

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

In the matter of

Electric and Gas Utilities

Docket No. DE 20-092

2021-2023 Triennial Energy Efficiency Plan

REBUTTAL TESTIMONY OF
PHILIP H. MOSENTHAL

ON BEHALF OF THE
OFFICE OF THE CONSUMER ADVOCATE

December 3, 2020

1 **(I.) Introduction**

2 **Q. Please state your name and business address.**

3 A. Philip H. Mosenthal, Optimal Energy, Inc., 10600 Route 116, Hinesburg, VT
4 05461.

5 **Q. On whose behalf are you testifying?**

6 A. I am testifying on behalf of the New Hampshire Office of Consumer
7 Advocate (OCA). All work developing my testimony has been completed by me or
8 under my direction.

9 **Q. Are you the same Philip H. Mosenthal that filed direct testimony in this**
10 **docket?**

11 A. Yes. My qualifications are summarized in my direct testimony, and Exhibit
12 PHM-1 of my direct testimony provides my resume.

13 **Q. Please summarize your rebuttal testimony**

14 A. The OCA, along with the utilities and intervenors Clean Energy New
15 Hampshire, Conservation Law Foundation, Southern New Hampshire Services, and
16 The Way Home are on December 3, 2020 filing a settlement agreement that would,
17 if approved by the Commission, resolve all of the issues in the proceeding. My
18 testimony supports that settlement, which resolves many of the issues of concern
19 expressed in various party's direct testimony, including my testimony and that of
20 Staff witnesses. Staff has declined to join the settlement, and my testimony
21 primarily focuses on rebuttal of some of Elizabeth Nixon's direct testimony and
22 staff concerns about the budgets and rate impacts.

23 **Q. Can you briefly summarize the settlement that OCA has signed?**

1 A. Yes. I believe the settlement reflects a good faith effort to address many of
2 Staff's concerns. The issues it addresses are:

- 3 • Cumulative savings were reduced from 5 percent of sales to 4.5 percent of
4 sales for electric and from 3 percent of sales to 2.8 percent of sales for
5 natural gas, enabling a decrease in total Eversource budget of 5.3 percent.
- 6 • The Eversource Commercial and Industrial (C&I) budget was decreased by
7 10.6 percent, and the residential budget was increased by 14.4 percent, to
8 minimize differences in savings and System Benefits Charge (SBC) rates by
9 sector and to lower the Eversource C&I SBC.
- 10 • The Eversource C&I SBC rate decreases by 4.3 percent in 2021, 12.2 percent
11 in 2022 and 18.0 percent in 2022 as compared with the September 1 Plan rate.
- 12 • Specific net-to-gross (NTG) ratios will be applied to all lighting.
13 Additionally, the settlement adopts a policy that the savings goals reflect net
14 savings, and that all performance is based on net savings. Additional specific
15 future NTG ratios can be determined by the EM&V working group. If the
16 EM&V working group develops new NTG ratios for measures that do not
17 currently have them, these will be applied prospectively beginning with the
18 next plan.
- 19 • Commercial program impact evaluations will be conducted during the plan
20 term, and savings will be adjusted retroactively to the full plan based on the
21 realization rate found for custom measures. Any discrepancies or errors in
22 data, calculations, and application of the TRM identified will also be

1 corrected. If any of these data issues are likely to apply to additional projects
2 not sampled in the evaluations, those will also be accounted for as well.

- 3 • The midterm modification triggers have been significantly simplified.
4 Importantly, the trigger where goals would be adjusted if evaluation results
5 find lower savings for specific measures has been eliminated. This ensures
6 that the savings goals will be met even if, for example, an evaluation comes
7 in with lower than expected custom realization rates. The settlement adopts
8 adjustments to the Lost Base Revenue (LBR) calculation recommended by
9 Staff.

10 **Q. What do you believe are Staff's biggest concerns that the Settlement has not**
11 **addressed sufficiently for their support?**

12 A. While some of the issues around net-to-gross and realization rate values,
13 applications of EM&V, and the planning and stakeholder process, were not fully in
14 line with Staff's position, I believe the settlement comes a long way toward
15 addressing them, and has largely resolved many of those concerns. I assume Staff's
16 biggest concern is with the levels of the SBC charges. Staff expressed a number of
17 concerns in Ms. Nixon's direct testimony related to the SBC levels, and rate and bill
18 impacts. These concerns are:

- 19 • That SBC charges in the Plan would not be consistent across sectors, or
20 across utility territories, and
- 21 • That the C&I SBC values for Eversource were too high overall, especially in
22 2023, and would result in unreasonable rate impacts.

1 The Settlement significantly reduced the Eversource C&I spending and SBC
2 levels, particularly in 2023, while raising its residential spending and savings and
3 creating an increase in the residential SBC. This results in significant progress
4 toward addressing Staff's two primary concerns, while still trying to maintain
5 reasonable levels of savings, consistent with New Hampshire's objective to move
6 toward capture of all cost-effective achievable efficiency resources. Specifically,
7 Eversource's 2023 C&I SBC has gone from 46 percent higher than the lowest utility
8 (the New Hampshire Electric Cooperative, NHEC) to only 19 percent higher.
9 Further, the sectoral gap between Eversource's C&I and residential sector SBCs was
10 also reduced by between 43 percent and 46 percent from 2021 to 2023.

11 **Q. Do you believe ensuring minimal rate impacts from efficiency is an**
12 **important consideration?**

13 A. I agree that rate impacts are one thing that should be considered when judging the
14 overall appropriateness of any plan. However, they should be secondary to more relevant
15 and important impacts to the overall costs of providing energy service, and ultimately
16 should not be a reason to reject aggressive pursuit of all cost-effective efficiency.
17 Because the efficiency savings and costs proposed result in capturing the lowest cost
18 energy resources available, they will, by definition, save ratepayers money compared to
19 the alternative of acquiring the energy resources from supply-side options. Utility
20 regulatory policy generally supports least cost planning, required in New Hampshire
21 pursuant to sections 27 through 40 of RSA 378, and an expectation that utilities should
22 provide reliable service at the lowest reasonable costs. A focus on rate impacts, as
23 opposed to customer bill impacts (*e.g.*, the total revenue requirement), is therefore

1 contrary to good policy and regulatory practice. Fundamentally, customers purchase
2 electricity to support specific services, such as lighting, cooling, etc. Customers are
3 therefore concerned with the level of their overall electric bills rather than the specific
4 volumetric rate per kilowatt-hour (kWh) they are paying.

5 **Q. What are the drivers of positive rate impacts (increased rates)?**

6 A. Rate impacts are driven by two components: program costs and lost base revenue
7 (LBR). Almost all energy efficiency will increase rates, even when it is cost-effective and
8 cheaper than any alternative supply resource. This is because the utilities must recover
9 the program costs expended, and any LBR. LBR results because efficiency programs
10 reduce energy use while still providing equal, and often better, energy services. LBR
11 represents the net loss of revenue resulting from this lower consumption of energy.
12 Because the utility has fixed costs that are already incurred, and that are built into their
13 current rates, this net loss of revenue results in, all else equal, insufficient collections to
14 recover these fixed costs. As a result, rates must go up slightly to compensate for the
15 lower sales.

16 **Q. Is LBR truly a new ratepayer cost?**

17 A. No. LBR is simply the shortfall in collections that occurs from less sales than
18 would otherwise have occurred. It is not different than the rate impacts that would result
19 from simply having a cooler summer that suppressed air conditioning load and saved
20 ratepayers money. These costs are already built into utilities' rates, so the LBR recovery
21 is simply a slight shifting of this fixed cost component of rates. The costs have been
22 approved for collection and would be incurred regardless of the level of energy efficiency

1 effort – efficiency only impacts the amount of sales over which these costs will be
2 collected.

3 **Q. Why should the PUC support utility actions that increase its customers**
4 **rates?**

5 A. Because these increases are simply a natural result of improving overall efficiency
6 and reducing overall customer costs and benefitting the economy. Any short-term rate
7 increases are more than compensated for by these overall lower costs, and ultimately lead
8 to lower rates by avoiding more expensive resources. Even if the efficiency programs
9 could be delivered for free, the energy savings would still result in short term rate
10 increases to compensate for the reduced utility sales. Clearly, lowering customers' energy
11 costs in aggregate for free is societally beneficial and consistent with New Hampshire
12 policy, and should be supported by the Commission.

13 If one's goal were to pursue lower rates, the best strategy would be to encourage
14 as much energy waste and inefficiency as possible. As an extreme example, customers
15 literally leaving their doors and windows open while running their air conditioners or
16 electric heat at maximum capacity would be a good strategy to lower short-term rates.
17 This is clearly contrary to the public interest and New Hampshire policy. This perverse
18 outcome would increase costs to all ratepayers collectively, as well as increasing
19 environmental damage and damaging the overall New Hampshire economy. Even worse,
20 it would lead to higher rates in the long term by forcing utilities (and other load-serving
21 entities) to purchase more supply resources while incurring additional financial
22 obligations related to capacity and transmission charges.

1 The Commission's goal should be to encourage provision of reliable energy
2 services at the lowest costs. The Granite State Test ensures that all utility efficiency
3 efforts will work toward maximizing this goal. The Granite State Test compares the
4 overall utility cost of efficiency with its overall alternative cost of replacing that
5 efficiency resource with a supply side solution. Therefore, ratepayers as a whole benefit
6 from capturing all cost-effective efficiency regardless of the level of short-term rate
7 impacts.

8 It makes far more sense from a policy perspective to focus not on rates but on
9 total utility bills. After all, are customers really harmed if, for a constant level of service,
10 their rates go up, but their bills go down? Both the economy and environment are better
11 off when total energy bills and total energy sales are reduced through cost-effective
12 energy efficiency. The best test to determine whether an energy efficiency measure will
13 achieve this result is the Granite State Test, which ensures customers benefit from the
14 purchase of the lowest cost resource. In contrast to the Granite State Test, the Ratepayer
15 Impact Measure (RIM) test is a measure of rate impacts. This test does not apply in New
16 Hampshire, and has been rejected by every state in the union for use as a primary test
17 applied to efficiency.

18 **Q. If the efficiency captured passes the Granite State Test and is less costly than**
19 **the alternative supply resources, then wouldn't forgoing the efficiency in lieu of the**
20 **more expensive supply result in even higher rate?**

21 A. Yes, and ultimately it does. The short-term rate increases are mostly driven by
22 program costs and are simply an artifact of the differing cost recovery approaches for
23 supply and demand resources. When a new supply resource is built, its costs are generally

1 amortized and paid for over a long period. This avoids a large price increase that would
2 otherwise occur from a major large capital investment and spreads the costs out roughly
3 along a similar time period as the life of the generation production. While New
4 Hampshire is a deregulated state, the utilities must still purchase power that is priced in
5 the market to reflect this long-term amortization of the capital costs of building power
6 plants by the independent power producers. In addition, utility capital investments in
7 transmission and distribution are also amortized. Efficiency however is fully paid for and
8 recovered by ratepayers in the year that it is captured, while the savings that result from it
9 typically will take 10 or more years to occur. This temporal mismatch between
10 investments and savings simply means that rates go up initially, and then as the savings
11 occur and the future supply-side alternatives are avoided, rates come down.

12 **Q. Would solving this mismatch in timing of costs and benefits resolve Staff's**
13 **concerns and minimize any rate increases?**

14 A. Yes. However, in response to data request OCA 1-006, Staff states that they do
15 not support amortization of energy efficiency costs because it would increase long-term
16 costs. In the same response, staff affirms their support for a long-term goal of achieving
17 all cost-effective energy efficiency and that this would result in net benefits for
18 ratepayers. However, you can't have this both ways – if all cost-effective efficiency is
19 worth pursuing it has to be paid for – either in the short term, through annual expensing
20 of full program costs, or over the lives of the measures, through amortization. While Staff
21 is correct that amortization and lower short-term rates will result in an increase in overall

1 long-terms costs in nominal terms,¹ this response clearly shows Staff is more concerned
2 with the total overall long-term costs than with the short-term rate impacts. A consistent
3 application of this concern, however, implies Staff should be supportive of capturing all
4 cost-effective efficiency and accepting the higher short-term rates in lieu of overall long-
5 term cost reductions. Staff's position now to oppose higher rates even when they will
6 lead to lower overall customer costs seems fully contradictory to its logic in opposing
7 amortization.

8 **Q. Even if ratepayers collectively benefit from cost-effective efficiency, won't**
9 **customers that do not participate in the efficiency programs be hurt by higher**
10 **costs?**
11

12 A. Customers are clearly better off if they can reduce their total bills while still
13 meeting their energy service needs, even if the per unit rate increases. It is true that if a
14 customer declines to take advantage of the numerous efficiency offerings proposed in the
15 Plan, they can see slightly higher costs. However, it is important to keep in mind that
16 these impacts are fairly small and not even universally an increase. Attachment M to the
17 September 1 plan shows long-term non-participant bill impacts between negative 1.1
18 percent and positive 1.6 percent depending on utility and sector. If the revisions to the
19 Plan set forth in the Settlement Agreement are adopted, these impacts would be even
20 lower.

21 The Commission's concern is and should be on overall costs of the entire energy
22 system. The fact that non-participants will experience a short-term increase in rates is not

¹ While any application of interest will mean customers must nominally pay more, because of utilities' ability to borrow money at relatively low rates, the interest necessary to compensate the utilities fully for amortizing could be relatively low. Most economists estimate the overall time value of money of private citizen and business investments to be greater than the utility short-term interest costs. As a result, on a net present value basis amortization can generally lower overall total costs and rates.

1 an argument for withholding investment in energy efficiency; it is an argument for
2 ensuring that opportunities to participate in efficiency programs are widely available.
3 Adoption of the Plan will ensure that all customers contributing to the program costs will
4 be able to participate and benefit, as the plan offers programs widely applicable to every
5 customer. The greater the efficiency portfolio the more offerings are available to
6 customers; the remedy lies in expanding the scope of the effort, not retrenching.

7 **Q. Even if all customers have the opportunity to participate in programs, isn't it**
8 **true that only a relatively small fraction will in fact participate?**

9 A. No. Quite the opposite. The majority of customers participate in programs over
10 time, many without even knowing it because of midstream and upstream programs that
11 reduce the retail costs of products they buy. For example, in 2019 Efficiency One, which
12 delivers Nova Scotia's Energy Efficiency programs, estimated residential sector
13 participation would reach 100 percent in 2020. The Plan includes upstream programs,
14 including retail buydowns of lightbulbs that represent 48 percent of total residential
15 savings. Virtually everyone buys lightbulbs at some point. As a result, over time it is
16 highly likely that virtually all residential customers in New Hampshire will participate or
17 already have participated in an efficiency program.

18 In Massachusetts, a 2019 study found extremely high C&I participation,
19 particularly among large C&I customers who would otherwise be hit hardest with SBC
20 increases in terms of total costs. About 32 percent of Massachusetts customers annually
21 using between 1.5 gigawatt-hours (GWH) and 4.5 GWH participated in just 2017 alone.
22 Among the very largest customers at over 4.5 GWh consumption, almost 60 percent

1 participated just in 2017.² Corresponding numbers from 2011-2017 show 66 percent and
2 80 percent, respectively. And these figures are underestimates because they do not count
3 those projects which are not directly linked to a specific account, including the very high
4 participation from some of their upstream programs, including for commercial lightbulbs.
5 Additional reasons that these numbers are likely lower than actual participation levels
6 include omitting all new construction and any commercial buildings or space where there
7 was an account turnover during the year, where a customer has multiple meters or
8 facilities, as well as other data issues that result in only a subset of projects included
9 because of the lack of a clear link between project and account number.

10 Further, it does not require a huge efficiency project to fully offset any potential
11 rate impact and result in lower costs. For example, under the Settlement Agreement,
12 Eversource residential non-participants would more than wipe out their short-term bill
13 increase from 2020 to 2021 by installing just 3 LED lightbulbs.³ It would take twelve
14 bulbs to offset the entire 2021 SBC.

15 According to the Eversource BC Model, 2021 incentives will bring the customer
16 cost of LEDs to 50 cents per bulb. This means that, for \$6.00, any residential customer
17 can easily wipe out their full bill increase from the SBC (\$1.50 would eliminate the
18 increase from the 2020 SBC). After that first year, that \$6.00 will continue to save over
19 \$65 per year for the life of the measure. Further, due to the efficiency program providing
20 rebates, the customer is not just saving \$65 per year on their electric bill, but also

² <https://ma-eeac.org/wp-content/uploads/Final-2017-CCPS-report.pdf>

³ Assumes average monthly usage of 625 kWh, 2021 Eversource Settlement Agreement SBC of \$0.00978/kWh, 30.7 kWh savings per LED from the New Hampshire Technical Reference Manual, and 19 cents/kWh average New Hampshire residential rate from, https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a.

1 benefitting from the utility program buydown that has made the LEDs much less costly to
2 purchase. This is clearly the type of financial assistance that can be highly valuable
3 during a poor economy. The best way to contain customer costs, therefore, is not to
4 reduce efforts at achieving efficiency savings but to ensure that every customer is able to
5 participate in the programs.

6 In summary, a large majority of New Hampshire ratepayers have or will
7 participate in a program if funding is sustained in the medium term. The best solution to
8 non-participant positive bill impacts is therefore to take steps to minimize the number of
9 non-participants and ensure that programs are sufficiently funded to be available and easy
10 to use for all segments of the population. Lowering program budgets will limit the
11 number of ratepayers who are able to participate in the programs.

12 **Q. Given that Covid-19 has resulted in extreme economic pressure on many**
13 **customers, shouldn't this require a greater focus on minimizing rate impacts?**

14 A. No, to the contrary, I believe that the economic harm from the Covid-19
15 pandemic makes it more important than ever to pursue robust energy efficiency, for
16 several reasons. First, as mentioned, customers care about overall bills, not rates. As Ms.
17 Nixon states on page 13 of her testimony, "some customers are currently experiencing
18 hardships in paying their utility bills..." In fact, it is often the customers who are
19 struggling the most to pay their electricity bills that are least able to, on their own, pay the
20 up-front costs for energy efficiency that will create significant bill savings. Under the
21 proposed efficiency plan, those with the greatest energy burden – low income customers
22 – will receive efficiency upgrades for free. For others struggling in this economy a
23 combination of incentives, technical assistance, and low-cost financing will enable these

1 customers to reduce their energy cost burden significantly. The fact that more customers
2 are currently struggling to pay utility bills makes it more – not less – important to help
3 them reduce energy use.

4 Second, there is a large and growing body of research indicating significant
5 macro-economic benefits from efficiency spending. For example, Guidehouse Consulting
6 recently completed an economic modeling of the impacts of energy efficiency on the
7 Illinois economy. It finds that about \$300 million of total efficiency spending by
8 Commonwealth Edison created not only over \$1.5 billion in direct utility bill savings, but
9 also almost 15,000 job-years, \$875.9 million in additional labor income, and almost \$3
10 billion of increased economic output.⁴ Assuming similar multipliers in New Hampshire,
11 the September 1 efficiency programs would create 17,500 job-years, over \$1 billion in
12 additional labor income, and almost \$3.5 billion in increased economic output in addition
13 to all the customer direct bill savings. While this type of economic benefit would be
14 compelling at any time, it is particularly so during the Covid-19 pandemic, when many
15 sources of local economic spending are either drying up (restaurants, tourism) or shifting
16 to online and less local sources (retail).

17 **Q. Are there other reasons that efficiency will benefit non-participants in the long**
18 **run?**

19 A. Yes. First, demand reduction induced price effects (DRIPE) from efficiency result
20 in a reduction in electricity and likely future gas costs as well. DRIPE is a measurement
21 of the value of efficiency in terms of its ability to reduce wholesale energy prices. Since
22 electric prices are set by the most expensive power source available, and since efficiency

⁴ https://ilsag.s3.amazonaws.com/IL_NEI_Economic_Analysis_July-2020-Final-Revised-Sept.pdf

1 allows for the shedding of the most expensive resources on the margin, efficiency will
2 lower the overall costs of energy. While the effects on energy prices are small in terms of
3 percentage reductions, the absolute dollar impacts are significant as the small price
4 reduction is applied across the entire body of all energy consumers. The consulting firm
5 Synapse Energy Economics quantifies the impact of DRIPE as part of the Avoided
6 Energy Supply Costs (AESC) study the firm conducted for electric capacity, electric
7 energy, natural gas, and oil. So, while the SBCs from the Plan will increase, DRIPE will
8 work to lower the overall cost of supply in base rates.

9 Second, efficiency can reduce risk and future price volatility, by reducing pressure on
10 supply needs. For example, most electricity in New England is currently created using
11 natural gas, and marginal electric rates are very sensitive to gas costs. By reducing
12 reliance on natural gas and other sources of electric generation from electric savings, as
13 well as all the direct gas efficiency savings, efficiency acts as a hedge to mitigate the
14 impact of commodity price increases and volatility on both gas and electric rates.

15 This link between electric and natural gas prices makes the price of electricity highly
16 correlated to the natural gas market – any spikes in the cost of natural gas would also lead
17 to higher electric prices. This is currently being seen in parts of New England driven by
18 winter electric peak loads, which efficiency can directly reduce. Even without any
19 national increase of prices, natural gas for electric generation competes with natural gas
20 for space heating over limited transmission capacity during the coldest winter periods. In
21 the winter of 2017-2018, for example, the price of gas in Massachusetts spiked from

1 around \$3 per million cubic feet (MCF) to around \$90 per MCF.⁵ As a result, oil, which
2 typically supplies only 2 percent of the region’s electricity, supplied 36 percent on
3 January 6, and electricity prices increased from a typical cost of around \$50 per MWh to
4 around \$450 per MWh, as well as resulting in additional greenhouse gas emissions.⁶

5 **Q. Please summarize your position regarding Staff’s concerns about rate**
6 **impacts.**

7 A. The concept behind traditional integrated resource planning – enshrined in New
8 Hampshire law -- is to treat supply and demand-side options on an equal footing to
9 determine the overall least cost option to meeting the energy needs of customers. Indeed,
10 the term “least cost planning” is often used synonymously with integrated resource
11 planning. The Staff’s focus on rates, as opposed to minimizing overall ratepayer costs,
12 does not result in the least cost plan, and should be rejected.

13 **Q. Staff indicates concern over the large portion of savings coming from the**
14 **Commercial and Industrial sector. Has this been addressed in the Settlement**
15 **Agreement?**

16 A. On page 6 of her testimony, Ms. Nixon indicates particular concern over the
17 fact that Eversource was planning to get 88.5 percent of the total savings from the
18 C&I sector, despite the fact that C&I sales are only about 58 percent of the total
19 system load. The Settlement Agreement has gone a long way towards addressing
20 this imbalance – Eversource has lowered the three year cumulative C&I budget by

⁵ <https://www.instituteforenergyresearch.org/fossil-fuels/gas-and-oil/new-england-needs-natural-gas-pipelines/>

⁶ <https://www.instituteforenergyresearch.org/fossil-fuels/gas-and-oil/new-england-needs-natural-gas-pipelines/>

1 about \$17 million and increased the residential budget by \$8 million, so that now
2 the C&I spending share exactly matches the C&I sales share at about 58 percent of
3 the total. Note that C&I savings will still be higher than 58 percent of the total, but
4 this is appropriate because (1) residential savings are more expensive than C&I
5 savings, especially as residential LED lighting becomes baseline, and (2) a
6 significant portion of residential spending goes toward oil and propane savings,
7 which are not captured in Staff's Electric-only analysis. Quite simply, the C&I
8 sector offers the largest and cheapest efficiency opportunities, and therefore should
9 be prioritized because capturing the most cost-effective efficiency possible provides
10 benefits to all ratepayers. Further, the spending is what drives the SBC, and C&I
11 will only shoulder the same proportion of costs as its energy usage represents.

12 **Q. Ms. Nixon's direct testimony points out that spending per customer varies**
13 **from utility to utility. Does this concern you?**

A. No. Table 3 of Ms. Nixon's testimony shows the spending by customer for each utility and sector. It demonstrates that, for low-income electric customers, utility spending varies from \$1,303 per customer to \$2,211 per customer. For C&I electric customers, spending varies from \$173 per customer to \$2,054 per customer, although without NHEC all electric utilities spend over \$1,500 per customer. Residential sector per customer electric spending does not significantly vary.

While these variations may seem large, there are several legitimate reasons for them. These include that the gas utilities' territories cover different portions of electric utility territories and the electric utilities are funding unregulated fuel savings as well, and the fact that C&I customers can vary significant by territory in

terms of size, type and efficiency opportunities. It can also simply be reflective of some different choices about program offerings.

Q. Why does unregulated fuel usage impact the per customer spending?

A. The majority of all the savings and costs for low income customers come from the space and water heating savings that result from weatherizing homes and other heating system savings. When a home that purchases gas from a utility system is treated, the gas utility covers its share of the costs associated with treating the home, and the electric utility only pays for electric savings measures. In contrast, if an electric utility is serving a home that uses unregulated fuels for heating, the entire costs of the whole-home retrofit must be shouldered by only the electric utility. Therefore, an electric utility that serves an area that is also fully served by a gas system will have lower per customer costs, while one that has lots of oil and propane customers will show very high costs per customer and per kWh saved.

Q. Can you explain how C&I variations drive C&I per customer cost variations?

A. Clearly the cost to provide some efficiency upgrades for a very small commercial building with relatively limited end use loads (*e.g.*, without process-type loads such as a large amount of electronics, compressed air, or refrigeration equipment) will be much lower than the cost to treat a large commercial or industrial customer, both because of its size, and also potentially significantly different uses of energy. Different utilities can have very different mixes of C&I customers. For example, simply having a single very large industrial customer can skew the average per customer costs. Similarly, a utility serving Manchester and

other parts of southern New Hampshire is likely to have much more large commercial customers compared to a very rural area.

Q. Please comment on the potential for a variation in program offerings to drive per customer costs?

A. Different programs have dramatically different per customer costs. For example, home energy reports can be sent to very large numbers of customers, while costing very little per customer. Notably, only some utilities are offering an HER program. Others may be investing more heavily in programs addressing major measures or larger customers due to their demographics and firmographics. It is reasonable and appropriate for program portfolios to differ based on the potential opportunities available in each territory. Ultimately, the purpose of energy efficiency is to achieve cost-effective savings that will lower energy bills for all customers. The utilities know their customer bases better than anyone, and so long as the target savings number is achieved within the budget, one should not be concerned that this mix of measures and participants might differ. What is important is that all customers will have the opportunity to participate in largely the same programs with the same offerings, simply because the majority of NHSaves programs are consistent statewide.

1 **Q. Ms. Nixon's testimony also indicates a concern that the Plan SBC amounts**
2 **vary significantly by utility and by sector. Do you think it is reasonable to impose**
3 **different rate impacts on customers depending on where they are located?**

4 A. Yes. Utility rates in the US are based on the cost of service, and can vary
5 significantly by geography and rate class. This is generally uncontroversial, as cost-

1 of-service rates ensure that each sector within a given utility territory pay, on
2 average, the portion of costs associated with serving that sector in that location. The
3 fact that, for example, citizens and businesses in the Pacific Northwest pay a small
4 fraction of those in New England for an equivalent kWh is acceptable because the
5 costs reflect the much lower costs society will incur to provide power there. This
6 same logic should apply to energy efficiency. If least cost planning determines that
7 there is greater potential for cost-effective efficiency in one sector or service
8 territory, then it is appropriate to pursue higher goals and budgets in that area. In
9 this case, efficiency will flatten load growth to avoid new, more expensive supply-
10 side investments, thus benefiting everyone. It will also reduce the base rates a bit for
11 everyone, partially offsetting the increased SBC through DRIPE that are accounted
12 for as part of the avoided costs. This is equitable both in the short-term, as the
13 sectors and areas with higher SBCs also receive proportionately higher benefits and
14 bill savings from the efficiency, and in the long-term, as all ratepayers benefit from
15 procuring the least-cost resources regardless of which sector the savings comes
16 from.

17 Further, Ms. Nixon focuses on electric savings, thus leaving out the
18 significant additional benefits from the legislatively mandated oil and propane
19 savings that will accrue to residential ratepayers with this Plan. For example, in the
20 September 1 Plan, almost 75 percent of the cumulative 2021-2023 residential
21 resource benefits come from non-electric savings. An electric-only analysis is likely
22 underestimating total residential sector benefits by a factor of four, while driving up
23 residential costs. While one can argue that imposing the costs of saving unregulated

1 fuels on electric ratepayers is inequitable, the Commission has approved this
2 practice in numerous past plans.

3 **Q. Do you agree with Staff's characterization of bill impacts from the Plan?**

4 A. No. Table 5 in Ms. Nixon's testimony shows what purports to be bill impacts
5 from the efficiency programs. Further, Staff states in response to data request OCA
6 1-004 that "the bill impacts are those assumed for an average customer" that "reflect
7 a mix of both participants and non-participants." However, this statement does not
8 seem to align with how the calculations were done, which do not include the impact
9 of lower energy usage that creates the bill savings, and so they actually do represent
10 the bill impacts only for non-participants. For example, the calculation for an
11 Eversource residential customer simply assumes the pre-efficiency average usage of
12 625 kWh/month and multiplies by the change in SBC (shown in Table 4 to be
13 $\$0.00866/\text{kWh} - \$0.00743/\text{kWh} = \$0.00123/\text{kWh}$) to get a total monthly bill
14 increase of \$0.77 per month in 2021. There is no adjustment made to account for the
15 fact that average monthly electric usage will decrease as a direct result of the
16 efficiency programs, offsetting this impact with bill savings. The table therefore
17 only shows the bill impact for customers that do not participate in the program. In
18 fact, the bill for participants and average ratepayers goes lower, as reduced energy
19 usage more than compensates for the SBC and LBR. Ms. Nixon indeed notes this on
20 page 13 of her testimony, when she says, "for the average customer, the bill change
21 over the life of the measures is estimated to go down for all customer classes, except
22 Eversource's residential class..."

1 **Q. Why does the average Eversource residential ratepayer see an electric bill**
2 **increase?**

3 A. The average Eversource residential ratepayer actually does enjoy an *overall*
4 *energy bill* decrease. However, they do have an increase on their electric bill. This is
5 because the electric ratepayers are contributing substantial portions of their funding
6 for significant oil and propane savings. Once you consider the substantial non-
7 electric bill savings residential customers will enjoy, residential utility bills will be
8 much lower overall due to the efficiency program. Staff confirms they have not
9 included any bill savings from non-electric delivered fuels in its analysis responding
10 to OCA 1-005. Eversource's September 1 plan calls for about 6.2 million MMBtu
11 savings of oil, propane, kerosene, and wood. Using an average cost per MMBtu
12 from the New Hampshire Office of Strategic Initiatives, this equates to an additional
13 savings of over \$150 million over the life of the measures.⁷ This compares to about
14 \$96 million of residential bill savings from reduced electric usage – residential bill
15 savings from non-electric heating are thus 50 percent higher than the savings from
16 lower electric usage. It does not make sense to examine the affordability of the
17 efficiency program without including the savings from reduced fossil fuel usage. As
18 a result, total residential energy bills for Eversource still go down significantly,
19 even though there is a slight increase in average electric bills.

20 **Q. Please summarize your testimony and recommendations to the Commission.**

21 A. Overall, my testimony supports the adoption of the proposed Triennial Energy
22 Efficiency Plan as conditioned by the Settlement Agreement, which I believe provides

⁷ <https://www.nh.gov/osi/energy/energy-nh/fuel-prices/index.htm>

1 for a balanced plan which will benefit all New Hampshire ratepayers while capturing
2 significant amounts of cost-effective efficiency savings most effectively by focusing on
3 those areas with the greatest and most cost-effective potential opportunities. I show why
4 this results in a better outcome for all ratepayers collectively than if full parity of SBC
5 levels were achieved across utilities and sectors, and lower SBC levels in general. Lower
6 SBC levels would necessarily result in less savings, higher bills for New Hampshire
7 ratepayers, greater environmental costs, less net economic benefits, less job creation, and
8 ultimately higher rates due to the need for more expensive supply-side resources.

9 **Q. Does this conclude your testimony?**

10 A. Yes.