

Programmable

Thermostats:

Once More Up the Roller Coaster

Jeremiah Robinson

2017 IEPEC Conference — Baltimore, Maryland

Downsides to Smart Thermostats

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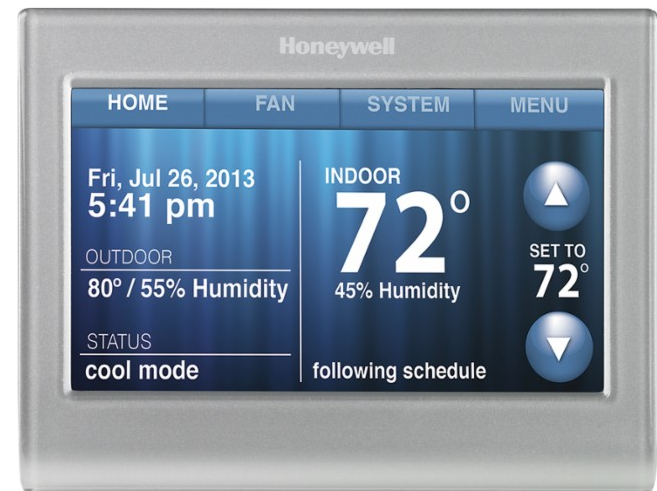
★★★★★ **SHE TOOK THE HOUSE, THE DOG AND THE 401K! . BUT I STILL CONTROL THE THERMOSTAT.**, March 26, 2014

Since this past Ohio winter has been so cold I've been messing with the temp while the new love birds are sleeping. Doesn't everyone want to wake up at 7 AM to a 40 degree house? When they are away on their weekend getaways, I crank the heat up to 80 degrees and back down to 40 before they arrive home. I can only imagine what their electricity bills might be. It makes me smile. I know this won't last forever, but I can't help but smile every time I log in and see that it still works. I also can't wait for warmer weather when I can crank the heat up to 80 degrees while the love birds are sleeping. After all, who doesn't want to wake up to an 80 degree home in the middle of June?

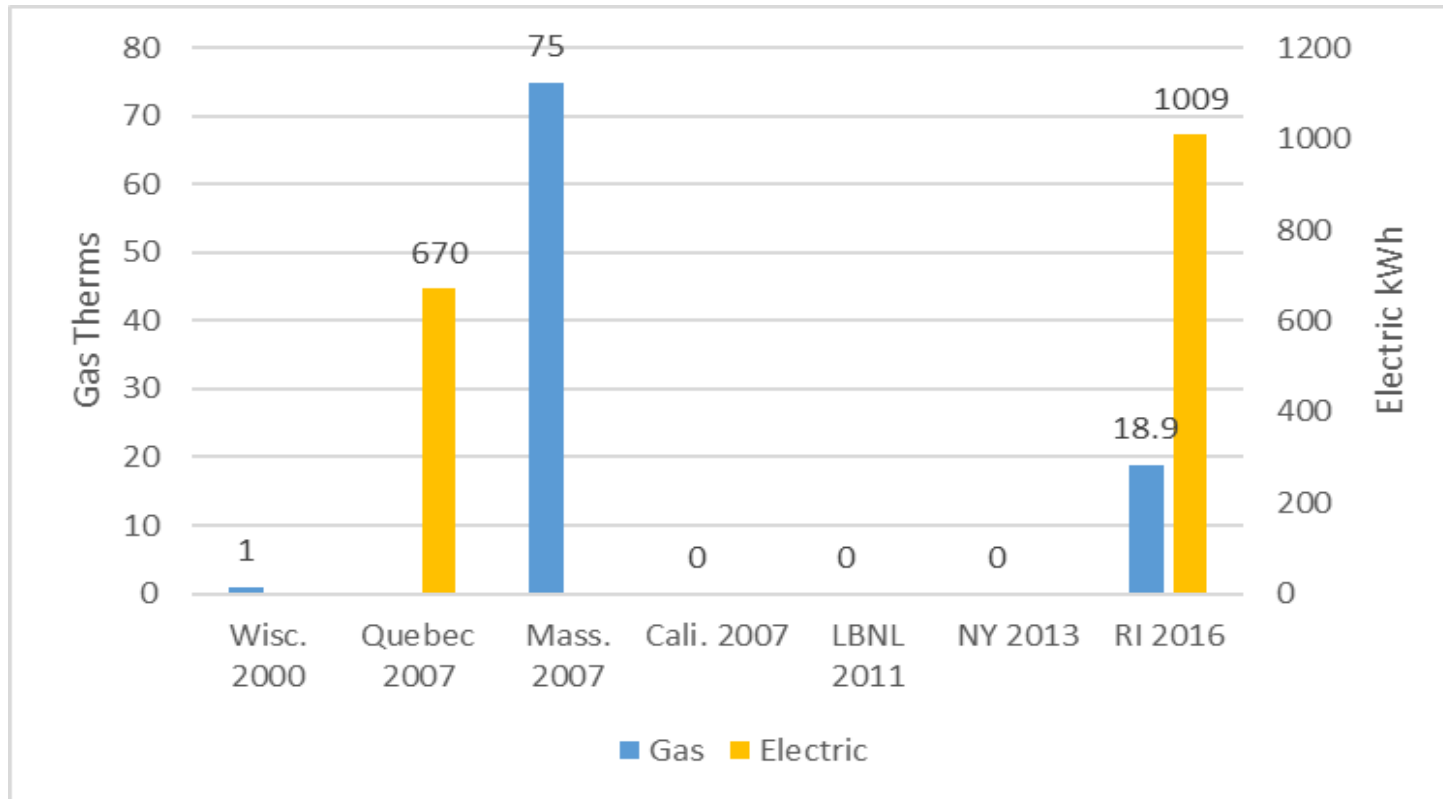
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But There's Hope: Pstats are Back!



Per Household Savings

EnergyWise: Measures

■ Direct Install

- Pstats
- LEDs
- Outdoor LEDs
- Aerator & Showerheads
- Smart strips
- Refrigerator brushes
- Pipe insulation

■ Retrofit

- Insulation
 - Attic
 - Wall
 - Rim Joist
 - Basement
- Air Sealing



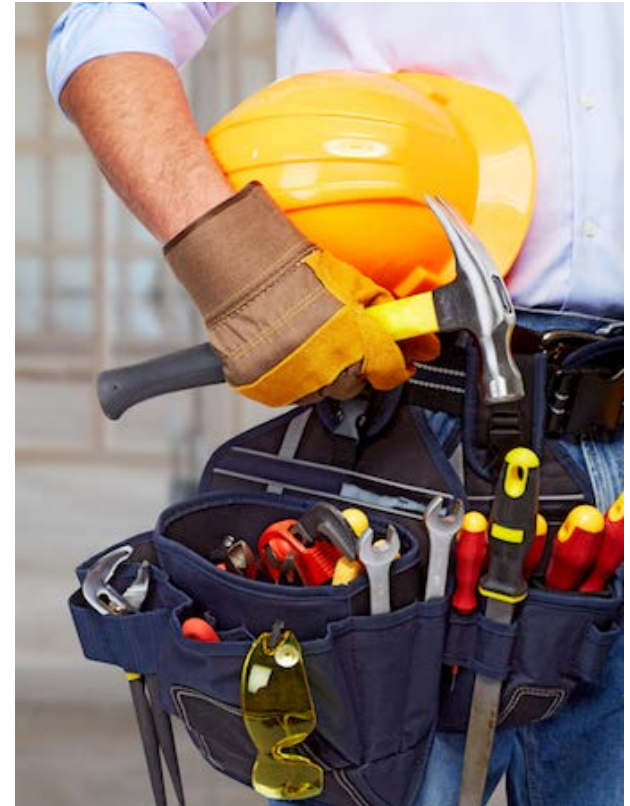
Rhode Islanders,
discover ways to
make your home better.

nationalgrid
HERE WITH YOU. HERE FOR YOU.

EnergyWise: Design

■ Program Design

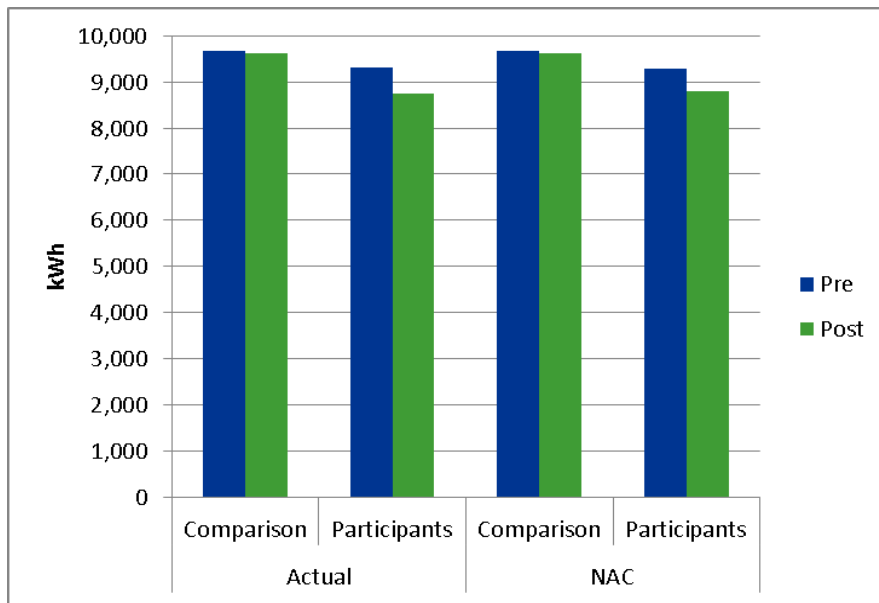
- Eligibility
- Targeting
- Contractors
- Training



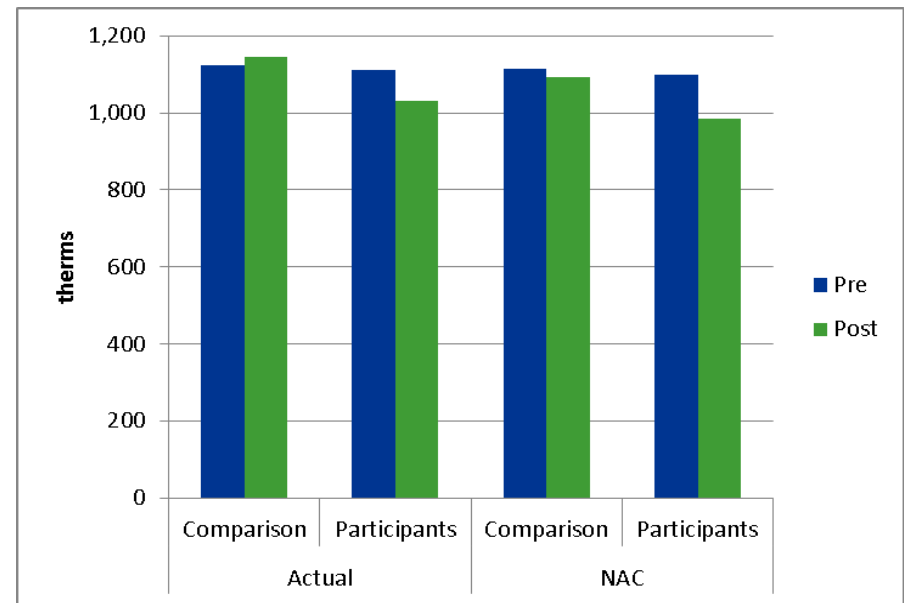
Billing Pattern: Looks Good

Group	Count	
	Elec (kWh)	Gas (therm)
Participants	4,965	1,593
Comparison	5,945	1,395

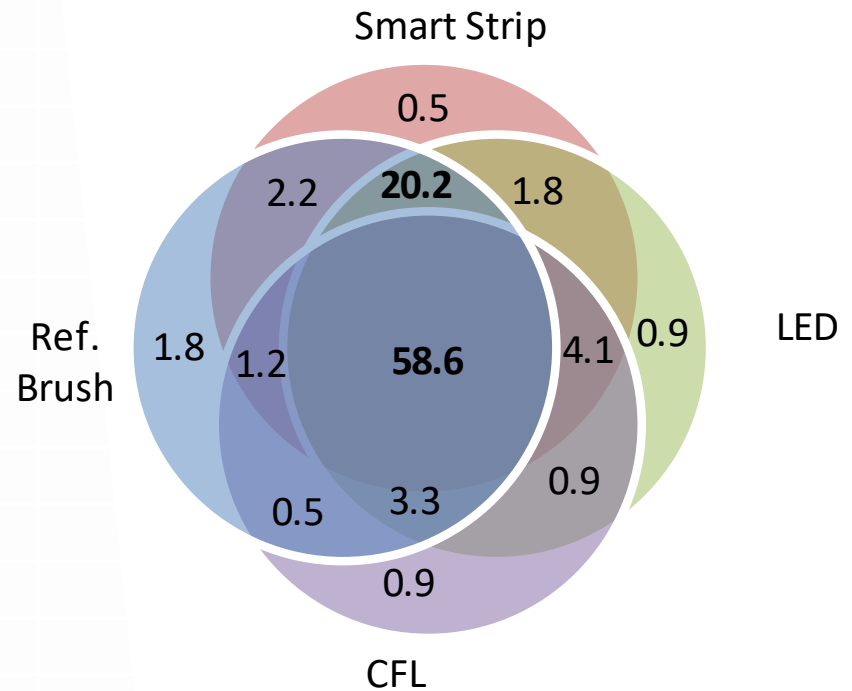
Electric Normalized Annual Consumption



Gas Normalized Annual Consumption



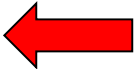
“Basic Installation Package” Got a Little Hairy



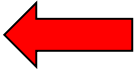
Results: Household

Fuel	N	Estimated Savings per Household	Standard Error	Precision @ 90% Confidence	Pre-NAC per Household	Savings as Percent of Pre-NAC
Electric (kWh)	4,965	434	42.4	±16%	9,274	4.70%
Gas (therms)	1,593	91	6.69	±12%	1,100	8.20%

Natural Gas Measure Group	N	Estimated Savings per Household	Std Err	Precision @ 90% Confidence	Pre-NAC per Household	Savings as Percent of Pre-NAC
Thermostat*	500	30.18	8.83	±48%	1,148	2.60%
Overall	1,593	91	6.69	±12%	1,100	8.20%



Electric Measure Group	N	Estimated Savings per Household	Std Error	Precision @ 90% Confidence	Pre-NAC per Household	Savings as Percent of Pre-NAC
Thermostat*	47	1,222.37	332.72	±45%	16,662	7.30%
Overall	4,965	434	42.4	±16%	9,274	4.70%



* Statistically Significant Result

Then the Engineering Stuff



Final Adjusted Results: Measure Level

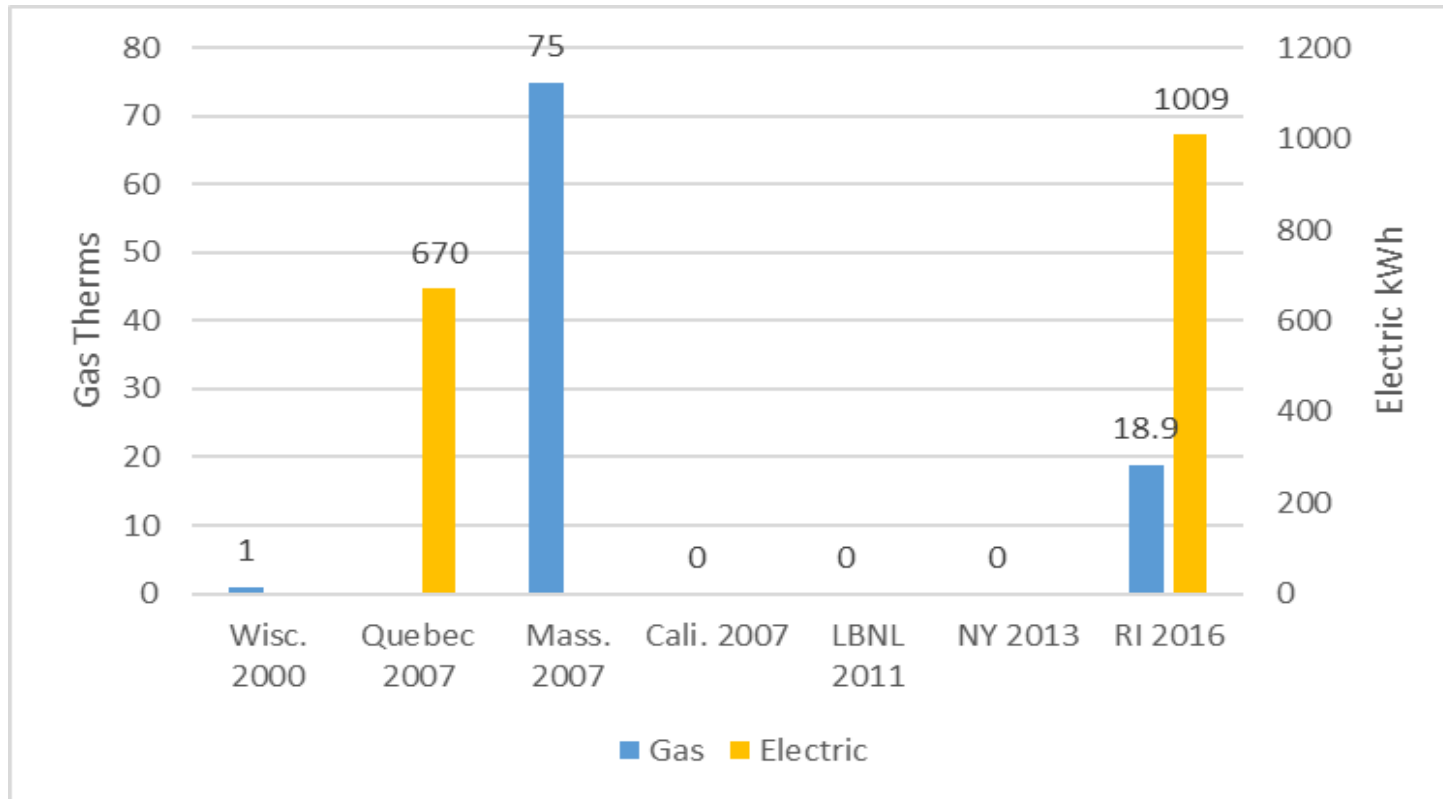
Electric

Category	Measure	Partici- pants	Savings (kWh)	Billing Analysis Result	Units
Thermostats	Programmable Thermostat	101	215	257	Measure
Total	Overall	9,898	384	434	Household

Natural Gas

Category	Measure	Partici- pants	Savings (thm)	Billing Analysis Result	Units
Thermostats	Programmable Thermostat	800	10.1	16.5	Measure
Total	Overall	2,734	90.7	91.0	Household

But There's Hope: Pstats are Back!



Per Household Savings

What's Next?



Questions?

Jeremiah Robinson ~ DNV GL
jeremiah.robinson@dnvgl.com
608-259-9152