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Acadia Center
Advancing the Clean Energy Future

Acadia Center comments on
DE 15-137
Energy Efficiency Resource Standard

Acadia Center supports the establishment of an Energy Efficiency Resource Standard in New Hampshire, and commends the Public Utility Commission for its efforts in soliciting stakeholder input and seeking to make forward progress on this essential issue. We submit the following comments on how an EERS should optimally be designed to maximize benefits for ratepayers in the state.

Benefits of an EERS for the state

Energy efficiency has a multitude of benefits. For customers, efficiency investments lower utility bills now and in the future, improve comfort, health and safety, and provide them with more control and understanding of their energy use. For the grid, efficiency increases reliability and resiliency, reduces peak demand and delays or avoids the need for new capacity. For the local economy, these investments create local jobs, give businesses a competitive edge, and lower energy prices for all. And for the environment, efficiency reduces air pollution, water use and greenhouse gas emissions.

Economic benefits of energy efficiency investments

New Hampshire spent $4.5 billion on fossil fuel imports in 2013,[1] and nearly all of this money flows out of the state. Investing in energy efficiency is significantly less expensive than purchasing electricity. New Hampshire's Core energy efficiency programs have a benefit to cost ratio of 2:1, and have saved electricity at an average cost of $0.0226 per kWh from 2002-2013,[2] while the average retail electricity price in New Hampshire in 2013 was $0.14 per kWh.[3] While it may seem counterintuitive, raising the System Benefits Charge (SBC) to fund energy efficiency substantially reduces ratepayer bills and additionally produces the following systemic benefits:

- job creation in the energy efficiency and construction industry;
- GHG emissions reductions;
- savings on fossil fuel imports; and

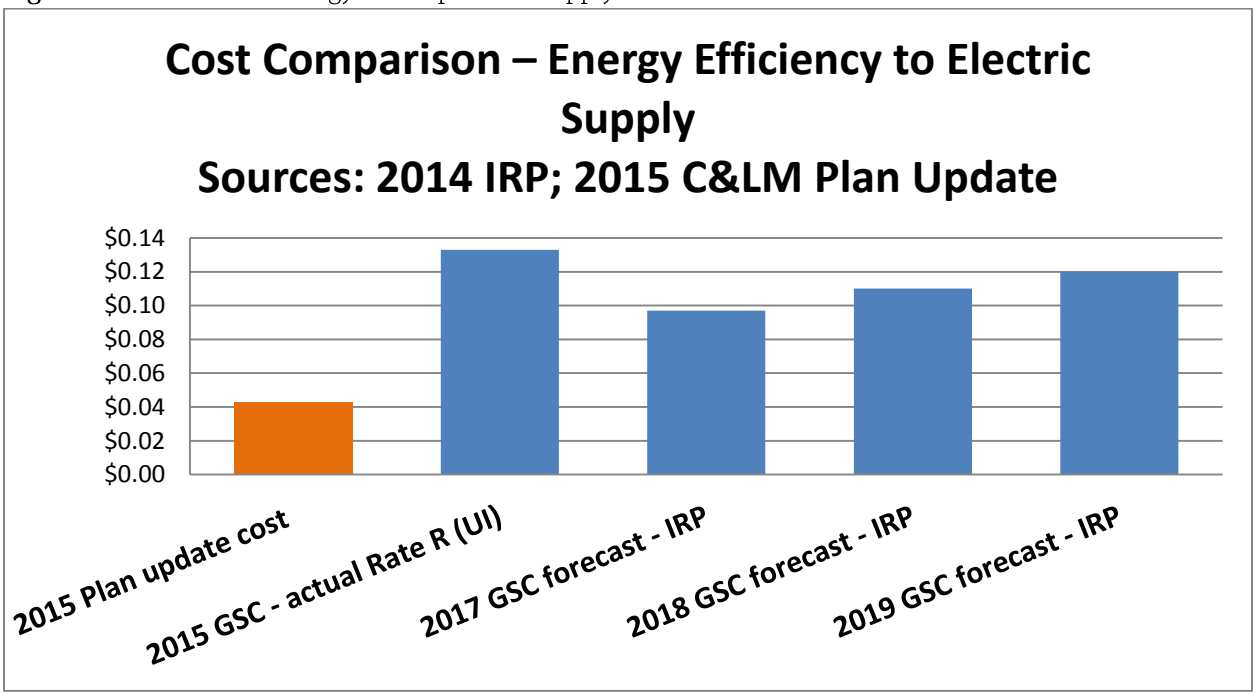
[1] Information on fuel imports and prices available at: http://www.eia.gov/state/seds/seds-data-complete.cfm?#PricesExpenditures

[2] RGGI auction revenue for energy efficiency is directed through the Core energy efficiency programs. New Hampshire PUC, *Results and Benefits of the System Benefits Charge*: *Annual Report*, October 2014: http://www.puc.state.nh.us/Results%20and%20Effectiveness%20Of%20The%20System%20Benefits%20Charge,%202014%20Annual%20Report.PDF.

[3] EIA: http://www.eia.gov/. EIA has yet to release complete data for 2014 electricity prices.

- downward pressure on wholesale electricity prices.[4]

Figure 1. Cost effective energy is cheaper than supply



Source: CT Energy Efficiency Board. GSC refers to the generation-only portion of ratepayer bills

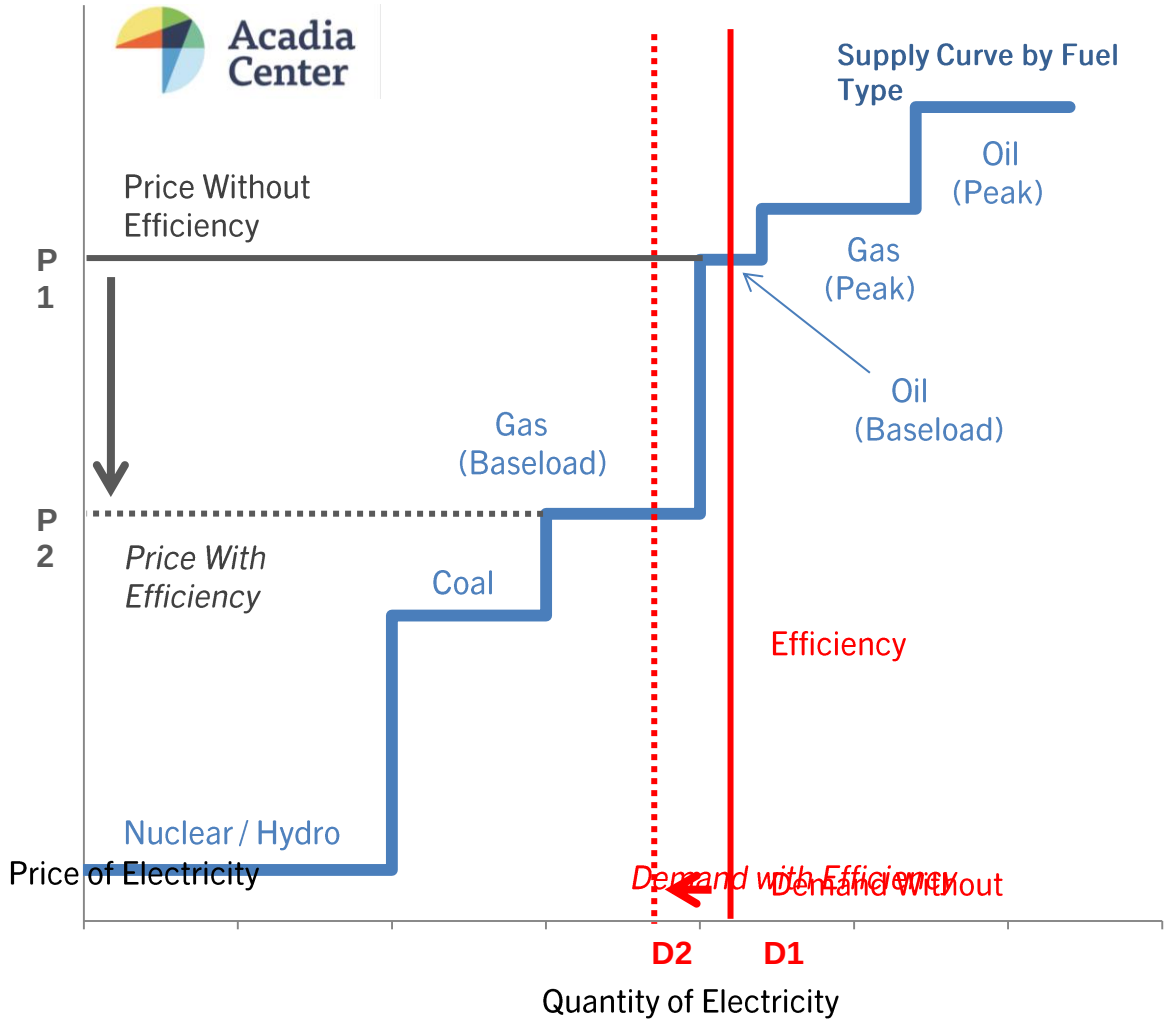
In 2009, Acadia Center conducted a study to quantify the macroeconomic impacts of increasing energy efficiency investments in New England, where efficiency had at the time recently begun its rise as a leading role in energy policy[5]. Annual efficiency program budgets were modeled to ramp up in New Hampshire to $92 million for electricity, $14 million for natural gas, and $45 million for unregulated fuels. Benefits from increased efficiency investments in New Hampshire were shown to be significant for each fuel type. Increasing efficiency program investments to levels needed to capture all cost-effective electric efficiency over 15 years ($1.4 billion invested by program administrators) would increase economic activity by $14 billion (2008 dollars), as consumers spend energy bill savings in the wider economy. Sixty percent of increased economic activity ($8.4 billion) would contribute to the gross state product (GSP), with $7.1 billion returned to workers through increased real household income and employment equivalent to 76,000 job years (one full-time job for a period of one year). The 15 years of increased natural gas efficiency ($219 million invested by program administrators) would increase state economic activity by $4.1 billion, boost GSP by $2.4 billion, and increase household income by $2.0 billion while creating 19,000 new job years of employment.

Efficiency programs (residential, commercial and industrial) can help reduce generation costs for *all* ratepayers, not just for those that implement efficiency projects in their own home or business. When homeowners or businesses implement efficiency measures in their buildings they directly save on their

[4] Energy efficiency savings drive down electricity prices through a process known as the Demand Reduction Induced Price Effect (DRIPE), which benefits all electric consumers in the region.
[5] The full report, Energy Efficiency, Engine of Economic Growth is available at http://acadiacenter.org/document/energy-efficiency-engine-of-economic-growth/

electric and gas bills because of lower energy usage. While they see the greatest immediate benefit, all ratepayers in the state also benefit from the reduced demand. For example, a study in Vermont found a $25 million benefit to ratepayers from the rate impacts of one year's efficiency spending in the state.[6]

Figure 2. How Efficiency Lowers Electricity Prices



This happens through two mechanisms:

1. ***Less demand means lower prices in the forward capacity market.*** The need for and cost associated with new power plants to meet regional demand is reflected in the forward capacity market. Energy efficiency will lower the forecasted need for new energy, and thus brings prices down in that market relative to what they would be without efficiency.

[6] http://www.puc.state.nh.us/Electric/REPORT%20on%20SBC%20TO%20THE%20LEGISLATIVE%20OVERSIGHT%20COMMITTEE%202015%20Report%2010-01-15%20Final.pdf

2. ***Less demand means lower wholesale electricity prices.*** Reduced demand for energy causes reduced load on the grid. Electricity prices are set by the marginal cost of generation – when demand peaks during the busiest hours, the most costly, least efficient generating facilities are brought on line to meet demand, and due to the way the wholesale market functions, all generators are paid that higher price for those hours. Reducing overall demand, particularly during peak hours, can reduce the need for the costliest generators to be used.[7] Figure 2 below is an illustrative example of the economic theory behind these savings.

Furthermore, if other states in the ISO-NE market continue to greatly increase efficiency investments and reduce their relative regional share of energy demand, New Hampshire's share of regional transmission costs will increase.

How New Hampshire compares to surrounding states

While New Hampshire's efficiency programs have provided a host of benefits to the state, it is falling increasingly behind it neighbors. New Hampshire ranked #20 on the 2015 State Energy Efficiency Scorecard, released October 22nd by the American Council for an Energy-Efficient Economy (ACEEE), a national nonpartisan organization. While the state is up two places since last year, it is still far behind all of its neighbors in New England - Massachusetts (#1), Vermont (#3), Rhode Island, (#4) Connecticut (#6), and Maine (#14). Table 1 shows examples of savings targets from neighboring states.

Table 1. Approved or approval-pending* savings targets for some of the New England states[8]

State	2016		2017		2018	
	Electric	Gas	Electric	Gas	Electric	Gas
MA*	2.93%	1.24%	2.93%	1.24%	2.93%	1.24%
RI	2.55%	1.05%	2.6%	1.10%		
CT*	1.42%	0.57%	1.52%	0.62%	1.60%	0.63%

Proposed Energy Efficiency Resource Standard

Proposed savings targets

Relying on savings rates achieved from the existing Core program budget will leave a large amount of potential cost-effective efficiency savings on the table in the first two years. The Commission's analysis of the existing Core programs finds they are currently achieving efficiency at a rate of 0.68% of retail electric sales, while in gas the level is 0.62%, and recommends in its Straw Proposal initial targets of .65% and .68% respectively. The proposal then ramps electric savings targets up to only 1.31% by 2025. We believe that these rates are low and based on recent experience in other states, it would be readily achievable to ramp electric savings up to 2.5% in the service territories under the PUC's authority in a three year period, similar to targets in Massachusetts and Rhode Island.

[7] This is often referred to as "demand reduction induced price effect" or DRIPE.

[8] Exact data for Maine was not available at this time, but is roughly 1.6% for electric efficiency in the proposed triennial plan for 2017-2019

Acadia Center proposes that the EERS establish the following savings targets, as a percent of retail sales. The long-term goal of the EERS would be to achieve all-cost effective efficiency savings. Acadia Center believes that the savings targets should be approved on 3-year cycles, with performance incentives tied to adherence to the annual interim targets. However, we feel it is important to specify short-term goals for the first period to provide certainty. As Table 1 shows, ramping up to a 2.5% savings target would put New Hampshire in line with surrounding states.

Table 2. Proposed savings targets

Year	Electric		Natural Gas	
	Annual	Cumulative	Annual	Cumulative
2017	1.2%	1.2%	.75%	.75%
2018	1.8%	3.0%	1.0%	1.75%
2019	2.5%	5.5%	1.25%	3.0%
2020	2.5%	8.0%	1.25%	4.25%
2021	2.5%	10.5%	1.25%	5.5%
2022	2.5%	13.0%	1.25%	6.75%
2023	2.5%	15.5%	1.25%	8.0%
2024	2.5%	18.0%	1.25%	9.25%
2025	2.5%	20.5%	1.25%	10.5%

CORE programs would be able to transition to a three-year planning cycle after completion of the current 2015-2016 cycle. A three-year cycle would provide a more efficient planning process.

Funding

In the absence of enabling legislation, funding for the EERS needs to come from existing PUC authority. This would be accomplished by increasing the Systems Benefit Charge ("SBC") and the Local Distribution Adjustment Charge ("LDAC") to the level needed to achieve the above savings targets. The Commission has not raised the SBC since 2001. While raising the SBC has a political dimension, energy efficiency is the least cost resource and is therefore the most responsible use of ratepayer money.

Compared to other participating RGGI states, New Hampshire is only directing a small portion of allowance revenue to efficiency programs. While outside the scope of this docket, Acadia Center strongly recommends that 100% of allowance proceeds be allocated to efficiency in the state, which would reduce the amount of additional SBC revenue to meet the proposed targets.

Utility incentives

Decoupling breaks the link between the utilities' profits and their sales volume, enabling the utilities to become full partners in energy efficiency and clean resource investments.

Decoupling changes only the way utilities are compensated for their distribution costs. Consumers pay two major fees on their gas and electric bills: one is for the energy they use and another is for the utility's cost of delivering the energy to them. Distribution costs are a component of the delivery charge, and they include the capital investments and expenses associated with the delivery system, such as those for poles, distribution

lines, substations, and personnel. Although these costs are relatively constant in a given year, consumers pay for them, in part, through a charge based on the amount of energy they use.

With decoupling, the distribution charges are adjusted annually so that the utility does not collect more or less than it is allowed by the state regulators, regardless of any consumer change in energy consumption.

Decoupling, which removes utility disincentives to promote efficiency and demand-side investments, can complement, and in fact enhance, performance-based programs which give utilities *incentives* to implement strong efficiency and demand-side programs. These performance-based incentives are also essential to maximizing investment in efficiency and demand-side resources.

A commission established by Senate Bill 60 met this fall to investigate the implementation of decoupling for New Hampshire utilities. The commission found that no legislation should be proposed to require decoupling and the PUC should continue to consider decoupling on a case-by-case basis during rate case proceedings.

Acadia Center believes that, given this recommendation, the PUC should require decoupling during the next rate case for each utility.

Administration and Stakeholder Council

Acadia Center believes that there is the ability and need for uniform programs across service territories. Eversource has a strong track record of delivering large efficiency savings and working with stakeholder boards in Massachusetts and Connecticut, states with multiple program administrators offering coordinated efficiency programs.

As in New Hampshire, most efficiency programs in the United States are administered by electric and gas utilities, and program structure and budgets are typically addressed through hearings or dockets before state utility commissions. An alternative which has seen success in neighboring states (MA, RI and CT) is to supplement this with a stakeholder council or board to oversee planning and administration of programs through a collaborative effort.

This arrangement helps ensure that efficiency programs enjoy a broad base of stable support. Decisions are made through consensus instead of an adversarial process. This results in a fairer process with increased stakeholder buy-in. It also increases the efficiency and productivity of decision making and dramatically reduces the duration and complexity of the efficiency plan approval process at the utility commission level.

The stakeholder process reinforces high standards for programs. The stakeholders are end-users themselves and desire superior programs and services. The stakeholder councils retain expert consultants to balance what could otherwise be an asymmetry with respect to the utilities' access to information and expertise. The combination of stakeholder interest and specialized expertise promotes excellence in program design. The budget for consultants represents a very small portion of overall efficiency program budgets in all cases, but can significantly improve performance. Because energy efficiency programs need continuity to thrive, the feedback and protection that engaged stakeholders provide also help long-term success of efficiency efforts in these states.

The three states with stakeholder boards placed in the top ten of the ACEEE 2015 state scorecard. Massachusetts and Rhode Island have nation-leading efficiency savings levels. MA and RI also tied for first in energy efficiency program subcategory, while CT is fourth.

All three of the stakeholder boards are funded by ratepayers through riders or a system benefit charge, with a limit on the percentage of total efficiency funds that can be used to support the councils' activities and their consultants..

Acadia Center recommends that the New Hampshire Energy Efficiency & Sustainable Energy Board be transitioned into a more active stakeholder board with funding for consultants. The board would serve as an advisory body throughout the planning and implementation phases and include key parties who are engaged in energy policy in the state. Ideally, council decisions would be consensus-based and informed by objective analysis and would lead to efficiency plans, with recommended yearly savings targets, presented to the PUC with substantive differences resolved prior to the docket process. Ideally, the authority of the new board would be expanded and confirmed through legislation.

Cautions on Financing-only models

We believe that financing mechanisms can play an important role in expanded efficiency efforts, but should not be considered standalone alternatives to comprehensive energy efficiency programming. Property Assessed Clean Energy (PACE) funding, revolving loan programs, and other financing vehicles are a complementary element of comprehensive energy efficiency programs, and generally will not have substantial uptake in the absence of the other program elements. Financing alone will not capture all cost-effective energy efficiency, and will not deliver the same results as well-designed energy efficiency programs with the necessary increases in SBC revenue. Table 3 shows common market barriers that efficiency programs must address.

Table 3. Common Market Barriers to Energy Efficiency

Common Market Barriers Inhibiting Adoption of Cost-Effective Efficiency	
Split Incentives	Building owners often do not pay energy bills so are less likely to invest in EE as it benefits the renter.
Lack of Individual Cost Information	Energy bills are generally a single figure and do not contain info on how much energy an individual appliance or building feature (e.g., windows) contributes to bill. Weatherization measures save on both heating and cooling, exacerbating this.
Uncertainty of Savings	A residential consumer will not know with certainty future energy prices or the exact energy savings of an upgrade, making it difficult to compare costs and benefits.
Inadequate Info about Efficient Options	Consumers often do not know which product or service choices are the more efficient ones.
Bounded Rationality / Complexity	The complexity of many decisions on weatherization projects are beyond the ability of a residential consumer to make an economically optimal choice.

Elevated Discount Rates	There is significant research that indicates that consumers have inconsistent and often very high internal discount rates when making economic decisions. This can lead to decisions not to implement weatherization projects that are cost effective.
Liquidity Constraints	Consumers often have inadequate (or inconvenient) access to capital to pay the upfront costs of weatherization projects.
Transaction Costs	Like high discount rates, many consumers have high internal values on their time. The time and effort required to research an efficient upgrade, fill out a loan application, find a contractor and get quotes, or have workers in their home can outweigh the expected value of returns in energy savings.

Conclusion

Acadia Center believes that it is feasible for New Hampshire to ramp up to levels approaching all-cost effective efficiency, and that in the absence of an ambitious Energy Efficiency Resource Standard, New Hampshire will continue to miss many opportunities to procure what is the least-cost resource in the state. We look forward to continuing to work with the Commission and other stakeholders to craft a standard that will achieve the greatest benefits for New Hampshire.