

The Humpty Dumpty of Heating *Piecing Together an Understanding of Ductless Mini-Split Heat Pump*

Usage in the Northeast

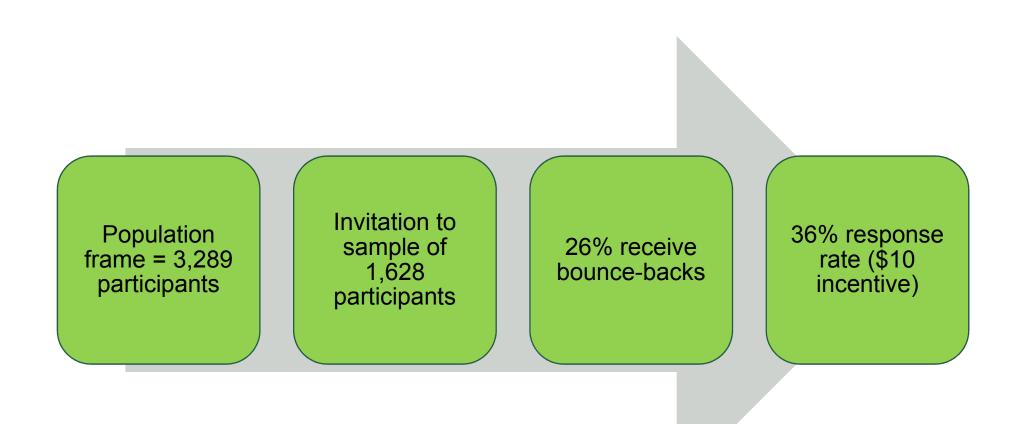
Danielle Vitoff, Navigant

2015 IEPEC Conference — Long Beach, California

Co-Authors: Matt Nelson, Eversource Energy Justin Spencer, Navigant Terese Decker, Navigant Ken Seiden, Navigant Andy Machado, Cadmus



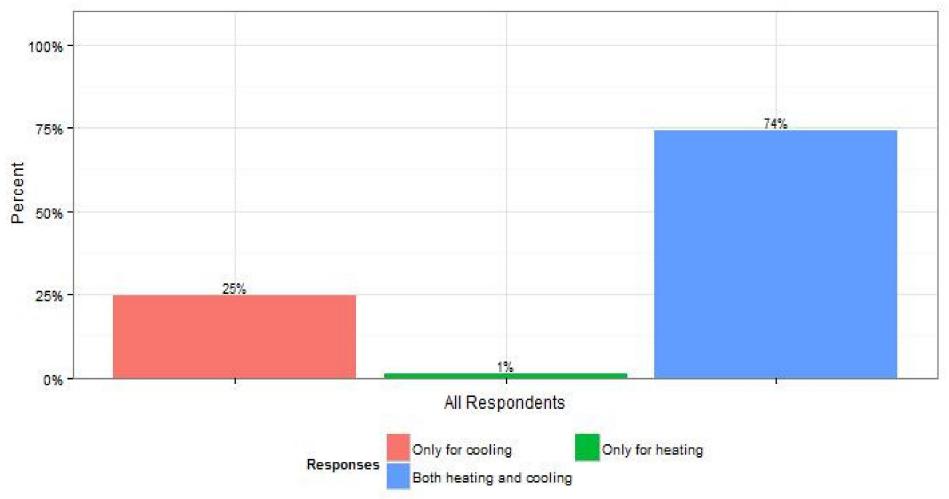
http://carefreeair.com/cf_products/mitsubishi-mr-slim-hyper-heating-heat-pump-wall-mounted-system/



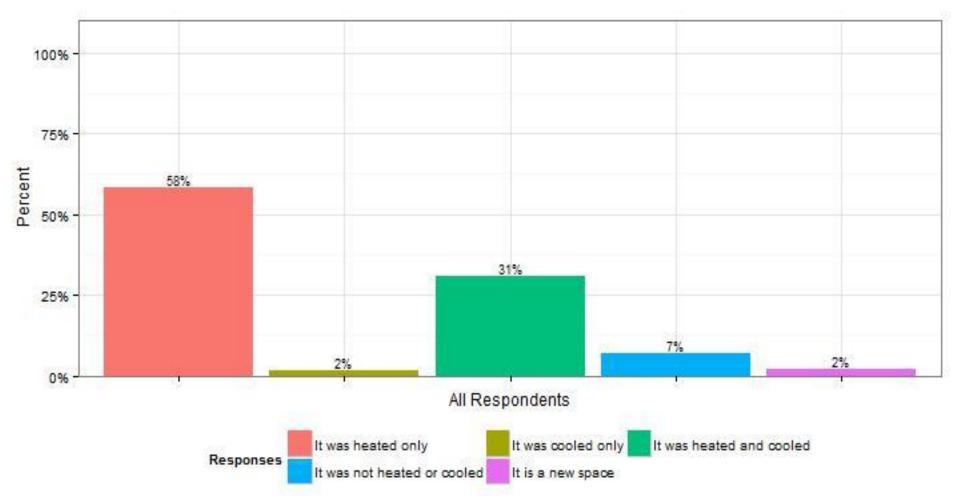
Online Survey Methodology

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Online Survey Results: How Participants use their DMSHP



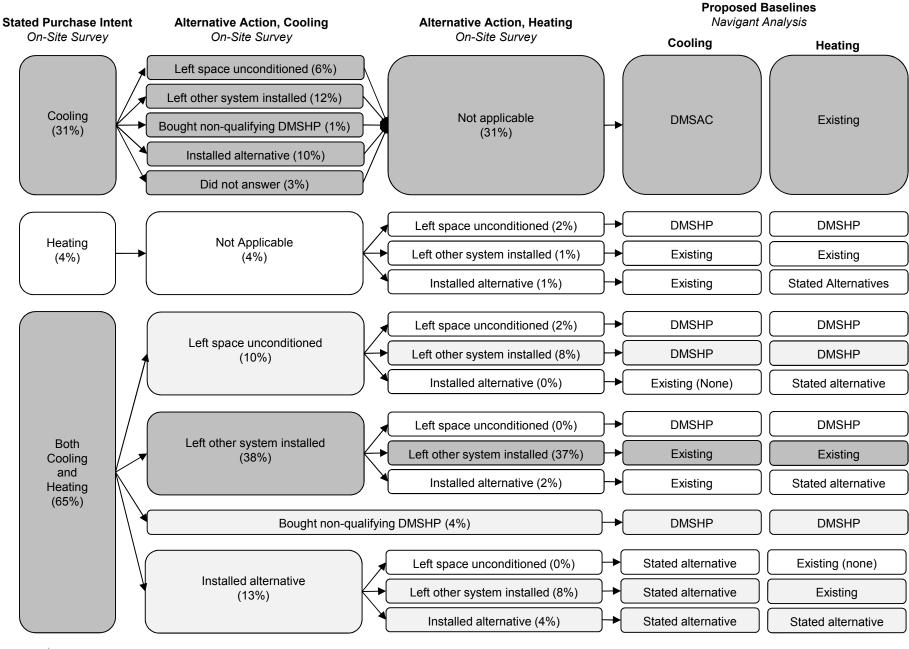
Online Survey Results: Space Conditioning before the DMSHP Installation



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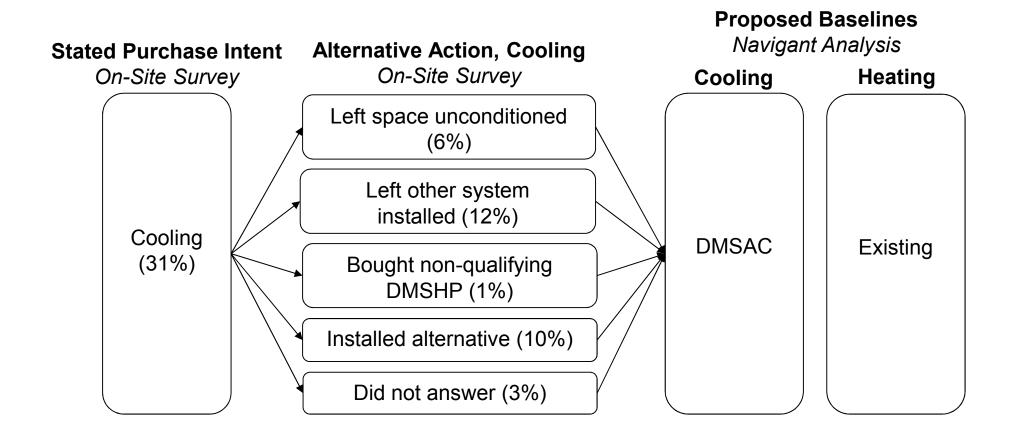
On-Site Survey Methodology

307 willing to participate in data logging 135 sites chosen to ensure adequate representation Detailed on-site survey completed at all 135 sites

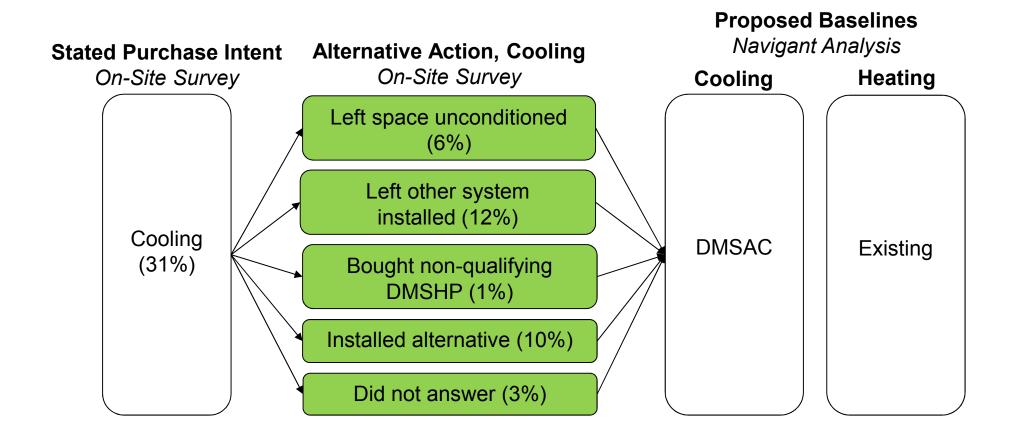


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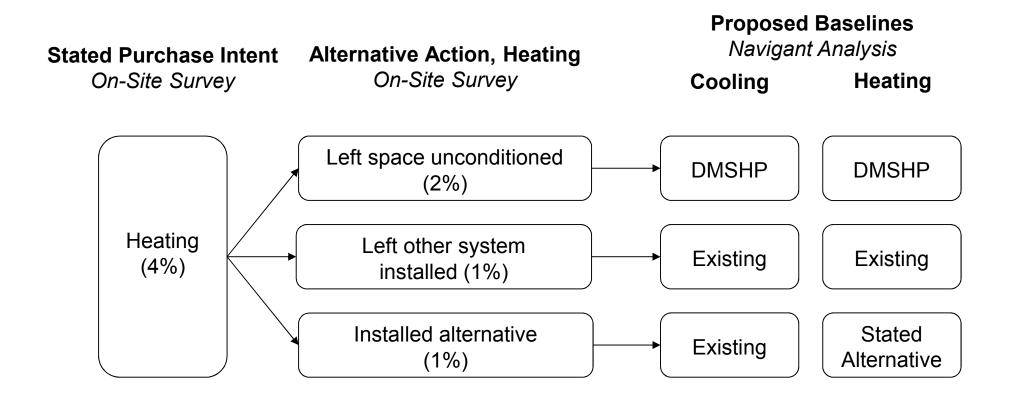
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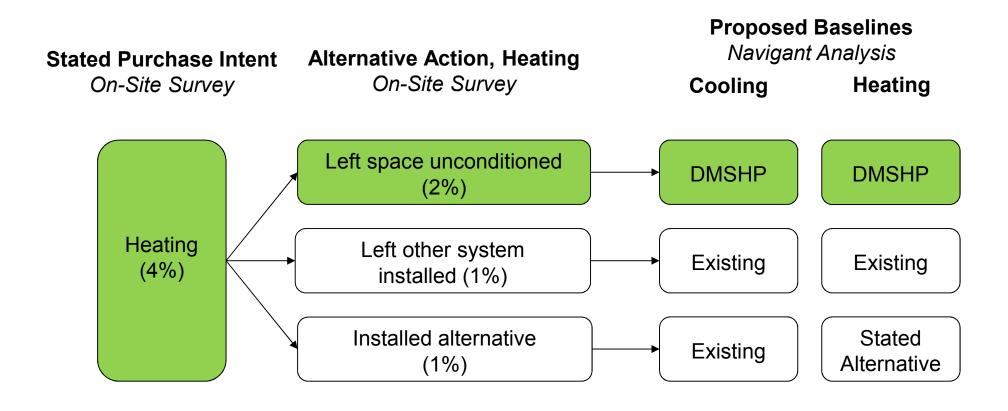
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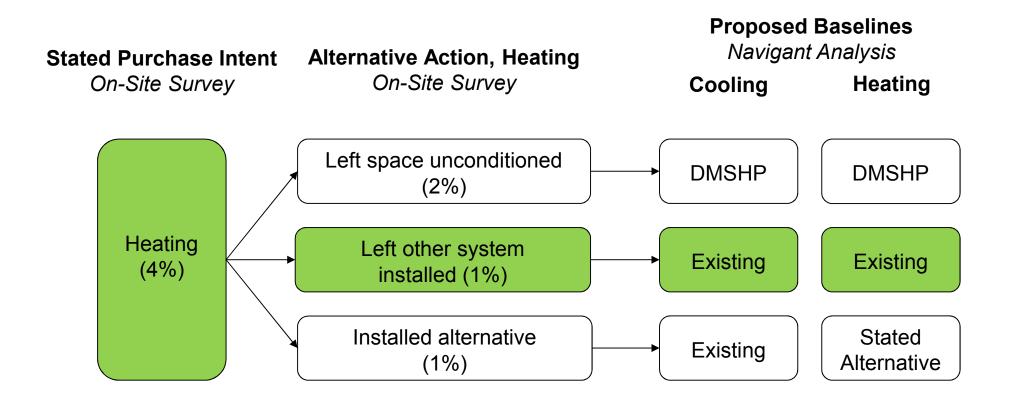
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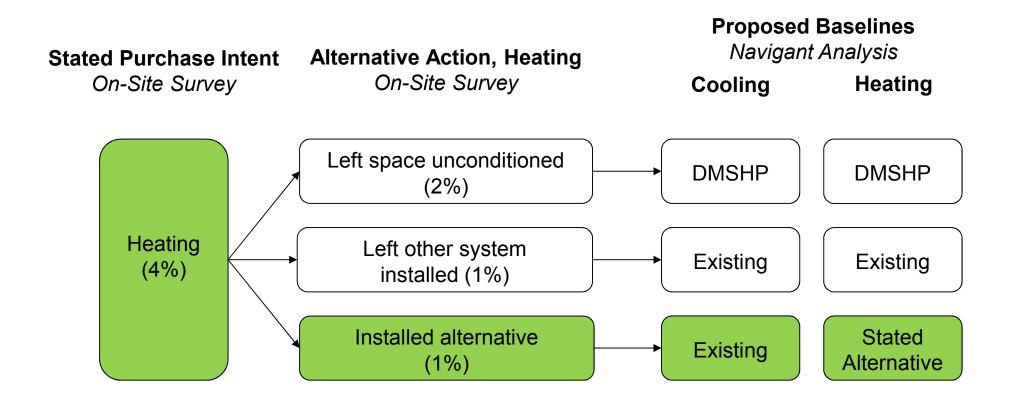
Would have alternatively 'left space unconditioned'

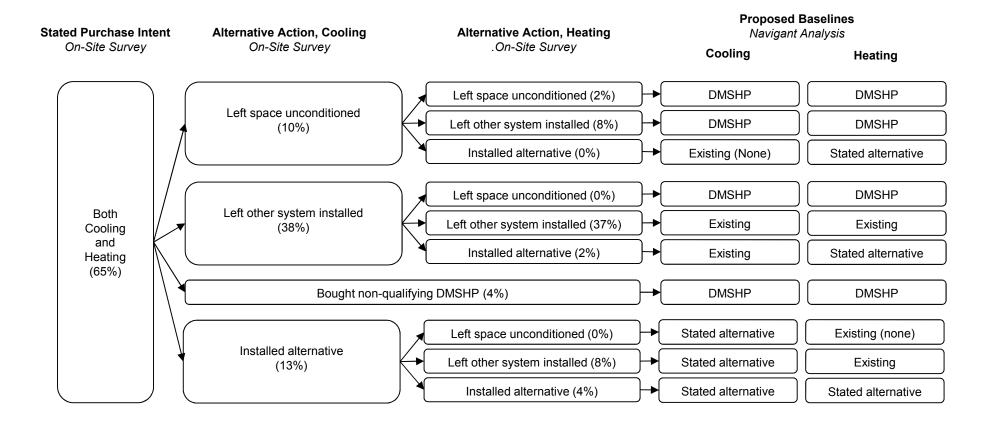


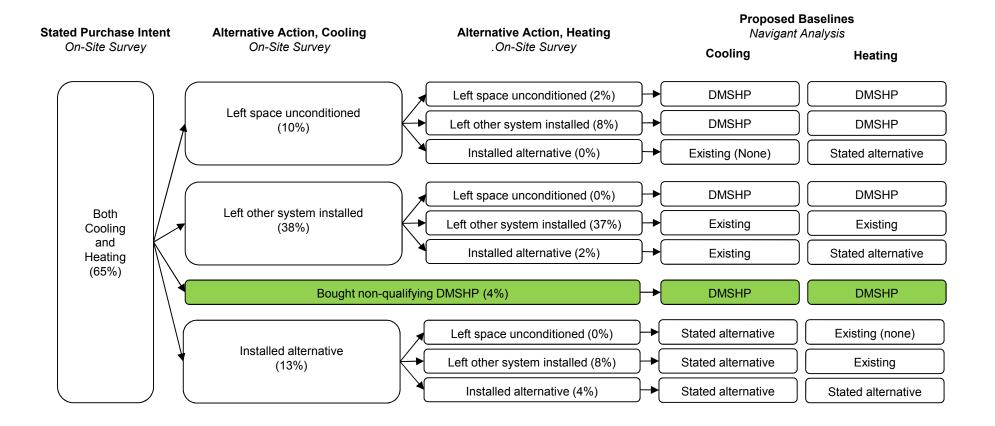
Would have alternatively 'left other system installed'

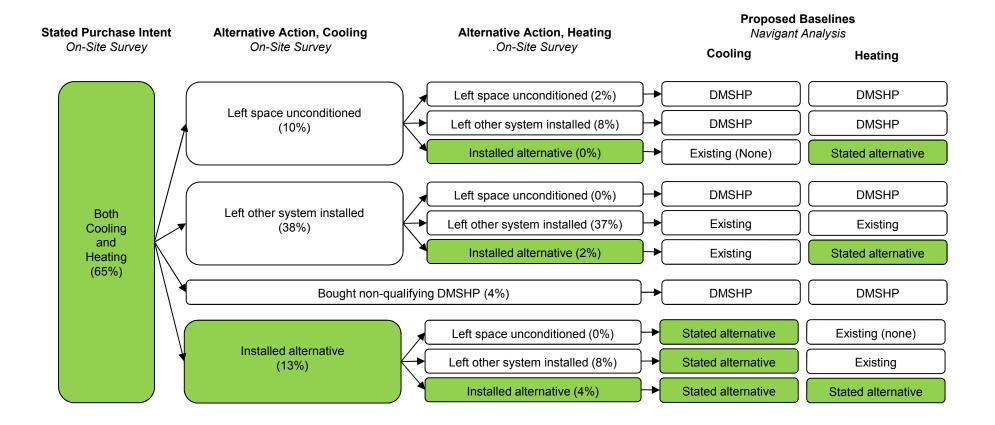


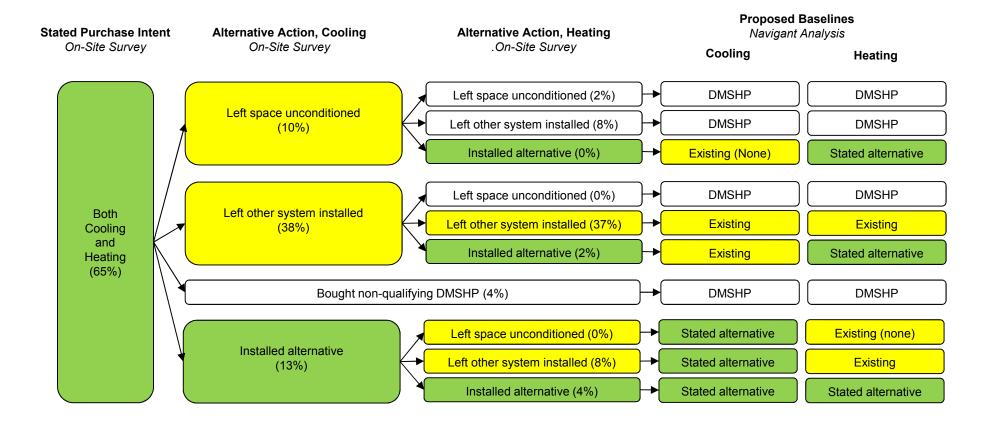
Would have alternatively 'installed alternative' system

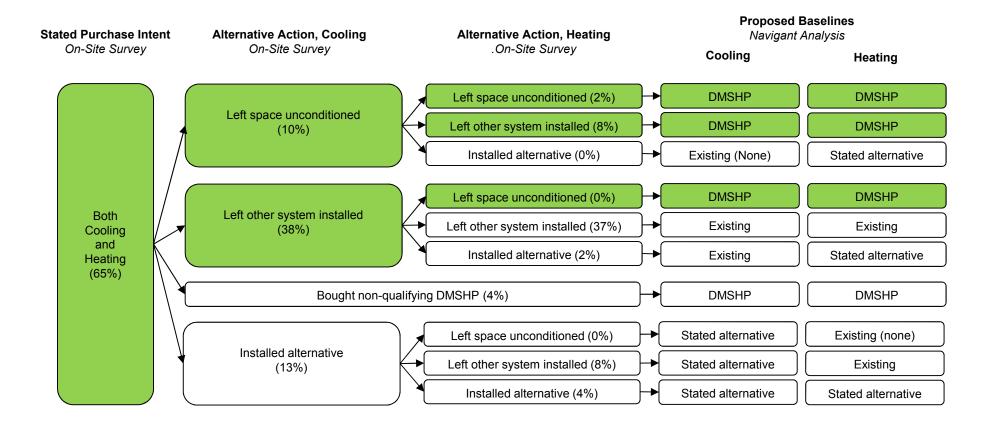


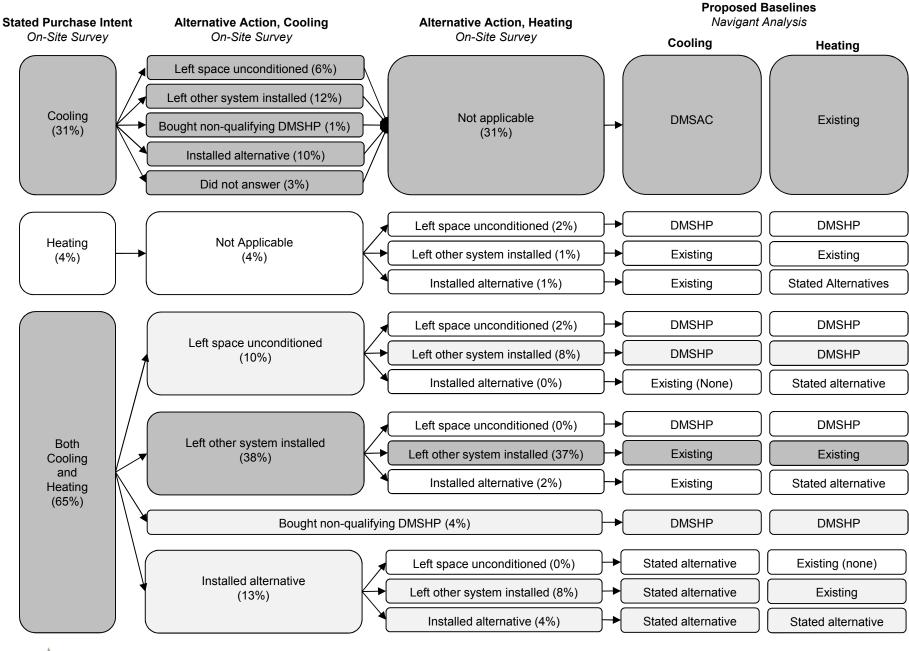












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Baseline Recommendation

Cooling Baseline Scenario Breakdown		Heating Baseline Scenario Breakdown	
Standard Efficiency DMSHP	16%	Standard Efficiency DMSHP	16%
Standard Efficiency DMSAC	31%		
Existing Technology	35%	Existing Technology	77%
Existing Room AC	25%	Existing Gas	24%
Existing Central AC	8%	Existing Oil	47%
		Existing Electric Resistance	3%
		Existing Wood, Pellet or Fireplace	.%
Stated Alternative Technology	13%	Stated Alternative Technology	7%
New Room AC	9%	New Gas	2%
New Central AC	3%	New Electric Resistance	3%
Extend Existing System (unstated)	1%	Extend Existing System (unstated)	3%
Unconditioned	5%	Unconditioned	0%
Total	100%	Total	100%