



THE COMMONWEALTH OF MASSACHUSETTS
OFFICE OF THE ATTORNEY GENERAL

ONE ASHBURTON PLACE
BOSTON, MASSACHUSETTS 02108

MARTHA COAKLEY
ATTORNEY GENERAL

(617) 727-2200
(617) 727-4765 TTY
www.mass.gov/ago

February 8, 2012

Mark Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: ***Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, D.P.U. 11-129 – Comments of the Attorney General***

Dear Secretary Marini:

On December 23, 2011, Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid (“National Grid” or “Company”) filed its revised plan for a smart grid program with the Department of Public Utilities (“Department”). Attorney General Martha Coakley (“Attorney General”) intervened on January 3, 2012. On January 23, 2012, the Department issued its Notice of Public Hearing setting February 9, 2012 as the deadline to file written comments relative to the filing. This letter will constitute the written comments of the Attorney General.

As will be described in more detail below, the Company’s proposed smart grid pilot is too large and too expensive for the informational value that it is likely to provide. Furthermore, the pilot design fails to take into account or acknowledge the results of other dynamic pricing and technology pilots, thus exacerbating the potentially adverse impact on ratepayers from pursuing a pilot of such a large scale and cost without any new information that is likely to result. A smart grid pilot of the scope proposed by the Company in this matter is unnecessary and will only serve to burden ratepayers with higher bills with very little value in return.

BACKGROUND

Section 85 of the Green Communities (“GCA”) requires each electric distribution company to file a proposed plan with the Department to establish a smart grid pilot program. In response, on

April 1, 2009, the Company filed a plan with the Department. *See* initial filing in *Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid*, D.P.U. 09-32, dated April 1, 2009 (the “2009 Pilot”). After a full adjudicatory proceeding, including extensive evidentiary hearings, the Department deferred approval of the 2009 Pilot pending review of the Company’s marketing and evaluation plans. *Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid*, D.P.U. 09-32, July 27, 2010 Order at 72. On February 11, 2011, the Company, for various reasons, moved to withdraw its 2009 Pilot. The Department approved the Motion on March 4, 2011.

On December 23, 2011, the Company filed a new Pilot which, the Company says, “maintains many of the features of the original pilot proposed by the Company in D.P.U. 09-32.” *Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid*, D.P.U. 11-129, December 22, 2011 filing letter at 1. The Company states that the estimated cost of the proposed pilot program is cheaper than the 2009 Pilot by over \$12 million.

The Company’s proposed pilot program would encompass 15,000 homes and business in the Worcester area with an estimated cost of \$44.6 million (or \$2,973 per meter). As stated above, and as will be described more fully below, the Attorney General believes that the Department should not approve the Company’s Pilot.

I. Section 85 of the Green Communities Act

Section 85 of the GCA provides:

On or before April 1, 2009, each electric distribution company shall file a proposed plan with the department of public utilities to establish a smart grid pilot program. Each such pilot program shall utilize advanced technology to operate an integrated grid network communication system in a limited geographic area. Each pilot program shall include, but not be limited to advanced (“smart”) meters that provide real time measurement and communication of energy consumption, automated load management systems embedded within current demand-side management programs and remote status detection and operation of distribution system equipment. On or before April 1, 2009, each electric distribution company shall file a proposal with the department of public utilities to implement a pilot program that requires time of use or hourly pricing for commodity service for a minimum of 0.25 per cent of the company’s customers. A specific objective of the pilot shall be to reduce, for those customers who actively participate in the pilot, peak and average loads by a minimum of 5 per cent. The department shall work with the electric distribution companies to identify specific areas of study, and may incorporate and utilize information from past relevant studies or pilot programs. The department shall review and approve or modify such plans on or before August 1, 2010. Plans which provide for larger numbers of customers and can show higher bill savings than outlined above shall be eligible to earn incentives as outlined in an approved plan. The programs filed by the distribution company shall include proposals for rate treatment of incremental program costs; provided, however, that such program costs shall be deemed by the department to be a cost of basic service and recovered in rates charged for basic service.

Following the completion of the pilot programs, the secretary of energy and environmental affairs shall submit a report to the joint committee on telecommunications, utilities and energy not later than September 1, 2012 detailing the operation and results of such programs, including information concerning changes in consumer's energy use patterns, an assessment of the value of the program to both participants and non-participants and recommendations concerning modification of the programs and further implementation.

II. Summary of the Company's Smart Grid Pilot Plan

National Grid proposes a 15,000 smart meter pilot (customer facing) and a distribution automation technologies pilot (distribution facing) that is estimated to cost \$44.4 million (compared to the estimated cost of the 2009 pilot of \$56.3 million). The pilot will be located in the same area of Worcester as the 2009 pilot, but will eliminate some of the feeders included in the 2009 pilot.

The customer facing program consists of enrolling 15,000 residential customers in an "opt out" pricing program consisting of a Critical Peak Pricing tariff that would charge residential customers \$0.05 for off peak usage, \$0.07 for peak usage (which can be called for up to 30 events, 8 hours, maximum of 175 hours per year), and \$0.63 per kWh for critical peak usage (defined as events called within the peak periods during the year)." Customers will be allowed to "opt out" during the first 30 days of the program by filling out and sending in a form, and those customers will then be returned to Basic Service and offered a Peak time Rebate in which the customer will be paid \$0.3877 cents per kWh for reducing usage during specified critical peak periods. Customers will be offered four different technology options:

Level 1: customers will have access to a website with "advanced energy information" and more detailed usage information will be presented on the bill;

Level 2: In addition to Level 1, customers will receive an in home display (IHD) that will provide the detailed usage data with pictures from the new smart meter;

Level 3: In addition to Level 1, the participants will receive a thermostat or automated HVAC control that will receive load signals from the utility and automate load reductions during critical events;

Level 4: Participants will receive all of above with load control devices that will use a "home gateway device" that "facilitates advanced web and/or mobile control."

Customers will be provided with an annual bill protection guarantee (comparing 12 months bill calculations under the CPP with the Basic Rate).

There is a significant increase in the number of in-home devices of all kinds proposed for this pilot compared to the 2009 pilot. The total budget for this portion of the pilot is \$24.1 million. This amount includes a \$2.4 million education plan and a \$1.154 million evaluation plan.

The distribution facing proposal is composed of a number of separate technologies and projects that include: Advanced Distribution Automation, Advanced Capacitor control, Advanced Grid Monitoring, Remote Fault Indication, and Real time Grid Information. The proposed budget for these projects is \$19.5 million.

The testimony of Peter Zschokke, Director of Regulatory Strategy for National Grid USA Service Company, Inc., presents estimated customer bill impacts based on the recovery of customer facing technology costs from Basic Service customers and Distribution Grid technologies from all distribution customers. Exh. PTZ-1 at 23. The Company intends to recover costs on a per kWh basis. A 500 kWh customer would pay a total of \$0.65 cents per month in year 1 (\$7.80 per year), \$0.39 cents per month in year 2, and \$0.25 cents per month in year 3. A 1,000 kWh customer would pay \$15.60 in additional costs for year 1. There are no presentations or discussions in the Company's proposal of what this program would cost if it were implemented system wide. Nonetheless, based on the costs of this pilot, it would be one of the most expensive smart grid pilots undertaken in the country when viewed on a per customer or per meter basis. The larger Commonwealth Edison (ComEd) pilot discussed below in more detail was estimated to cost \$77 million to install and test 130,000 new smart meters and associated communication systems, and conduct a "customer applications" or dynamic pricing pilot for 8,000 customers. However, ComEd's pilot resulted in a surcharge cost to all customers which averaged less than \$.40/month for the residential customers.

National Grid states that it intends to undertake significant "pre-pilot approval" actions before the Department approves this pilot in the 1st Quarter of 2012, including testing and training at the Milbury, MA Training Center, installation of 5,000 meters (called the Early Field Trial) and certain distribution technologies. Exhibit CAW-1 at 36 and Exhibit CAW-3 ("Deployment Plan, Scheduled Steps"). This means that the Company intends to deploy new meters at customer homes without any Department approval of this pilot or the educational materials that the Company is using to inform customers of this new meter and the upcoming pilot program.

The Company filed an Education Plan with its proposal. EHW-2. The Education Plan does not inform customers of the costs of the pilot or the costs of deploying these meters and associated technologies, particularly the in-home technologies. As a result, customers will be incited to participate in a program at no apparent cost to them and without any understanding of the real costs and benefits associated with this particular program, let alone full deployment based on the results of this program.

While the Company's filing claims in various locations that it has relied on customer input for this proposal, the only evidence for that is reference to the Worcester Green2Go Summit. The only materials provided from that two-day meeting are included in the Education Plan, Exhibit EHW-2, Appendix 2, at 31-34. There is nothing in these materials that documents any consultation with the summit participants on the design or cost of this pilot. In fact, the list of "opportunity areas" "explored" at the Summit does not even include pricing programs. *Id.* at 32.

There is no information provided in the Company's pilot proposal that suggests that there was a discussion of costs versus benefits associated with "going green" or involving the utility on behalf of its ratepayers. The Company's efforts seem to have related to local community development. One of the only definitive results from the Summit is an ongoing attempt to create a Sustainability Hub in Worcester (an on-site display with all the new technologies, learning center, school projects, training, etc), which National Grid mentions several times through this pilot application. However, the Sustainability Hub is not included in the pilot program budget and is being explored as joint project with the local community and vendor partners. EHW-2, Appendix 3.

III. Lessons Learned from Other Smart Grid Programs

The Department should evaluate this proposed pilot, particularly its scope and scale, in light of the significant body of smart grid research and analysis that has occurred around the country over the past several years. Based on the various opt-in pilot programs, it has been well documented that critical peak pricing and peak time rebate programs will result in peak load reduction. However, none of these dynamic pricing programs, whether accompanied by in-home technologies or not, have documented any statistically valid overall usage reduction. Furthermore, many of these pilots, including the recent pilot conducted by Fitchburg Gas & Electric, have failed to document any significant impact due to the installation of expensive in-home technologies, with the significant exception of programmable thermostats that are linked to a direct load control program. Finally, as explained further below, the one large opt-out dynamic pricing pilot most similar to that proposed by National Grid here failed to document any statistically valid peak load reduction or overall usage reduction.

The recent results of the ComEd smart grid pilot program undertaken in Illinois, which is summarized in several publicly available evaluation reports, are instructive. In October, 2009 the Illinois Commerce Commission approved ComEd's pilot after a six-month workshop process with all stakeholders. The pilot consisted of approximately 100,000 meters in the Company's Maywood Operating Area (the I-290 corridor of the Chicago area composed of suburban communities) and 30,000 meters in the Chicago metropolitan area.

During the review of the proposed pilot program, the ICC also approved a smaller subset of the meters to be used as a test of dynamic pricing programs and home energy management tools (a "Customer Applications Pilot" or CAP). This test of approximately 8,000 residential customers is one of the largest in the country, and the only one of its kind to be designed as an "opt-out" test of dynamic pricing like National Grid's proposal.

The purpose of the CAP was to determine if customers would change their usage behavior, i.e., use less overall or use less during certain peak pricing periods. If one or more of the pricing and technology options could be predicted to have a significant impact if operated on a full scale basis, these actions could result in lower electricity prices for all customers. The rates that the CAP tested included:

- An inclining block rate, where the customer pays more for each block of use – e.g. 7.5 cents for the first 100 kWh, 9.5 cents for the second 100, 12.5 cents for the third;
- Day Ahead or Hourly Pricing based on wholesale market price indicators;
- A "critical peak price" which imposes a very high price for energy use at designated "critical peak" times, such as from noon until 5 p.m. Customers using electricity during those times are charged more than they are at all other times; and
- A "peak time rebate" which does the same thing as a critical peak price but instead of charging more, customers who use less energy during peak hours receive a bill credit.

ComEd provided customers with in-home display units showing energy consumption and price, as well as programmable control devices to regulate home heating and air conditioning systems.

In most cases, the in-home technologies were provided at no cost to the customer, but in order to measure customer receptivity to such devices, some portion of the customers were offered the devices for a nominal fee.

ComEd contracted with a third-party, Electric Power Research Institute (EPRI), to conduct an evaluation of the CAP, and with another third party, Black & Veatch, to conduct an evaluation of the AMI cost-benefit analysis, or business case, based upon the larger 100,000 AMI technology pilot's operational performance. Of relevance to National Grid's proposal is the EPRI Report on the Customer Applications Pilot. EPRI issued a preliminary report on April 5, 2011¹ and a final analysis in October 2011.² EPRI's reports presented findings on whether customers who were put on a variety of dynamic pricing programs and offered in-home technology options modified their energy usage and consumption patterns during the pilot which was operated from June 2010 through May 2011.

Overall, EPRI found:

- None of the treatment cells (combinations of pricing and technology options) demonstrated a statistically valid overall usage reduction or a statistically valid peak load usage reduction. As a result, ComEd could not verify any of its hypotheses that the various pricing programs coupled with the various in-home technology options would result in a statistically valid change in customer usage behavior.
- EPRI found little evidence of overall energy conservation.
- A comparison of the load impacts across price and enabling technology applications did not reveal statistically significant effects attributable to TOU or to any of the enabling technology applications coupled with the pricing applications. However, at the end of the three months, only 10% of the applications had been installed or were working correctly.
- EPRI noted there was a very low uptake on the in-home devices. Less than 10% of the programmable thermostats that were intended were in fact installed. As a result, the impact of these devices on customer response to CPP and PTR is obscured. Very few customers purchased in-home devices; only 2% who were offered the device for a fee purchased it. Other customers were offered the in-home device at no additional charge, and of those, 34% installed the basic in-home display and 13% installed the advanced in-home display.
- Customer satisfaction with their pricing plan was in the range of "average" (overall score of 5.6 with 0 as "extremely dissatisfied" and 10 as "extremely satisfied"), and in all pricing options, satisfaction levels were lower than satisfaction with ComEd overall as their utility.

Despite these clear trends, the Company proposes to launch a massive pilot at great ratepayer expense to test already tested hypotheses.

¹ *The Effect on Electricity Consumption of the Commonwealth Edison Customer Application Program Pilot: Phase I*, EPRI, Palo Alto, CA: 2011, 1022703. ComEd selected EPRI to conduct the evaluation of its pilot program.

² *The Effect on Electricity Consumption of the Commonwealth Edison Customer Application Program Pilot: Phase 2 Final Analysis* EPRI, Palo Alto, CA: 2011, 1023644 (October 2011).

IV. Conclusion

National Grid is proposing to test a program that is (1) four times larger than the requirements for a Section 85 pilot and would result in customer bill impacts higher than any pilot program of which this office is aware; (2) contains no evidence to support its claim that the proposed opt out pricing program has any probability of resulting in at least a 5% reduction in overall usage or 5% reduction in overall peak load demand; (3) includes an over-reliance on a high priced critical peak price rather than a peak time rebate, which is being deployed as the “default” dynamic pricing program in Illinois, Maryland, Delaware, and for two large California utilities; (4) will test a form of enrolling customers in dynamic pricing (opt-out) that is highly unlikely to be implemented in Massachusetts, since it would require the Department to radically change the nature of Basic Service and require customers to enroll in dynamic pricing unless they affirmatively opted out, an approach to pricing essential electricity service that no other State has adopted; (5) relies on the installation of expensive in-home technologies (in home displays) that no utility in the U.S. is offering its customers at this time and that are unlikely to result in a successful cost-benefit analysis for a full scale deployment; and (6) fails to conform to its stated intent with regard to its promises set forth in the Company’s Motion to Withdraw the 2009 pilot in that there was no real consultation with consumers on the design, cost, or tariffs associated with this proposed program.

Given these deficiencies and the results of other smart grid pilots around the country, the Attorney General strongly recommends that the Department reject the proposed pilot as filed and require the Company to propose a more modest, less expensive pilot.

Sincerely,

/s/ Patrick J. Tarmey

Patrick J. Tarmey

Assistant Attorney General

Massachusetts Attorney General

Office of Ratepayer Advocacy

One Ashburton Place

Boston, MA 02108

(617) 727-2200

cc: Service list