

R1707 Net-to-Gross Study Connecticut Residential New Construction

Final Presentation for Connecticut Energy Efficiency Board, Eversource, United Illuminating and Stakeholders

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Introduction

- RNC program
 - Builder-focused
 - Driving efficient construction
 - Tiered incentives
- Rich data from recent studies
 - 2011 RNC baseline
 - 2016 R1602 baseline, process, billing

Goals

- Calculate program impacts
- Develop NTG ratios for the PSD
- Program impacts for:
 - Multifamily
 - Solar PV
 - Net Zero

CT RNC NTG | Methodology




Evaluation Methodology

- Collect data from past baseline studies
- Company conversations and data request:
 - Old energy models
 - Program background
- Delphi panel (2 rounds)

"What would have happened in 2016 if the program hadn't existed after 2011?"
- Analysis:
 - Delphi responses
 - Energy models
 - Savings calculations

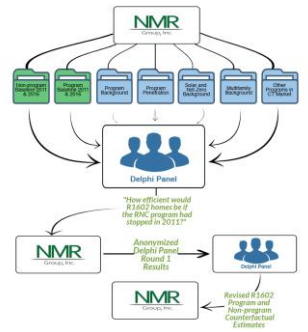
Expert Type	#
Efficiency consultants (HERS)	3
Builders	2
National evaluation experts	3
Non-CT RNC program managers	4
CT code official	1
Total	13

CT RNC NTG | Methodology

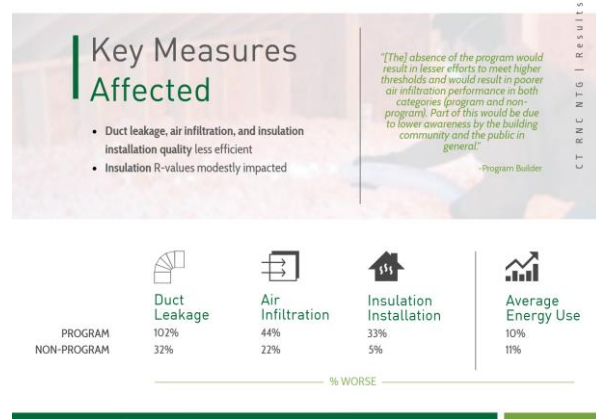


Delphi Panel Process

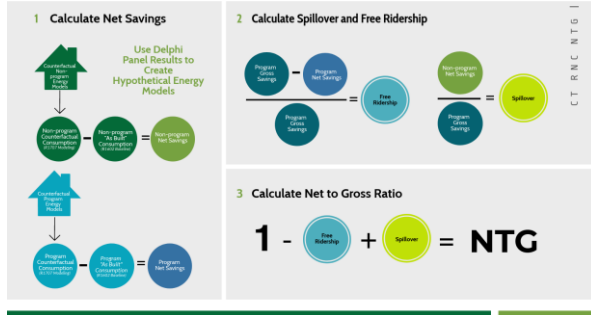
- Compile background research
- NMR sends questionnaire
- Panel responds, sends back
- NMR: "Are you sure?"; analyze Round 1 responses
- Panel responds, sends back; NMR analyzes Round 2 responses



CT RNC NTG | Methodology



NTG Ratio Calculation



CT RNC NTG | METHODOLOGY

Per Home Savings (MMBtu)

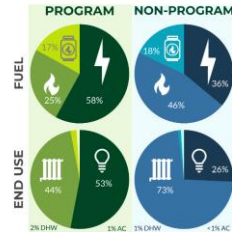


		GROSS SAVINGS (Baseline - As-built program home consumption)	50.0	16.6
PROGRAM	HYPOTHETICAL CONSUMPTION	84.4	38.0	
	AS-BUILT CONSUMPTION	77.0	35.4	
	NET SAVINGS (Hypothetical - As-built)	16.0	5.0	
NON-PROGRAM	HYPOTHETICAL CONSUMPTION	126.6	53.4	
	AS-BUILT CONSUMPTION	114.2	49.6	
	NET SAVINGS (Hypothetical - As-built)	18.0	4.8	

CT RNC NTG | RESULTS

Net Savings By Fuel & End Use

- Program net savings: over 1/2 from lighting; rest from space heating
- Non-program net savings: nearly 3/4 from space heating; rest from lighting



CT RNC NTG | RESULTS

Overall Net Impacts

"[The] program is continually driving innovation and more efficient homes, in particular with the design of S50/extra HERS point below 50."
-Non-CT RNC Program Manager



Program Savings (MMBtu)

- Gross: 40,057
- Net Program: 12,452
- Net Non-program: 49,986



Free Ridership & Spillover

- Moderate FR: 0.69
- High NP SO: 1.25
- Est. Penetration Rates:
SF - 12%
MF - 50%



Whole Program NTG

- Overall program NTG ratio of 1.56

CT RNC NTG | RESULTS

What We Recommend

"The mix of water heater types in program homes is changing with more types of water heaters available. I think the program will be a driver of increasing the penetration of the most efficient systems."
-National Evaluator

CT RNC NTG | RECOMMENDATIONS

STAY AHEAD

- Use retrospective NTG value of 1.56
- Value could drop
- Program efforts to stay ahead of non-program baselines

PROMOTE PV

- Promote solar PV and net zero design
- Update lowest program tier efficiency requirements

CODE COMPLIANCE

- Continue to include code compliance in the RNC program
- Carefully track the outcomes to claim impacts

Thank You!

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41 EMPLOYEE OWNERS

