



Advanced Power Strips: Energy Efficiency through Plug Loads

PRESENTED BY

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on behalf of work derived through NEEP's APS Working Groups

ACEEE's Energy Efficiency as a Resource Conference

Denver, CO September 27, 2011

NORTHEAST ENERGY EFFICIENCY PARTNERSHIPS

“Accelerating Energy Efficiency”



MISSION

Accelerate the efficient use of energy in the Northeast and Mid-Atlantic Regions

APPROACH

Overcome barriers to efficiency through
Collaboration, Education & Advocacy

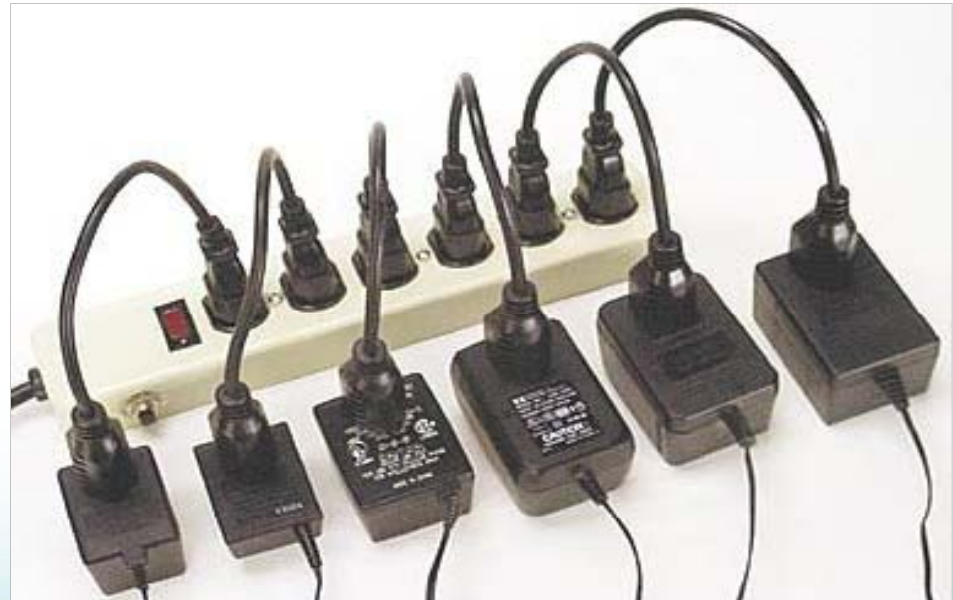


VISION

Transform the way we think about
and use energy in the world around us

ADVANCED POWER STRIPS (APS)/PLUG LOAD

1. NEEPS ADVANCED POWER STRIP (APS) PROJECT
2. APS/PLUG LOAD SUMMIT JUNE 2010
3. WORKING GROUP MEMBERS and GOALS/DELIVERABLES
4. RESULTS TO DATE
 - DATA
 - TESTING
 - MARKETING
5. NEXT STEPS
6. WHAT MORE IS NEEDED?
7. QUESTIONS?



MEMBERS/GOALS

Working Group Participants

- Program Managers
- Manufacturers
- Testing Labs
- Evaluators
- Retailers
- Marketing Specialists



Deliverables

- Quality Assurance Requirements
- Testing Protocols
- Data Collection
- Savings Assumptions
- Effective Marketing Promotions
- Consumer Education



Providing smart ideas and products to help you save energy, save money



Source: *The ampere strikes back: How consumer electronics are taking over the world*, UK Energy Saving Trust, July 2007.

DATA

$$\frac{\Delta kWh_e}{Year} = \sum_m \left(SDW_{e,m} \times \frac{SDHrs_{e,m}}{Day} \times \frac{kW_e}{1000 W_e} \times \frac{365 Days}{Year} \right)$$

1. Define Power Wastage by devices
2. Define Hours of use by consumers
3. Define what products are actually in the home
4. Calculate deemed savings potential



DATA – FINDING POWER WASTAGE AND HOURS OF USE

- Reviewed 20 + studies collected by the working group
- Defined the most common matched data sets
- Selected three studies: Denmark, Ecos, Minnesota
- Compared and averaged data sets
- Vetted findings applied to energy savings formula

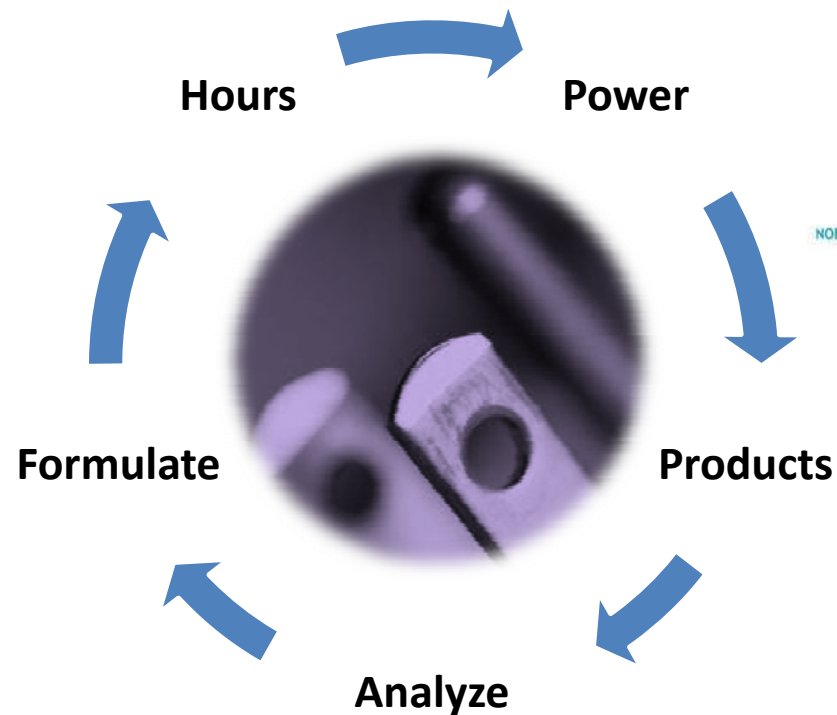


DATA — DEVICES IN THE HOME

- Robust data set from ExperianSM Simmons 2009-2010: 26,000 homes
- Identified the Experian study to be the fullest data
- Analyzed the data and determined the products in the average home
- Rely on vetted findings as input to energy savings formula

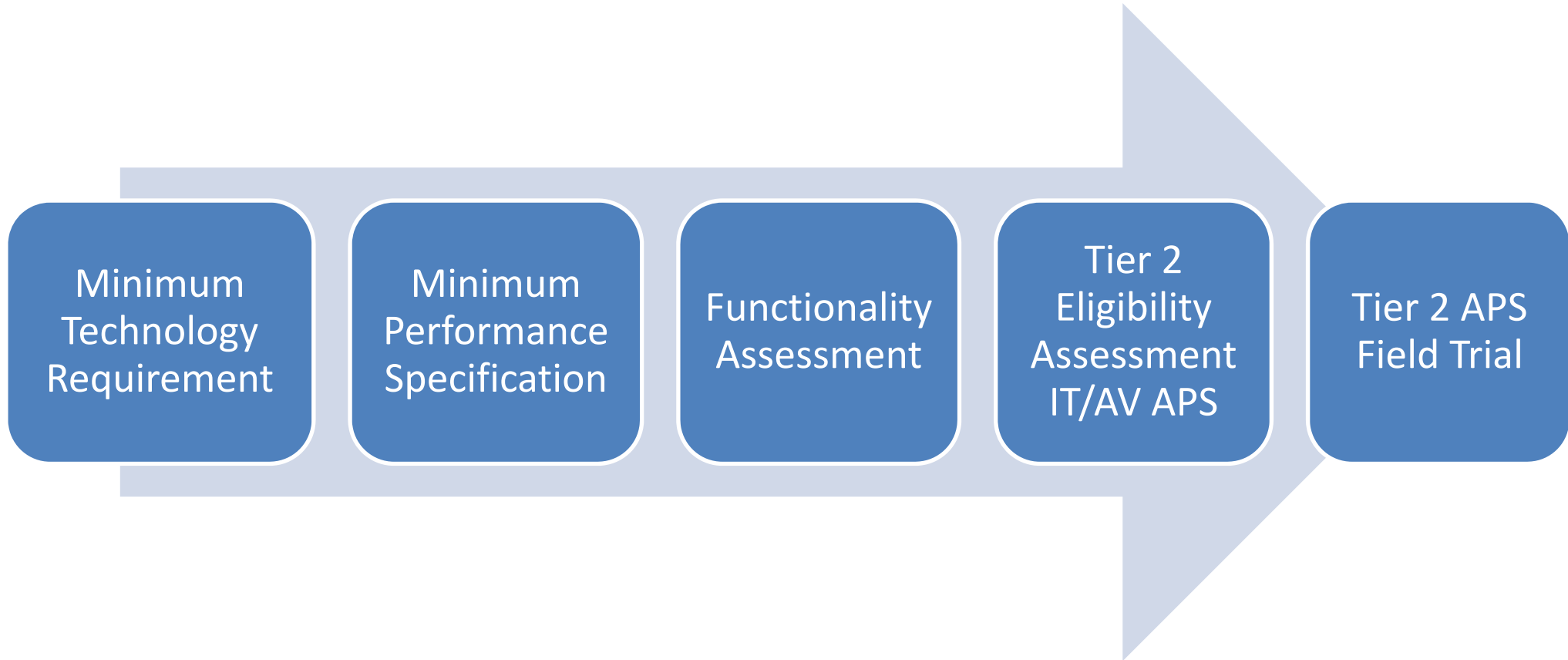


DATA – BRINGING IT ALL TOGETHER



- Group vetting-preliminary numbers
- Average TV setup savings based on ≥ 0.5 occurrence threshold: 86 kWh
Master: TV / Controlled: DVD/VCR and Game Console (Play Station)
- Average IT setup savings based on ≥ 0.5 occurrence threshold: 33.6 kWh
Master: PC / Controlled: Monitor and Printer
- Way more potential – some reports savings up to 500 kWh annual

TESTING PROCESS

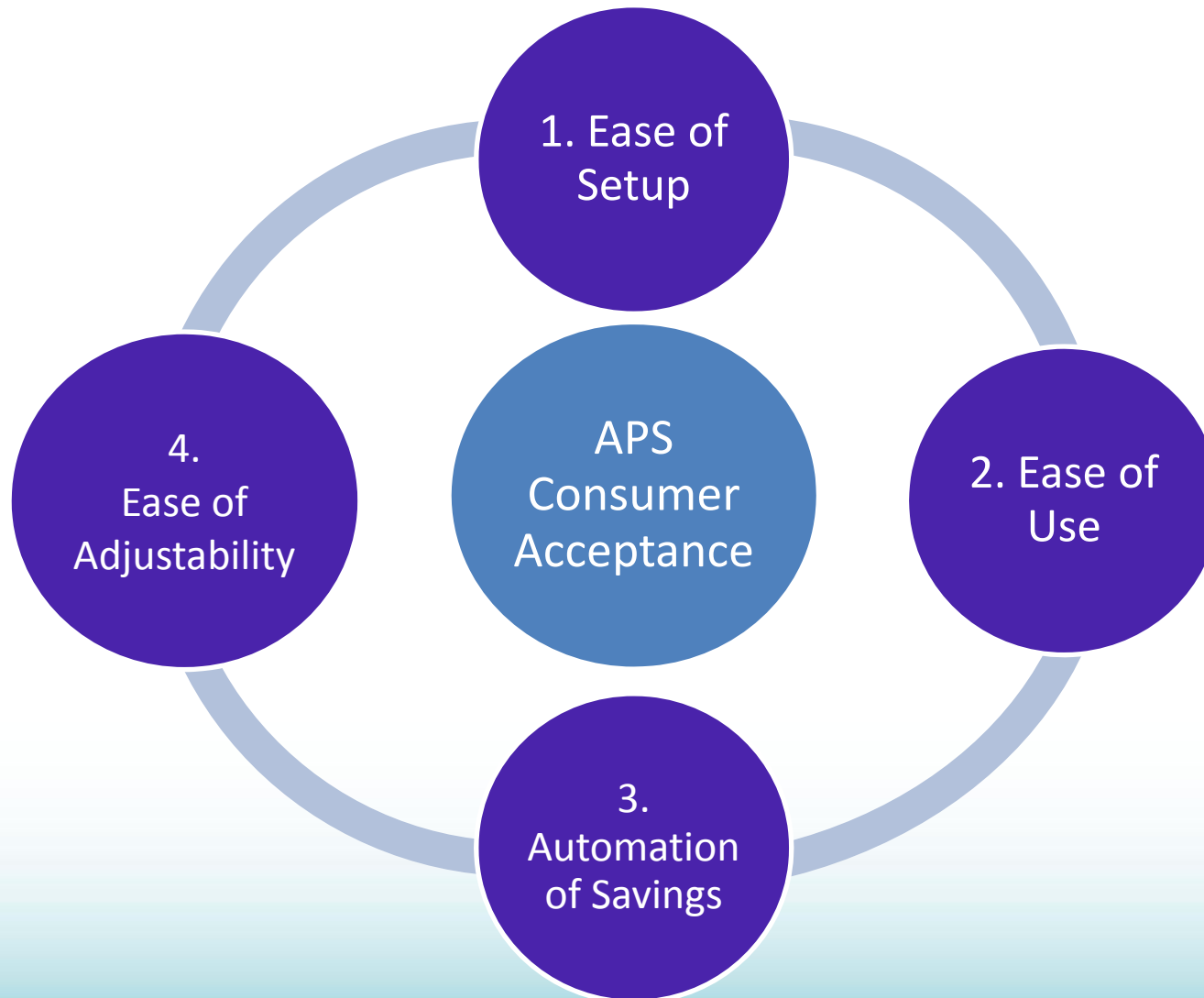


MINIMUM TECHNOLOGY REQUIREMENT (MTR)



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1. Determine baseline acceptable APS technology
2. MTR was assessed against the following key criteria:



OBSERVATIONAL FUNCTIONALITY ASSESSMENT (OFA)



1. Importance of Assessment:

- Similar APS technologies can yield vast differences in performance

2. Observational assessment against the following key consumer criteria:

- Ease of Setup
- Ease of Use (both of the APS and connected equipment)
- Automation of Savings
- Ease of APS Adjustability

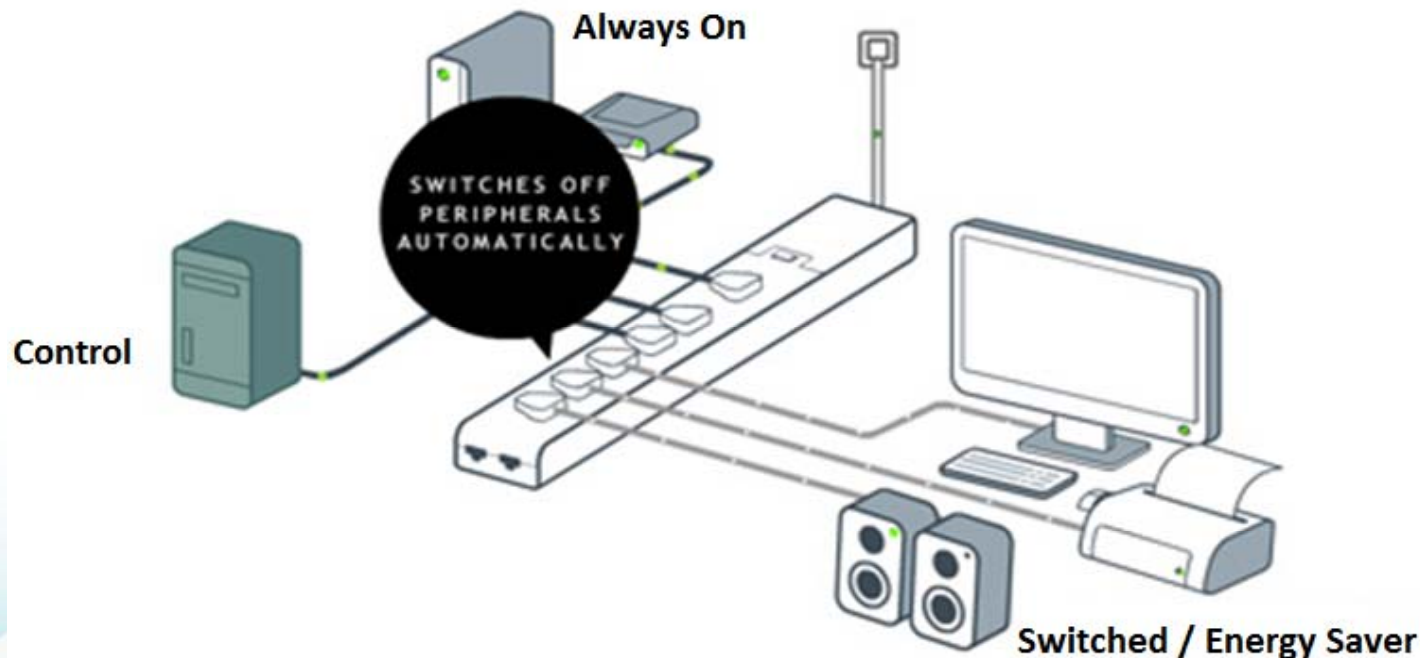
3. Outcome:

- Assists in evaluating the relative performance of APS devices
- Incentivize APS manufacturer investment in smarter technologies
- Reduces and/or eliminates consumer habitual change requirement
- Accelerates consumer acceptance of APS

MINIMUM PERFORMANCE SPECIFICATION (MPS)



1. Tests conducted by an accredited testing laboratory
2. Ensuring APS device meets minimum U.S. safety standards
3. Assess APS components to deliver a minimum 10 year lifecycle
4. Assess the energy consumption of the APS device (≤ 1 Watt)



TIER 2 APS DEVICE ELIGIBILITY



1. Target

- Assessment process for APS technologies beyond the MTR

2. Objective

- Incentivize investment in smarter technologies
- Greater levels of energy savings and consumer adoption
- Increased levels of energy savings and device adoption/retention

3. AV/IT APS Tier 2 Eligibility Requirement

TIER 2 APS DEVICE FIELD TRIAL

1. Challenge

- Remove barriers in field testing APS technologies
- Remove the variability and cost in pre/post field trial analysis

2. Outcome

- Robust, repeatable and cost effective field trial process
- Value energy saving performance of each APS
- APS manufacturers incentivized to lower the cost per kWh saved, which benefits consumers

MARKETING GOALS



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1. Define (in simplest terms) what is an Advanced Power Strip
 - What it does and how it works
2. Explain what the end user needs to know about wasted energy
 - Differentiate modes: off/standby/sleep/vampire
 - Deemed savings number provides wasted power consumption
3. Utility & Energy Efficiency Program Involvement:
 - Incentivize/endorse APS products meeting WGs qualified specs
 - Recognized by ENERGY STAR®
 - Educate consumers—simple solutions save significant energy
4. Promotion:
 - Educational materials
 - Marketing campaigns
 - Training



MARKETING GOALS (cont.)

RESEARCH NEEDS

- Focus Groups – to understand end users perception
- Consumer usability studies – ensuring correct set-up/usage of APS
- Field studies (NYSERDA– customer interaction, case studies)



DISTRIBUTION: IDENTIFY CHANNELS

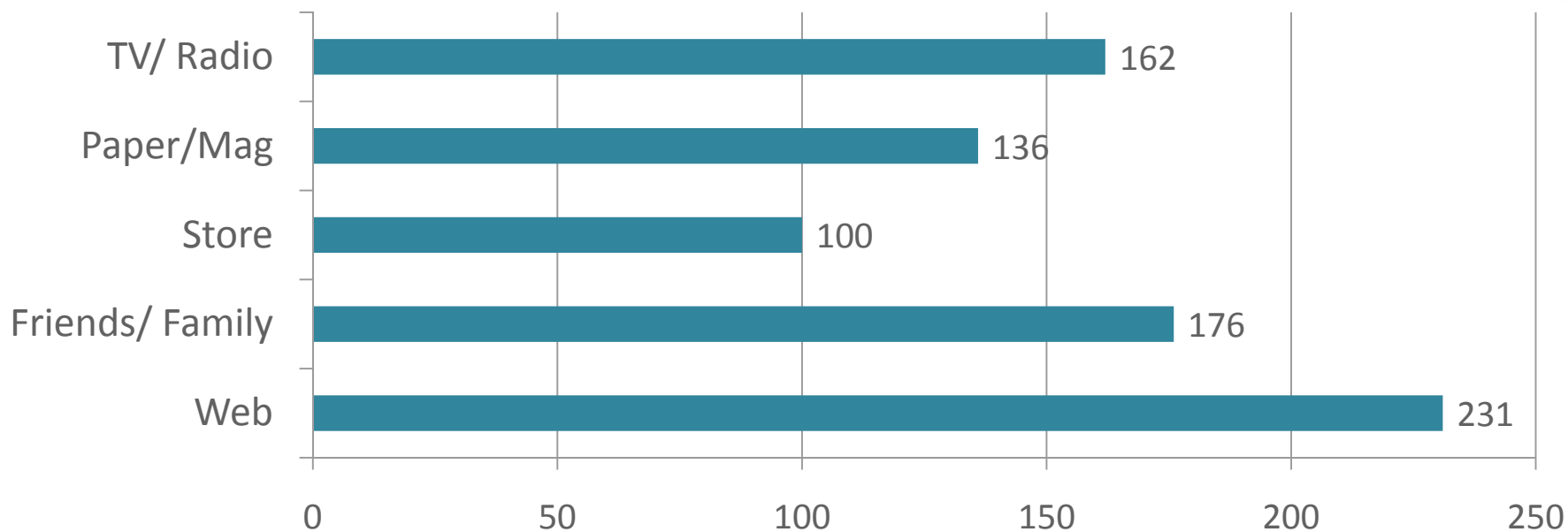
- Resellers - All channels
- Electrical Contractors and Installers
- Utilities and EEPs
- Energy Auditors
- Community Organizations
- Green Energy Organizations

MARKETING QUESTIONNAIRE (~600 respondents)

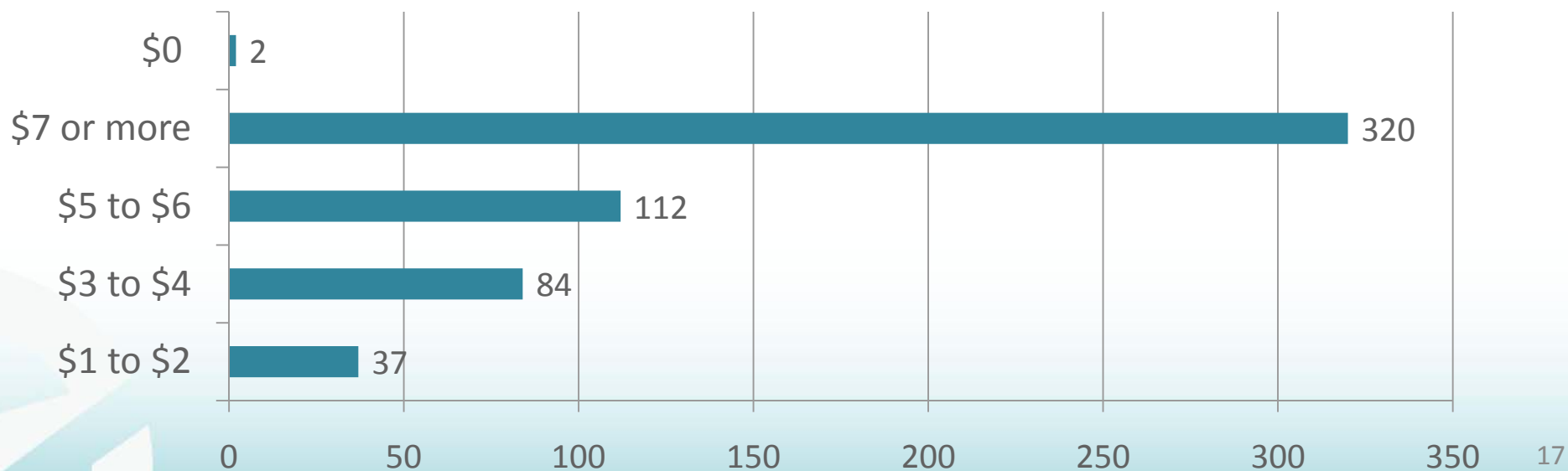


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Where do you go to find info about energy efficient products?



How much wasted energy do you think you pay for each month?



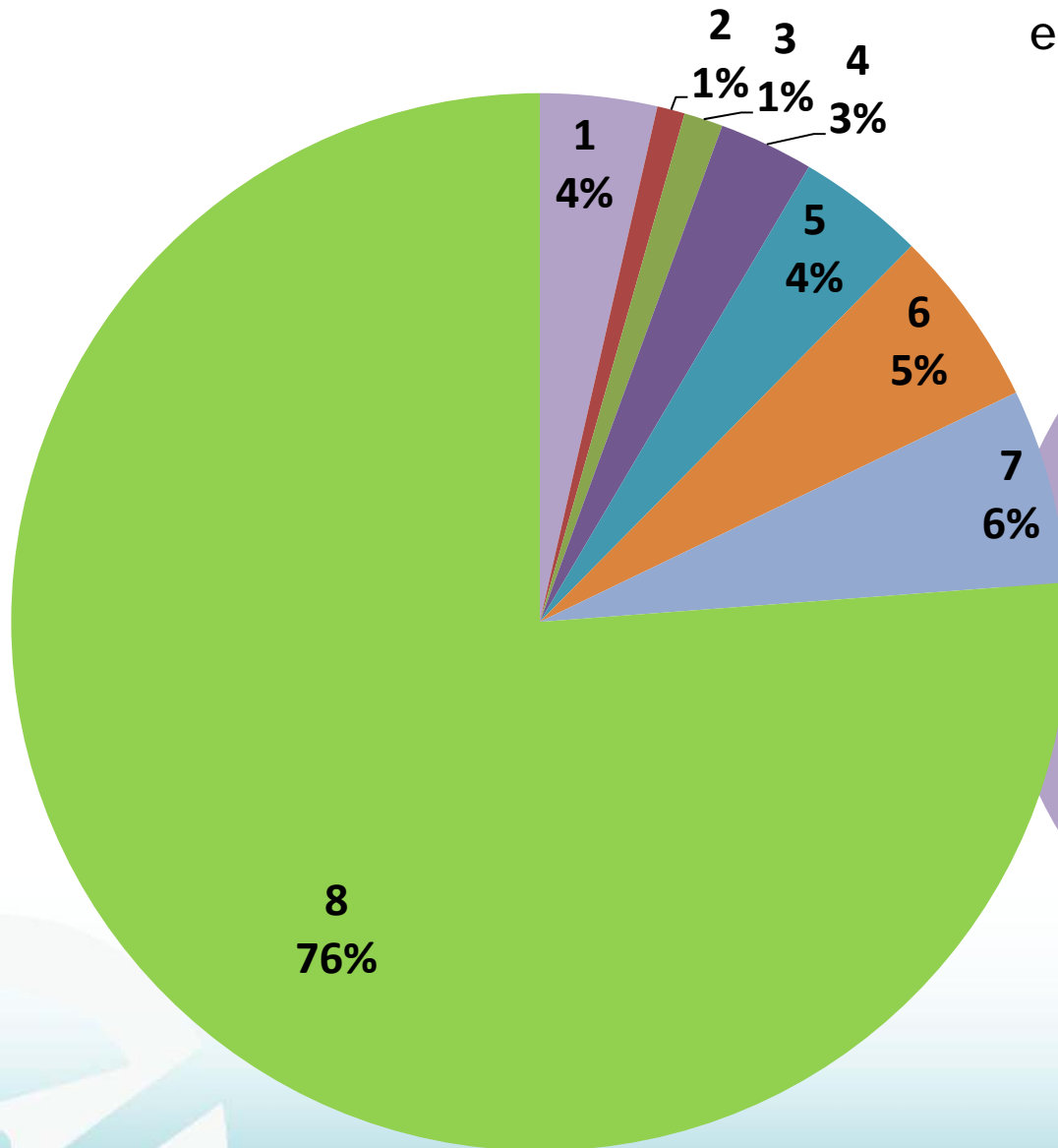
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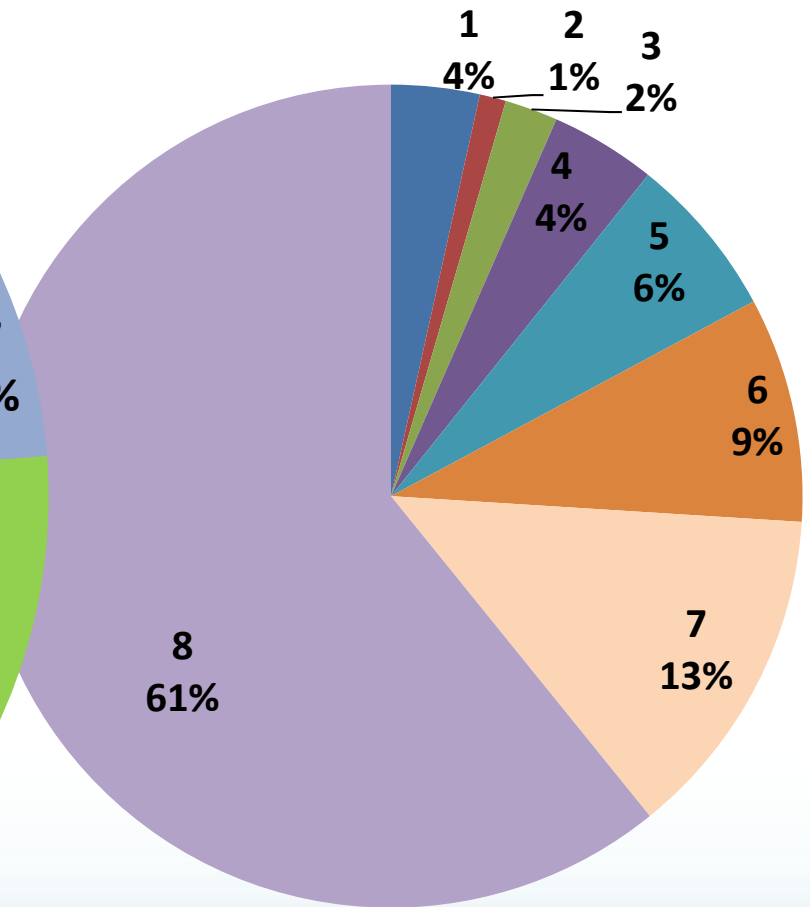
How important is it for you to save money on your utility bills?

(1 least important, 8 most important)



How important is it that electronic equipment is easy to install/adjust?

(1 least important, 8 most important)



MARKETING: WHAT'S NEXT

1. Funding!

- Have data and products, but need market drivers to produce:
 - Marketing, education, outreach templates for PAs
 - Retail/Reseller marketing materials:
 - Informational brochure for consumers w/FAQs
 - Training for resellers
 - POP materials (DVDs, slogans, takeaways, display units)

2. Labeling Efforts

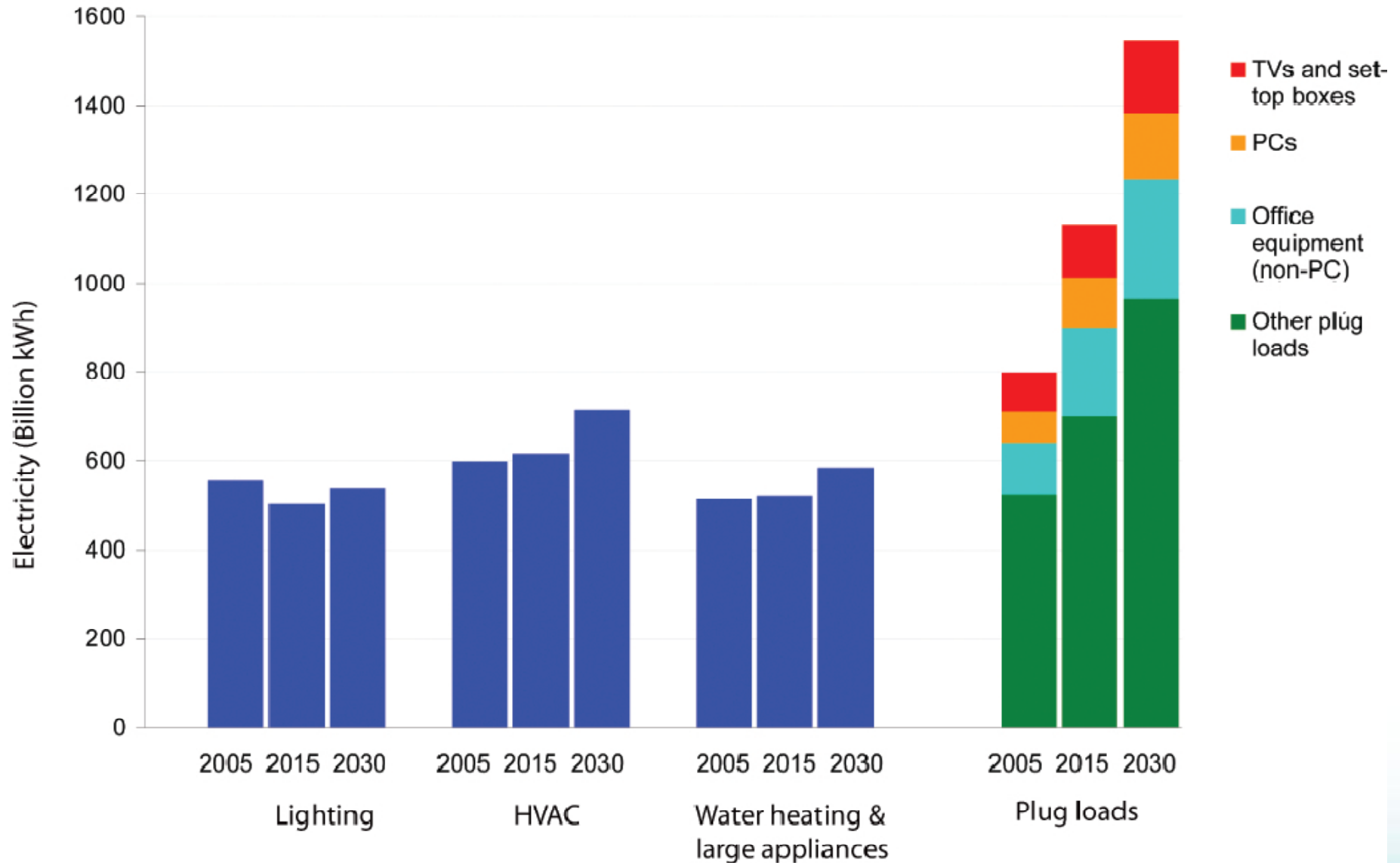
- ENERGY STAR is recognized and valued
- Quality Assurance and Certification protocols

3. Position Paper for:

- Regulators
- Policymakers
- Federal Authorities



PLUG LOADS COMPRISE ONE OF THE LARGEST AND FASTEST GROWING END-USES OF THE RESIDENTIAL AND COMMERCIAL SECTORS





THANK YOU

ADVANCED POWER STRIPS: ENERGY EFFICIENCY THROUGH PLUG LOADS

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September 27, 2011

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