



Serious Programs for Plug-Load Hogs and Phantoms!



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Topics

- What is included in “plug load” and why is it important?
- Types of plug-load efficiency measures
- Major barriers to plug-load efficiency in residential and small business
- Program approaches that may be effective to overcome those barriers
- Summary of key recommendations

What's Typically Included in Residential/Business Plug Loads?

Computers & monitors
External power supplies
Speakers
Printers
Copiers Faxes
Scanners
Multi-function devices (MFDs)
Enterprise servers
Vending machines

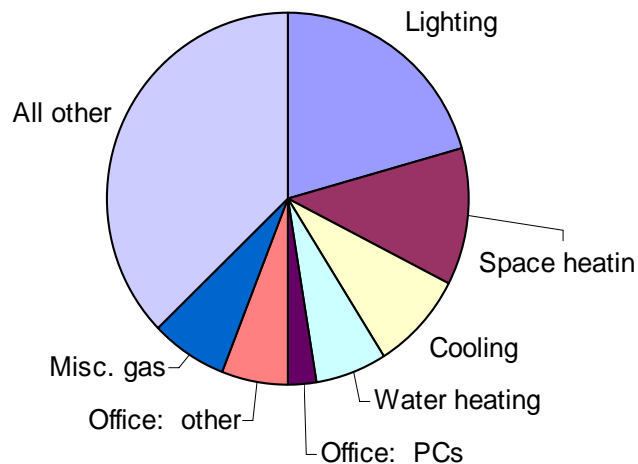
Task lighting
Large coffee machines
Water coolers
Small refrigerators
Space heaters
Televisions
Set top boxes
Cordless phones
Battery chargers
Home audio/video

and MORE.....

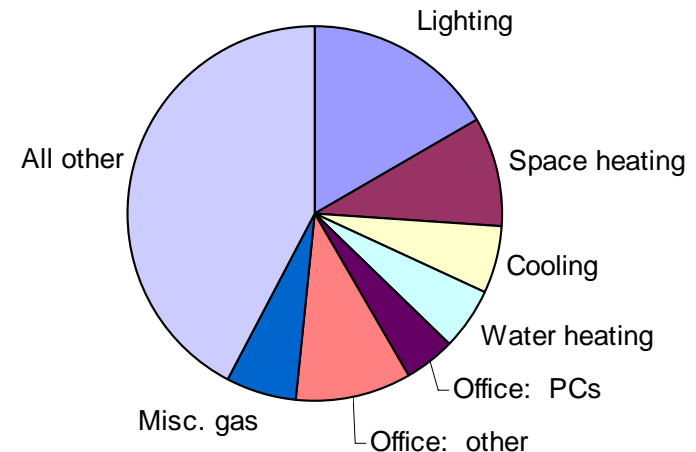


Projected Fastest Energy Growth in Commercial: Office Equipment (4%+)

U. S. Annual Energy Consumption
Projected 2002



U. S. Annual Energy Consumption
Projected 2025

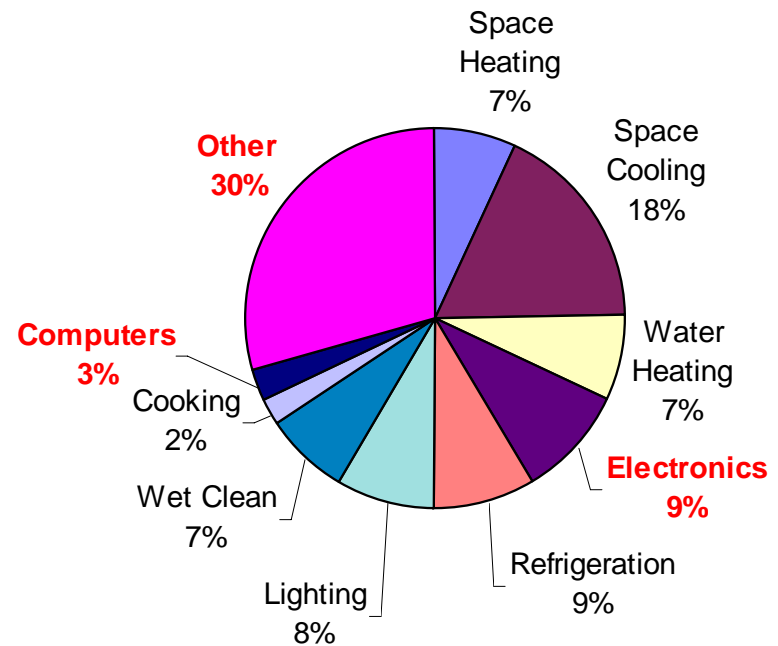
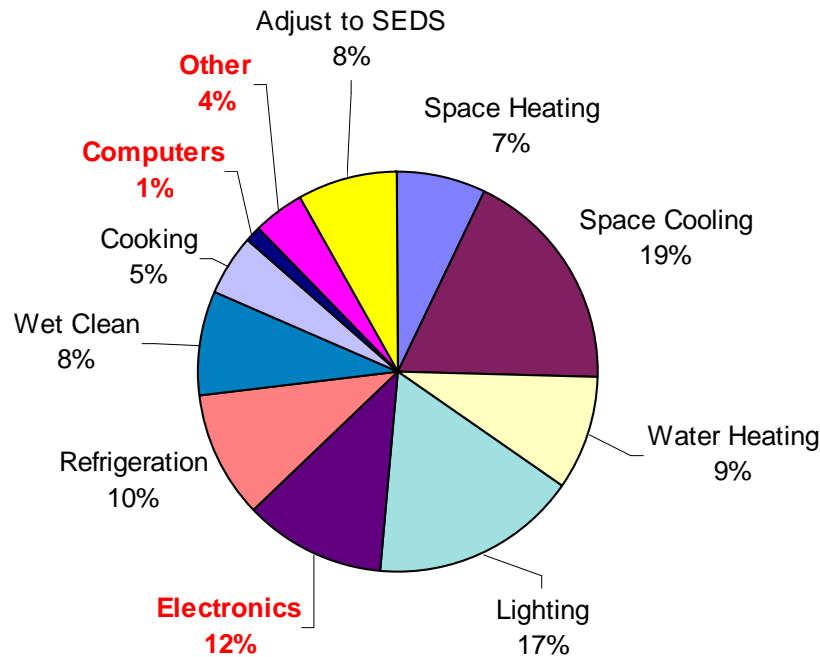


Source: DOE EIA1999 Commercial Buildings Energy Consumption Survey (CBECS)

Home Computers & Electronics Are Expected to Increase Significantly

2030 Residential Energy-Use Splits

2006 Residential Energy End-Use Splits












Source: DOE EIA, Annual Energy Outlook 1999

Energy Efficiency Measures for Plug Loads—the 3 “P’s”








- Procurement of “best” ENERGY STAR equipment (with recycling)
- Power management
- Power off



Business Sector Barriers/Solutions

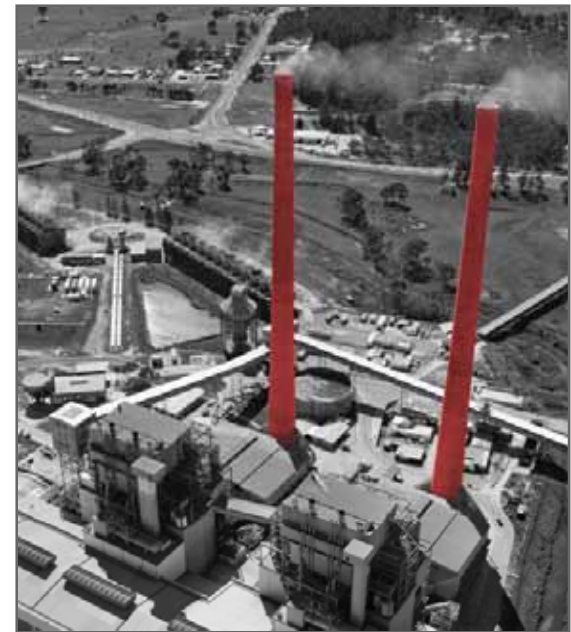
Major Barriers/ Solutions	Financial Incentives	Education Data & Analysis	Control Mechan- isms	Direct Install/ Tech. Support	Corp./ Staff Recognit.	Upstream Market Programs
Lack of Knowledge of Benefits						
Lack of Staff Resources						
Organizational Hurdles						
Myths and Technical Realities						
Misplaced Incentives						

Residential Barriers/Solutions

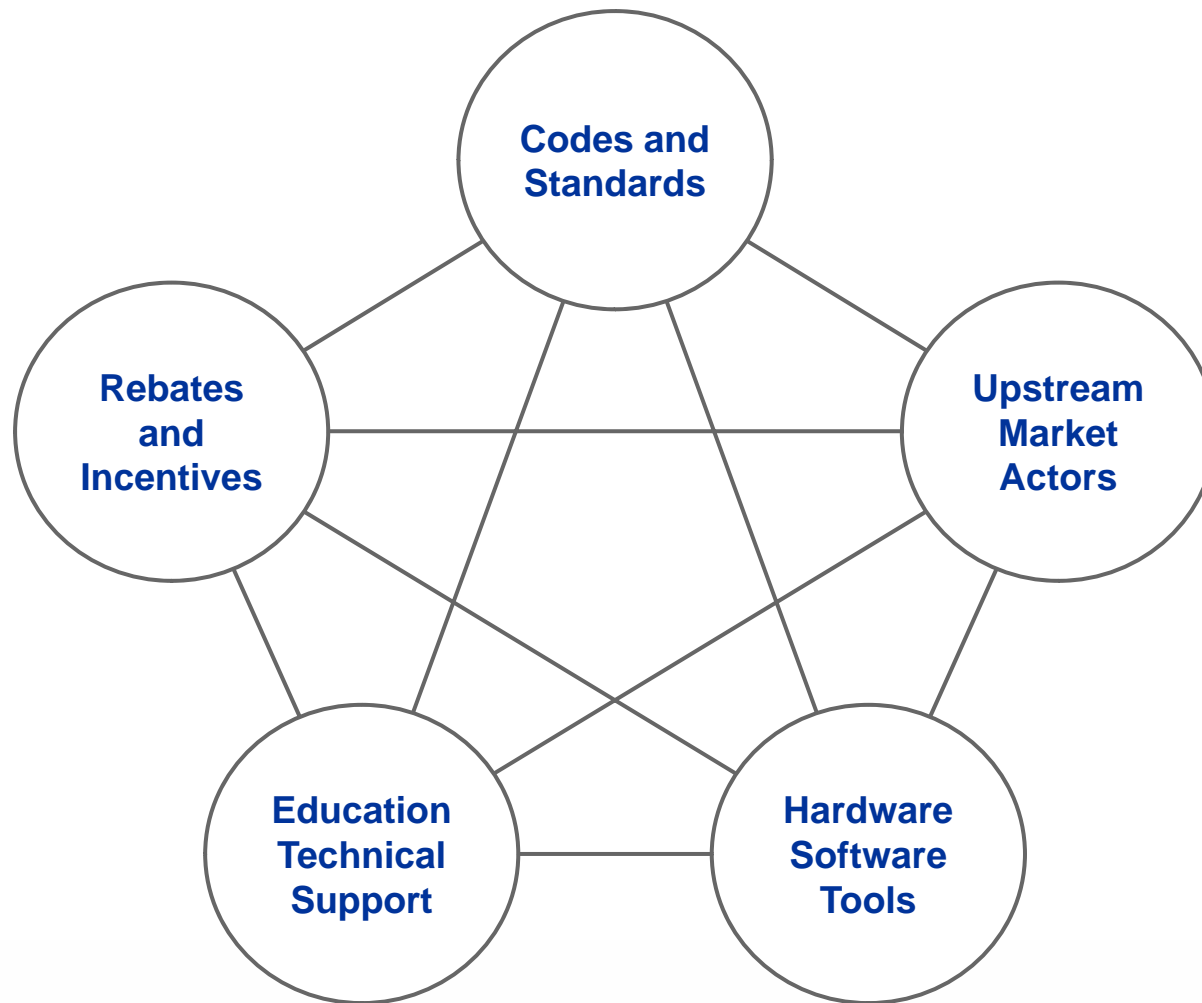
Major Barriers/ Solutions	Customer Rebates	Education Data & Analysis	Control Mechanisms	Direct Install	Upstream Market Programs
Lack of Knowledge of Benefits					
Hassle/ Inconvenience					
Cost to Replace					
Myths and Technical Realities					

Mass Market Plug-Load Program Barriers for Utility Programs

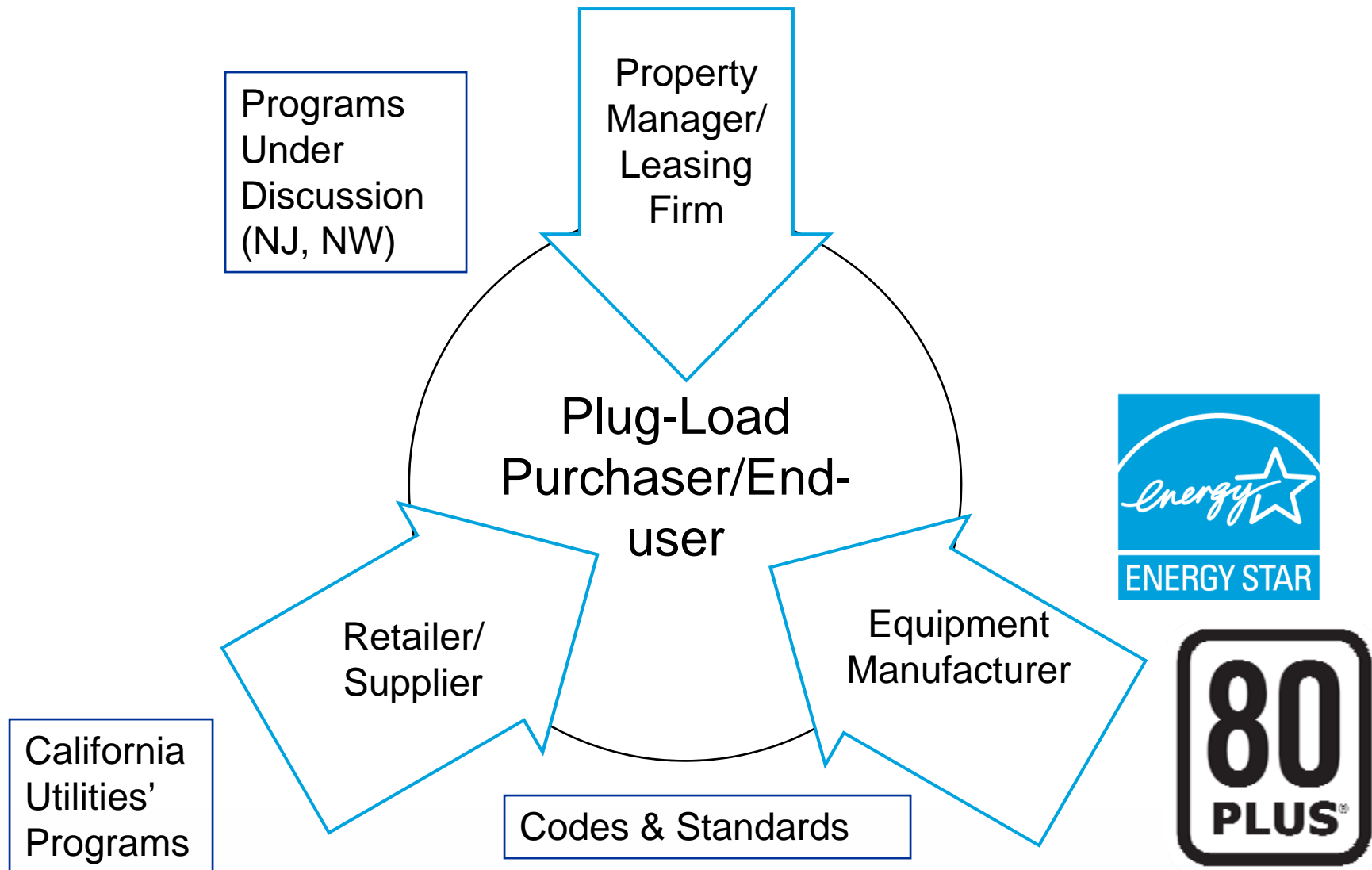
- Lack of IT technical expertise
- Hard to ensure that behavioral savings will be sustainable
- Difficult to estimate actual savings
- Designing cost effective programs for the mass market is a challenge



Plug-Load Efficiency Programs



Upstream Market Actors Programs



Example: Rebates/Incentives

Sacramento Municipal Utility District

- \$10 per PC for using installed software to control the power settings of networked desktop personal computers (PC) at the server level
 - customers must allow SMUD access to site to verify the software license installation and number of PCs controlled
 - Software must be able to report energy savings data
- \$16.50 per plug-load occupancy sensor to control a minimum of 50 watts of electric equipment in offices or cubicles, shared copy machines and/or printers
 - Only passive infrared and/or ultrasonic detectors

Recommendations

- Integrate plug-load efficiency into existing programs
- Develop model programs through collaborative efforts
- Conduct appropriate research to inform the program designs
- Provide plug-load efficiency training
- Consider programs that target other key market actor groups

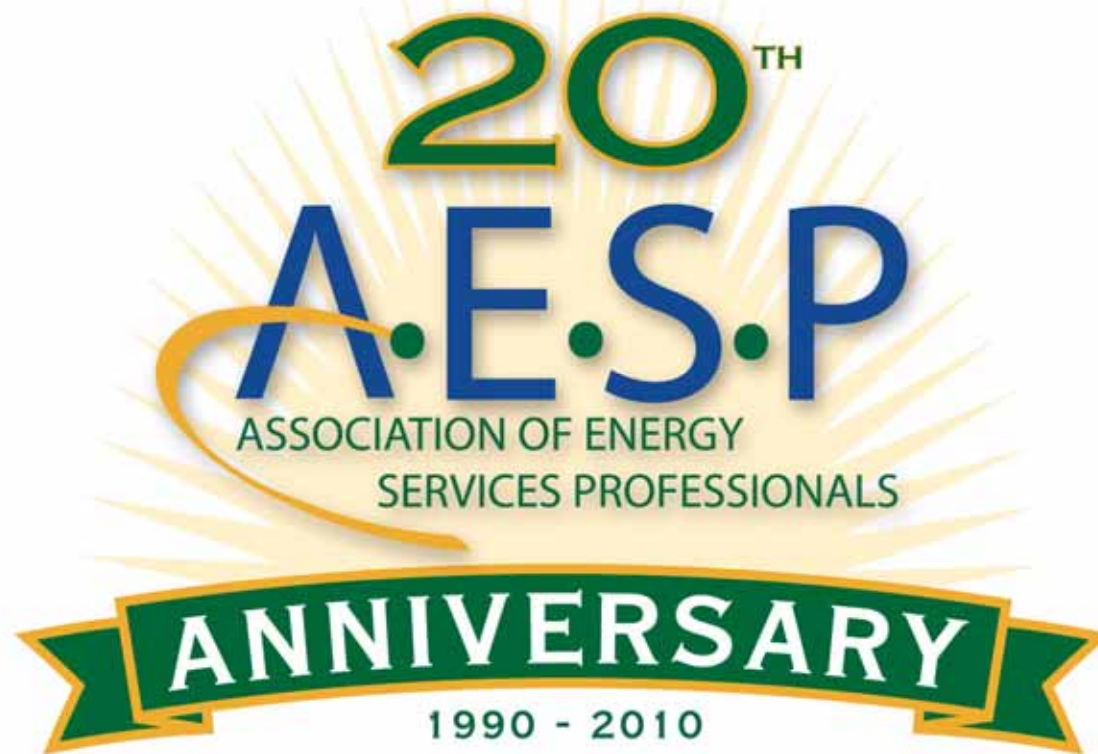
Thank You!



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