

GE Appliances and Lighting Home Energy Solutions

Introduction to Brillion™ Technology



GE imagination at work

The headlines tell the story...

"Blistering heat wave stressing nation's power grid"

"Electric utilities approach record demand"

"NorthWestern Energy smashes South Dakota energy demand record - twice"

"Consumers Energy Asks Customers to Reduce Power Use Because of High Demand From Heat Wave"

"PSO Asking Customers To Cut Back On Electricity Usage"

"Utilities broke power usage yesterday, expects another record-breaker today"

"ERCOT issues power emergency as another heat record falls in DFW"



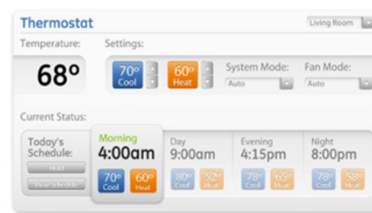
...Consumer education is critical

That provides a compelling value proposition built on delivering the benefits of:

Insight



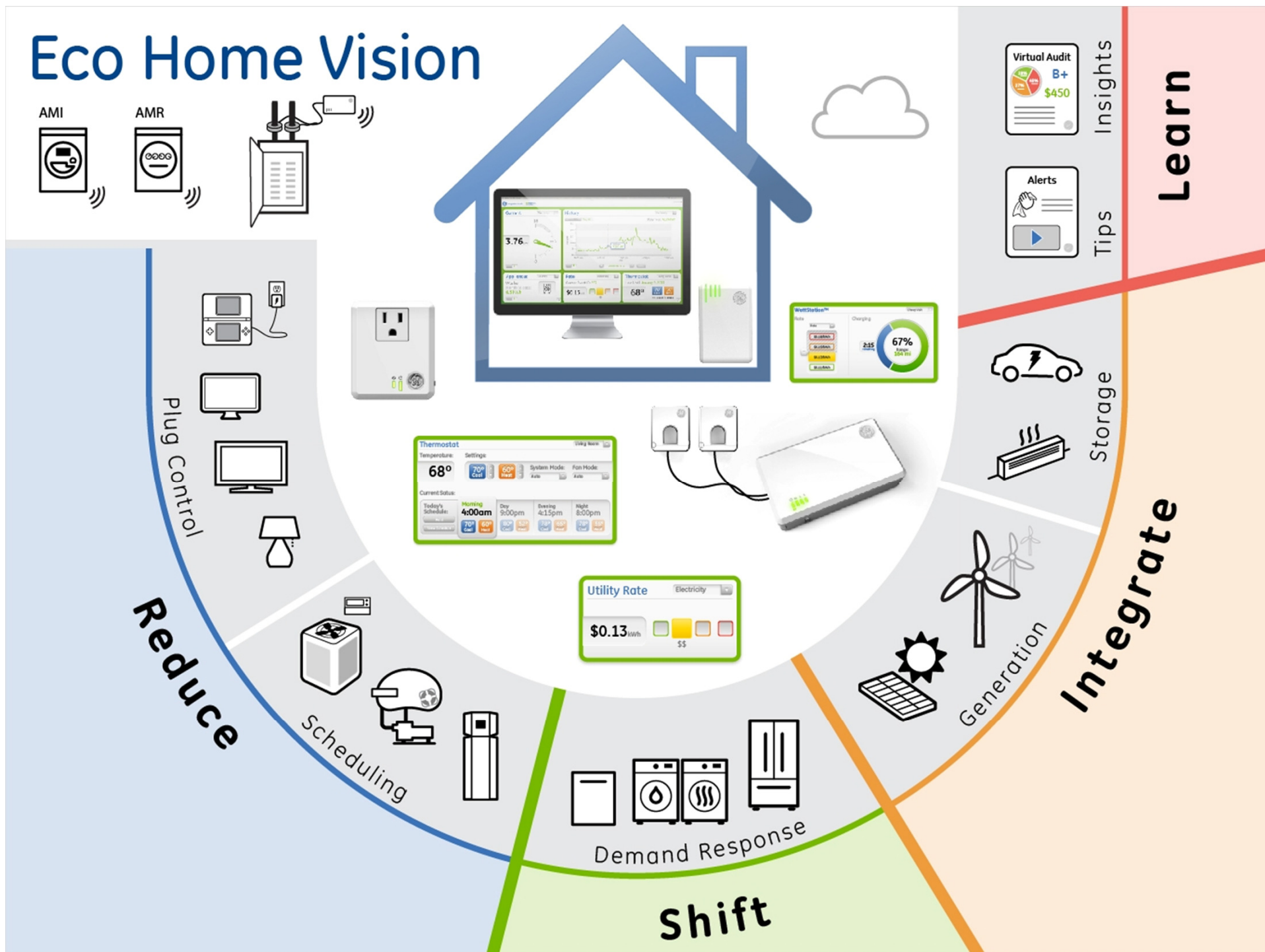
Convenience



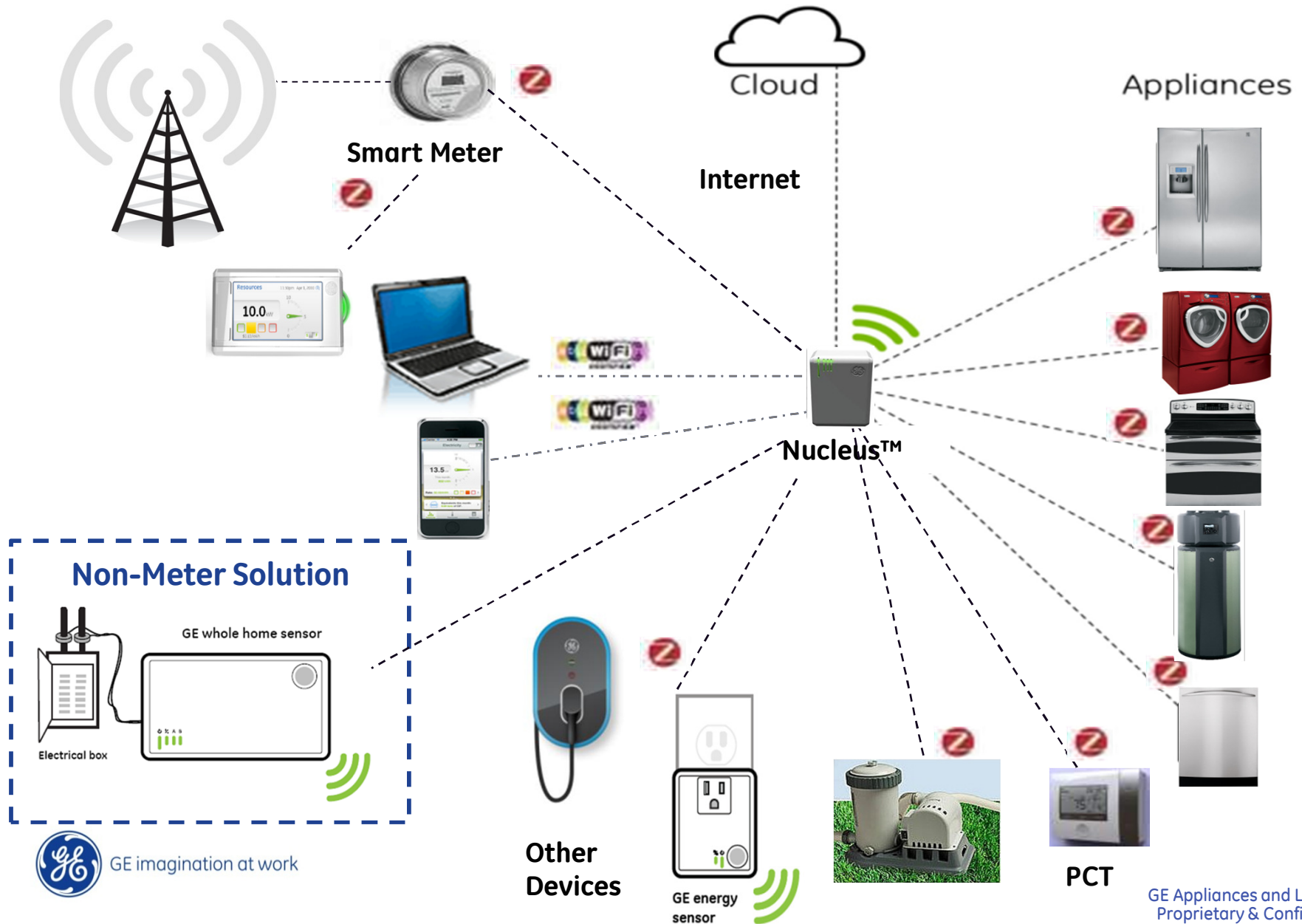
Control



Eco Home Vision



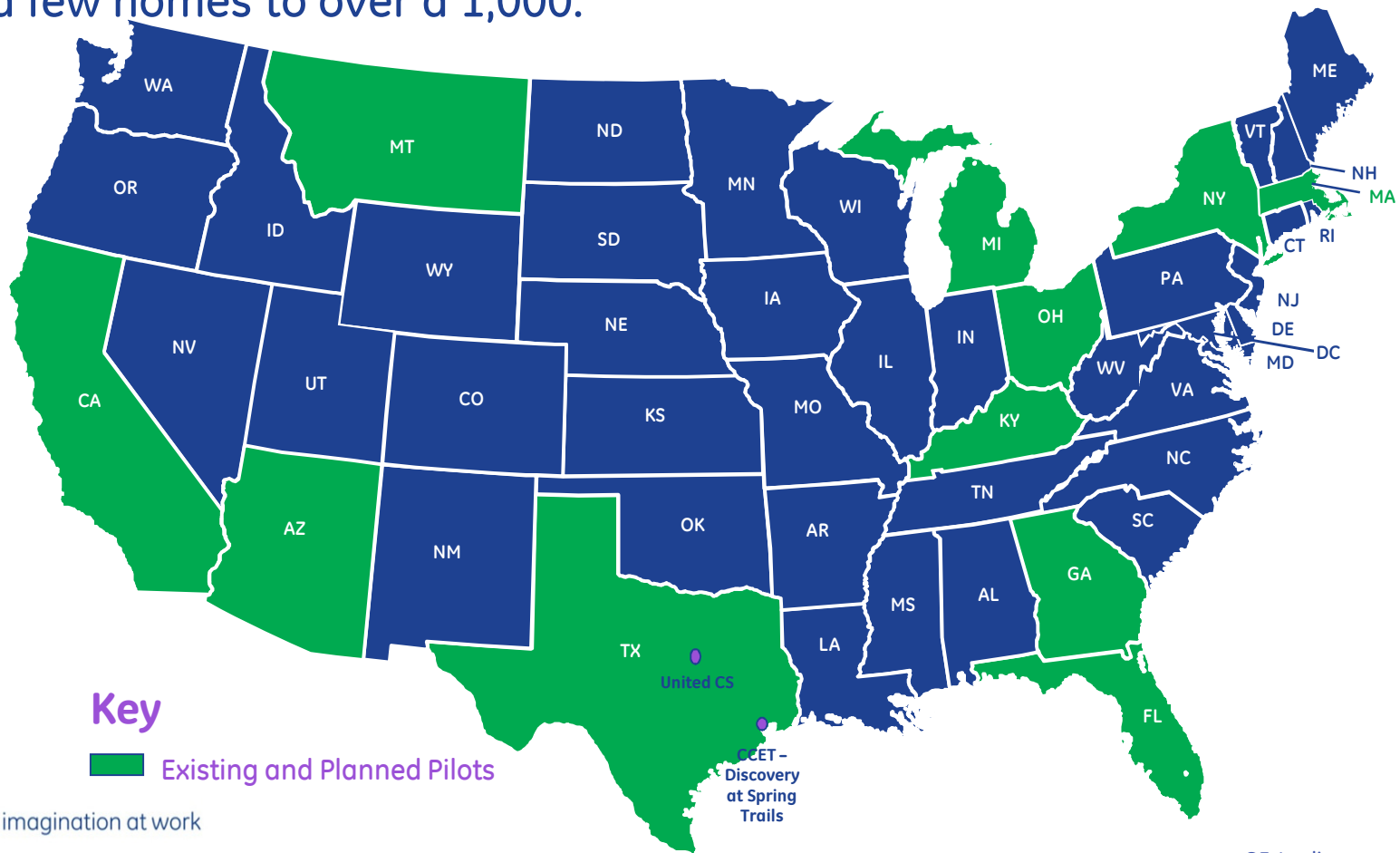
Brillion™ Suite of Home Energy Solutions



Pilot Programs

GE has been working with utility partners to better understand consumer acceptance and issues with smart appliances

Utility pilots encompass IOU's, Cooperatives, and Municipals in sizes ranging from a few homes to over a 1,000.



GE imagination at work

Key Challenges Facing the HAN

Industry Related Challenges

- Lack of a standards and protocols
- Slow pace of AMI rollouts
- Slow adoption rates on new technology
- Low participation in TOU rates and DR programs

Consumer Related Challenges

- Lack of knowledge on smart grid
- Data privacy concerns
- Unclear on the value proposition
- Utility does not offer opportunity to use technology

GE Brillion™ suite for pilot programs ...

Nucleus™



- Consumer installable
- Phone and web support
- PC Client software application

Thermostat



- Electrical installation

In home Color display



- Plug in wall supply

Appliances



- Standard delivery and installation



Products are UL/CSA/FCC/and Zigbee certified.



imagination at work



imagination at work

Appendix



GE imagination at work

There are Significant energy challenges



3X

Global energy
demand triples by
2050

Source: Army Corp of Engineers

40%

Amount of
greenhouse gas
emissions for which
electricity
generation accounts



Source: Energy Information Administration.

42%

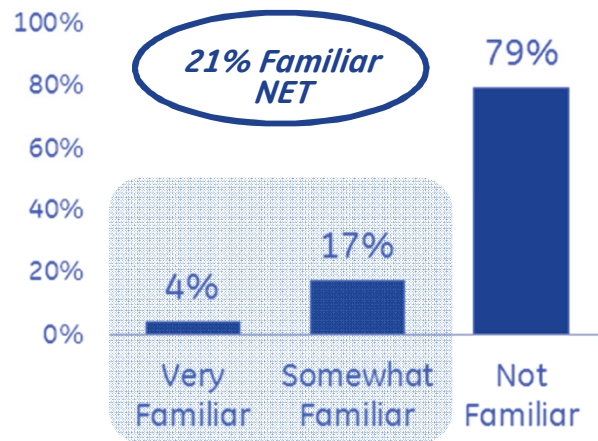
Rise in residential
cost of electricity in
2000-2008



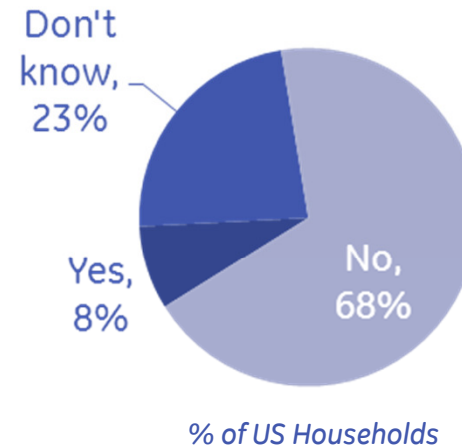
Source: Energy Information Administration

... knowledge about the Smart Grid is a problem...

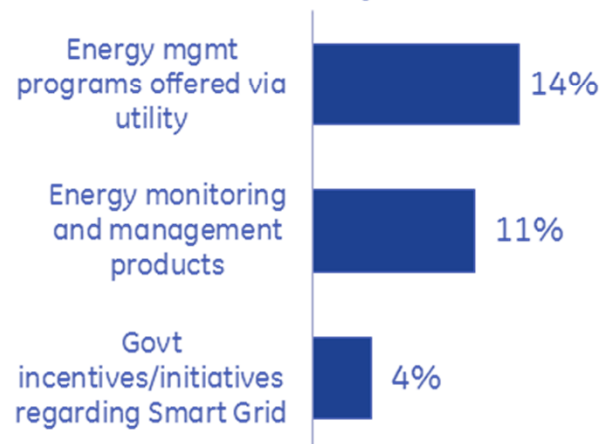
Familiarity with Smart Grid in U.S.



Do You Have a Smart Meter In Your Home?



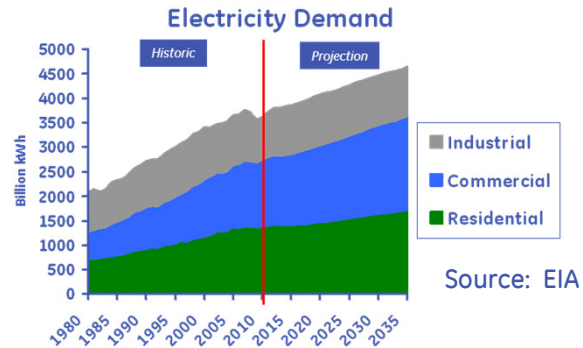
Energy Management Familiarity



Source: Surveys conducted by Parks & Assoc., StrategyOne, and GE

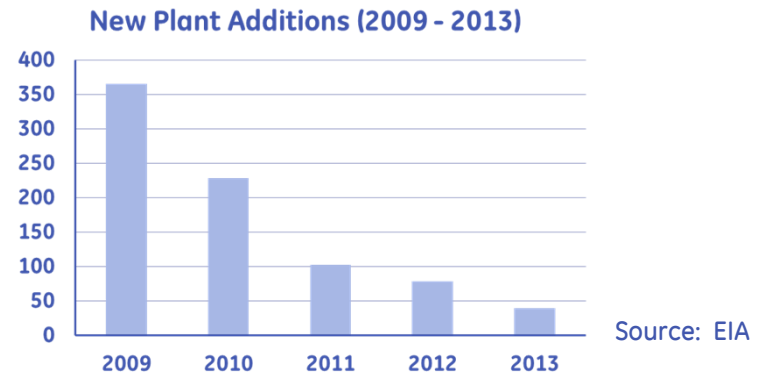
...the industry is in a state of flux

Demand Outpacing Supply



- Potential power outages for 86% of the population

Power Plant Costs



- New power plant additions fall off 83% over the next three years

Smart Meter Rollouts

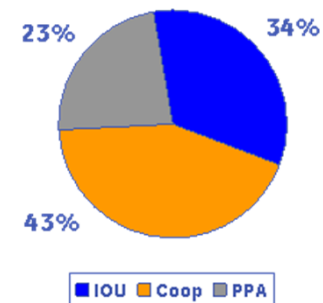
- Almost 20MM Smart Meters will be deployed by the end of the year.
- More than 50MM to be in place by 2012
- A need for standards persists

Source: Parks Associates 2010



TOU Rate Enrollments

Percent Breakdown of Utilities with TOU Rates



- Just 2% of U.S. residential customer base utilizes TOU rates.

Source: Parks Associates 2010

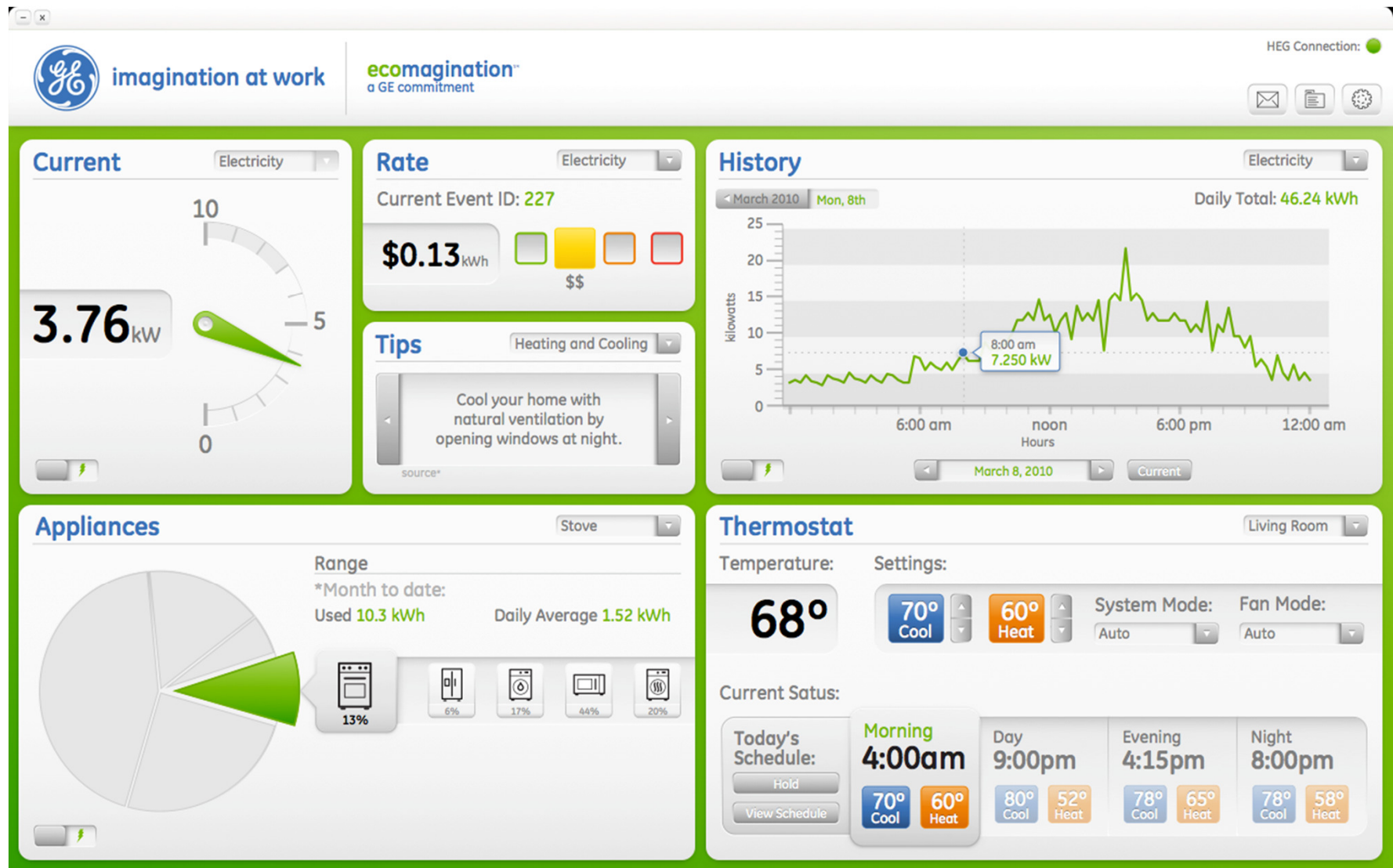
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GE Appliances and Lighting
Proprietary & Confidential

Nucleus™ energy manager with Brillion™ technology

- Small footprint computer.
- 3 radios for wireless communication with
 - smart meter
 - smart appliances
 - user interface devices
- Enables appliances to respond to utility signals.
- Empowers and educates homeowners
- Aggregates and stores energy use data for all networked devices.
- Extensible architecture allows for system expansion.



Software Application



Smart Phone Application

Resources



Appliances



Thermostat



Adjust programmable thermostat

History



GE Profile Appliances enabled with Brillion™ technology



Other Devices with Brillion™ technology



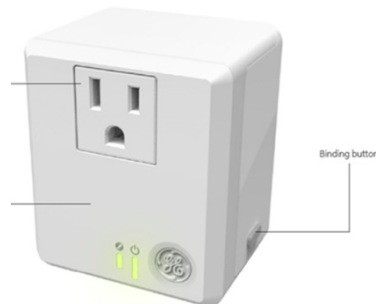
Programmable Thermostat

- ZigBee SEP Thermostat
- Full 7 day program with 4 set point per day
- \$KWh Usage / Instantaneous KWh / \$ Pricing



Energy Display

- Near real time energy usage in kW or \$'s
- Historical energy usage and analysis
- TOU rates
- Utility messaging



Load and Outlet Switches

- 240V/30A DR Switch
- 120V/15A Energy Sensor
- Communicates usage to Nucleus using ZigBee SEP