



Via electronic mail - January 31, 2012

Mark D. Marini, Secretary
Department of Public Utilities
One South Station - 5th Floor
Boston, Mass. 02110

Re: **Comments of Northeast Energy Efficiency Partnerships (NEEP)
Under Massachusetts Department of Public Utilities (DPU) Order No. 11-120
Net Savings and Environmental Compliance Costs of the Energy Efficiency Programs**

Mr. Marini,

On behalf of Northeast Energy Efficiency Partnerships (NEEP),¹ please accept these comments in response to the Department of Public Utilities Notice of Investigation and Request for Comments regarding Order 11-120, "Investigation by the Department of Public Utilities on its own Motion into Updating its Energy Efficiency Guidelines."

EXECUTIVE SUMMARY

In Order 11-120, the Department has indicated that it is interested in two specific issues with regard to energy efficiency program benefits that are included in cost-effectiveness determination: (1) the method used to calculate program net savings; and (2) the method used to calculate reasonably anticipated environmental compliance costs, in particular those associated with the emission of carbon dioxide (CO₂).

Per the Department's request for comments, NEEP submits that it is absolutely necessary for changes to be made to current cost effectiveness methodologies to both better value the significant CO₂ reduction benefits resulting from the energy efficiency programs, and to better account for all program benefits, including those that may not qualify due to existing practices regarding net savings calculation.

Accordingly, NEEP urges the Department to **convene as soon as practicable one or more technical sessions** to examine these two issues in order to be sure that all potential avenues for improving upon program review have been analyzed and appropriately considered for adoption prior to the filing of the next three-year gas and electric energy efficiency plans.

¹ These comments are offered by NEEP staff and do not necessarily represent the view of NEEP's Board of Directors, sponsors or underwriters.



INTRODUCTION

In its order opening this investigation, the Department noted that:

“As the Program Administrators pursue the goal of acquiring all available cost-effective energy efficiency resources, it becomes increasingly important to ensure the accuracy and reliability of the benefits included in the analysis of program cost-effectiveness.”

Further, the Department made the observation in its orders approving the first three-year gas and electric energy efficiency plans developed under the Green Communities Act (GCA) that:

“In the future, as the Program Administrators pursue the goal of acquiring all available cost-effective energy efficiency resources, benefit cost ratios for some programs will likely be considerably lower than presented here. This potential trend heightens the importance of ensuring the reliability of the benefits included in the TRC test.”

NEEP applauds the DPU for opening this investigation and recognizing the need to evolve our collective thinking as to how ratepayer funded energy efficiency programs are being screened for cost-effectiveness. In our work across the Northeast region, it has become increasingly apparent that issues related to cost-effectiveness are hindering the ability of program administrators to meet the aggressive savings goals being set under the GCA and other public policy directives.

As the Department has acknowledged, the Total Resource Cost (TRC) test directly impacts the ability of the Commonwealth to realize the long-term vision for clean energy that has been articulated by the GCA. Energy efficiency has been identified as a vital public policy priority for Massachusetts to help meet the energy needs of residents and businesses in the quickest, cleanest and most cost-effective way. As such, the procurement of energy efficiency resources needs to be regulated in a manner consistent with their recognized ability to assist the state in meeting imperative public policy goals.

In addition to providing our reasoning for the need to examine alternative methodologies for calculating these two elements that define program cost effectiveness, we also make reference below to research that is currently underway by the EM&V Forum to specifically address the issue of net savings. While we recognize the need for the Department to as expeditiously as possible provide guidance to the program administrators to inform their 2013-2015 joint plan (which is due to be filed by April 30, 2012), we would suggest that the Department consider both interim and final steps to this process such that the results of the research can be incorporated into the final program administrator plans. In this way, the research and analysis being conducted by the EM&V Forum on the topic of net savings (which



will involve MA stakeholder input as Forum members), can both inform and be informed by the analysis being done in Massachusetts.

1) METHODS USED TO CALCULATE PROGRAM NET SAVINGS

In its order, the Department referenced several studies that have been undertaken to analyze net savings calculation methodologies, including a 2010 study conducted through NEEP's Regional Evaluation, Measurement and Verification (EM&V) Forum.² NEEP's study concluded that, given aggressive new savings goals in Northeast states, including Massachusetts, as well as many additional influences promoting energy efficiency that make it more difficult to isolate the impact of the energy efficiency programs alone, it was worth examining potential new options for determining savings attributable to program activity.³

For example, for efficiency programs implemented in any year prior to the program year being reviewed, the earlier program activity may have created spillover effects during the study year. As a result, current participants who appear not to have been directly influenced by the energy efficiency program may have been influenced by the program in prior years – but may be characterized as program “free riders” in the current program year, and disqualifying those program savings as being outside of “net” program savings. Further, the existing approaches for measuring net savings do not account for any of the impacts that additional or complementary elements of the program portfolios may have had on participants.

It is clear that energy savings can be affected by factors outside of the programs, including additional efficiency programs being offered by others, economic conditions, changes in energy prices, behaviors influenced by concerns about the environment or climate change, technological advances, peer pressure, and any of a number of other factors. For these reasons, it has become evident that the traditional methods of measuring net savings fall short in being able to accurately measure those savings attributable to programs.

There are also a number of shortcomings with the actual methods being used to measure program free ridership versus program spillover. For example, for many programs, the most common method for attributing savings is based on customer self-reported data from surveys. Even the net-to-gross methodology recently applied to residential lighting, which makes up a significant share of program activity and savings, requires customer self-reported data from surveys. However, in addition to concerns about the reliability of such results due to response

² The EM&V Forum is made up of energy regulators from states across the region.

³ For more information about NEEP's Net Savings Scoping Paper or ongoing activities related to net savings, see: www.neep.org/emv-forum.



bias, it is difficult to attribute the influence of any given program year's participation by a customer from the influence of previous years as well as from all the other media influences on customers' decisions about lighting purchases in this rapidly evolving market.

Since capturing all cost-effective energy efficiency is the stated goal of programs implemented under the Green Communities Act, it is vital that the Department looks critically at its methods for determining net savings to ensure that they are consistent with that goal. As currently applied, the net savings calculation methodologies disqualify far too high a percentage of energy savings being realized under the efficiency programs, and are leaving the Commonwealth well short of capturing and counting all cost-effective energy efficiency.

Research underway to inform net savings determinations

Residential Lighting Strategy - In addition to the aforementioned scoping paper on net savings completed as part of NEEP's EM&V Forum, we have also recently completed a Residential Lighting Strategy report⁴, the goal of which is to assess the current status of the residential lighting market in the Northeast relative to existing public policy goals and develop broadly accepted strategic guidance for efficiency program activity for the next generation of residential lighting programs.

This report includes brief consideration of some of the difficulties in obtaining accurate and reliable estimates of net to gross relationships with the approaches currently available to program administrators, for measures promoted in rapidly changing markets, such as residential lighting. Residential lighting programs in the region illustrate how current approaches to net savings may be deficient. One major challenge is where to draw boundaries when trying to assign attribution of program effects.

NEEP's report notes that program effects are likely cumulative over multiple years; they overlap multiple programs – from upstream promotions, residential and commercial retrofit and new construction programs – and they may be attributable to multiple actors in the marketplace rather than to a specific state or program administrator. Unintended consequences associated with current approaches can include understatement of savings, overly conservative program efforts, and diversion of attention from the overarching policy goals.

Lighting Market Lift - NEEP's EM&V Forum has also initiated a project to collect detailed retailer sales data on residential lighting for Forum sponsors via an upstream program design referred to as "market lift." Data collection is planned to begin in June 2012. This strategy

⁴ This report will be released on www.neep.org in the first quarter of 2012.



holds promise as an opportunity for more rapid, comparable, and reliable estimates of net to gross ratios in the region. This project addresses another major challenge to the accuracy of net savings, specifically the limited availability and quality of data with which to measure/assess net savings in rapidly changing markets.

Current approaches used to estimate net to gross ratios for upstream lighting promotions make use of data that is costly and difficult to obtain and may not be consistently available over whole market areas, including comparison areas and over extended time periods. Evaluations to understand impacts directly attributable to programs and customer behavior are important to regulators and program designers, respectively. However, a focus on the short-term aspects of programs measured as net savings or net-to-gross ratios runs the risk of misaligning short-term program designs and long-term policy goals of achieving all cost-effective energy efficiency.

For residential lighting, current approaches to measurement of net savings can lead to decisions that obstruct higher levels of socket saturation and lead to misalignment with aggressive efficiency goals as well as possible neglect of awareness of environmental benefits, such as carbon emission reductions, from the gross impacts of efficiency. For example, in the state of New York, a free-ridership study resulted in a 2011 Public Service Commission finding that ratepayer-funded lighting programs should no longer promote CFL products, despite the fact that a 2010 market survey revealed *only 25 percent socket saturation* in New York City.

Net Savings Study - Currently, the Forum is conducting a study of net savings to 1) develop and seek regional adoption for consistent definitions of adjusted gross savings and net savings and 2) critically review representative energy and environmental policies in the region with respect to what metrics are used to measure progress toward policy goals. Completion of this project is planned for second quarter of 2012, with draft definitions expected in March.

The goal of this project is to increase transparency and consistency in how the terms gross and net savings are used and understood with the understanding that a common language is a necessary requirement in order to meaningfully discuss and address what is being measured, how it is being measured, and possible changes to measurement approaches or policies across programs and/or states.

We note that a preliminary finding is that how net savings measurements are used varies in the region. For example, gross savings from programs in the state of Maine are reported, but net parameters are assessed to inform program planning. In New Hampshire and Maryland, gross savings are reported, per regulatory orders. In Vermont both net and gross are reported.



Uniform EM&V Methods Project - Lastly, the EM&V Forum is participating in a national effort facilitated by the U.S. Department of Energy called the Uniform EM&V Methods Project, the goal of which is similar in scope and builds on the Forum's [Regional EM&V Methods and Savings Assumptions Guidelines](#). It addresses six priority measures: Residential & Commercial Lighting; commercial HVAC Systems; Refrigerator Recycling; Whole-house Retrofit; and Lighting Controls.

The ultimate document will include: a) Glossary; b) Uniform M&V Methods for each measure; c) and cross-cutting evaluation issues (e.g., sample design, statistical analysis, metering, etc.). A Net-to-Gross Technical Advisory Group is planning to develop a chapter with guidance on approaches to net savings estimation as part of this effort, which will build on or incorporate Forum products and Massachusetts' recent study on free ridership and spillover effects. The schedule for completion of the DOE project is by the end of 2012.

2) METHODS USED TO CALCULATE CO₂ EMISSIONS REDUCTIONS BENEFITS FROM EFFICIENCY PROGRAMS

The second question posed by the Department involves the method used to calculate reasonably anticipated environmental compliance costs, in particular those associated with the emission of carbon dioxide. NEEP respectfully suggests that, in light of the fact that the Massachusetts Clean Energy and Climate Plan for 2020⁵ identifies the ratepayer-funded energy efficiency programs as essential to achieving CO₂ reductions to meet the Act's goals, the current method for calculating environmental benefits significantly undervalues the actual benefits and need to be adjusted upward to more appropriately reflect the reasonably anticipated costs of compliance.

Current practice simply internalizes the cost of purchasing carbon emission allowances to comply with the Regional Greenhouse Gas initiative (RGGI) and any federal CO₂ cap-and-trade program that is presumed to begin in 2018. This practice does not, however, include any costs of complying with the Global Warming Solutions Act or any other mandates to reduce carbon emissions. Thus, the benefits relating to avoiding those costs through increased energy efficiency undervalue the cost-effectiveness of the ratepayer-funded energy efficiency programs.

The importance of this issue is illustrated by a recent analysis performed by a consultant to the Energy Efficiency Advisory Council (EEAC) that showed that, due to falling natural gas prices, not fully accounting for all of the benefits of the Commonwealth's gas efficiency programs could result in some 30 percent of the 2012 savings targets for those programs

⁵ The plan developed by the Commonwealth in compliance with the Global Warming Solutions Act of 2008.



failing to qualify as cost effective – unless a more accurate cost of environmental compliance is used in those cost effectiveness calculations.⁶

If the energy efficiency programs are constrained by lower benefit-cost ratios resulting from low natural gas prices and the failure to account for the true avoided costs of carbon, then the programs will not only fall short of fully realizing energy savings that are broadly understood to be available, but will also fail to sufficiently contribute to the greenhouse gas reduction goals mandated under the Global Warming Solutions Act.

Further, taking a longer-term view now of environmental compliance costs will provide for more cost-effective solutions over the time frame for greenhouse gas reductions mandated under the Global Warming Solutions Act, which calls for an 80 percent reduction in GHG emissions by 2050. In simplest terms, the value of carbon set by the Department now will determine the level of energy efficiency investments for measures that have effective measure life beyond 2020, when costs of carbon reduction measures will only rise.

Therefore, NEEP submits, the principal issue before the Department is arriving upon the best method for determining avoided environmental compliance costs – particularly those required through the Global Warming Solutions Act. Such an exercise could be undertaken through a technical session, during which a number of potential options may be examined.

NEEP wishes to emphasize two important points with regard to examining methods for calculating costs of environmental compliance. The first is that establishing a more appropriate cost for avoided carbon does not mean that such costs will be reflected in higher customer utility rates, since the Department would simply be developing a cost estimate to more properly assess efficiency program cost-effectiveness. This is further ensured by the fact that the Green Communities Act also requires the Department to continue to review rate and bill impacts of the programs mandated under the Act to identify and avoid any adverse impacts on consumers.

Lastly, assigning a value to avoided carbon emissions does not mean that energy prices would be raised by a similar amount, or that the cost of efficiency measures will reflect that value. As the Department is well aware, the average efficiency measures cost roughly three times less per kilowatt-hour than the current avoided cost cap. As we have seen historically in energy the efficiency programs implemented in Massachusetts and around the country, new technological developments continue to offer new and cost effective ways of saving energy – keeping efficiency as our cheapest energy resource.

⁶ Jeff Schlegel, EEAC Consultant, DOER Informational Webinar, 2011 Regional Avoided Costs (AESC) Study: Implications for 2012 Energy Efficiency Programs and Avoided Carbon Compliance Costs for Massachusetts: Background and Two Potential Options (September 9, 2011).



SUMMARY

NEEP greatly appreciates the opportunity to comment on these important proceedings, as the outcome will significantly impact the degree to which Massachusetts is able to reach its public policy goals as articulated through the Green Communities Act and the Global Warming Solutions Act.

We look forward to the Department participating in, learning from, and informing ongoing research that NEEP's EM&V Forum is undertaking on the topic of net savings, and extend to the Department an offer to provide any assistance we can as part of this proceeding.

Sincerely,

A handwritten signature in black ink that reads "James J. O'Reilly". The signature is written in a cursive, flowing style.

James O'Reilly, Director of Public Policy
Northeast Energy Efficiency Partnerships (NEEP)

A handwritten signature in black ink that reads "Julie Michals". The signature is written in a cursive, flowing style.

Julie Michals, Director of the Regional EM&V Forum
Northeast Energy Efficiency Partnerships (NEEP)