

**STATE OF NEW HAMPSHIRE**

**BEFORE THE**

**PUBLIC UTILITIES COMMISSION**

**Docket No. DE 20-092**

**2021-2023 Triennial Energy Efficiency Plan**

**TESTIMONY OF**

**CHRISTOPHER J. SKOGLUND**

**On behalf of Clean Energy New Hampshire**

**April 19, 2022**

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1       **I. Introduction**

2       **Q. Mr. Skoglund, please state your name, business address and position.**

3       A. My name is Christopher J. Skoglund. I am employed by Clean Energy New  
4       Hampshire (CENH), located at 14 Dixon Ave in Concord NH, as the Director of  
5       Energy Transition. Included in this testimony is Addendum CS-1, a statement of my  
6       education and work experience.

7

8       **Q. Please briefly describe your experience and specific knowledge or skills that**  
9       **relate to your testimony in this docket.**

10      A. I am currently employed by CENH as the Director of Energy Transition since  
11      January 2022. In this role, I am the organization’s lead at the NH Public Utilities  
12      Commission, while also providing support for legislative, planning, and educational  
13      initiatives.

14      Prior to joining CENH at the beginning of 2022, I worked for the NH Department  
15      of Environmental Services (NHDES) from 2008 until the end of 2021. While working  
16      at NHDES, I was involved in planning, projects, and programs across the electric  
17      power, building, and transportation sectors. My main roles were in coordination of  
18      multi-sector planning and policy initiatives including the: 2009 NH Climate Action  
19      Plan; the 2012 EESE Board Review on the Independent Study of Energy Policy  
20      Issues (“SB 323 (2010) Study”); and the New England Governors/Eastern Canadian  
21      Premiers 2017 Regional Climate Action Plan Update. In addition, I also regularly  
22      testified before the New Hampshire state legislature, and conducted energy and  
23      greenhouse gas (GHG) emissions analysis for NHDES and the State of New  
24      Hampshire, inclusive of the electric power, building, and transportation sectors.

25

26      **Q. Have you previously testified before the Commission?**

27      A. Yes. Previously, while on staff at NHDES, I submitted Testimony in this docket,  
28      DE 20-092, New Hampshire’s Electric and Natural Gas Utilities 2021-2023 New  
29      Hampshire Statewide Energy Efficiency Plan, as well as in DE 19-057, Eversource  
30      Rate Case. In addition, I provided significant input on NHDES’ comments for IR 20-

1 004, Investigation into Rate Design Standards for Electric Vehicle Charging Stations  
2 and Electric Vehicle Time of Day Rates, as well as NHDES’s extensive letter of  
3 support for key elements of the DE 19-064, Liberty Utilities Rate Case Settlement  
4 Agreement. Most recently, I provided Testimony on behalf of CENH in DE 21-078,  
5 Eversource Electric Vehicle Make-Ready and Demand Charge Alternative Proposals.  
6 In addition, I was an intervenor in DE 21-170, EV Time of Use Rates, and was an  
7 active participant in the DE 16-576 Net Metering pilot studies, the IR 15-296  
8 Investigation into Grid Modernization proceeding, and the DE 17-136 EERS working  
9 groups.

10  
11 **II. Overview and Summary**

12 **Q. Please describe the purpose of your testimony, including an overview of your**  
13 **analyses and conclusions.**

14 A. The purpose of our testimony is to support the overall approval of the NH  
15 Utilities’ 2022-2023 New Hampshire Statewide Energy Efficiency Plan (“the EE  
16 Plan”), noting that the plan provides economic, energy, and environmental benefits  
17 for the whole state, and positions the NH Utilities to deliver further benefits in the  
18 years ahead. The NH electric and gas utility energy efficiency programs have won  
19 numerous awards for their effectiveness, and they have consistently provided a net  
20 economic benefit for all ratepayers, while enabling a transformation in the market.

21 Energy efficiency is a key resource for utility planning, and the utilities’ filing of  
22 this joint-two-year plan is a critical part of the New Hampshire energy ecosystem.  
23 Increasingly, the solutions to energy system reliability, energy system costs, and  
24 environmental impacts intersect. For that reason, CENH has participated in energy  
25 efficiency program dockets for over a decade and has been intervening in numerous  
26 complementary PUC dockets. CENH’s mission is to promote clean energy and  
27 technologies through education and advocacy for a stronger economic future for all  
28 Granite Staters.

29

1 Our testimony begins (Section III) with an explanation of the updated review of  
2 the benefits of energy efficiency to New Hampshire’s energy system and economy, as  
3 well as the environmental and public health benefits that this plan would provide. The  
4 second part of our testimony (Section IV) includes discussion regarding our support  
5 for the fundamental elements of the EE Plan and their importance to the state’s  
6 energy system, economy, and environment.

7  
8 **III. Energy, Economic, and Environmental Benefits**

9 **Q. What broad justification exists for the Commission to approve the EE Plan?**

10 A. Implementation of the suite of cost-effective energy efficiency measures described  
11 in this EE Plan will, over the term of the two-year plan, reduce electric usage by 1.62  
12 percent of 2019 sales and natural gas usage by 1.49 percent of 2019 sales. Energy  
13 efficiency presents economic, energy, and environmental opportunities for the state as  
14 it is the least cost method to reduce overall energy consumption and therefore energy  
15 costs. As such, it is a vital method to exert downward pressure on electric rates by  
16 combating the need to invest in additional supply, reduce air pollution and greenhouse  
17 gas (GHG) emissions from the electric sector.

18 Because increased energy efficiency will result in lower electricity rates and fuel  
19 costs for all ratepayers and will provide numerous environmental benefits, support for  
20 energy efficiency is consistent with the New Hampshire energy policy, set forth in RSA  
21 378:37, which states that it is “the energy policy of this state to meet the energy needs  
22 of the citizens and businesses of the state at the lowest reasonable cost while providing  
23 for the reliability and diversity of energy sources . . . and to protect the safety and health  
24 of the citizens [and] the physical environment of the state.”

25  
26 **Q. Can you elaborate on how it will reduce costs?**

27 A. Most important to New Hampshire policy makers, energy efficiency spending  
28 lowers electricity rates for all consumers. Energy efficiency not only reduces overall  
29 energy consumption, but also reduces peak energy demand. By lowering energy  
30 demand, there is less need for building new generation facilities as well as transmission

1 and distribution infrastructure, so energy efficiency investments result in lower rates  
2 and not just lower costs for program participants.

3 Furthermore, reducing demand ensures that “peaker plants”, those electric  
4 generation facilities that rely on the most expensive fuels and have the highest operating  
5 cost, are called upon less frequently in ISO-New England (ISO-NE). The impact these  
6 plants have on energy costs is significant because when they are called into service,  
7 they set the clearing price for all the generators operating in the regional market. By  
8 keeping the peaker plants offline, this reduces total system cost. This effect is referred  
9 to as the Demand Reduction Induced Price Effect (DRIPE), and it’s particularly  
10 powerful when the electric utilities are allowed to invest aggressively in commercial  
11 and industrial (C&I) energy efficiency measures.<sup>1</sup>

12

13 **Q. What is the level of economic impact the utility efficiency programs have had**  
14 **in New Hampshire recently?**

15 A. Eversource estimates that total customer energy savings from measures installed  
16 during 2018-2020 will total over \$830 million. The benefit-to-cost ratio of these  
17 investments is very favorable, nearly always greater than 2:1 and frequently greater  
18 than 3:1. It is important to note that the 2018 NH State Energy Strategy calls for the  
19 maximization of all cost-effective energy efficiency.<sup>2</sup>

20 Energy efficiency provides all ratepayers with price volatility protection. In 2019,  
21 NH residents spent over \$540 million on natural gas, and natural gas prices averaged  
22 more than \$20/MMBtu during January of 2022,<sup>3</sup> more than six times more expensive  
23 than the peak spot price for natural gas during the winter of 2019-2020.<sup>4</sup> New

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<sup>1</sup> Synapse (2021). Avoided Energy Supply Components in New England. Synapse Energy Economics.  
[https://www.synapse-energy.com/sites/default/files/AESC%202021\\_20-068.pdf](https://www.synapse-energy.com/sites/default/files/AESC%202021_20-068.pdf)

<sup>2</sup> OSI (2018). The 2018 State Energy Strategy. Office of Strategic Initiatives, State of NH,  
<https://www.energy.nh.gov/sites/g/files/ehbemt551/files/inline-documents/sonh/2018-10-year-ses.pdf>.

<sup>3</sup> EIA (2022). New England Natural Gas And Electricity Prices Increase On Supply Constraints, High Demand  
(February 3, 2022), The Energy Information Administration, US Department of Energy,  
<https://www.eia.gov/todayinenergy/detail.php?id=51158>.

<sup>4</sup> EIA (2022). Natural Gas Weekly Update, (January 19, 2022), The Energy Information Administration, US  
Department of Energy, [https://www.eia.gov/naturalgas/weekly/archivenew\\_ngwu/2022/01\\_20/](https://www.eia.gov/naturalgas/weekly/archivenew_ngwu/2022/01_20/).

1 England electricity prices are highly correlated with gas prices, and in response to  
2 these price pressures Unitil increased its default residential six-month electricity  
3 supply price from 9.3 cents/kWh during the winter of 2020-2021 to 17.5 cents/kWh  
4 this winter. The most powerful policy tool New Hampshire has to dampen these rate  
5 shocks is to reduce the overall demand for energy.

6

7 **Q. Why is energy efficiency important going forward?**

8 A. There are two trends that make energy efficiency increasingly important to New  
9 Hampshire's economy in the future. The first is the war in Ukraine and the economic  
10 sanctions on the Russian economy. The second is the impact of electrification of the  
11 building and transportation sectors, which may have implications for total  
12 consumption and demand across ISO-NE.

13

14 **Q. How could the Russian sanctions influence New Hampshire and New England**  
15 **energy markets?**

16 A. The US was already experiencing higher natural gas prices as tight gas supplies in  
17 Europe in the end of 2021 and early 2022 sent prices higher and encouraged more  
18 liquified natural gas (LNG) to be exported from the US. This had an impact on ISO-  
19 NE energy prices by driving up spot market prices for both gas and electricity; dual  
20 fuel plants frequently resorted to relying on oil, which drove up real-time electricity  
21 prices relative to recent years.

22 The demand for US LNG is expected to remain high following Russia's invasion  
23 of Ukraine. The European Union is highly dependent on Russian oil and natural gas  
24 for energy, and in response to the war, the European Commission has released plans  
25 to curb imports of Russian gas by nearly two-thirds of its historic levels by the end of  
26 2022. That strategy depends significantly on increasing imports of natural gas from  
27 other sources. On March 25, 2022, President Joe Biden pledged to help meet that goal

1 by sending more liquefied natural gas to Europe.<sup>5</sup> This will likely put greater pressure  
2 on New England supplies of gas as the region is entirely dependent on imported  
3 pipeline gas and LNG shipments to meet its needs. The EE Plan, with investments in  
4 heating and electric efficiency, directly and indirectly reduces the state's demand for  
5 natural gas and provides a measure of resilience against this price increase.

6  
7 **Q. How do building and transportation electrification relate to energy**  
8 **efficiency?**

9 A. Both the adoption of electric vehicles in the transportation sector and the adoption  
10 of air and ground source heat pumps in the building sector are projected to increase  
11 significantly over the next decade in the ISO-NE region. While these technologies  
12 offer significant overall reductions in total energy within the regional economy, they  
13 do represent a fundamental reordering of the energy system through the adoption of a  
14 common energy carrier.

15 In its most current reporting, ISO-NE projects that by 2031, the region will grow  
16 from 35 thousand EVs to over 1.5 million in just the light-duty passenger fleet alone.  
17 Medium duty and heavy duty will see separate additions.<sup>6</sup> In addition, the number of  
18 homes with heat pumps is projected to grow from 63 thousand to almost 1.4 million  
19 households. Similarly, commercial heating applications will experience separate  
20 growth.<sup>7</sup> The overall effect of this transition will be an increase in consumption and  
21 demand.<sup>8</sup> While advanced rate making and demand management programs are  
22 expected to be deployed, mitigating the growth in load and demand, electrification  
23 will exert upward pressure on energy, transmission, and distribution rates. Therefore,

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<sup>5</sup> Tollefson, J. (2022). What The War in Ukraine Means for Energy, Climate and Food, Nature, <https://www.nature.com/articles/d41586-022-00969-9>.

<sup>6</sup> ISO-NE (2021). 2022 Draft Transportation Electrification Forecast, 2022 CELT Report, Load Forecast Committee, [https://www.iso-ne.com/static-assets/documents/2021/12/1f2022\\_draft\\_transp\\_elec.pdf](https://www.iso-ne.com/static-assets/documents/2021/12/1f2022_draft_transp_elec.pdf)

<sup>7</sup> ISO-NE (2021). Draft 2022 Heating Electrification Forecast, 2022 CELT Report, Load Forecast Committee, [https://www.iso-ne.com/static-assets/documents/2021/12/1f2022\\_draft\\_heating\\_elec.pdf](https://www.iso-ne.com/static-assets/documents/2021/12/1f2022_draft_heating_elec.pdf)

<sup>8</sup> ISO-NE (2021). Draft 2022 Gross Energy Forecast, 2022 CELT Report, Load Forecast Committee, [https://www.iso-ne.com/static-assets/documents/2021/12/1f2022\\_draft\\_energy.pdf](https://www.iso-ne.com/static-assets/documents/2021/12/1f2022_draft_energy.pdf).

1 energy efficiency programs remain especially essential, since they are the only state  
2 policy counter-balancing these trends and working to keep electricity rates low.

3  
4 **Q. Beyond energy system benefits, what additional benefits does the EE Plan  
5 offer?**

6 A. Approval of the EE Plan will provide support and certainty needed for New  
7 Hampshire's energy efficiency contractors. This workforce is highly skilled and has  
8 been growing in size and sophistication over the past decade. Thousands of Granite  
9 Staters are already employed by efficiency contractors. These contractors are often  
10 small, local businesses that offer excellent career opportunities to attract a growing  
11 workforce to New Hampshire. Many contractors offer long-term career development  
12 opportunities, health care/retirement and paid time off benefits to their employees,  
13 and often do not require college education as a prerequisite to employment in this  
14 high paying industry. Approval of the plan will ensure that the companies that have  
15 certainty needed to further expand their operations in New Hampshire.

16  
17 **Q. What sort of non-energy benefits does the EE Plan provide?**

18 A. The use of electricity and natural gas in our built environment, whether for heat,  
19 lighting, production or other purposes, results in adverse environmental impacts.  
20 Using less energy to achieve the same outcome reduces harmful emissions that  
21 contribute to water pollution, local air pollution and global climate change. As noted  
22 above, the EE Plan will reduce electric usage by 1.62 percent of 2019 sales and  
23 natural gas usage by 1.49 percent of 2019 sales. Such savings will result in immediate  
24 and long-term public health and environmental quality benefits.

25 Reducing total energy consumption lowers emissions of smog-forming  
26 compounds and particle pollution that cause direct health impacts, mercury emissions  
27 that significantly pollute our lakes and streams, and greenhouse gas emissions that  
28 contribute to climate change. In that respect, energy policy is environmental policy  
29 and vice versa. This connection has been reinforced by the NH General Court on  
30 numerous occasions, as reflected in NH statutes, a fact which was noted during the

1 development of the Granite State Test (GST) and the Secondary Granite State Test by  
2 the EERS Benefit/Cost Working Group during 2019.<sup>9</sup>

3 As energy efficiency and other clean energy solutions evolve and come down in  
4 price, they present a significant opportunity to reduce energy costs while providing  
5 for a cleaner environment, leading to improved public health outcomes. Because the  
6 efficiency programs proposed by the EE Plan are designed to be cost-effective, those  
7 environmental gains come with economic savings as well.

8 Analysis of the 2022-2023 EE Plan found that the proposed programs will lead to  
9 a reduction of more than 1.5 million tons of GHG emissions.<sup>10</sup> This is consistent with  
10 findings of an analysis of ISO-NE's Final 2018 ISO New England Electric Generator  
11 Air Emissions Report, which noted that shifting electricity use from on-peak to off-  
12 peak reduces the emission of Clean Air Act criteria air pollutants, including oxides of  
13 nitrogen (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>), and carbon dioxide (CO<sub>2</sub>), a greenhouse  
14 gas, considerably.<sup>11</sup> During ozone season, shifting electricity from peak to off-peak  
15 can, on average, reduce emissions for NO<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub> by 43 percent, 75 percent,  
16 and 10 percent respectively.<sup>12</sup> On high electric demand days during the ozone season,  
17 the emission reductions can be considerably greater; at 200 percent, 307 percent, and  
18 31 percent respectively.<sup>13</sup>

#### 19 20 **IV. High-Level Recommendations**

21 **Q. Do you have any recommendations for the Commission?**

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<sup>9</sup> Malone, E., Woolf, T., and Letendre, S. (2019). New Hampshire Cost-Effectiveness Review: Application of the National Standard Practice Manual to New Hampshire, Synapse Energy Economics, [https://www.puc.nh.gov/regulatory/docketbk/2017/17-136/letters-memos-tariffs/17-136\\_2019-10-31\\_staff\\_nh\\_cost\\_effectiveness\\_review.pdf](https://www.puc.nh.gov/regulatory/docketbk/2017/17-136/letters-memos-tariffs/17-136_2019-10-31_staff_nh_cost_effectiveness_review.pdf).

<sup>10</sup> EE Plan, BATES 13.

<sup>11</sup> ISO-NE (2018). Final 2018 ISO New England Electric Generator Air Emissions Report, ISO New England Inc. System Planning, [https://www.iso-ne.com/static-assets/documents/2022/02/20220215\\_draft\\_2020\\_emissions\\_results.pdf](https://www.iso-ne.com/static-assets/documents/2022/02/20220215_draft_2020_emissions_results.pdf).

<sup>12</sup> Analysis of ISO-NE data, Table 5-3, 2018 Time-Weighted LMU Marginal Emission Rates—All LMUs (lbs./MWh), Draft 2018 ISO New England Electric Generator Air Emissions Report, pg., 29.

<sup>13</sup> Analysis of ISO-NE data, Table 5-3, 2018 Time-Weighted LMU Marginal Emission Rates—All LMUs (lbs./MWh), pg., 29, and Table 5-8, High Electric Demand Day LMU Marginal Emission Rates (lbs./MWh), pg. 36 Draft 2018 ISO New England Electric Generator Air Emissions Report.

1 A. Yes. For the reasons above, I strongly support the 2022-2023 EE Plan as  
2 submitted. The proposed plan and investments will benefit New Hampshire's  
3 economy, ratepayers, and environment for years to come. The work by the utilities to  
4 develop and refine the plan is commendable.

5 CENH recommends that the Commission approve the EE Plan's proposed goals  
6 of cumulative energy savings of 1.62 percent of the NH Electric Utilities' 2019 kWh  
7 delivery sales and 1.49 percent of the NH Natural Gas Utilities' 2019 MMBtu  
8 delivery sales. CENH' recommendation is based upon the NH Utilities'  
9 demonstration that achievement of those goals would deliver significant cost-  
10 effective energy reductions, which would provide real energy cost savings to New  
11 Hampshire ratepayers, as well as significant environmental benefit. The EE Plan is  
12 projected to deliver customer energy cost savings of more than \$441 million over the  
13 lifetime of the measures,<sup>14</sup> as a result of avoiding 2.0 billion electric kWh and 5.4  
14 million natural gas MMBtu, and further avoiding 3.6 million MMBtu from other  
15 fuels, such as oil and propane.<sup>15</sup> Such reductions will provide significant  
16 environmental benefits, including a reduction of more than 1.5 million tons of GHG  
17 emissions over the life of the measures.<sup>16</sup> By delivering such a broad range of  
18 benefits, the goals in this EE Plan present a comprehensive package of benefits for  
19 the state.

20

21 **V. Conclusion**

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

23 A. Yes.

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<sup>14</sup> EE Plan, BATES pg. 14

<sup>15</sup> Ibid, BATES pg. 13

<sup>16</sup> Ibid, BATES pg. 14

## **Addendum CS-1**

### **Qualification of Christopher J. Skoglund**

My name is Christopher J. Skoglund. I am employed as the Director of Energy Transition by Clean Energy New Hampshire (CENH). My business address is 14 Dixon Ave in Concord NH.

I earned a Bachelor of Arts in Biology from Johns Hopkins University in 1997 and a Master of Science in Natural Resources from the University of New Hampshire in 2012. In between those degrees, I was principally employed teaching environmental and science education to middle and high school students across the country.

In 2007, I began working part-time as a Climate Program Specialist working on developing background data and analysis and planning tools to support a potential state climate action plan. In 2008, I was hired full time as an Energy and Transportation Analyst, primarily coordinating the development of the 2009 NH Climate Action, which included managing the analysis of the electric power, building, and transportation sectors. In this position, I was also engaged in transportation planning and analysis, working with the NH Department of Transportation and the four Metropolitan Planning Organizations in the southeast corner of the state.

In 2010, I moved into the Energy and Climate Analyst position, focusing more on building and electric sectors with high-level energy and climate-change planning focused at the local, state, and regional level. In 2012, I oversaw the state's Energy Efficiency and Sustainable Energy Board's development of the 2012 EESE Board Review on the Independent Study of Energy Policy Issues ("SB 323 (2010) Study").

In 2016, I moved to the Climate and Energy Program Manager position at NHDES. In this role, I regularly tracked legislation and testified before the state legislature. I was also a regular participant in PUC dockets, including Grid Mod, Net-Metering, Utility Energy Efficiency Programs, and the individual electric utility rate cases.

While at NHDES, I was also a member of the New England Governor's Eastern Canadian Premiers (NEG/ECP) Climate Change Steering Committee and helped lead efforts in 2015 and 2016 to establish a new regional GHG emissions reduction target for

2030. In 2016 and 2017, I led the successful effort to develop an update to the region's 2001 climate action plan, a plan that was economy wide and inclusive of the electric power, building, and transportation sectors.

Throughout this time at NHDES, I maintained the statewide GHG inventory, inclusive of the electric power, building, and transportation sectors and took a lead role in the GHG inventory for the entire NEG/ECP region.

I joined CENH in January of 2022. In this role, I am the organization's lead at the NH Public Utilities Commission, while also providing support for legislative, planning, and educational initiatives.