Using AMI Data to Address Plug Loads

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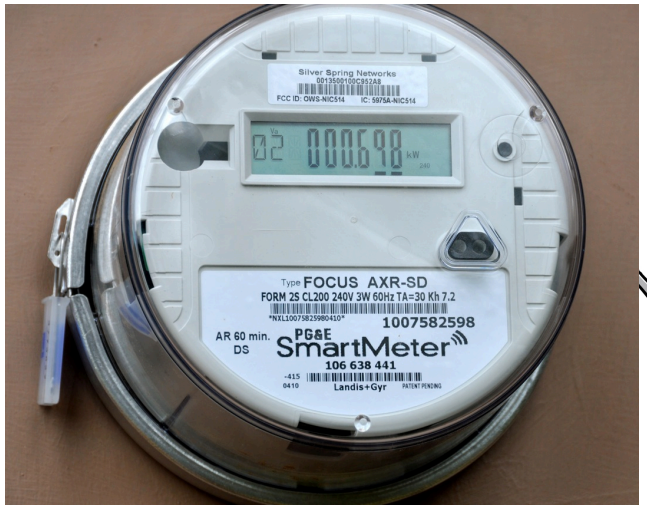
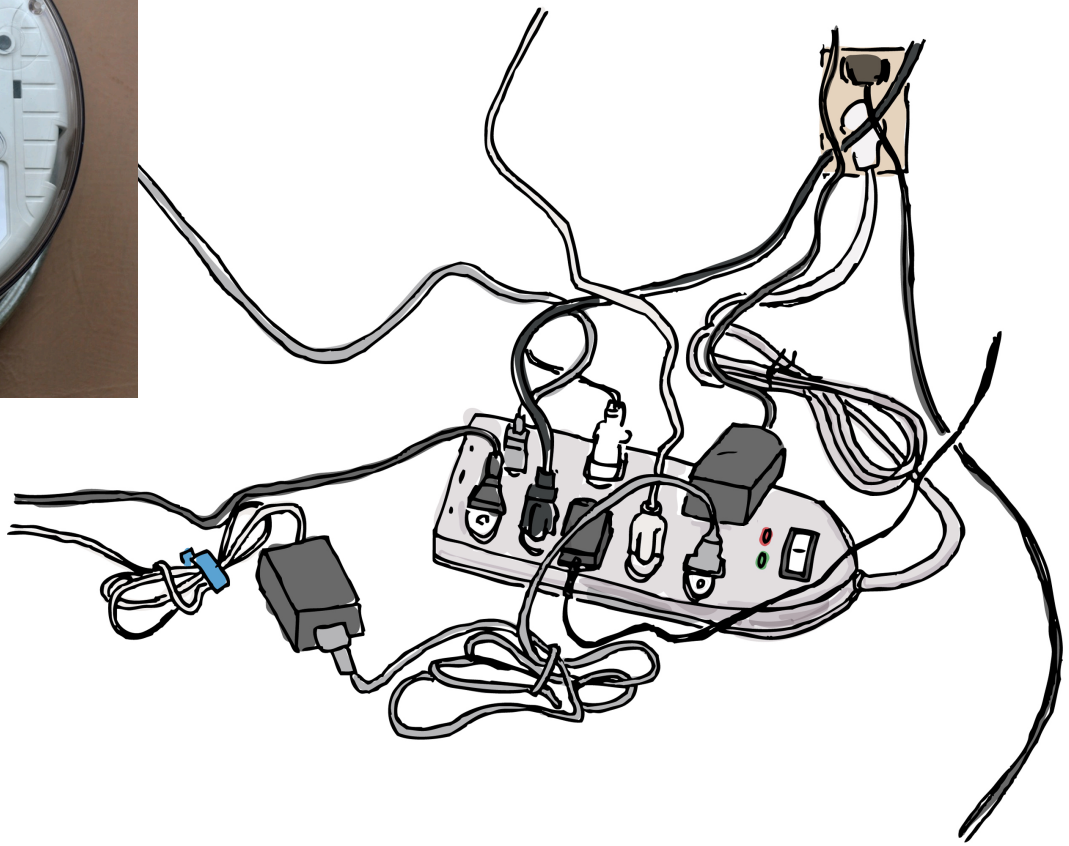




About Home Energy Analytics

HOME ENERGY ANALYTICS

- Residential smart meter analysis since **2010**
- Over **4500** California homes analyzed (opt-in)
- Strategy: Educate residents about energy using disaggregated load types
  - Electricity: Space Heating, Cooling, Always On, Variable, Recurring
  - Natural Gas: Space Heating, Always On, Variable
- Recommend the most cost effective steps

Results: Average metered savings over 12%

Three categories of energy use

HOME ENERGY ANALYTICS

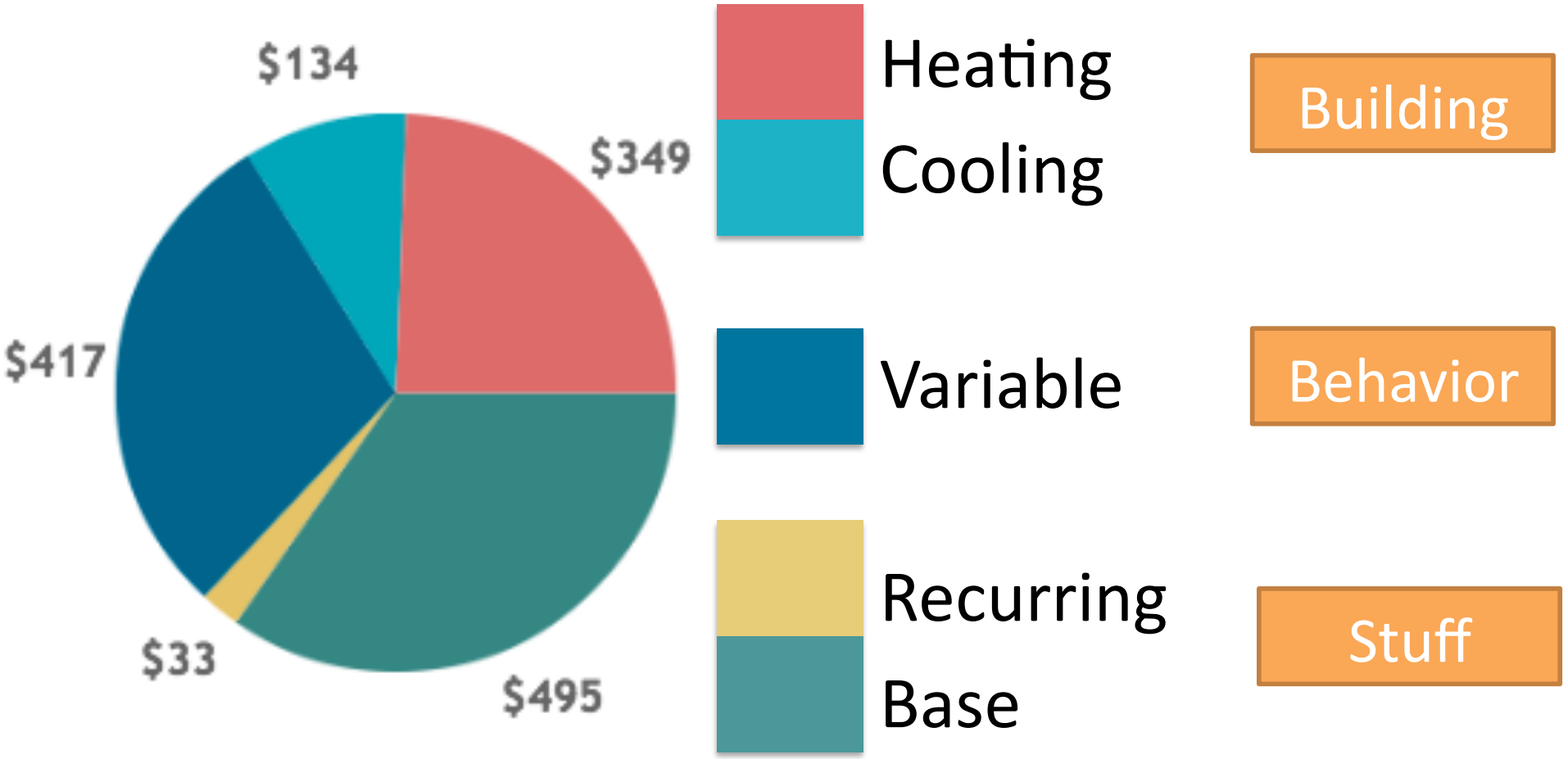
1. Building

2. Stuff

3. Behavior

Each home has a unique mix of these three

Smart Meter Diagnosis



Pie chart produced using remote, automatic smart meter analysis

Same Bill, Different Energy Use

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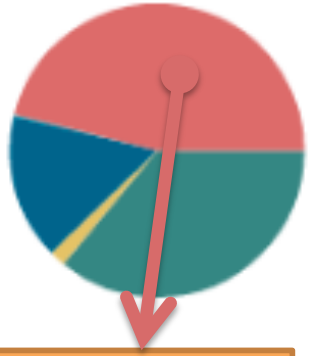
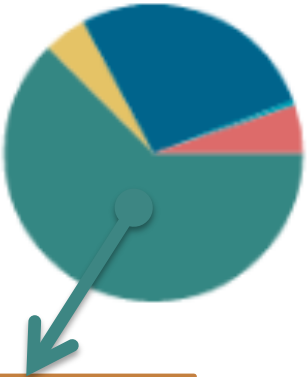
$1,924/year ← *Same bill* → $1,927/year

Winter Heating	$885	46%
Summer Cooling	$4	0%
Variable	$308	16%
Recurring	$35	2%
Base	$692	36%



Winter Heating	$100	5%
Summer Cooling	$8	0%
Variable	$522	27%
Recurring	$90	5%
Base	$1,207	62%



Heating Efficiency: **13** BTU/sf/hdd

EE Focus: **Building**

Electric base load: **375** watts

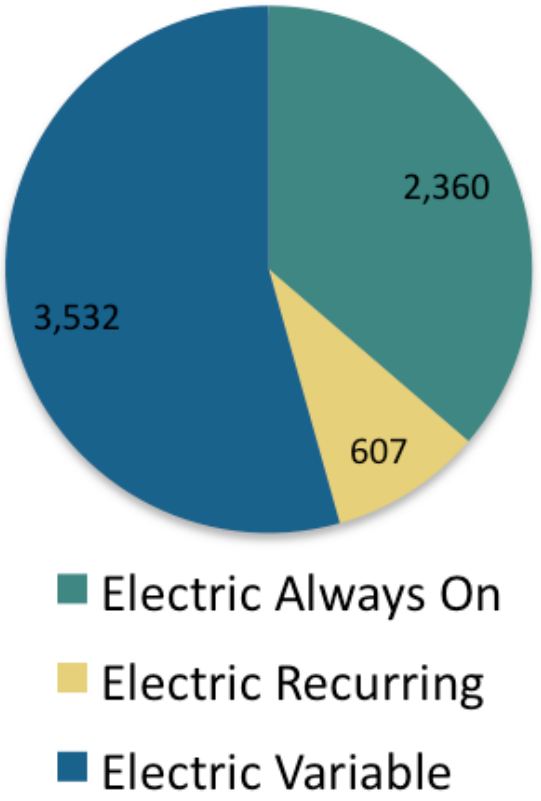
EE Focus: **Stuff**

The Rise of Plug Loads

HOME ENERGY ANALYTICS

Average non-Heating, non-Cooling electric loads across more than 1,000 California homes = **6,500 kWh/year**

- HEA Identifies three different categories of Plug Load energy:
  - Always On: Appears in every hour of the day
  - Recurring: Not continuous, but appears daily at the same time
  - Variable: Changes from day to day and hour to hour, but does not correlate with temperature



About our EPIC Grant

- Partnership between HEA & Enervee
- Develop Smart Phone App:
  - Identify a home's **Idle Load** (in Watts)
  - Help user identify contributors
  - Recommend simple steps
  - Track changes over time
- Develop Open Plug Load DB:
  - Crowd-sourced database of "the long tail"
  - Identify efficient products & energy hogs
- First release October 2016