MEMORANDUM

TO: New Hampshire EESE Board stakeholders
FROM: Jim O'Reilly, Josh Craft, and Natalie Treat, NEEP
DATE: March 18, 2014
RE: Bill and Rate Impacts of an Energy Efficiency Resource Standard in New Hampshire

The New Hampshire General Court is considering legislation that would prioritize energy efficiency as the state's first order energy resource because of its economic benefits to state consumers and to help transform markets in favor of energy efficient products and building practices. One such bill is HB 1129, "An Act Establishing a Committee to Study Energy Efficiency."[1] In addition, the Public Utilities Commission has initiating a working group to study issues relating to the implementation of the energy efficiency resource standard (EERS).

A key topic of discussion regarding new investments in energy efficiency resources is their impact on customer energy rates. In general, policies that prioritize cost-effective energy efficiency resources allow utilities to recover those investments from charges on all utility customers.

Ratepayer funding sources include system benefits charges, energy efficiency charges included in the overall distribution charge, and lost revenue adjustment mechanisms, such as decoupling, that allow utilities to recover fixed costs to maintain the energy distribution system. Funding from ISO-New England's Forward Capacity Market (FCM) and Regional Greenhouse Gas Initiative (RGGI) auction proceeds supplement ratepayer funds as well.

The rate impacts of energy efficiency must be carefully balanced against the significant energy and non-energy benefits that energy efficiency resources offer to New Hampshire customers. This memo provides information gleaned from the experiences of neighboring states that have had to address rate and bill impacts resulting from increased investments in energy efficiency. We have also included talking points to address the concerns with the bill and rate impacts of an expanded New Hampshire energy efficiency resource standard.

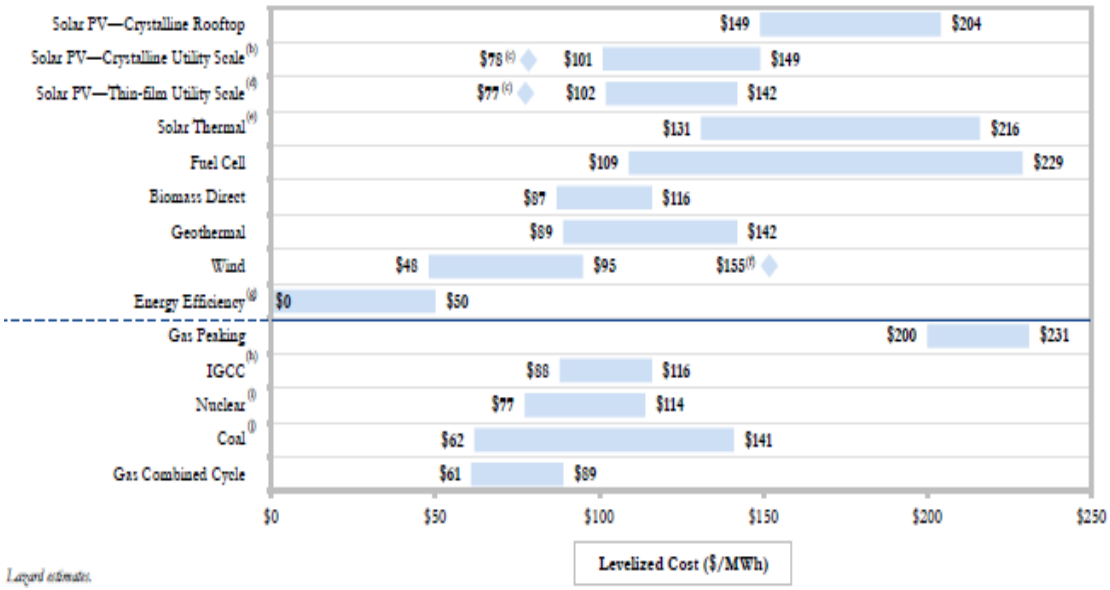
Talking Point #1: Energy Efficiency Is New Hampshire's Least Cost Energy Resource

Energy efficiency measures provide similar value as supply-side energy resources, such as fuel supplies and transmission and distribution infrastructure, but at a lower cost. Energy efficiency thus provides an important option for customers that allow them to reduce their energy costs while maintaining their economic productivity. Recent analysis by Lazard[2] shows

[1] http://www.gencourt.state.nh.us/legislation/2014/HB1129.html
[2] Lazard Associates, Levelized Cost of Energy Version 7.0, August 2013, http://gallery.mailchimp.com/ce17780900c3d223633ecfa59/files/Lazard_Levelized_Cost_of_Energy_v7.0.1.pdf.

that energy efficiency investments continue to be significantly less expensive than new supply options, (as you can see in the following chart):

Energy Efficiency Costs Less than Other Resources, by Far



Data provided to NEEP for its Regional Energy Efficiency Database (REED) supports this analysis, finding that the cost of saved energy in the region is approximately 4.8 cents/kWh, significantly lower than the cost of electric supply at between 8 and 10 cents/kWh.[3] (Note that this price for electric supply reflects the fuel price only and does not represent the full electricity retail price of over 14 cents/kWh, which includes capacity costs and transmission charges.[4])

Additionally, energy efficiency investments are carefully screened by the New Hampshire Public Utilities Commission (PUC) to ensure that they are cost-effective. That means that all **energy efficiency programs approved must deliver benefits greater than the costs** from installing energy efficiency measures in homes and businesses.[5] This ensures that energy efficiency investments through rates create more value for New Hampshire residents and

[3] See http://neep-reed.org/Disclaimer.aspx?Source=http://neep-reed.org default.aspx.

[4] Average retail electricity price for New Hampshire for all customer classes. Data from U.S. Energy Information Agency's Electric Power Annual 2012, Table 2.10 released December 2013, http://www.eia.gov/electricity/annual/.

[5] We note that New Hampshire's cost-effectiveness screening test that determines which programs are to be approved is conservative in that it compares only the energy system benefits (i.e., reduced electricity and capacity costs, avoided T&D costs, and line losses) and some savings in oil and other unregulated fuels with the costs to ratepayers and to program participants. It does not account for participant benefits, such as reduced operations and maintenance expenses, health and safety gains, comfort and productivity, or environmental externalities.

businesses than the expenses incurred. Regulatory proceedings in neighboring states with significantly larger energy efficiency investments confirm that these programs continue to operate with high benefit-cost ratios[6]:

Benefit-Cos Ratios of Efficiency Program Portfolios

State	Lifetime Benefits	Benefit-Cost Ratio
Maine (2013)	$142 million	3.2
Rhode Island (2012)	$140 million	2.2
Vermont (2012)	$118 million	3.3

Finally, energy efficiency charges should be viewed in the context of the entire bill, as they make up a small portion of total energy bills even for states with aggressive energy efficiency portfolios. For example, in Massachusetts, where energy efficiency investments are more than three times the level of New Hampshire, the state Attorney General's Office – the constitutionally-mandated ratepayer advocate – estimated that the charge represents about 5 percent of a total electricity bill for residential and commercial and industrial customers.[7] Compare this to the current transmission charge for PSNH residential customers, which at about 1.9 cents/kWh is more than double the efficiency charge in neighboring states with aggressive energy savings programs.[8]

Talking Point #2: Energy Efficiency Programs Provide Benefits to All Customers

Energy efficiency investments are known to deliver significant benefits to program participants. The majority of customers will participate in one or more energy efficiency program offerings over a given period of time. But energy efficiency investments also deliver value to all electricity and gas customers, regardless of whether or not they participate in energy efficiency programs. Those benefits include:

Avoided transmission and distribution costs: Energy efficiency investments help to defer and avoid future transmission and distribution expenses. ISO-New England found that state energy efficiency policies have helped to defer over $420 million in transmission costs as a result of energy efficiency and other planning efforts on the part of New England states. That

[6] Information comes from state annual energy efficiency reports from Maine, Rhode Island, and Vermont available online.

[7] Sandy Merrick, Office of Ratepayer Advocacy, Massachusetts Attorney General's Office, "Impact of Renewables and Efficiency on Consumer Bills, March 20, 2013, slides 3 & 8, http://www.mass.gov/eea/docs/eea/energy-policy-commission/2013-03-20-ag.pdf.

[8] See https://www.psnh.com/downloads/Summary_of_Rates.pdf?id=4294967859&dl=t. For more, see Environment Northeast, "Escalating New England Transmission Costs and the Need for Policy Reforms," June 2011, p. 14, http://www.env-ne.org/public/resources/pdf/ENE_EscalatingNETransmissionCostsandNeedforPolicyReforms_20110630_Final.pdf.

avoids future transmission and distribution costs for all customers,[9] regardless of whether those customers participate in programs or not.

***Reduced prices in wholesale energy markets**:* Energy efficiency programs reduce the quantity of demand in wholesale energy and capacity markets, which reduces the prices for energy and capacity in those markets. This reduction in energy costs, known as the Demand Reduction Induced Price Effect or "DRIPE," benefits all customers whether or not they participate in an efficiency program.[10]

Risk Mitigation: Energy efficiency resources help to reduce vulnerability to risks for New Hampshire ratepayers from fuel price volatility, potential costs of new environmental regulations, and reduce uncertainty around future energy and peak loads.[11]

Local Economic Development: Energy efficiency resources generally create more local economic value than supply-side resources, as efficiency measures come from the construction and retail sectors. Recent analysis of the potential savings from an EERS shows that energy efficiency investments can support greater economic development in New Hampshire than traditional energy resource options.[12]

Talking Point #3: Analysis Shows Positive Economic Impacts, Moderate Rate Impact

Recent analysis done for New Hampshire, Rhode Island and Massachusetts finds that energy efficiency investments required to achieve "all cost-effective efficiency" would have positive economic benefits for customers, with modest rate impacts. This analysis does not account for the significant non-financial benefits to program participants and to society from energy efficiency measures, such as occupant health and safety, productivity and comfort gains, reduced air emissions or avoided future environmental compliance costs.

Rhode Island: Rhode Island has an aggressive energy efficiency program and its electric energy efficiency charge has expanded to about $0.00896/kWh.[13] Bill and rate analysis for the

[9] ISO-New England, Energy Efficiency Forecast Presentation to NH EESE Board, February 21, 2014, slide 23, http://www.puc.state.nh.us/EESE%20Board/Meetings/2014/20140221Mtg/ISO-NE%20Energy-Efficiency%20Forecast%20Presentation%202.21.14.pdf.

[10] See the 2011 report "Avoided Energy Supply Cost in New England," p. 6-30, http://www.synapse-energy.com/Downloads/SynapseReport.2011-07.AESC.AESC-Study-2011.11-014.pdf.

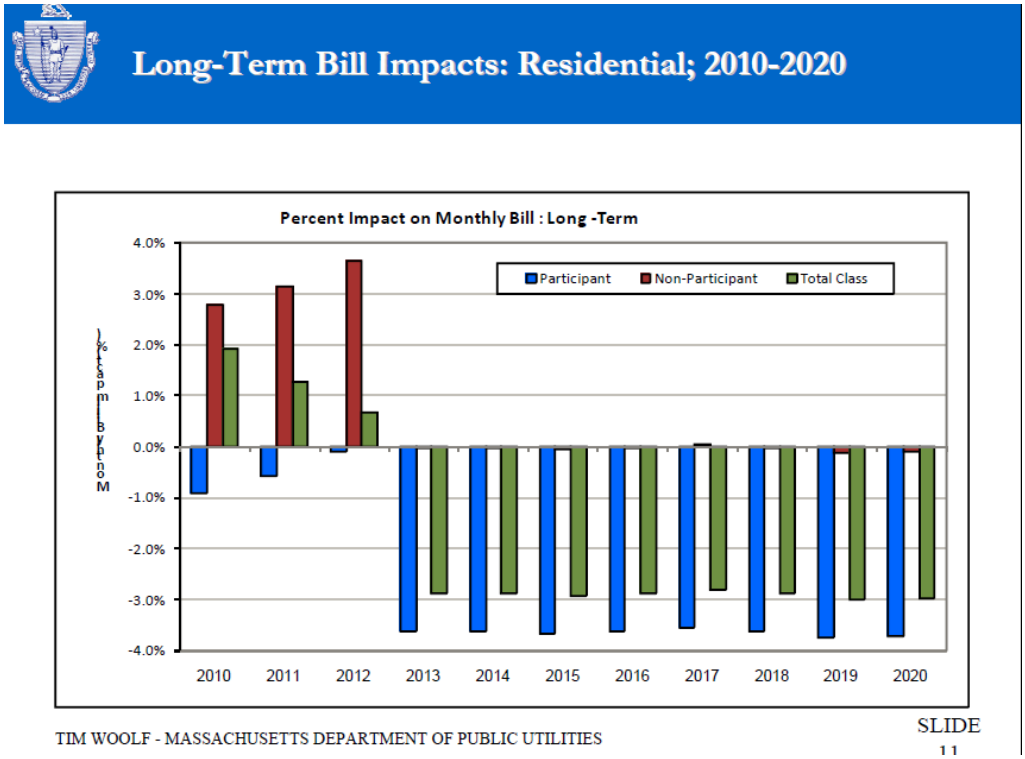
[11] See Jim Lazar and Ken Colburn, "Recognizing the Full Value of Energy Efficiency," Regulatory Assistance Project, September 2013, http://www.raponline.org/event/recognizing-the-full-value-of-efficiency-theres-more-layers-in-the-layer-cake-than-many-account.

[12] Vermont Energy Investment Corporation & GDS Associates, "Increasing Energy Efficiency in New Hampshire: Realizing Our Potential," November 15, 2013, p. 67, http://www.nh.gov/oep/resource-library/energy/documents/nh_eers_study2013-11-13.pdf

[13] Rhode Island Public Utilities Commission, Order of National Grid's 2014 Energy Efficiency Program and System Reliability Procurement Report, December 24, 2013, http://www.ripuc.org/eventsactions/docket/4451-4453-NGrid-Ord21298_12-24-13.pdf

Rhode Island Division of Public Utilities estimates that the long-term rate impacts over 10 years are likely to be between 0.7 percent and 1.5 percent, with most program participants seeing a reduction in electricity bills.[14]

Massachusetts: Massachusetts has perhaps the most robust energy efficiency investment levels in the region for its customers, with annual budgets of about $550 million for its electric programs and $185 million for its natural gas programs. An independent report by the Analysis Group found that the state's energy efficiency and renewable energy programs will add $1.2 billion in *net* value to the Massachusetts economy and help create about 16,9000 jobs by 2025.[15] And analysis of the bill and rate impacts of the 2010-2012 energy efficiency programs by former Massachusetts Department of Public Utilities (DPU) Commissioner Tim Woolf finds that they would result in average monthly bill *savings* of almost 3 percent for the average customer through 2020 (as illustrated in the graphic below).[16]



[14] Tim Woolf & Jenn Kallay, Synapse Energy Economics, Memorandum to the Rhode Island Division of Public Utilities & Carriers, February 5, 2014, p. 1, http://www.ripuc.org/eventsactions/docket/4443-DPU-Memo-Woolf_2-11-14.pdf.

[15] Paul Hibbard, et al., Analysis Group, "The Impacts of the Green Communities Act on the Massachusetts Economy: A Review of the First Six Years of the Act's Implementation," March 4, 2014, p. 4 , http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Analysis_Group_GCA_Study.pdf.

[16] Tim Woolf, Massachusetts Department of Public Utilities, "Bill Impacts of Energy Efficiency Programs," National Association of Regulatory Utility Commissioners (NARUC), Winter Meeting, February 15, 2010, Slide 11, http://www.narucmeetings.org/Presentations/Woolf-efficiency-bill-impacts.pdf.

***New Hampshire**:* The recent New Hampshire Energy Efficiency Resource Standard (EERS) study conducted by Vermont Energy Investment Corporation and GDS Associates estimates that if New Hampshire were to invest in all cost-effective electric and gas efficiency resources, the average residential electric customer would see a reduction in their bills of about $5 and the average commercial customer would see a reduction of $70 by 2017.[17]

Conclusion

Based upon experiences from states in our region that have significantly expanded their investments in energy efficiency (e.g., Rhode Island, Vermont, Massachusetts and Maine), New Hampshire policymakers can expect a nominal impact on rates accompanied by significant energy cost savings on consumer bills.[18] The overall benefit of the state's economy can be significant and positive because energy efficiency resources will deliver reductions in energy market prices, deferred energy infrastructure costs, and provide opportunity for local economic development, especially in comparison with traditional supply-side energy options.

Key References

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[17] VEIC & GDS Associates, p. 71-72.

[18] It should be noted that Connecticut has also enacted a law directing that all cost-effective energy efficiency be procured on the part of that state's electric and gas customers, but that analysis regarding the rate and bill impacts from that directive have not yet been completed.

Tim Woolf, Massachusetts Department of Public Utilities, "Bill Impacts of Energy Efficiency Programs," National Association of Regulatory Utility Commissioners (NARUC), Winter Meeting, February 15, 2010, http://www.narucmeetings.org/Presentations/Woolf-efficiency-bill-impacts.pdf.

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