

Connecticut Residential New Construction Net-to-Gross Study

The R1707 Connecticut Residential New Construction (RNC) Net-to-Gross (NTG) study assessed how the RNC program impacted the energy consumption of participant and non-participant homes. The study used a Delphi panel to develop a hypothetical scenario in which the program had been canceled at the end of 2011. The panelists estimated how much less efficient homes would have been without the program. The results were compared to the program's gross savings to estimate an overall NTG ratio based on panelists' feedback about single-family and multifamily home efficiency.

Methods



Key Findings

Key measures affected by the program

Without the program, measures such as *duct leakage*, *air infiltration*, and *insulation installation quality* would have been much less efficient than their current levels. Insulation R-values would have been modestly less efficient, and mechanical system efficiencies would have only been marginally less efficient.

Experts estimated that key measures would have been worse by the following amounts:



Duct leakage



Air infiltration



Insulation installation



Average energy use

	PROGRAM	NON-PROGRAM	% worse
Duct leakage	102%	32%	
Air infiltration	44%	22%	
Insulation installation	33%	5%	
Average energy use	10%	11%	

Overall Net Impacts

Whole Program NTG

Panelist estimates yielded a NTG ratio of 1.56 for the program overall.

Free-ridership (FR) and Spillover (SO)

Moderate FR: 0.69
High non-participant SO: 1.25
Estimated penetration rates:
Single-family - 12%
Multifamily - 50%

Looking Forward

Panelists saw a strong future for the program, but gross savings may decrease as non-program baselines improve and lighting savings diminish.

Recommendations

1 Use the retrospective NTG value of 1.56. Value could drop in the future without big jumps in program efforts to stay ahead of steadily increasing non-program baselines.

2 Continue to promote the adoption of solar PV and net zero designs. Improve the efficiency requirements for the lowest program tier.

3 Continue to include code compliance as a part of the RNC program, and carefully track the outcomes of such efforts to claim impacts.