

Low-Income Multifamily Health- & Safety-Related Non-Energy Impacts

This study estimates non-energy impacts (NEIs) attributable to improving the energy efficiency of low-income multifamily (LIMF) buildings in Massachusetts served through the Mass Save® program. It is the first stage of a two-stage study conducted by NMR and Three³. This research was funded by the MA energy efficiency Program Administrators (PAs) and The JPB Foundation.

Study Objectives

PHASE 1



Phase 1 of this study aimed to estimate the value of impacts of weatherization services on health, safety, energy affordability and household financial situations of LIMF households in MA. These estimates are meant to serve as temporary values until Phase 2 data are available for analysis.

PHASE 2



Phase 2 of this study will refine these estimates by incorporating pre- and post-weatherization data into the analysis and will also estimate additional potential NEIs.

Key Findings

- Phase 1 monetized 14 NEIs.
- Results support the hypotheses that (1) improving the energy efficiency of LIMF buildings results in positive monetary valuation of NEIs and (2) both NEIs and NEI values are different for residents of LIMF housing versus residents of low-income single family (LISF) homes.
- LIMF household NEIs that are directly related to specific health conditions, such as asthma and thermal stress, are potentially greater than those observed in the LISF population. NEIs related to financial stability or general health, such as short-term loans or missed days of work, appear to be lower for the LIMF population than for the LISF population.

14 NEIs Studied



Recommendations

Until Phase 2 of the study is complete, the PAs should adopt the following estimates per household per year for the Thermal Stress – Cold, Asthma, and Reduced Fire Risk NEIs.



Thermal Stress - Cold
\$2.02/yr



Asthma
\$11.06/yr



Reduced fire risk
\$12.96/yr

Considerations

Arthritis has the potential to be an important NEI for the PAs. The PAs should consider adopting the monetized Arthritis NEI after further investigation in the Phase 2 analysis.



Arthritis
\$28.82/yr

The PAs should also consider exploring as part of the Phase 2 analysis using a cross-sectional or matched-pairs analysis approach, as appropriate, for the following NEIs:

- Arthritis
- Spoiled food
- Energy assistance
- Odors
- Noise Pollution
- Mental health and well-being
- Refrigerated medicines
- COPD
- CVD
- Diabetes
- Headaches