

# CONSUMER BEHAVIORS AND APPLIANCE-SPECIFIC ELECTRICITY FEEDBACK

Carrie K. Armel  
June A. Flora  
Sébastien Houde  
Anant Sudarshan  
Annika Todd

Stanford University  
Precourt Energy Efficiency Center

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# Overview

Using appliance-specific feedback technology:

- We treat consumers' installation behavior as revealed preferences for information and monitoring.
- We look at energy conservation behaviors at the appliance level.



# The Technology: The Plugwise System

- Appliance-specific devices
- Devices communicate via a home area network
- Hourly resolution
- Devices can be controlled: **automation of appliances**
- Web and/or portable device interface



# The Technology: The Plugwise System



# Data

- Data from 521 European households (mostly Dutch)
- Collected over a two-year period
- Appliance-specific electricity consumption observed
- Location is observed for a subset of the sample



# Summary Statistics

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## Sample Characteristics

Nb of Households	521		
Nb of Households with Postal Code Information	247		
Nb of Days of Observation per Household ( $\bar{X}$ , M, sd)	308	268	177
% of Households with < 6 Months of Observation	28.2		

## Devices & Appliances Monitored

Nb of Monitoring Devices per Household ( $\bar{X}$ , M, sd)	9.7	9	5.8
% of Households with < 5 devices	19.6		
% of Households with $\geq 5$ and <10 devices	45.1		
% of Households with $\geq 10$ and <15 devices	15.7		
Nb of Appliances Monitored per Household ( $\bar{X}$ , M, sd)	10.2	9	6.4

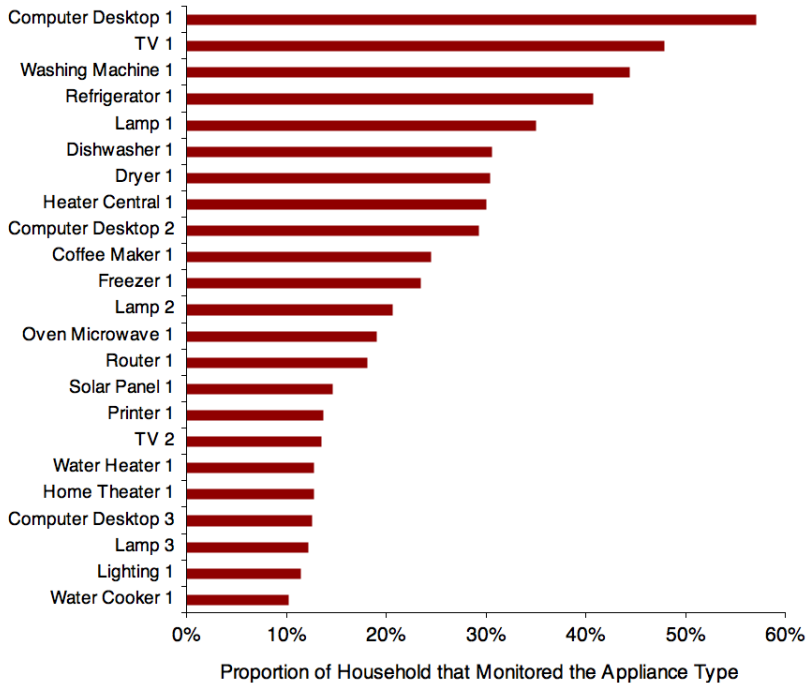
## Purchase Decision

Nb of Households that Purchased New Devices	30		
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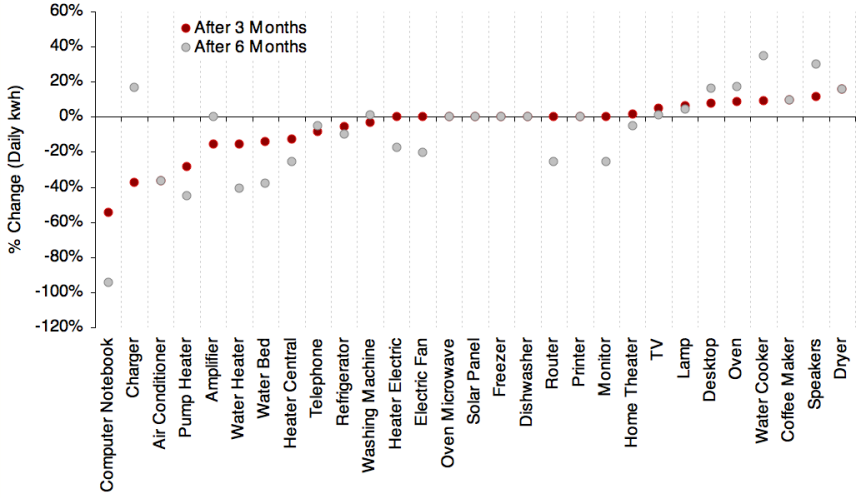
## Experimentation

Nb of Households that Experimented	104		
Experimentation Score ( $\bar{X}$ , sd)	.53	1.5	
Experimentation Score if Purchase ( $\bar{X}$ , sd)	1.2	1.6	



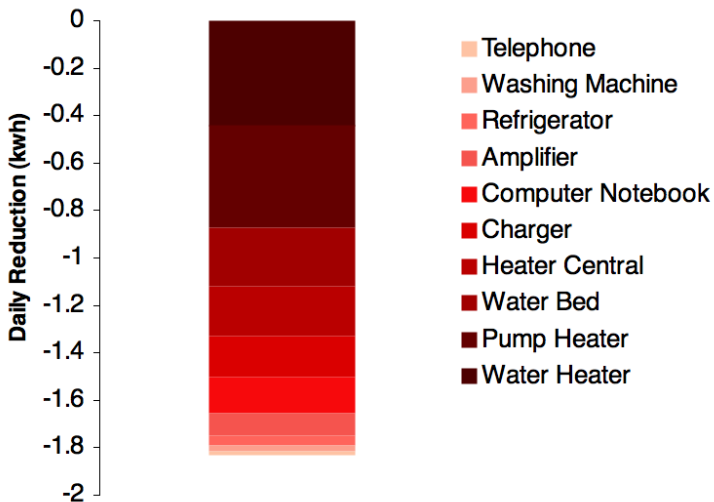


Proportion of Household that Monitored the Appliance Type





- After 3 Months



# Take Aways

- Evidences that curiosity, automation and convenience drive installation behaviors
- Significant reductions were achieved where automation may have played a role
- Overall reductions within the range of 1.5 to 2 kwh/day after 3 months

