

RI Appliance Recycling

Evaluating the Energy Savings from an Appliance Recycling Program

NMR conducted a study to estimate gross, adjusted gross, and net energy savings for a NGRID sponsored refrigerator and freezer recycling program in Rhode Island. In comparison to 2011 program estimates, the current program resulted in lower savings, driven down by younger and more efficient units recycled through the program. Efficiency gains for refrigerators were somewhat offset by the prevalence of side-by-side door configuration, primary usage, and larger size. Results will be used to inform energy efficiency planning for 2020.

Main Takeaways

Implications

Year over year savings will decline due to the diminishing supply of older and less efficient units that get recycled through the program.

Recommendation

NMR recommends that National Grid adopt the savings for use in program planning.

Point of Guidance

Biennial (every other year) *quick hits* studies similar to this one will allow National Grid to provide more accurate savings estimates in program planning.

Key Findings

Comparison of Savings



VS.



The per-unit savings for refrigerators and freezers decreased between 2011 and 2017/2018 by 19% and 36%, respectively. The current program recycles younger units that were manufactured under increased federal efficiency standards, and therefore use less energy than those recycled in 2011.



VS.



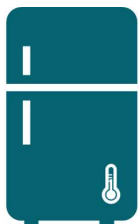
Rhode Island and Massachusetts exhibited similar refrigerators savings in 2018, but Rhode Island's freezers savings fell below those of Massachusetts, largely reflecting the younger age of freezers in Rhode Island.

2017/2018 Impact Factors

Gross Energy Savings	1,004 kWh
Adjusted Gross Savings	883 kWh
Net Energy Savings	389 kWh

Appliance Characteristics

18 yrs Average Age	19 cu.ft Average Size
52% Primary Units	69% Top Freezer Units



REFRIGERATORS

Gross Energy Savings	724 kWh
Adjusted Gross Savings	492 kWh
Net Energy Savings	278 kWh

22 yrs Average Age	16 cu.ft Average Size
88% Secondary Units	76% Upright Units



FREEZERS