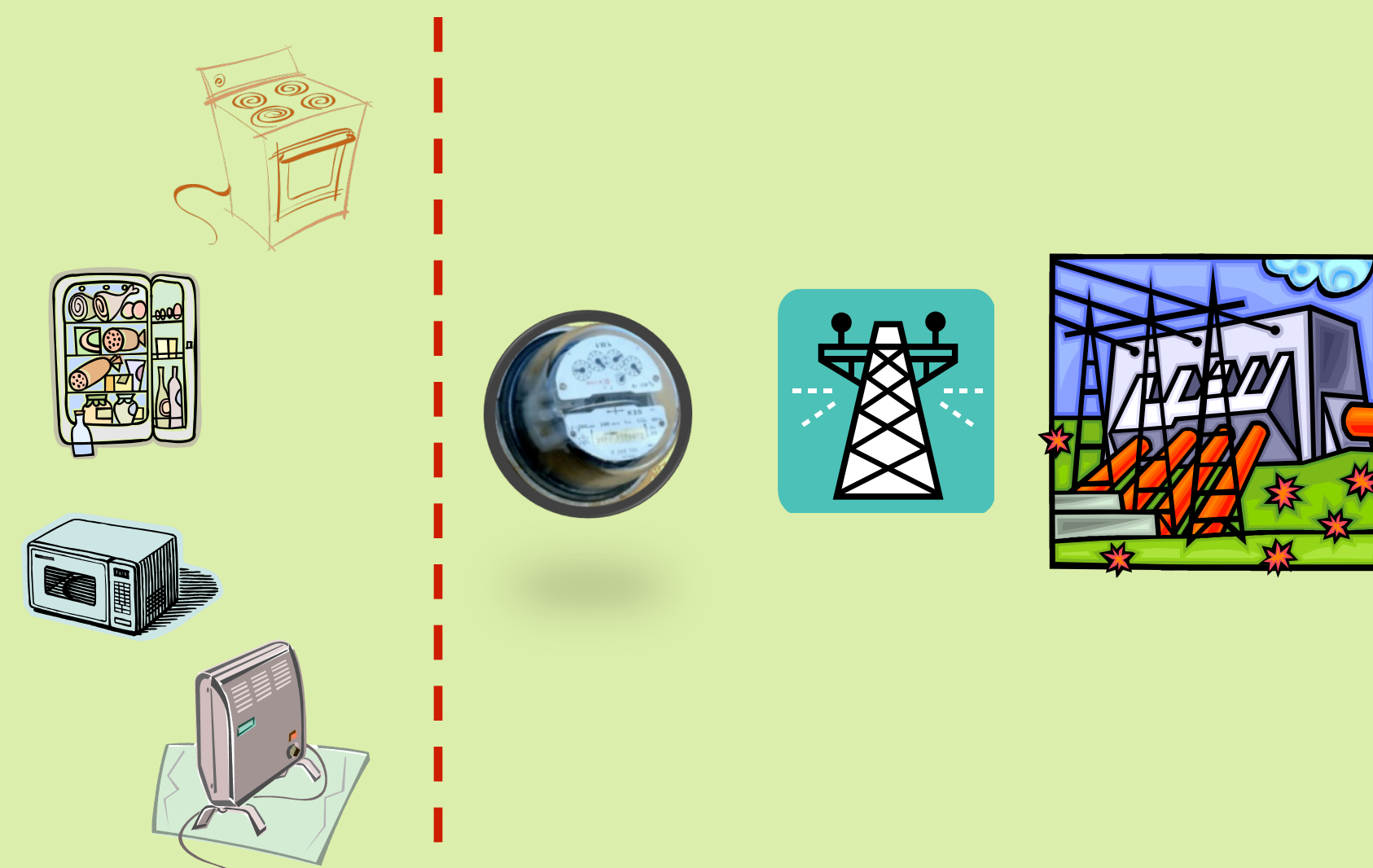


Lucio Soibelman<sup>1</sup>, H. Scott Matthews<sup>1</sup>, José M. F. Moura<sup>2</sup>, Mario Bergés<sup>1</sup>, Diego Benítez<sup>3</sup>  
<sup>1</sup>Civil and Environmental Engineering, <sup>2</sup>Electrical and Computer Engineering, Carnegie Mellon University  
<sup>3</sup>Bosch Research and Technology Center

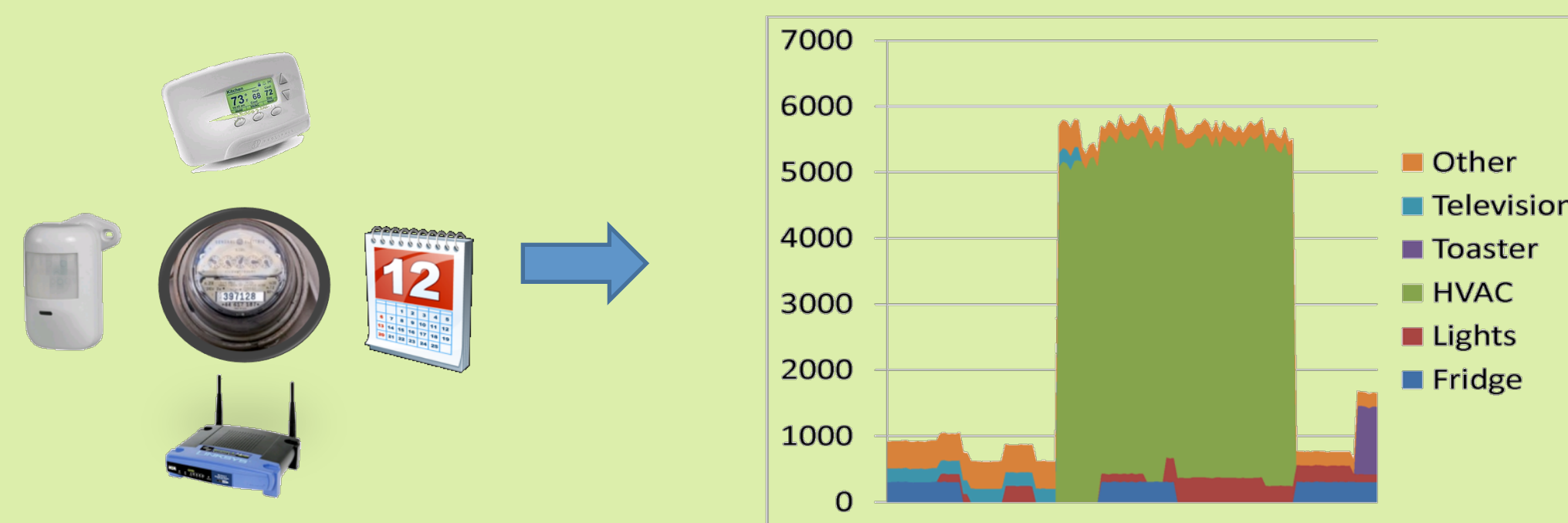
## Problem Description



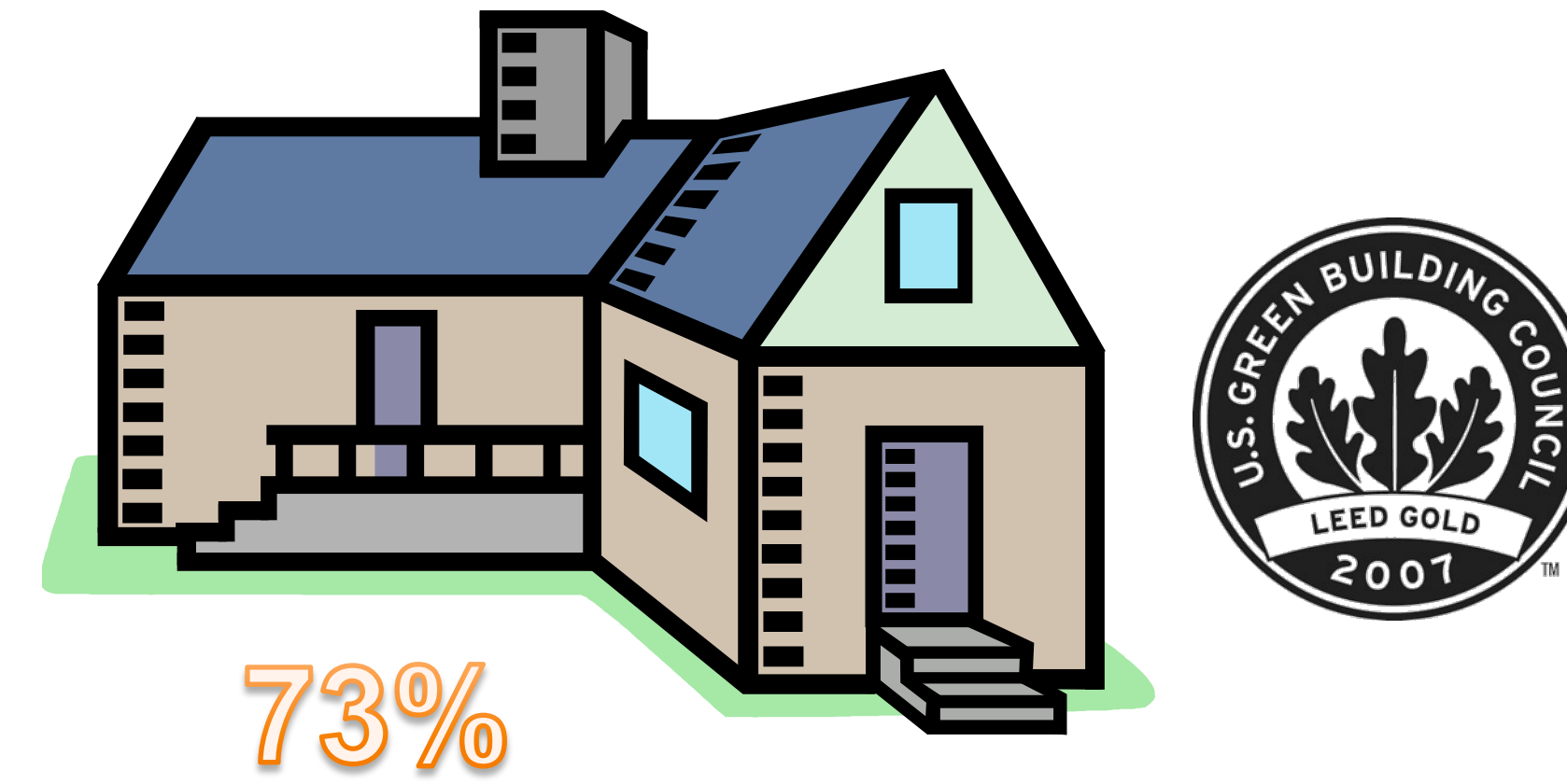
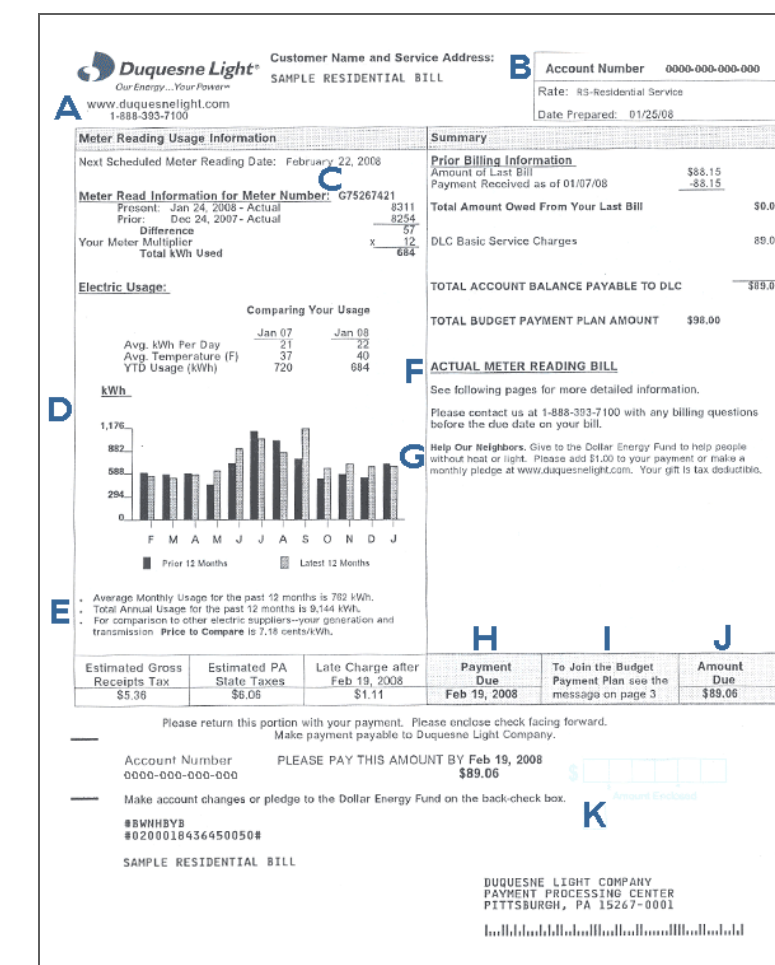
The demand is mostly ignored. Feedback helps reduce.



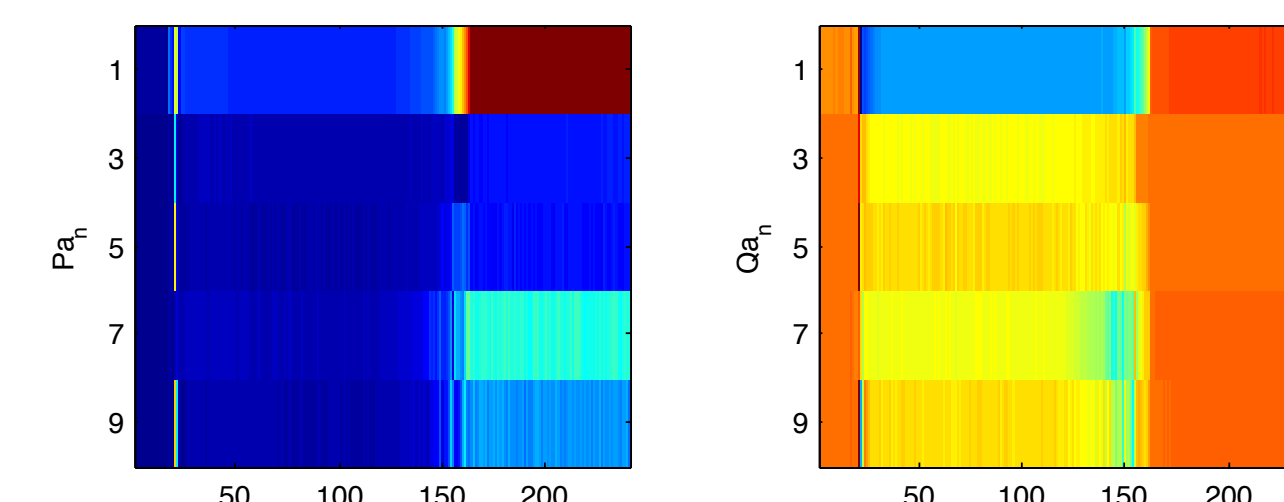
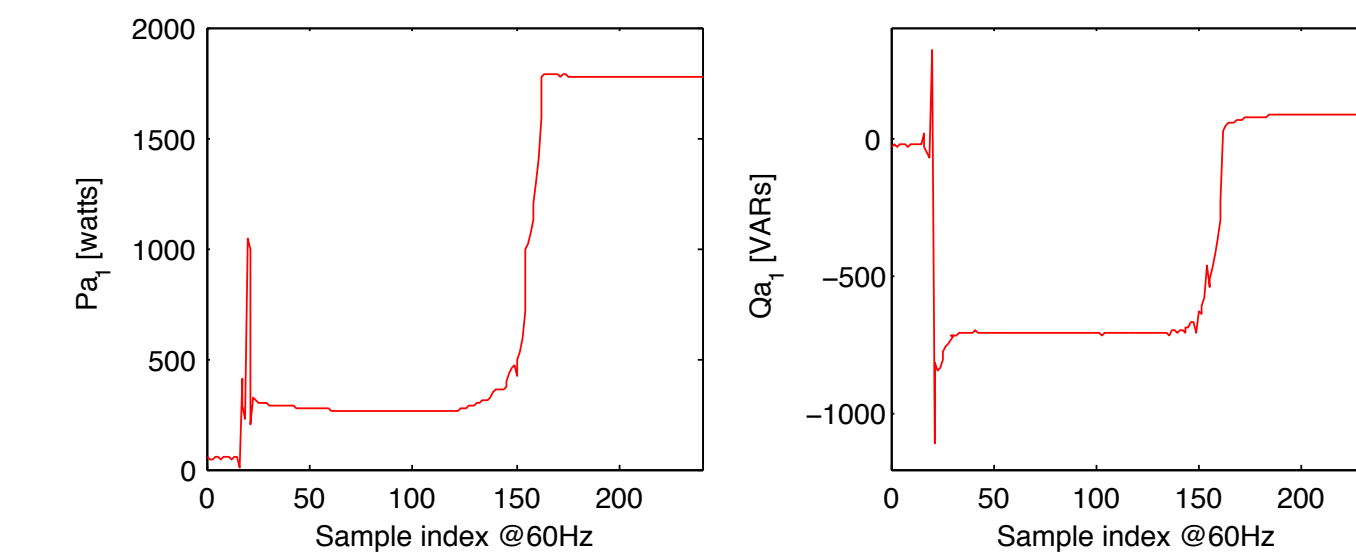
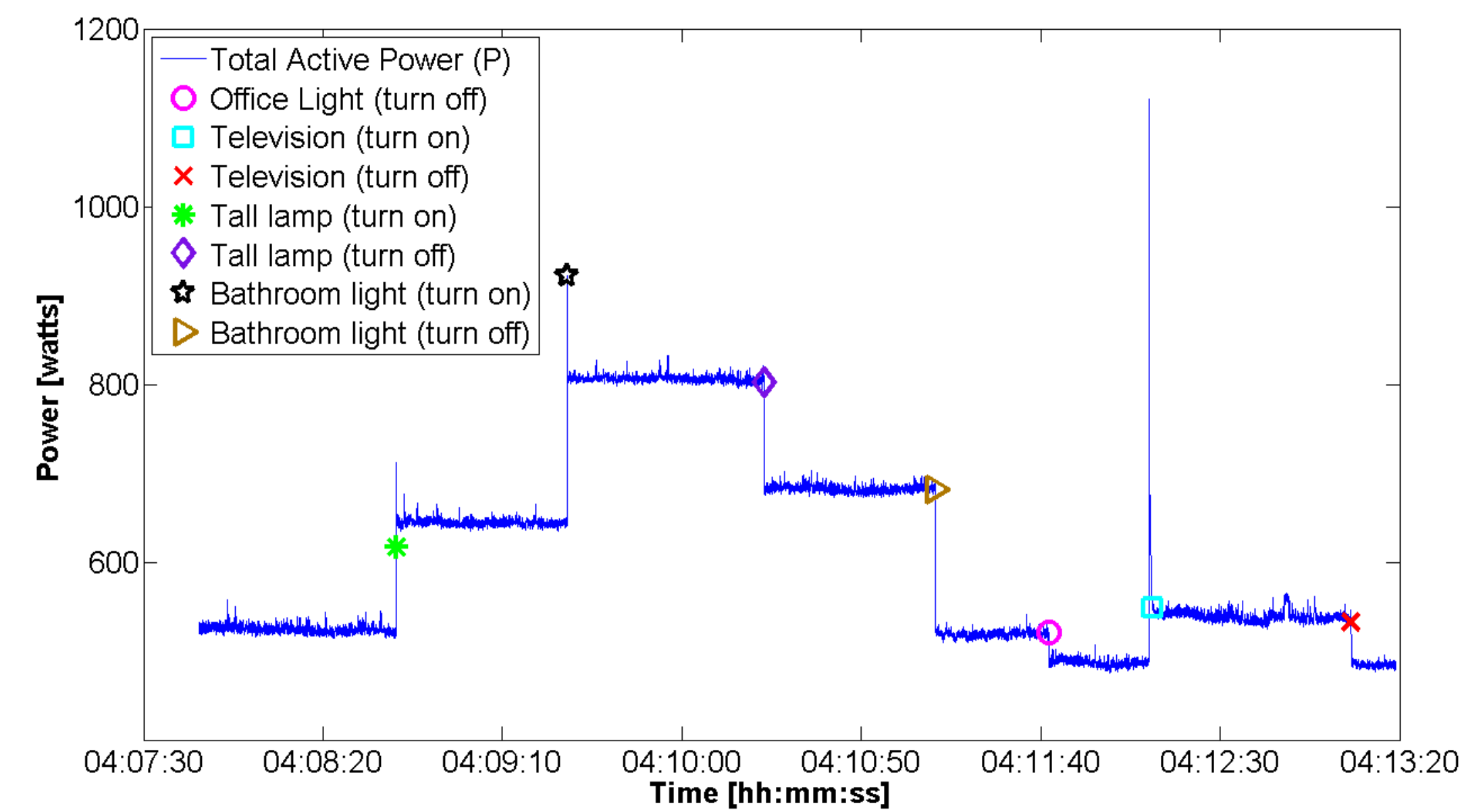
Difficult to obtain appliance-level data



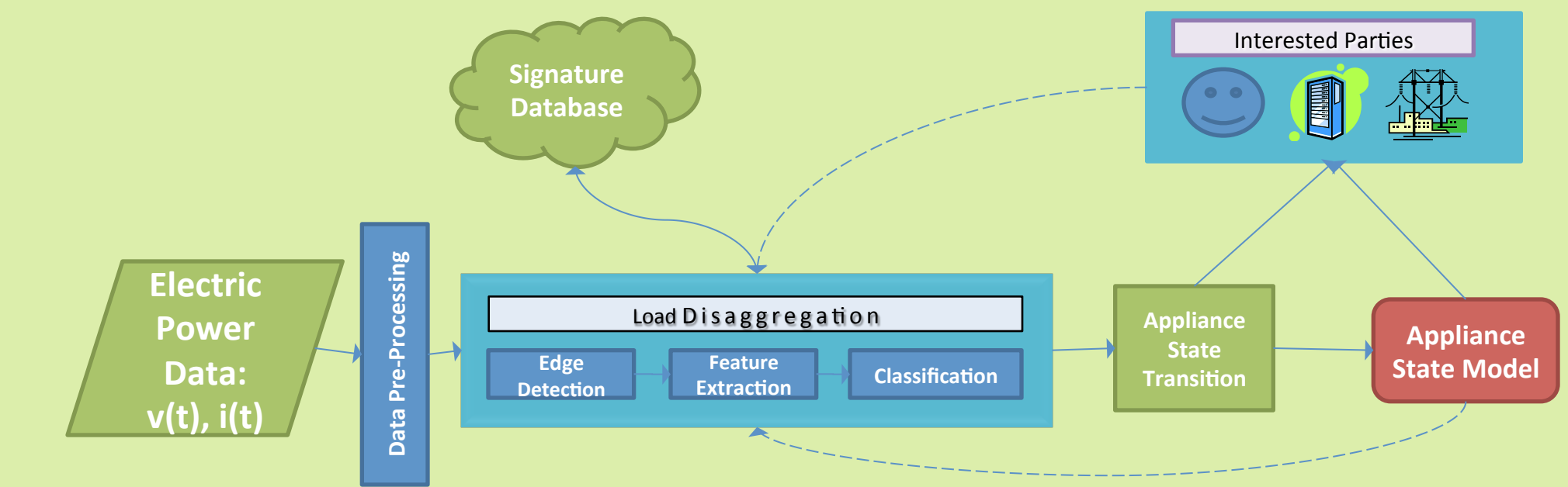
Can we leverage low-cost data sources?



73%  
Of U.S. electricity consumption



## Solutions and Results



Validation Results (Accuracy in %)		GNB	kNN, k=1	Ada Boost	DT
Laboratory (A)	Delta	52%	67%	51%	61%
	Whole Transient	38%	73%	--	58%
	Polynomial Coefficients	58%	67%	51%	52%
	Fourier Coefficients	64%	79%	2%	64%
House (B)	RBF Coefficients	67%	67%	**	64%
	Delta	47%	73%	36%	42%
	Whole Transient	9%	73%	--	47%
	Polynomial Coefficients	61%	81%	61%	57%
	Fourier Coefficients	50%	81%	55%	54%
	RBF Coefficients	47%	76%	35%	54%

