

Memorandum on Low-Income Non-Energy Impacts

Introduction

New Hampshire Legal Assistance appreciates the opportunity to provide this proposed a list of non-energy impacts (NEIs) to study and quantify as part of the cost-benefit analysis of New Hampshire's ratepayer-funded energy efficiency programs. This list of suggested NEIs to quantify is based on our review of the filings in DE-17-136, the presentations to the EERS Committee during the summer of 2017, and review of other NEI reports and studies. Following the discussion of each NEI, citations to sources that discuss that particular NEI are included.

This is by no means an exhaustive list of the relevant NEIs, but merely a selection of NEIs that have been considered or quantified in other jurisdictions, and which NHLA believes are among the most quantifiable and relevant to low-income energy efficiency projects. We look forward to discussing these NEIs and any others that the group may wish to consider.

Table of Contents

<u>Health and safety NEIs specific to low-income:</u>	3
Reduced home fire risk	3
Reduced carbon monoxide poisoning	3
Reduced cold and heat related thermal stress	3
 <u>Health and safety NEIs primarily affecting low-income:</u>	 4
Improved air quality	4

Reduced missed days of work due to illness	4
<u>Other health and safety NEIs:</u>	4
Improved sleep	4
Improved comfort	5
Improved safety from lighting	5
<u>Financial NEIs specific to low-income:</u>	5
Reduced use of short-term, high interest loans	5
Reduced displacement and mobility due to unaffordable energy costs	6
Increased ability to pay utility bill and related benefits	6
<u>Property related NEIs:</u>	7
Increased property value	7
Reduced home maintenance costs	7
Reduced insurance costs	7
<u>Utility NEIs specific to low-income:</u>	7
Increased timely payment of bills and related benefits	7
<u>Other Considerations:</u>	8
Public policy	8

Health and safety NEIs specific to low-income:

Reduced home fire risk- Low income households are much more likely to resort to space heaters or ovens as an alternative heating source, and candles as an alternative lighting source. These open heat sources pose a risk of accidental fires, causing property loss, loss of life, hospitalization, and/or incurred medical costs.

References: Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 9.3 p. 45; Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 29; Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 30-32; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 19; Table 19 p.50.

Reduced carbon monoxide poisoning – Low income households use gas stoves or other combustion-based heating sources at higher rates, and are less likely to have properly functioning carbon monoxide detectors installed. These households are exposed to risks of loss of life, hospitalization, and/or incurred medical costs.

References: Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 8.3 p. 40; Table 9.3 p. 45; Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 29; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 19; Table 19 p. 50.

Reduced cold and heat related thermal stress – Low income households are much more likely to face unaffordable energy costs. Those households often are unable to maintain their home at a safe temperature due to unaffordable energy costs, and may face dangerously hot or cold temperatures during the hottest or coldest times of the year. Low income households are placed at greater risk of loss of life, hospitalization, and/or incurred medical costs relating to these thermal stresses. These households may also be forced to remain absent from their home to avoid the dangerous extreme temperatures, or due to damage to the property caused by freezing pipes.

References: Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 29; Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 4.7 p. 27; Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 32-33;

Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 19 p. 50.

Health and safety NEIs primarily affecting low-income:

Improved air quality – Households benefit from reduced occurrence and hospitalization for respiratory illnesses like asthma, bronchitis, and COPD. Low income households often face thermal stress and live in older or more poorly maintained housing stock. These households enjoy a greater benefit of improved air quality from many energy efficiency measures.

References: Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 26, 29; Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 3.4 p. 18; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 19, p. 50.

Reduced missed days of work due to illness – Households who are unable to effectively regulate the temperature of their home are at greater risk of illness. Household members may suffer decreased work performance and productivity, become too ill to work, or may be required to provide care for a family member. Low income households, who are less capable of affording the energy costs needed to regulate the temperature of their home, are at a substantially higher risk of becoming ill due to the temperature of their home. Household members who miss work due to their own or a family member's illness often suffer a loss of income if they do not have sufficient paid sick leave. 39 percent of American workers have no paid sick leave at all.

References: Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 24; Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 5.2 p. 30; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10, p. 19; Table 20, p. 51; Table 37 p. 66.

Other health and safety NEIs:

Improved sleep – Improved quality of sleep is known to improve productivity, both in the home and at work. It also has been shown to provide a variety of physical and mental health benefits,

including improved immune system response and decreased stress and/or anxiety. Thermal stress and improved air quality both contribute to the quality of a household's sleep. Low income households are more likely to struggle with thermal stress and air quality issues due to unaffordable energy costs and older housing stock.

References: Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 7.2 p. 36; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10, p. 19; Table 19 p. 50; Table 39 p. 68.

Improved comfort – Households experience increased comfort related to energy efficiency projects. Comfort, while a somewhat individually subjective experience, is tied to improvements to noise reduction, improved lighting and more effective thermal regulation. Improved comfort at home is associated with decreased stress and anxiety, along with the assorted health benefits. Comfort is among the most widely recognized and studied NEIs.

References: 2018-2020 New Hampshire Statewide Energy Efficiency Plan, p. 22-23, 50; Michael Goldman, Valuing NEIs: Evidence-Based Approaches, June 20, 2017 Presentation to the EERS Committee, p. 24; Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, Appendix B, p. 3-8; VEIC Review of 2018-2020 NH Statewide Energy Efficiency Plan Draft dated May 31, 2017, p. 5; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), p. 6; Table 10 p. 19; p. 24; p. 34; Table 16 p. 35; Table 17 p. 37; Table 20 p. 52; Table 22 p. 55; Table 28 p. 59; Table 40 p. 73; Appendix 4 p. 77.

Improved safety from lighting – Improved lighting, inside and outside the home, decreases the risk of household accidents such as tripping or falling. Improved lighting quality, durability, and reduced energy costs allow households to more safely and effectively illuminate their home.

Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Appendix 4 p. 77.

Financial NEIs specific to low-income:

Reduced use of short-term, high interest loans – Low income households often live paycheck to paycheck, and unexpected expenses often require them to use short-term, high interest loans to

pay their bills. This financial impact is distinct from a generally improved ability to regularly pay bills, as it avoids the additional expenses and costs of very high interest rates, interest payments and loan fees. Interest rates for these short term loans can be as high as 36% for a 14 day loan in New Hampshire.

References: Massachusetts Special & Cross-cutting Research: Low-Income Single Family Health & Safety Related Non Energy Impacts (NEIs) Study (2016), Table 6.3 p. 34; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 19; Table 19 p. 50; Table 38 p. 67.

Reduced displacement and mobility due to unaffordable energy costs – Low income households are often forced to permanently relocate due to unaffordable energy costs. Households that are unable to pay their energy costs often have their utility service disconnected, which can leave their home uninhabitable. Even if the home is not made uninhabitable by a disconnection of utility services, many leases require that the tenant maintain utility service, and allows for eviction of the tenant if utility services are not maintained. If the household is unable to reconnect their utility, they may be forced to permanently relocate and incur all of the financial costs associated with finding and securing and moving into a new home. Households who are displaced from their homes due to unaffordable energy costs often struggle to find new adequate housing, as utility arrearages often disqualify them from housing assistance programs or prevent them from reestablishing utility service at another address.

References: ; Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 4; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 19; p. 76.

Increased ability to pay utility bill and related benefits – Low income households often struggle to pay their utility bills due to unaffordable energy costs. Households that are better able to pay their utility bills benefit from more disposable income to use for food, copays for prescriptions or other medical expenses, and other household bills such as rent, property taxes, or transportation costs. Those households also benefit from fewer disconnections and reconnections of utility service, fewer evictions for nonpayment of utilities, and an improved consumer credit rating.

References: Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 3-4, 33-34; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An

Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 19; p. 76; Table 20 p. 52.

Property Related NEIs:

Increased property value – Energy efficiency projects often improve the value of a home, as a home that is more efficient is generally more desirable and easier to sell, and is less expensive to maintain..

References: 2018-2020 New Hampshire Statewide Energy Efficiency Plan, p. 22-23; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), p. 6; Table 10 p. 18; Table 16 p. 35; Table 17 p. 37; Table 20 p. 53; Table 28 p. 59; p. 73, 78.

Reduced home maintenance costs – Energy efficiency projects often improve the durability of homes and lower demands placed upon household equipment such as furnaces or HVAC equipment, reducing long-term maintenance costs.

References: 2018-2020 New Hampshire Statewide Energy Efficiency Plan, p. 22; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), p. 6; Table 16 p. 35; Table 17 p. 37; Table 20 p. 52; Table 28 p. 59; p. 73.

Reduced cost to insure – The reduced risk of fires and other improved safety benefits would lower the costs to insure the household property. Reductions in insurance costs allow households to more easily pay their mortgage and property taxes as well.

2018-2020 New Hampshire Statewide Energy Efficiency Plan, p. 3.

Utility NEIs specific to low-income:

Increased timely payment of bills and related benefits – Utilities benefit from more timely payment of bills when low-income households are more easily able to afford their energy bills. That timely bill payment means that utilities have to perform fewer disconnections and reconnections of services, field fewer calls relating to unpaid bills, expend fewer resources on

debt collection efforts, write off less bad debt, and carry lower arrearages from unpaid bills. More timely payment of bills also increases the working capital available to the utilities.

References: VEIC Review of 2018-2020 NH Statewide Energy Efficiency Plan Draft dated May 31, 2017, p. 5; Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 3; Northeast Energy Efficiency Partnerships, Non-Energy Impacts, Approaches, and Values: An Examination of the Northeast, Mid-Atlantic, and Beyond (2017), Table 10 p. 18; Table 20 p. 51; Table 28 p. 59; p. 73.

Other Considerations:

Public policy – New Hampshire has an interest in seeing an equitable distribution of energy efficiency benefits among all classes of ratepayers, explicitly recognized by RSA 374-F:3. Energy efficiency investments for low-income households have the added benefit of making New Hampshire’s Electric Assistance and Fuel Assistance programs more efficient through usage reduction, as well as reducing the amount of fuel or rate discounts that needs to be dispensed to the participating household. These public policy interests should be considered as part of the ongoing discussion of quantifying NEIs for low-income customers.

References: Direct Testimony of Roger Colton, November 1, 2017, DE-17-136, p. 12-14, 35-36.