage in energy reduction and energy efficiency measures to justify the smart meter investments.

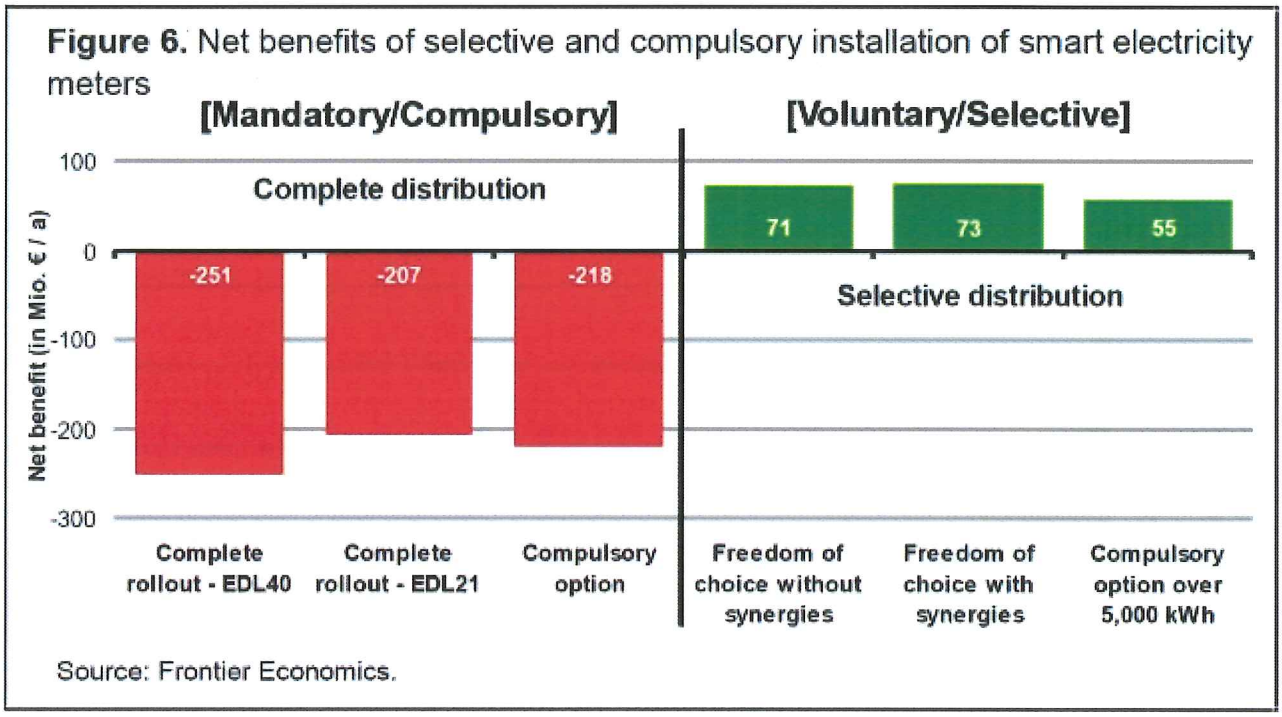


Figure 6. Net benefits of selective and compulsory installation of smart electricity meters

Policy Makers Conflate Topics of Grid Modernization, Smart Meter Deployments, and Sound Environmental Policy

What has just been presented regarding smart meters *not* providing *any* positive financial net benefits to consumers is *not* rocket science. It is common sense which I have been able to now fully substantiate with published studies and reports. So are policy makers just *stupid* as they continue to deploy smart meters? Possibly so, and these same policy makers never mention the tremendous consumer risks [9] associated with smart meters and continue to tout the already debunked purported benefits.

In addition, for those few consumers who might be motivated to use smart meters to somehow conserve energy, they will pay a yet to be quantified price related to a loss of privacy and a loss of control over one's appliances, comfort, and health [9][10].

One aspect to explain why smart meters continue to be deployed relates to the fact that they enable industrial profiteering and government sanctioned surveillance [11]. But beyond that, policy makers appear to be under the illusion that smart meters meaningfully contribute to policy objectives related to modernizing the electric grid and achieving sustainability goals, i.e., "to encourage energy efficient behavior" [8]. In this regard, the report by Frontier Economics provides additional insight:

*"**A mandatory nationwide roll out of smart meters does not deliver environmental policy objectives in the most efficient way**. ... Our analysis shows that it does not make economic sense to introduce smart meters on a nationwide basis in Germany. However, support for a national roll out is often based on environmental policy rather than on economics. In other words, it is considered that the overwhelming policy objective is to induce significant energy savings, and smart meters are considered an effective way of doing this."*

"It is very likely the additional funds required for a mandatory nationwide roll out of smart meters could generate significantly greater environmental policy outcomes if they are spent elsewhere."

So based upon the facts, smart meters will not "induce significant energy savings." We would be much better off spending limited resources elsewhere rather than wasting them on smart meters.

In the United States, it appears that smart meters are just an off-the-shelf item where money can be spent quickly under the guise that they are somehow promoting sustainability. As characterized by Tim Schoechle, Ph.D. in 2014:

A senior Department of Energy official stated that, "We had a huge amount of money that had to be spent on smart grid, and we didn't have anything off-the-shelf that we could call smart grid except these meters that were designed 20 years ago [12]."

As opposed to using what is really outdated "smart" meter technology, modernization of the electric grid should relate to measures taken to technically improve the operation and reliability of the electric grid, not to monitor and control the behavior of individual consumers. More important to the objective of modernizing the electric grid would be to improve wide-area situational awareness through advanced tools that would monitor and control the conditions of the grid at the neighborhood or sub-station level. This could include, for example, the use of "smart" switches that communicate with each other to reroute electricity around a troubled line [13].

Moreover, the modern electric grid as envisioned by the United States Department of Energy (DOE) in 2009 is one which is more *reliable, secure, economical, efficient, environmentally friendly, and safer* [14]. Based upon the substantial evidence provided at this website and information presented within this article, broad-based deployments of smart meters arguably conflict with each one of these six focus areas that the DOE views as the "foundation" for the "Smart Grid."

So rather than contributing to sustainability or helping to create a modernized electric grid, smart meter deployments only act as a diversion of financial resources away from investments that would be more effective at reducing consumption and improving energy efficiency. In addition, smart meter deployments make the electric grid less secure, less safe, and certainly smart meters are not "environmentally friendly."

As stated by the Frontier Economics report, smart meters represent a diversion of resources away from investments which would "very likely … generate significantly greater environmental policy outcomes if they are spent elsewhere."

In the future, I am considering to write a separate article on how to modernize the electric grid without smart meters, but one major utility company has essentially already documented how this is possible. I have highlighted the filings by Northeast Utilities (which later became Eversource Energy) in previous articles at this website:

- Major U.S. Utility Says "No Rational Basis" for Mandating Smart Meters [15]
- Smart Meters Not Necessary to Modernize the Electric Grid Says a Major U.S. Utility [16]

Additional supporting documentation for why broad-based smart meter deployments are unnecessary includes the following:

- Universal Deployment of Smart Meters May Be Unnecessary in New York to Support REV Mandates [17]
- Reply Comments by SkyVision Solutions in Response to Comments Pertaining to the Staff Proposal regarding the Distributed System Implementation Plan Guidance ("DSIP Guidance Proposal"); New York Public Service Commission Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision [18]

We just need policy makers to stop and think about what they are doing and read and acknowledge what has already been written.

Conclusions

Rather than disseminating propaganda on how the consumer will be "empowered" by smart meters to save money, consumers should more realistically be told that the vast majority of consumers will experience a "net loss" and lose money from smart meter deployments. Smart meter deployments to the extent that they exist should be totally voluntary. There is absolutely no basis for broad-based smart meter deployments i.e., "the expected advantages do not justify installation costs," as stated by Frontier Economics.

Smart meters only have the potential to benefit consumers who explicitly agree to their installation and therefore are motivated to use them.

Policy makers who promote smart meter installation often conflate smart meter deployments with the topics of electric grid modernization and achieving sustainability objectives. In actuality, smart meter deployments (based upon current technology) fly in the face of the vision for a modernized electric grid that is more *reliable, secure, economical, efficient, environmentally friendly, and safer*. Additionally, as stated by Frontier Economics:

"'Smart Grid' methods for intelligent grid control (e.g. through variable control of sub-stations etc) generate economic benefits for network operation in particular. However, these methods do not rely on the introduction of smart meters, since a particular metering solution is not essential for the centralized operation of grid components and technical devices."

Furthermore, again as stated by Frontier Economics:

"As well as having negative net benefits, we do not consider a national roll out of smart meters to be the most cost-effective way to achieve the overriding policy objective of energy efficiency."

In summary, smart meter deployments are a waste of money and expose the consumer to tremendous risks. Smart meters do not induce energy savings for the vast majority of consumers, and modernization of the electric grid does not rely on smart meter deployments. To the contrary, smart meters act as a diversion of financial resources away from measures that could otherwise modernize the electric grid and achieve sustainability objectives.

References and Notes

[1] "Smart Meters Have Failed and Were a Dumb Investment," SkyVision Solutions Blog Article, December 2014, at https://smartgridawareness.org/2014/12/18/smart-meters-have-failed/

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[5] "Smart meters giving Victorian consumers 'no benefit' on electricity bills, auditor-general says," SkyVision Solutions Blog Article, September 2015, at https://smartgridawareness.org/2015/09/16/smart-meters-giving-victorian-consumers-no-benefit/

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[7] "Empowering Consumers through Smart Metering," Report for BEUC, the European Consumer Organization, December 2011, available at https://skyvisionsolutions.files.wordpress.com/2015/12/brussels-smart-metering-studies-2012-00369-01-e.pdf

[8] "Economic Potential of Smart Electricity Meters in Germany," January 2011, Frontier Economics Ltd; available at https://skyvisionsolutions.files.wordpress.com/2015/12/frontier-report-on-economic-potential-for-smart-meters-in-germany.pdf

Prominently featured in this article is "Figure 5" from the Frontier Economics report. Critics can say that the figure may only be applicable for German households and only applies to the specific assumptions made for purposes of the report. This is true, but the detailed nature of the model used for the study provides results that are intuitively more realistic and plausible as compared to using an average or "representative" household as explained in the Frontier Economics report. Granted the specific numerical values on the chart may not apply outside Germany, but the general character of the chart with much more "red" than "green" is arguably correct for all mandated smart meter deployments.

For example, as recently explained by Nick Hunn of WiFore Consulting [19], the Department of Energy & Climate Control (DECC) in Great Britain has assumed that all future gas and electric customers will reduce energy consumption by 3% per year for basically forever, based upon information feedback from IHDs and smart meters. Hunn explains how this assumption is wrong and that a thorough study in the Netherlands showed that the "average saving" was closer to 0.6%. In addition, it is not clear whether some or all of that savings could just be due to the natural replacement of light bulbs and appliances over time that happen to be more efficient. Then taking into account the huge installation costs associated with smart meter deployments, you *will have* a financial "net loss" for the consumer.

On the topic of load shifting ability, it is expected that the primary difference between household load profiles in Germany versus the United States would be higher penetration of central air conditioning (A/C) in the United States. For example, Eversource estimates that within its service territory in the northeastern portion of the United States that the central A/C penetration is 38% for two to three months per year [16]. In warmer states, central A/C penetration likely approaches 85% [20]. According to Eversource, residential appliance data suggest that there is little discretionary load beyond A/C. If this is the case, it is suggested that customers desiring to participate in demand response programs be equipped with so-called "smart" thermostats that operate through household Internet routers. This would completely eliminate any need for utility installed smart meters for demand response programs.

[9] SkyVision Solutions has previously summarized consumer risks associated with smart meter deployments as:

- The financial burden imposed by smart meters where most consumers will suffer a "net loss."
- Privacy invasions due to granular collection of energy usage data which represents a "gold mine" to others.
- Potential health risks and actual adverse health effects caused by the additional electrosmog created by the smart meters and their associated infrastructure.
- The increased risk of household fires due to smart meter safety issues and 'catastrophic failures' that are expected with smart meters as opposed to traditional usage meters.
- Societal implications of smart grid and smart meter cybersecurity threats which can result in catastrophic events affecting widespread areas of the electric grid.

[10] "Consumers Resist Being 'Systematically Controlled' by 'Smart' Meters," SkyVision Solutions Blog Article, February 2016, at https://smartgridawareness.org/2016/02/05/consumers-resist-being-systematically-controlled/

[11] 'Smart' Meters Represent Industrial Profiteering and Government Sanctioned Surveillance, According to Study," SkyVision Solutions Blog Article, January 2016, at https://smartgridawareness.org/2016/01/11/industrial-profiteering-and-government-sanctioned-surveillance/

[12] "The Smart Meter Canard," SkyVision Solutions Blog Article, March 2014, at https://smartgridawareness.org/2014/03/18/the-smart-meter-canard/

[13] "Electricity Grid Modernization," GAO Report #GAO-11-117, January 2011, page 5; complete document available at http://www.gao.gov/new.items/d11117.pdf

[14] "The Modern Grid Strategy, A Vision for the Smart Grid," developed by the National Energy Technology Laboratory for the U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, June 2009; available for review at https://skyvisionsolutions.files.wordpress.com/2016/02/modern-grid-strategy_doe_june-2009.pdf

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[16] "Smart Meters Not Necessary to Modernize the Electric Grid Says a Major U.S. Utility." SkyVision Solutions Blog Article, September 2015, https://smartgridawareness.org/2015/09/30/smart-meters-not-necessary-to-modernize-electric-grid/

[17] "Universal Deployment of Smart Meters May Be Unnecessary in New York to Support REV Mandates," SkyVision Solutions Blog Article, October 2015, at https://smartgridawareness.org/2015/10/05/universal-deployment-of-smart-meters-may-be-unnecessary-in-new-york/

[18] Reply Comments by SkyVision Solutions in Response to Comments Pertaining to the Staff Proposal regarding the Distributed System Implementation Plan Guidance ("DSIP Guidance Proposal"); New York Public Service Commission Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, December 2015, available at https://skyvisionsolutions.files.wordpress.com/2016/02/reply-comments-on-the-new-york-rev-by-skyvision-solutions.pdf

[19] "UK Parliament Calls for Evidence on Smart Metering Programme," by Nick Hunn, January 2016, at http://www.nickhunn.com/uk-parliament-calls-for-evidence-on-smart-metering-programme/

[20] "Air conditioning in nearly 100 million U.S. homes," U.S. Energy Information Adminstration, at http://www.eia.gov/consumption/residential/reports/2009/air-conditioning.cfm

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Energy Economics, Inc.

Advanced Metering Infrastructure – Implications for Residential Customers in New Jersey

July 8, 2008

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Table of Contents

1. Executive Summary

This paper describes the major concerns for residential customers regarding the cost-effectiveness of potential utility investments in Advanced Metering Infrastructure (AMI). These concerns, which also apply to customers in other rate classes with annual usage similar to residential customers, have been raised in various reports and proceedings in other jurisdictions. This paper presents New Jersey specific implications of AMI based upon a review of the studies and filings made by NJ electric distribution companies (EDCs).

At least two New Jersey EDCs, Atlantic City Electric (ACE) and Public Service Electric and Gas (PSE&G), have proposed investments in AMI. They maintain that these investments can be justified by the savings in utility operating costs expected from AMI plus the savings to ratepayers from voluntary reductions in electricity use in response to very high prices during "critical peak periods". The critical peak periods (CPP) would typically occur 8 to 12 days each summer when electricity demand is very high due to weather conditions, and last 4 to 5 hours each time. Thus the reductions are expected to occur in approximately 50 hours, or 0.6% of the hours in the year.

Functionality. AMI technology provides a utility with the capability to reduce the costs of operating its distribution system by automating various functions that its staff now perform manually, including reading customer meters and turning power on- and off at the customer meter. The utility can also use AMI to "enable" customers to reduce their electricity use, particularly during high-price hours a few days every summer, by sending time-differentiated prices to the customer via the meter and recording the customer's actual hourly usage. (Time-differentiated pricing includes a range of approaches, ranging from hourly prices to what AMI proponents refer to as "dynamic" pricing, i.e., very high prices during CPP and prices close to existing levels during off-peak periods). It is important to note that AMI technology, in and of itself, does not reduce customer electricity use. Instead, each customer must decide to take one or more actions in response to the price signals in order to actually reduce his or her hourly usage relative to their reference or baseline usage.

Alternative Approaches. Utilities who propose investments in AMI typically propose replacement of all existing meters with new meters, a new network for two-way communication with those new meters and a new or upgraded computer system to support that enhanced communication and data collection. AMI falls under the category of "smart meters" or a "smart grid". However it is important to note utilities have a range of technologies and configurations from which to choose in order to reduce the costs of operating their distribution systems and improve communication with customer meters. For example, many utilities have invested in Automated Meter Reading (AMR) systems. Other utilities have invested in control technologies and customer meters on only those circuits where those investments are clearly cost-effective, i.e., targeted investments and replacements rather than universal replacement of all existing meters.

Savings to utility. The AMI filings of utilities in other states, and the studies prepared by New Jersey EDCs, indicate the total cost of AMI, measured as the net present value (NPV) of revenue requirements over 15 years, would be greater than the NPV of forecast savings in utility operating costs over the same period. The forecast savings from

automating various distribution system operations range from fifty percent to seventy-five percent of the total cost. As a result, we assume that utilities who invest in AMI will eventually file for an increase in their distribution service rates in order to recover that shortfall.

Savings to ratepayers. The estimates of savings to residential customers from AMI-enabled dynamic pricing, a form of time-differentiated pricing, hinge upon three major assumptions:

- the reduction in peak use per participating customer,
- the percentage of customers who will voluntarily participate, and
- the long-term persistence of the reductions per participating customer.

There is considerable uncertainty regarding each of these assumptions despite the results from pilot projects in other jurisdictions. First, most pilots entice customers to participate through some form of "appreciation" payment and therefore provide no guidance regarding the percentage of customers who will voluntarily participate in the absence of such an incentive. Second, most pilots have only operated a few years, thus they provide little guidance regarding the long-term persistence of participation and reductions per participant.

In addition, even if one accepts the assumptions made by EDCs about AMI-enabled dynamic pricing, the economics are not particularly attractive either for those customers who participate or for residential customers in general. For example, one analysis estimates that an average residential customer would reduce his or her electricity use by 16 percent during a critical peak period in order to save approximately $1.24. If that customer had the same reduction in each CPP, and there were 8 CPPs or "events" over the summer, the customer would save $ 9.92 for the year. Based upon those estimated savings per residential customer, that analysis then assumes that fifty percent of residential customers would voluntarily choose to participate in dynamic pricing, and would continue to do so at that level of reduction for at least 15 years. Even with these three optimistic assumptions, that analysis indicates that it would take approximately 15 years for the aggregate savings from AMI-enabled dynamic pricing to offset the shortfall between the total cost of AMI and the forecast savings in utility operating costs.

Environmental benefits. Utility investments in AMI will not automatically lead to lower annual emissions of air pollutants associated with electric energy use, such as carbon dioxide and sulfur dioxide. The majority of the reductions in energy use driven by dynamic pricing occur in relatively few hours each year. Those reductions could lead to material reductions in NOx emissions, which are largely driven by electricity use in peak periods. However, reductions from dynamic pricing will not lead to significant reductions in annual emissions of carbon dioxide and sulfur dioxide which are a function of annual electricity use.

Conclusion. Utility investments in AMI are not the least cost approach to reducing the annual energy use of residential customers in New Jersey, or the bills and air emissions associated with that annual energy use. Those reductions in annual electricity use, annual bills, and annual air emissions can be achieved at less cost through investments in energy efficiency and voluntary participation in direct load control programs.

2. What is AMI and Why Are Some Utilities Considering It?

An AMI system typically consists of three components – a "smart meter" at the customer's premise, a communications network between the smart meter and the utility, and a "meter data management application" (MDMA) at the utility.

The smart meter has the ability to relay price signals to controls within the home. However, the AMI system does not include any controls within the home. The smart meter also has the ability to record and store hourly usage data, to report status of power supply, and to turn power for the entire home off or on (i.e., remote disconnection or connection of service).

The communications network has the ability to send prices and control signals to the smart meter, as well as to collect information from the meter including whether the home is receiving power, whether certain appliances are on or off, and hourly electricity use.

The MDMA is computer hardware and software that can process the hourly usage data collected by the meter and transmitted on the communication network.

Again, it is important to reiterate that an AMI system does **not** include any controls on the customer side of the meter, i.e., within the residence, such as switches or thermostats that would control appliances in response to the price signals. Customers who participate, or utility customers as a whole[1], would have to pay for any such controls within their homes.

The meters and communication systems utilities currently use for residential customers typically do not have this functionality. Instead, most residential meters are typically only read once a month and, as a result, the utility does not know how much electricity a particular residential customer actually uses in a given hour or period during that month. In contrast, the meters and communication systems that the utility uses to serve its large usage customers in the commercial, institutional and industrial sectors do have the ability to record actual customer usage by hour.

The major forecast benefits to a utility from an investment in AMI are expected savings in the costs of operating their distribution systems. In particular an investment in AMI would enable utilities to control and read meters electronically and thereby eliminate staff currently required to read meters and to turn power on- and off at the meter. This would produce a reduction in the utility's annual labor costs.

The major forecast benefits to ratepayers from a utility investment in AMI are expected savings in the summer month bills of the sub-set of customers who voluntarily reduce their usage in response to the prices, or rebates, in critical peak periods. The AMI system would "enable" the customer to achieve those reductions by providing the price signals and by recording the customer's actual usage in response to those prices. A recent report prepared for the National Regulatory Research Institute (NRR) identifies

[1] If costs of controls for participants in dynamic pricing are included in amount to be recovered from all ratepayers.

numerous questions regarding the cost-effectiveness of these pricing approaches if they require an investment in AMI.[2]

Alternative Approaches

Utilities who propose investments in AMI typically propose replacement of all existing meters with new meters, a new network for two-way communication with those new meters and a new or upgraded computer system to support that enhanced communication and data collection. AMI falls under the category of "smart meters" or a "smart grid". However it is important to note utilities have a range of technologies and configurations from which to choose in order to reduce the costs of operating their distribution systems and improve communication with customer meters.

One alternative is Automated Meter Reading (AMR), which is less powerful (less functionality) than AMI but does enable the utility to reduce its meter reading costs and offers the possibility of enabling some form of dynamic pricing for the subset of customers who would voluntarily choose that approach. Over the past ten years numerous utilities have invested in AMR. It is possible that a utility with an AMR system could offer dynamic pricing on a targeted approach, i.e., to only those customers who wish to participate in dynamic pricing.

Other utilities have invested in load control and supporting infrastructure for only those circuits where such investments are clearly cost-effective. This targeted investment approach would very likely be much less expensive than an AMI approach that entails universal replacement of all existing meters and investment in supporting hardware and software. Under a targeted approach the utility targets its deployment of the necessary technologies to those circuits that are about to be over-loaded and/or that serve customers who exhibit a strong response to extreme weather conditions, e.g. hot summer days. A deployment strategy that is specific to the program design characteristics should prove to be significantly more cost effective than ones that take a blanket deployment approach as some segments of the system will not provide a cost effective demand response.

[2] Brockway, Nancy. *Advanced Metering Infrastructure: What Regulators Need to Know About Its Value to Residential Customers*. National Regulatory Research Institute, Columbus, Ohio. February 13, 2008.

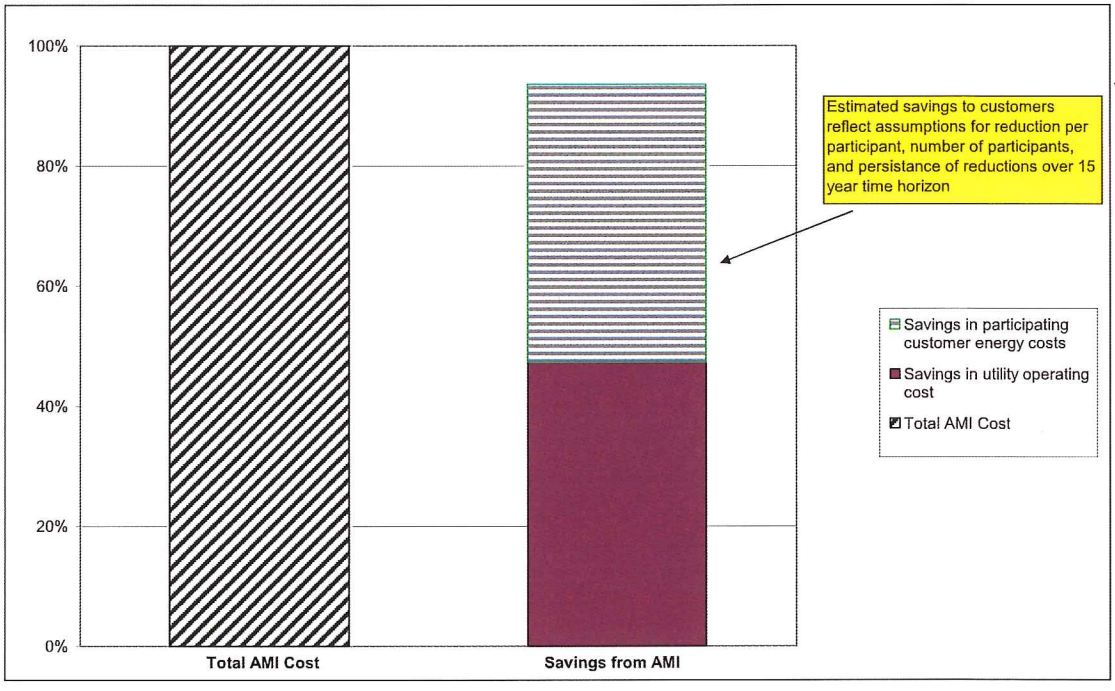
3. Forecast Savings in Utility Operating Costs from AMI Are Typically Not Large Enough to Justify an Investment in AMI

Investments in AMI lead to applications for rate increases because the projected savings in utility operating costs do not offset the full cost of the AMI investment. Instead those savings only offset a portion of that total investment.

A review of utility AMI proposals in California and Maine indicates that the forecast savings in utility operating costs from AMI systems are less than the total costs of these systems. The percentages range from 60% to 90%, with most closer to 60%[3]. Atlantic City Electric is projecting operational savings of approximately 50% of total AMI costs.[4] In these situations the utility proposing the investment in AMI typically projects savings to ratepayers from AMI-enabled dynamic pricing to help justify the investment.

The general relationship between the total cost of a utility investment in AMI, the projected savings in utility operational costs and the projected savings to ratepayers is shown in Figure 1. Note that Figure 1 does not include any additional investment on the customer side of the meter, such as switches or thermostats, which a customer might purchase to control individual appliances.

Figure 1 – Total Cost of AMI versus Savings in Utility Operating Costs Over 15 Years



[3] CA PUC, Decision 06-07-027, page 10; Pacific Gas and Electric Application 07-12, December 12, 2008 (sic), pages 8 and 9; C PUC, Decision 07-04-043, page 22; Rebuttal testimony of Stephen George, Maine PUC Docket 2007-215, pages 2 and 3

[4] Docket EO07110881, Atlantic City Electric "Blueprint for the Future" filing, November 19, 2007, Exhibit B, page 7

We expect that any utility in New Jersey that is proposing an AMI system, such as Atlantic City Electric, will eventually file for an increase in distribution service rates in order to recover the shortfall between the total cost of the AMI system and the projected savings in operating costs. (A utility that expects savings in annual operating costs from AMI to exceed the total cost of its AMI system would have no reason to seek recovery through a rate case filing. Instead, the utility could simply invest in AMI and reap the benefit of the resulting savings in operating costs in the form of higher earnings.)

4. Estimates of Incremental Savings to Ratepayers from AMI-enabled Dynamic Pricing Hinge upon Three Uncertain Assumptions

The estimates of savings to residential customers from AMI-enabled dynamic pricing hinge upon three key assumptions - the average reduction per participating customer, the number of customers who will participate and the long-term persistence of their reductions.

Dynamic Pricing

AMI-enabled dynamic pricing is simply a type of time-of-use or time-differentiated pricing. The utility uses the AMI system to "enable" customers to reduce their electricity use, particularly during CPPs. Under this approach the price for electricity use during a CPP is set quite high, perhaps five times greater than the normal rate, for example $0.80 per kWh versus $0.16/kWh. The utility notifies participating customers approximately one-day in advance of an upcoming CPP and uses the AMI system to record the customer's actual hourly use during the CPP. In order for participating customer to be reimbursed for a "reduction" during the CPP, the utility would compare the customer's actual use during the CPP to that customer's typical use. Thus, a customer's reduction during a critical peak on a Wednesday afternoon in July would be determined by comparing the customer's actual usage during that critical peak to its typical or baseline usage for Wednesday afternoons during July.

Dynamic pricing is distinct from utility direct load control (DLC) programs. Under a DLC program a customer allows the utility to control his or her central air-conditioning during CPPs. Since utilities do not require an AMI system to operate DLC programs, the reductions from DLC cannot be attributed as a benefit of AMI. In addition, since customers on DLC receive an incentive under the DLC program, dynamic pricing does not apply to their reductions in usage from DLC,

Assumption 1 – Average Reduction in Electricity Use during CPP by Participating Customers

Unlike DLC, an AMI system does not in any way "automatically" reduce customer electricity use. Instead, in response to the CPP price each participating customer must decide to take one or more actions in order to actually reduce his or her hourly usage relative to their reference or baseline usage. Those actions could include

- turning their central air conditioning down, or off, if they are not in a DLC program,
- turning window air conditioning unit(s) down, or off
- shifting clothes washing and drying from the CPP to another time
- turning a dehumidifier off
- shifting baking or dishwashing to another time

A Brattle Group[5] study of the benefits of AMI prepared for ACE estimated the average reduction in usage by residential customers who respond to dynamic pricing during critical peak periods based upon experience from other jurisdictions. Table 1 presents those estimated reductions, and the corresponding savings based upon a CPP price of $0.828/kWh.[6] For a residential customer on a DLC program, the value of incremental reductions in response to dynamic pricing (i.e., incremental to DLC reductions) is approximately $0.83 per event. For a residential customer not on a DLC program, the value of reductions in response to dynamic pricing is approximately $1.24 per event. Thus, for example, in a year with 8 critical peak periods or "events" these customers would save between $6.64 and $9.92. In contrast, New Jersey residential customers who participate in a DLC program receives either a free thermostat (installed), a $ 300 value, or $ 4 per month for June through September plus $1 per event (an annual value of $24 in a year with 8 events).

[5] Docket EO07110881, Atlantic City Electric "Blueprint for the Future" filing, November 19, 2007, Exhibit C, page 16

[6] Ibid, page 24

Table 1 Estimated Reductions and Savings of Residential Customers During Critical Peak Periods							
Program (Customer segment)	Reduction in Peak Use during Critical peak			Duration of critical peak (# of hours)	Price or rebate in critical peak period ($/kW)	Payment for reduction in each critical peak[7] $	Annual Payment in a year with 8 critical peaks[8] $
	Source of reduction	Size of reduction (kW)	Size of reduction as % of peak use				
Direct Load Control (Customers with central air conditioning)	Utility cycling of central air conditioning	1.2	48%	5	DLC participant incentives under DLC programs vary according to whether they have switches or thermostats.		
Dynamic Pricing – Residential customer in DLC program	Incremental Customer reductions in use of electricity (incremental to DLC reductions)	0.2	8%	5	$0.828	$0.83	$ 6.64
Dynamic Pricing – Residential customer not in DLC program	Customer reductions in use of electricity (other than central air-conditioning	0.3	16%	5	$0.828	$1.24	$ 9.92

Assumption 2 - Percentage of Customers Who Would Voluntarily Participate in Dynamic Pricing

Estimates of the percentage of residential customers who will voluntarily participate in, and respond, to dynamic pricing need to be scrutinized closely to determine if they are consistent with actual experience in other jurisdictions. For example, the Brattle Group study prepared for Atlantic City Electric estimates that, by 2014, approximately 50% of all residential customers would voluntarily participate in, and respond to dynamic pricing. That estimate, prepared by the Brattle Group, consists of all residential customers forecast to be participating in the ACE DLC program[9] plus 20% of the residential customers who are not participating in DLC.

Both components of that estimate are uncertain. The first component is the estimate of the number of residential customers who would be on DLC by 2014. The Brattle Group estimates that approximately 200,000 residential customers of ACE will be on DLC by

[7] Quantity of reduction (kW) * hours * price in CPP

[8] Payment for reduction in each CPP * number of CPP per year

[9] Docket EO07110881, Atlantic City Electric "Blueprint for the Future" filing, November 19, 2007, Exhibit C, pages 27 to 29

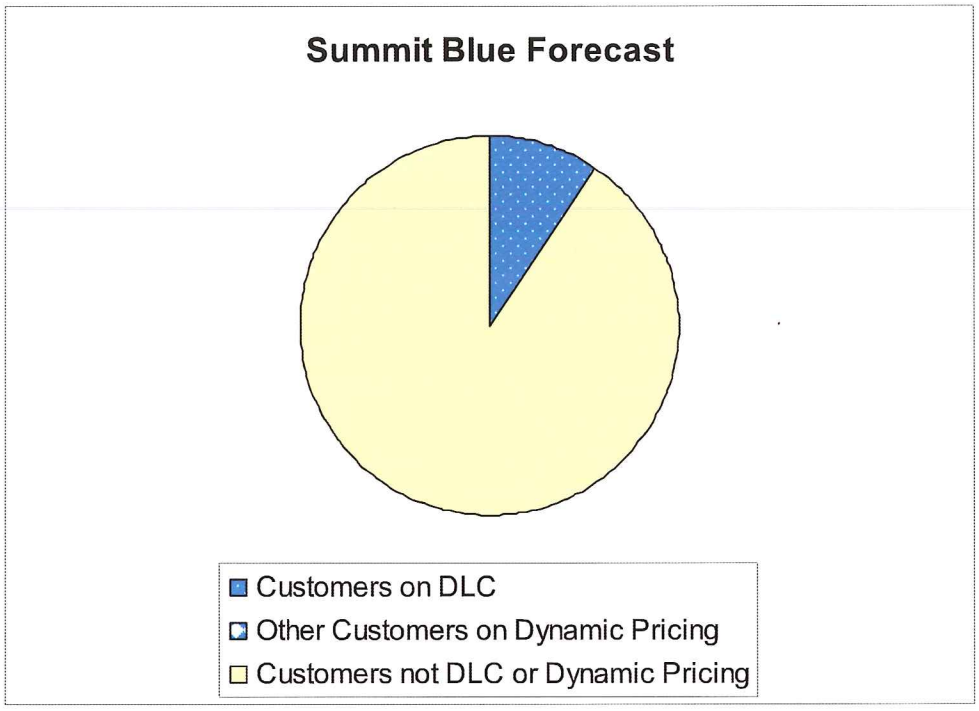
2014. This represents approximately 67% of residential customers with central air conditioning. Given the Company's assumption that about 55% of residential customers will have central air-conditioning, their participation estimate equates to 37% of all residential customers (i.e., 67% of 55% = 37%). The estimate of 67% participation is four times higher than the projection by another consultant, Summit Blue[10], of 17 percent. Summit Blue estimated that 17% of New Jersey residential customers with central air conditioning would participate in DLC if given the opportunity. Summit Blue developed their projection after reviewing actual participation levels in a number of DLC programs around the country. The Summit Blue estimate reflects various factors that limit participation by customers with central a/c, including the percentage of customers who would not be at home during critical peak events and the percentage that is either unable or unwilling to participate. The Summit Blue DLC participation estimate equates to 9% of all residential customers (i.e., 17% of 55% = 9%).

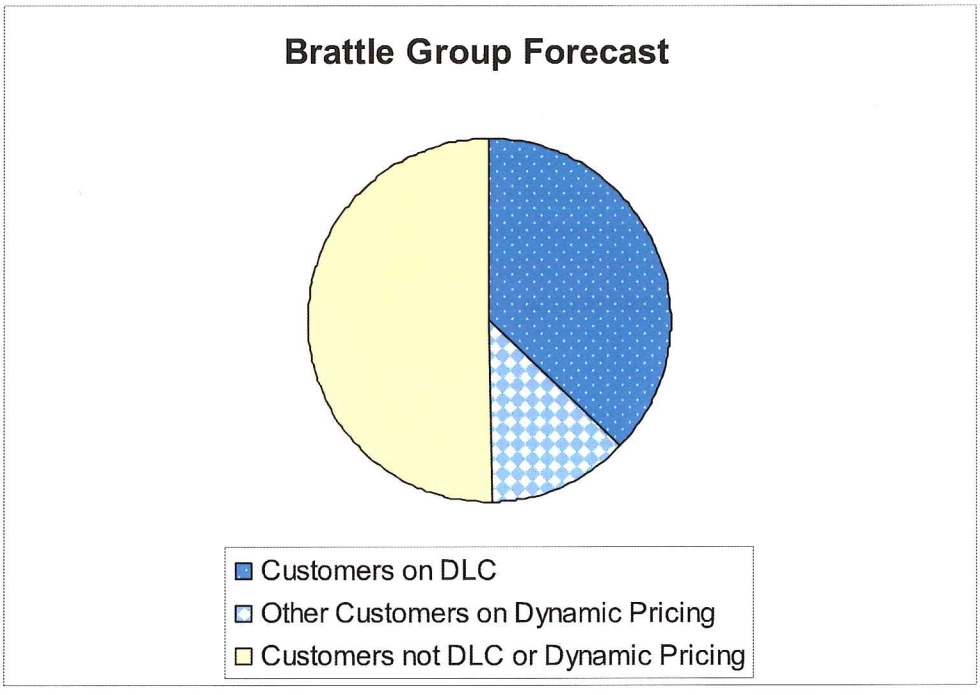
The second component is the estimate that 20 percent of residential customers not on DLC would voluntarily participate in dynamic pricing. That estimate is also open to question. If those customers are not on DLC it appears that they do not have central air conditioning, which offers the best opportunity to achieve significant reductions in electricity usage during critical peaks. Customers can turn other electric appliances down or off during peak periods, and shift some actions to off-peak periods, but these loads are much smaller than central a/c and hence produce much smaller savings. To the extent that this estimated participation is based upon participation by customers in pilots elsewhere, it is important to note that almost all such pilots use "appreciation payments" to elicit that participation. Therefore one can not draw any conclusions regarding the level of voluntary participation in the absence of such payments.

An illustration comparing the estimates of participation in DLC by Summit Blue, and in DLC plus dynamic pricing by the Brattle Group, is presented in Figure 2.

[10] Summit Blue Consulting, *New Jersey Central Air Conditioner Cycling Program Assessment*, June 4, 2007, page 47.

Figure 2: Forecasts of Residential Customer Participation in Direct Load Control (DLC) by Summit Blue and in Dynamic Pricing by Brattle Group





Assumption 3 - Long-Term Persistence of Reductions

The third key assumption underlying the estimated NPV of savings to residential customers from AMI-enabled dynamic pricing is the long-term persistence of the reductions of participating customers. The reductions during critical peaks must persist year after year for many years in order to actually avoid capacity costs as well as to aggregate over time to a meaningful NPV.

The primary source of savings from customer reductions in electricity usage during critical peaks are capacity costs that BGS suppliers serving those customers can "avoid" due to those reductions. However, in order for a BGS supplier to avoid the need to acquire that capacity it must demonstrate to PJM, the entity responsible for ensuring reliable service, that this is a long-term persistent reduction rather than a one-year or temporary phenomenon. A long-term reduction is essential because it takes several years in order to bring new capacity into service. Because of that lead-time PJM sets the quantity of capacity that a BGS supplier must hold to ensure reliability, referred to as its Installed Capacity requirement, several years in advance based upon a forecast of customer load during critical peaks. In order for PJM to accept a reduction during future critical peaks for capacity planning purposes it will need to be convinced that the reductions will persist in the long-term.

The long-term persistence of reductions in critical peak usage by customers on AMI-enabled dynamic pricing is unclear. The dynamic pricing pilot studies conducted elsewhere have only operated for a few years. The experience with time-of-use pricing in the past indicates that many customers tended to decrease their price-driven reductions after several years.[11]

Estimated Aggregate Savings to Ratepayers over 15 Years

The aggregate savings from the group of customers on AMI enabled dynamic pricing are less than the shortfall between the total cost of AMI and the forecast savings in utility operating costs. This was illustrated in Figure 1 based upon projected savings in electricity supply costs for the subset of customers forecast to voluntarily participate in the dynamic pricing "enabled" by AMI.

[11] Brockway, Nancy. *Advanced Metering Infrastructure: What Regulators Need to Know About Its Value to Residential Customers*. National Regulatory Research Institute, Columbus, Ohio. February 13, 2008.

5. AMI-Enabled Dynamic Pricing Will Not Produce Significant Reductions in Annual Air Emissions Associated With Annual Electricity Use

Utility investments in AMI will not automatically lead to lower annual emissions of air pollutants associated with annual electric energy use, such as carbon dioxide.

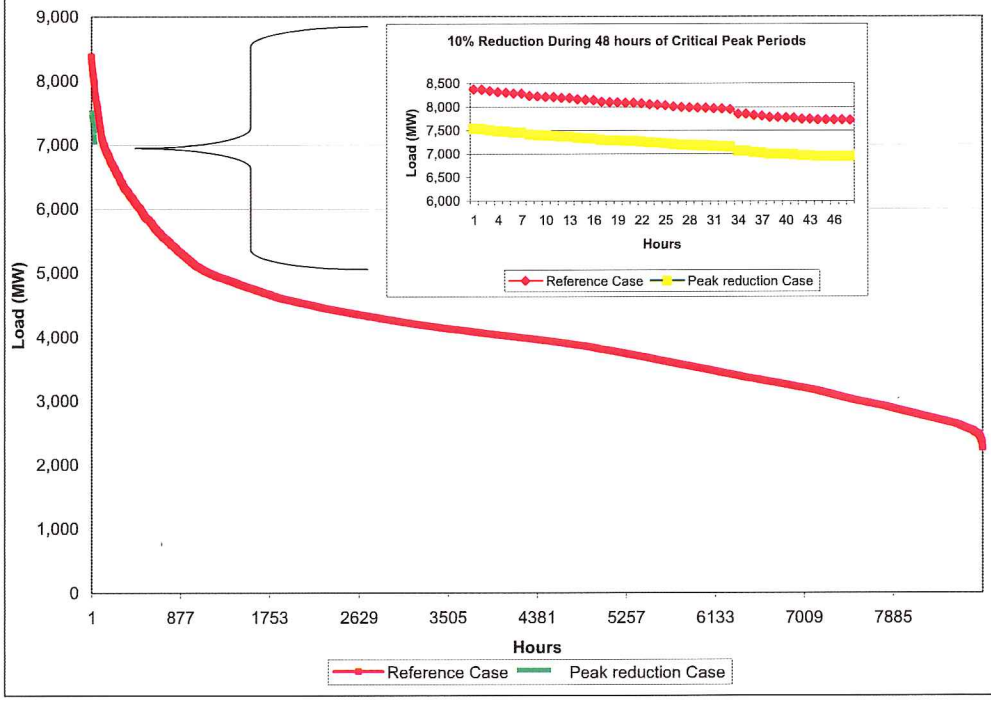
The majority of reductions in electricity use in response to AMI-enabled dynamic pricing are expected to occur during critical peaks, approximately 50 hours per year. In fact, the Brattle Group study prepared for ACE indicates that it expects participants to shift use from peak periods to off-peak periods, rather than completely reducing net electricity use.

Those reductions in electricity use during critical peak periods could reduce the number of hours older peaking units operate. Such reductions could in turn reduce nitrogen oxide emissions during those critical peaks and represent material reductions in annual NOx emissions, which are largely driven by electricity use in peak periods.

However, reductions from dynamic pricing will not lead to significant reductions in annual emissions of carbon dioxide and sulfur dioxide, since those emissions are a function of annual electricity use. In order to reduce annual air emissions from existing generating units significantly, and to delay the need for new generating units, customers must reduce their annual electricity use significantly.

Even if all residential customers reduced their usage by 10% in 48 peak hours each year, annual air emissions would not be reduced materially. This is illustrated in Figure 3.

Figure 3: Illustrative Load Duration Curve (8,760 hours)

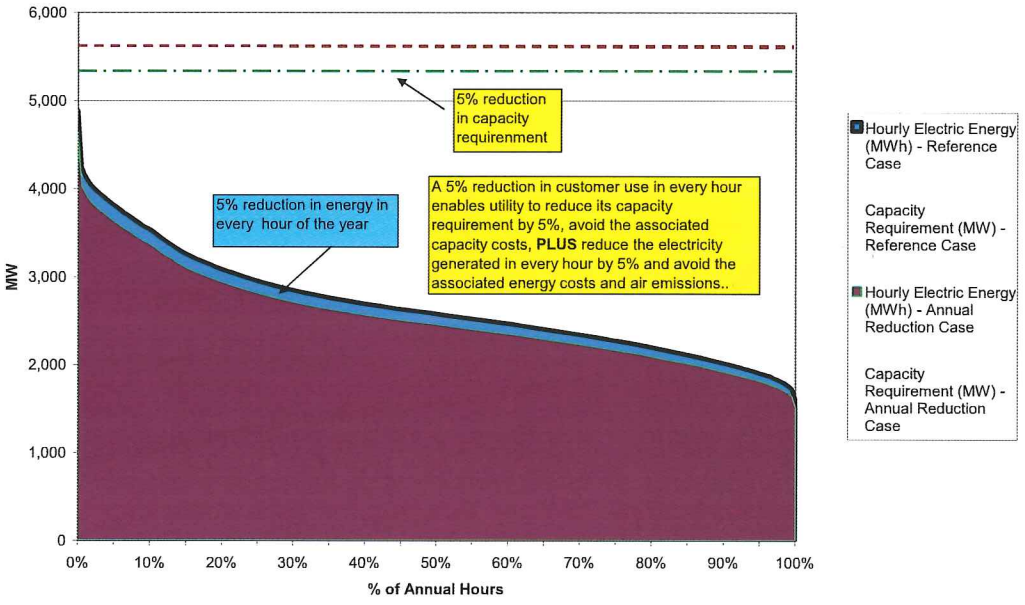


6. AMI-Enabled Dynamic Pricing is Not the Best Approach to Reducing Annual Electricity Use, and the Annual Bills and Annual Air Emissions Associated with that Annual Use

Utility investments in AMI are not the best approach to reducing the annual energy use of residential customers in New Jersey, or of the annual bills and annual air emissions associated with that annual electricity use. Those resource and cost savings can be achieved at less cost through investments in energy efficiency and direct load control. Neither of these existing programs requires AMI.

The difference in impacts between a reduction in electricity use during a few critical peaks, and a reduction in annual electricity use is illustrated in Figure 4. This chart illustrates the impact of a 5% reduction in annual energy use. In this example, customers install energy efficiency measures which reduce their electricity use by 5% in every hour of the year (e.g., 8,760 hours). In response to this permanent reduction BGS suppliers could reduce the quantity of capacity they hold by 5%, as well as reduce the quantity of electricity that needs to be generated in every hour by 5%. This 5% annual electricity generation reduction would produce a corresponding decrease in a participating customer's annual bill. It should also provide a corresponding reduction in air emissions, including avoided carbon dioxide associated with the avoided electric energy.

Figure 4: Impact of 5% Reduction in Annual Electricity Use



Conclusion

As this paper shows, utility investments in AMI are not the least cost approach to reducing the annual energy use of residential customers in New Jersey, or the bills and air emissions associated with that annual energy use. Those reductions in annual electricity use, annual bills, and annual air emissions can be achieved at less cost through investments in energy efficiency and voluntary participation in direct load control programs.