

Valuing Energy Efficiency  
For Utility Rebate Programs

CPS  
ENERGY



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## *Building America Implementation Standing Technical Committee Gap/Barrier*

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### ★ Gap/Barrier #3: Value-Stream Map of the Retrofit Process

- Core concern – Audience segmentation needs must be better understood
- Goal – To improve implementation strategy processes for retrofits



### ★ Value-Stream Map Segment Addressed:

- Public Energy Utility Perspectives/Needs



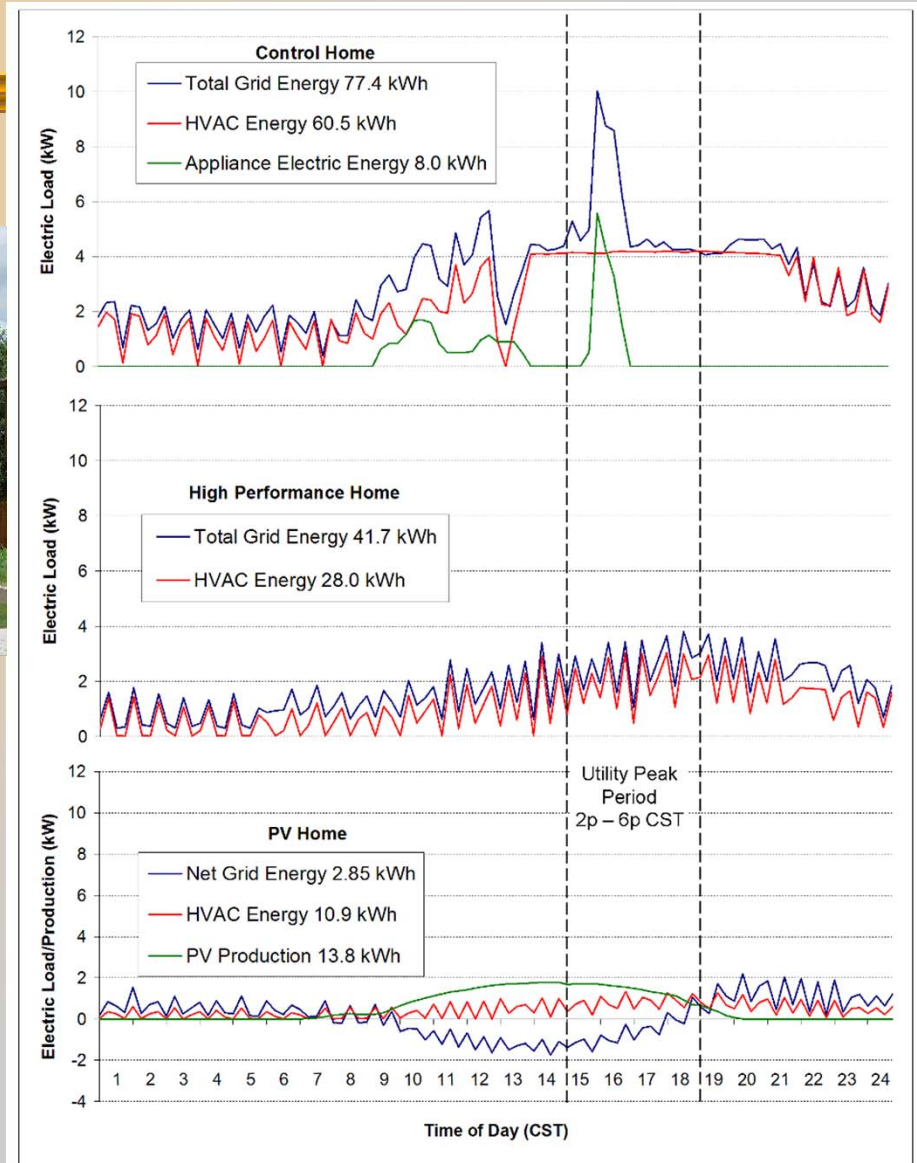


# Electric Utility Concerns



## Fleet Design Drivers

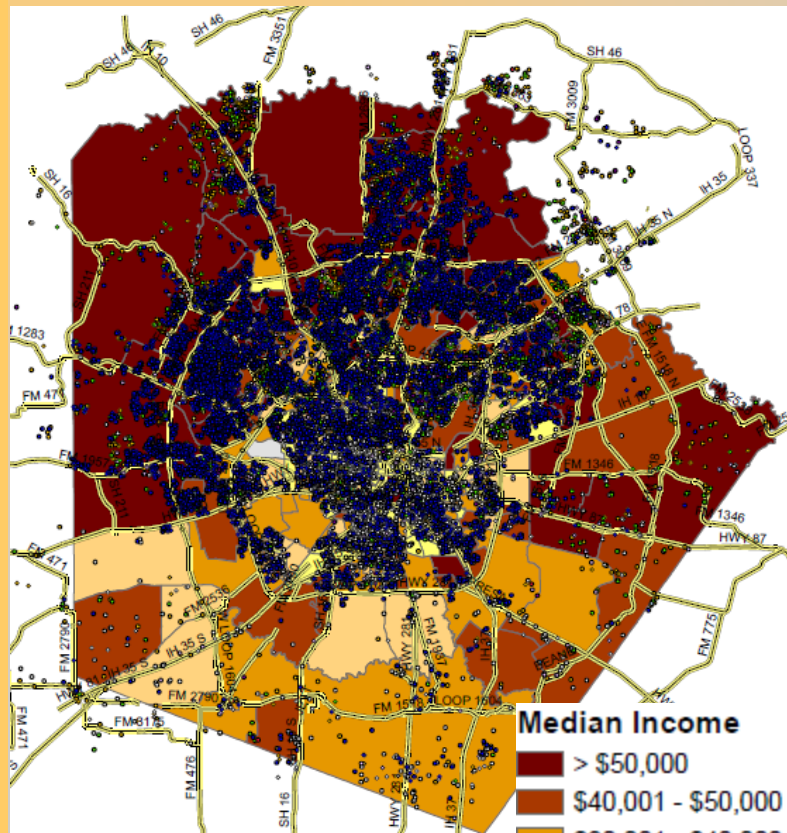
- kWh Consumed
- Peak Usage
- Daily & Seasonal Patterns
- Building Stock Impacts







# Community-Scale Energy Efficiency Modeling



2011 Retrofit  
Rebates

- ★ NREL/UTSA/CPS Energy Collaboration
- ★ Identify geographically specific least-cost retrofits using BEopt
- ★ Inputs: census, income, appraisal district, metering data, house archetypes
- ★ Field studies to calibrate/validate model outputs



# *Utility-Controlled HEM Systems*

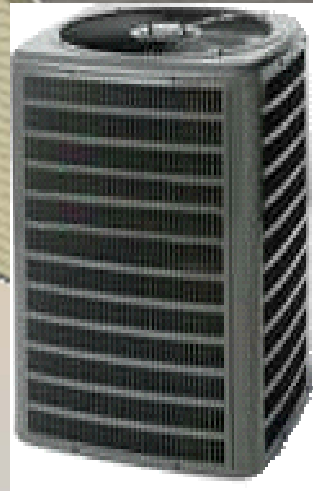


**Water Heater**

**Device Controllers**



**Pool Pump**



**HVAC**



40% to 60% of Home Energy Consumption  
in the House is Under Control



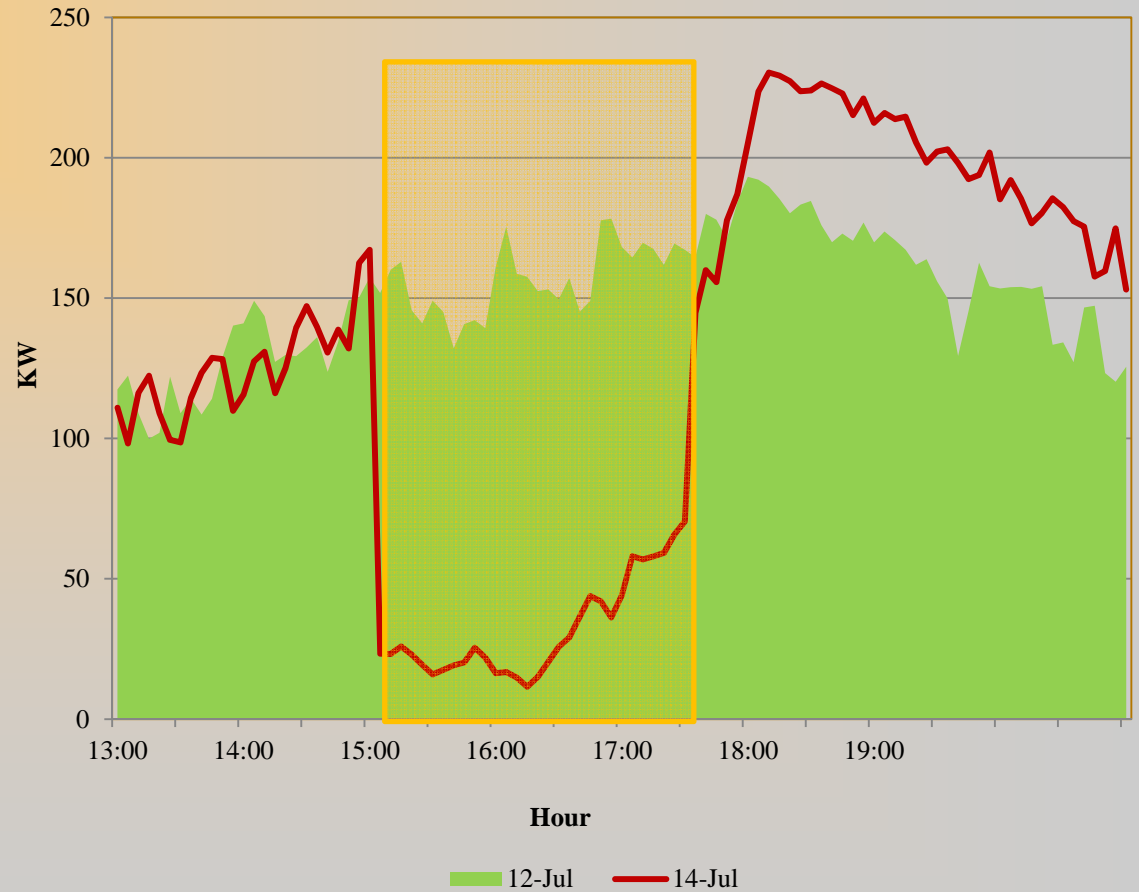
## Control Event: July 14, 2011

July 14, 2011	
Total Participants > 5 Minutes Participation	60
Total Control Time (Hours:Minutes):	2:30
Avg. Participant Participation (Hours:Minutes)	2:27
Avg. kW Removed per Event Participant	3.69

Event ID	Participants	Opted Out	Temp Out
882	60	0	0

Outdoor Temperature	12-Jul	14-Jul
High	100	101
Low	78	77
Average	89	89

Load Comparison  
Normal vs. Utility HEMS





## *Acknowledgements*

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– 303-384-7510



★ UTSA- Lloyd Potter  
– 210-458-6530



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– 321-638-1453

★ CPS Energy  
– Eddie Kirby