ENERGY OPTIMIZATION THROUGH FUEL SWITCHING STUDY

STUDY UPDATE & TASK 1 FINDINGS

APRIL 11, 2019

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ENERGY OPTIMIZATION - DISCUSSION TOPICS

- Task 1: Review of Current NH Policies
  - Policy and document catalog
  - Stakeholder interviews
  - Summary of Task 1 findings
  - Task 1 report section deliverable to be submitted Monday, 4/15
    Comments requested by Friday, 4/26

- Task 2 Status Update
  - Literature review
  - Stakeholder interviews

TASK 1:
Review of Current NH Policies

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TASK 1: OVERVIEW

Task 1 Goal: Review the screening practices used in NH, to understand how energy optimization measures are handled in the NH Utilities' TRC test.

Methodology: Three modes of data collection

- Held a **group discussion** at the 3/14/19 Benefit-Cost Working Group meeting to discuss EO activities with the working group's members
- Assembled and analyzed a **policy and document catalog** that includes state policies, PUC orders, and other documents relevant to energy optimization measures
- Conducted 11 **telephone interviews** with 20 individual stakeholders, including representatives from all four NH utilities, the NH PUC, and the EESE Board.

TASK 1: POLICY AND DOCUMENT CATALOG

- Our team catalogued policies and documents related to energy optimization in NH.
- We submitted a draft catalog to the B/C Working Group for comment on March 29.
- We received and incorporated comments from several stakeholders.
- A revised catalog (screenshot below) will accompany our Task 1 deliverable.

New Hampshire Orders, Plans, and Documents Related to Energy Optimization and Fuel Switching Measures, and the Cost Benefit Analysis Thereof						
Last Update:	4/9/2019					
Date	**Source**	**Document**	**Purpose**	**Impact on EO**	**Location**	**Link**
12/31/2018	NH Public Utilities Commission	Order No. 26,207	Approval of implementation of an energy efficiency plan for 2019 for electric and gas utilities.	The EM&V Working Group will explore how to treat the benefit and costs associated with fuel switching (energy optimization). Recommendations will be submitted to the Commission by August 2019.	p.8	https://ww
11/2/2018	NH Office of Consumer Advocate	Docket DE 17-136 Exhibit #12	Provide recommendations for the 2019 Update to NH's 2018-2020 Three-year EE Plan.	Recommend that the B/C Working Group review how other commissions and program administrators are accounting for the effects of fuel-switching promoted by energy efficiency programs	p.18-21 (Bates 19-22)	https://ww
			Review the 2019 Update	* The Performance Incentive Work Group has unresolved issues. Among them, the PI WG is considering replacing their PI formula with an		

TASK 1: STAKEHOLDER INTERVIEWS

- Between April 5 and April 9, our team conducted 11 telephone interviews with 20 stakeholders, listed below.
- To encourage candid responses, we informed stakeholders that their responses would be aggregated, that conversations would not be recorded, and that we would seek permission before attributing any quotes to individual respondents.
- The following slides summarize our Task 1 findings, grouped by issue.

Interviewee(s)	Group
Jim Cunningham, Leszek Stachow, Elizabeth Nixon, Jay Dudley	NH PUC Staff
Madeleine Mineau	EESE Board: PUC Chair Nonprofit Appointment
Rebecca Ohler	EESE Board: Department of Environmental Services
Brian Buckley, Donald Kreis	EESE Board: Office of the Consumer Advocate
Raymond Burke	EESE Board: New Hampshire Legal Assistance
Tonia Chase	EESE Board: Business Industry Affairs (BIA) designee
Eric Stanley, Tina Poirier	Liberty Utilities
Kate Peters, Miles Ingram, with notes from Tom Belair	Eversource
Tom Palma, Mary Downes, Deb Jarvis	UNITIL Energy Systems
Carol Woods, Craig Snow	NHEC
Melissa Birchard	Conservation Law Foundation

TASK 1 FINDINGS: Prioritization of EE Program Activities

- The PUC sets priorities for EE programs at regulated utilities.
- The PUC's top priority is reducing energy consumption (and, by extension, customer costs) through cost-effective efficiency measures.
- A secondary priority is protecting the interests of vulnerable groups such as low-income participants.
- Environmental impacts (such as reduced GHG emissions) are not a priority for utilities and the PUC, though they are a high priority for environmental advocates and for individual stakeholders.
- In neighboring states (VT, MA, NY), emissions goals are driven by state policies.
- NH does not have a statutory emissions reduction goal.

TASK 1 FINDINGS: Design of the Benefit-Cost Test

- For energy optimization measures involving fuel switching, the current B/C test assumes the customer would have switched fuels absent any program intervention.
  - Under this assumption, the program only incentivizes efficiency gains for the new fuel.
  - NH does not have evaluation data to support or refute this assumption.
  - Several stakeholders said NH should gather evaluation data to probe this assumption.
- Regulatory and utility stakeholders said the current B/C approach is aligned with the program's goal of reducing energy consumption.
- Environmental and conservation advocates said the B/C analysis should account for the societal benefit that results from GHG reductions.
- Stakeholders said that any change to the B/C accounting method should be driven by adjusting the program's high-level goals through a PUC order or legislation.

TASK 1 FINDINGS: Current Energy Optimization Measures

Stakeholders classified the following measures as energy optimization measures:

- **Heating and hot water measures**, including heat pumps, high-efficiency natural gas heating products, and heat pump water heaters
- **Combined heat and power (CHP)**, which has had limited uptake in NH. CHP deployment is limited by the limited gas infrastructure in NH.
- **Commercial food service measures** that may, for example, incentivize a switch from natural gas fryers to electric fryers.

Outside of the EE program:

- NHEC has ground-source HP and demand response (DR) measures, as well as a battery storage pilot.
- Electric vehicle and transportation measures offer savings from fuel switching, but stakeholders agreed that these are not in the scope of the EE program.

TASK 1 FINDINGS: Source Savings vs. Site Savings

- NH utilities currently calculate site savings using savings values derived from impact studies.
- Stakeholders agreed that NH does not have a framework to compare source savings and site savings.
- Stakeholders were wary of the complexity of comparing source and site savings, saying that the boundaries of any comparison should be well-defined, and that utilities should not attempt a life-cycle fuel analysis.
- NHEC has electrification measures outside of the EE program. To evaluate these measures, NHEC uses an engineering conversion to express fuel savings in MMBtus as an equivalent kWh value.

TASK 1 FINDINGS: Non-Energy Impacts (NEIs)

- There are many NEIs that could apply to EE measures
- Stakeholders noted the following NEIs that are unique to energy optimization measures: reliability, safety, comfort, O&M costs, avoided infrastructure costs, and environmental impacts
- There are efforts underway to quantify NEIs, including a working group devoted to studying NEIs
- Stakeholders agreed that:
  - It is difficult to measure and quantify the value of many NEIs.
  - Any inclusion of NEIs should be evidence-based and not rely on results from other jurisdictions.
- Most stakeholders were resistant to including NEIs in the B/C calculations if those NEIs cannot be easily quantified.
- NHEC provides information about NEIs as an educational resource to promote its EE programs to customers, but does not quantify NEIs for B/C purposes

TASK 1 FINDINGS: Impacts to Peak Loads

- Energy optimization measures with fuel switching lead to increased consumption of electricity and natural gas, which results in peak load growth.
- Stakeholders agreed that load growth is an unintended negative consequence that should be included in B/C calculations.
- At present, the B/C calculation accounts for *decreases* in demand due to efficiency but does not account for the *increase* in demand that results from customers switching fuels.
- Stakeholders agreed that regulators need to provide guidance on how to account for load growth.

TASK 1 FINDINGS: Contractor and Workforce Training

- Stakeholders noted that the EE program currently budgets for contractor training and customer education. NH utilities spent $250,000 on education programs in 2018. Some respondents said the current training efforts are not sufficient.
- Stakeholders agreed that any expansion in the program's energy optimization offerings should be accompanied by education and workforce training.
- Without contractor education, there is the risk that contractors may not recommend efficient products like heat pumps because they lack the expertise to service them.
- Several stakeholders requested that the current study examine how other states have handled workforce training to help workers transition from fossil fuel delivery to careers that support electrification efforts.

TASK 1 FINDINGS: Treatment of Electric vs. Natural Gas Measures

- Most stakeholders said that there does not appear to be preferential treatment of electric measures over gas measures or vice versa.
- Stakeholders agreed that the same benefit-cost methodology should be applied when evaluating electric measures as when evaluating natural gas measures.
- Natural gas infrastructure is limited in NH, so there is a practical limitation on the number of customers who can switch to natural gas.
- A few stakeholders expressed doubts about fuel switching to natural gas, claiming that residential gas heating options are less efficient and offer fewer benefits compared to electric heating options.

TASK 2:
Review of Other Jurisdictions'' EO Policies

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UPDATE ON TASK 2: Review of Other Jurisdictions'' EO Policies

Task 2 Goal: Review the practices in other jurisdictions to understand how others handle and account for energy optimization through fuel switching.

- Similar to Task 1, our Task 2 review will involve literature review and interviews.
- The Task 2 literature review has a broader scope than Task 1, and will include evaluations, reports, studies, and scholarly articles.
- So far, we have assembled 40 documents for our literature review.
- We have identified several willing interviewees and will schedule interviews soon.

→ We plan to present Task 2 findings at the May B/C Working Group meeting.

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