

# A Vision and Strategic Framework for Plug Load Energy Efficiency



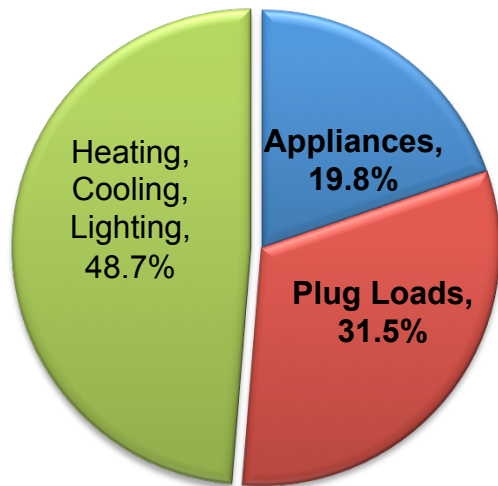
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CalPlug Workshop  
Nov. 5, 2013

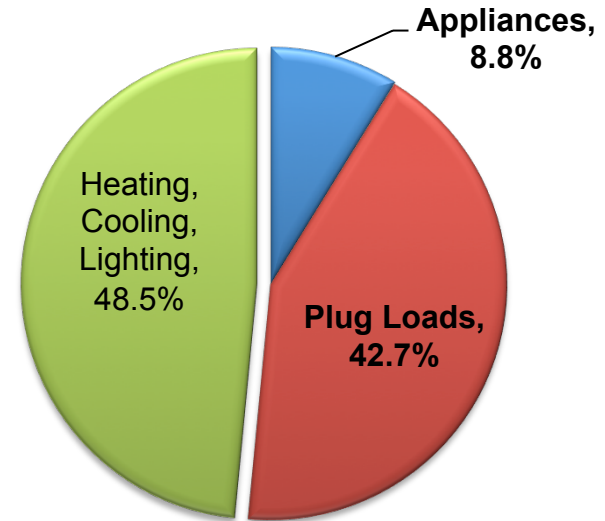
# Plugs loads already represent the majority of home and office electricity consumption, and growing

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**U.S. Residential Electricity**  
EIA 2013

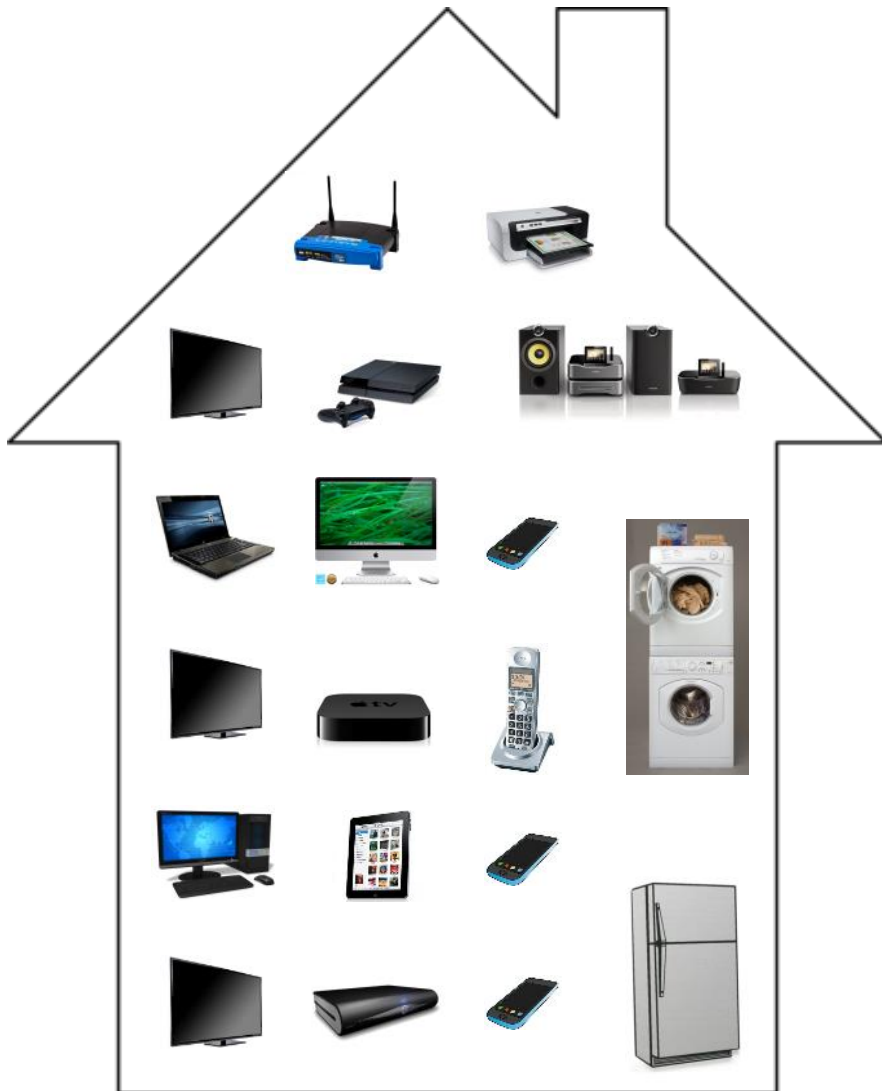


**U.S. Commercial Electricity**  
EIA 2013



By 2040, EIA projects that plug loads and appliances will represent 55% / 60% of residential / commercial electricity consumption (EIA 2013).

# The plug load energy conundrum: Which, where, when, how?



Consumer



- How can I reduce my bill?
- Where are my vampires?
- What devices should I replace?

Utility



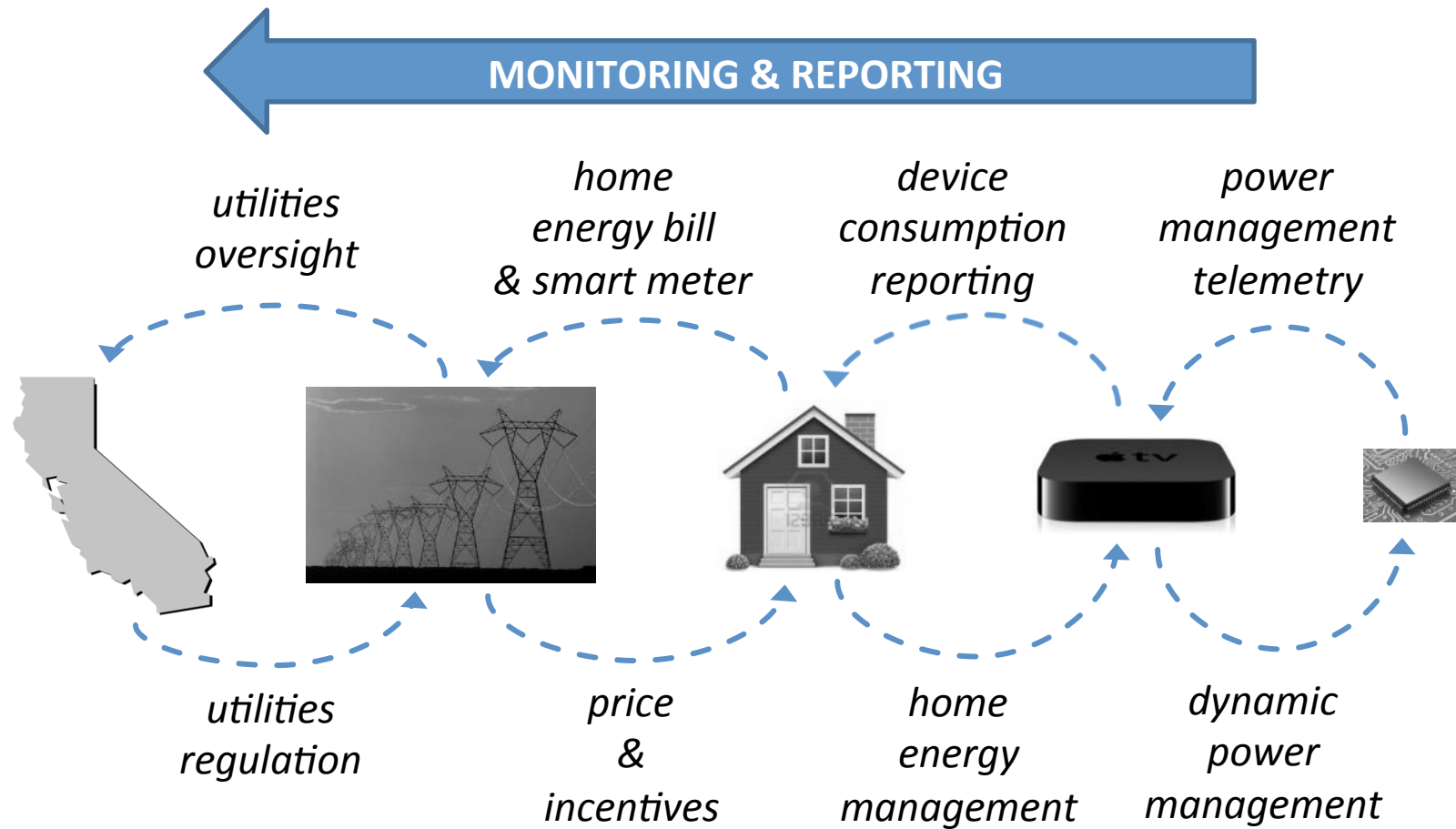
- How to incentivize user behavior?
- How to set targeted incentive programs?
- How to shed peak load?

Policymaker



- What are the biggest savings opportunities?
- What are the best-practices?
- What duty cycles?

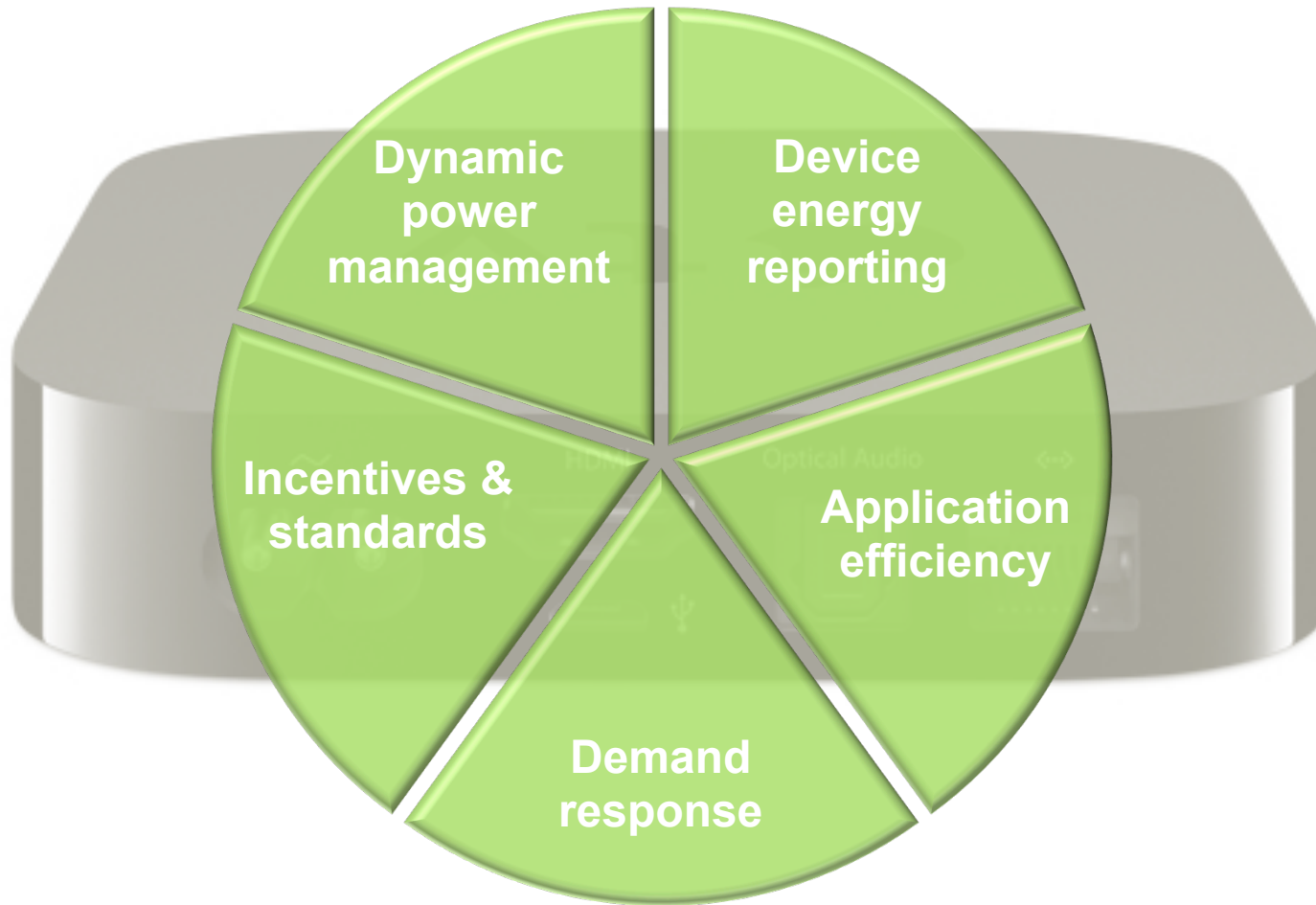
# Vision: Enable a smart plug load ecosystem



# Defining a holistic framework for plug load efficiency opportunities and the strategies to achieve them

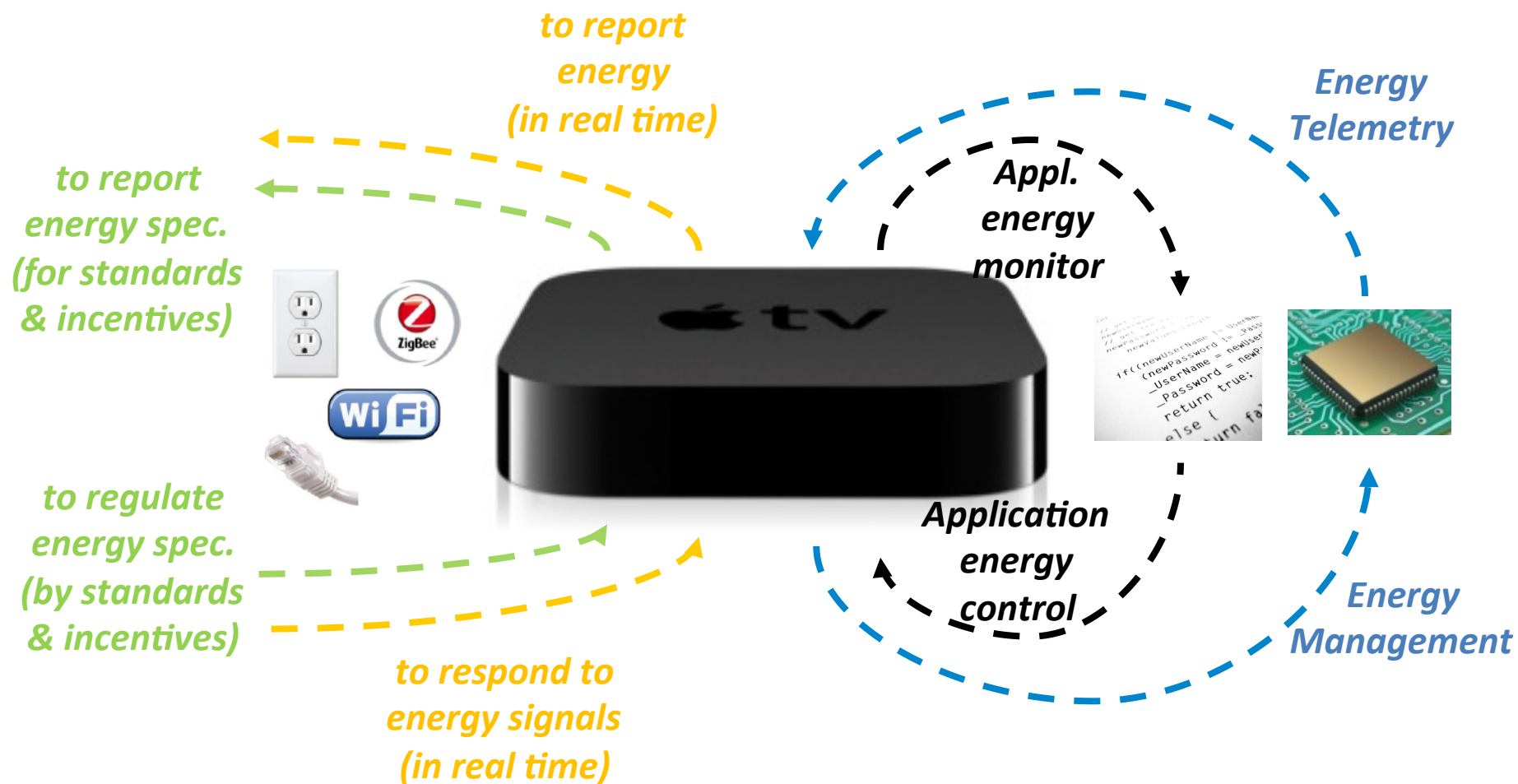
## Opportunities

## Strategies



- Demos
- Description language
- Metrics
- Benchmarks
- Protocols
- SDKs
- Pilots
- Publications
- Data collection
- Best practices

# What features are required in devices to enable the smart plug load ecosystem?



# What features are required in devices to enable the smart plug load ecosystem?



## Help us implement dynamic power management in the plug load ecosystem

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- ❑ Devices “smartness” and connectivity = tremendous opportunity to optimize power management in the entire plug load ecosystem
- ❑ Need all stakeholders help to define and implement these power management capabilities in electronic devices
- ❑ As plug loads and appliances become the largest electricity consumers in homes and offices, a holistic strategy is critical to enable California energy and climate goals