

IEEE Innovative Smart Grid Technologies Conference

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About AHAM

- Represents manufacturers of major, portable and floor care home appliances.
- Standards development organization, accredited by the American National Standards Institute (ANSI).
- Consumer safety education programs.
- www.aham.org/smartgid

Consumer, Consumer, Consumer

- The consumer is essential.
- If people do not use a Smart Appliance, then the Smart Grid will not be successful.
 - Appliances must not cause significant disruption or lifestyle changes throughout a person's normal daily life.
 - Consumers must receive valuable and understandable information that will enable them to make intelligent and informed choices about how they use energy.



Energy Secretary Chu on Consumers

*“To assuage consumers who are resistant to changing their habits, energy savings in the home has to be incredibly simple. . . Much like a point-and-shoot camera that lets consumers simply push a button to take a picture, but possess the ability to do much more embedded in the device . . . Real-time pricing will lead to demand response and, if done right – meaning consumers are given the right tools, like this ‘**magic button**’ – energy costs will be driven down.”*

US Energy Secretary Chu

3 Requirements of a Smart Grid

1. Pricing Rate Structure and Incentives to Consumers
2. Communication Standards
 - Open
 - Flexible
 - Secure
 - Limited in Number
3. Consumer Choice & Privacy

Pricing Rate Structure and Incentives to Consumers

“Time of Use” pricing creates the conditions that encourage the consumer to change their or the appliance’s behavior by using appliances when the rates are lower, which if properly developed, will save the consumer money on their total electricity bill.



Pricing Rate Structure and Incentives to Consumers

“There are two main reasons why consumers will adopt smart appliances: either to gain an economic benefit or to contribute to reduce the environmental burden. As the results of the research show consumers clearly expect an economic benefit in order to use smart appliances. They are not prepared to change their behavior without good incentives. Only a small percentage of environmentalists will be ready to buy smart appliances solely for environmental reasons. Following this logic the main trigger to buy smart appliances will be attractive tariff offers of the utilities to their customers.”

“Smart Domestic Appliances in Sustainable Energy System” report prepared as part of the European Intelligent Energy Europe project

Communication Standards

- Open
- Flexible
- Secure
- Limited in Number



Communication Standards - Open

- Equipment must be based on open standards for all communication protocols related to Smart Grid.
- Appliance manufacturing is an investment-intensive activity that results in standardized products for national distribution.
- Customizing products for multiple proprietary communication protocols would be impractical.

Communication Standards - Flexible

- There must be standardized communication protocols available that are flexible to allow proper interaction between changing technologies among –
 - Smart Meter
 - Internet
 - Home Controllers
 - Gateways
 - Displays
 - Devices



Communication Standards - Secure

- Only trusted and pre-authorized entities should adjust or affect the operation of an appliance.
- Security standards must be developed with the Home Area Network in mind.



Communication Standards – Limited in Number

- Minimize number of standards for demand response for each mode of communication.
- Due to the size and complexity of the Smart Grid, the potential number of standards is significant and could impede progress.



Consumer Choice & Privacy

- Many consumers have growing concerns over data collected about their lives.
 - Monitoring of appliances can lead to data collection that allows for behavioral patterning and other data mining.
 - Regardless of the intent, this perception can cause unnecessary concern about the perceived invasion of privacy and create an unnecessary hurdle to people becoming excited about participating in the Smart Grid.
- These concerns should be put to rest.

Smart Appliances Saving Money & Energy

