Definition Guidelines

• Grid-Enabled: Legislatively Mandated, 75+ Gal. ETS Water Heater, Higher EF, Activation Lock functionality

• Grid-Responsive: Legacy Load Management, Slow Speed/One Way Communication, On/Off

• Grid Interactive: High Speed/2 Way Comm.
From Legacy Systems to GIWH and Community Storage!

Steven Koep, National Utility Sales Manager – Vaughn Thermal Corporation, Co-Chair of PLMA GIWH Interest Group
Or.....What happens when

The ‘Forgotten Appliance’
Meets the Internet of Things!

• GIWH : Grid-Interactive Water Heating
• Demand Response and Strategic Energy Sales
• Program Options & Financial Opportunities
• No More ‘Dumb’ Water Heaters!!!
Introduction – How did we get here?

- Energy Star
- Integrated HPWHs
- DOE Rulemaking, April 2010
- **Grid-Interactive Electric Water Heating – GIWH!**
- Rising Profile of Renewable Energy Storage
- March 19, 2015 – Testify to House SubCmte
- April 16, 2015 – DOE Final Rule in Effect
- April 21, 2015 – Congress Passes Bill
- April 30, 2015 – President Signs Bill establishing ‘Grid-Enabled’ ETS Water Heater Category!
‘Grid-Enabled’ ETS Water Heater
Embrace The GIWH Opportunity or…
What is GIWH & Why Should I Care?

• Change the technology and/or Change the source energy!
• 50M+ Residential Electric Water Heaters – Most will not convert to HPWH or Solar!
• 2-Way Communication is the Key............... To Grid Connectivity and Ancillary Services
• Launch PLMA GIWH Interest Group
• Follow The ‘Renewable’ Logic....
GIWH - ‘Grid-Interactive’ Water Heater

Your electric storage water heater is a thermal battery that can help integrate renewable energy into the grid.
Dr. Steve’s ‘Renewable’ Logic

• Renewable energy is a good thing!
  We should make all that we can!
• Using renewable energy is a good thing!
  We should efficiently use all that we can!
• Unused renewable energy is NOT a good thing! We should store and utilize all of the available low-cost and no-cost renewable energy that we can!
Understand where we’re headed...

• Support and utilize GIWH as a viable carbon reduction strategy
• Consider other market delivery models to reduce the first-cost hurdle
  – Water Heater Leasing options
  – Hot Water as a service
• Encourage HPWH technology - where it makes the most sense
Retain/Grow Market Share

- Develop new water heater program options!
- Better rebates for better products!
- Introduce a water heater leasing program!
- Look to the future with grid-interactive, renewable storage features!
- Think “Community Storage”!!!
Defining Success

• New product classification for Large-Capacity Grid-Enabled ETS Water Heaters
• MW-scale GIWH implementation projects
• Hot Water as a Service
• HPWH achieving 5% market share by 2025?
• GIWH as the foundation of ‘Community Storage’
PLMA BTMS Interest Group
(BTMS > Behind-The-Meter Storage)

• PLMA – Peak Load Management Alliance
  – www.peakload.org
  – Mission Statement
  – Collaborative Market Development

• Opportunity for Utility Leadership

• Realize the customer, utility, and community value of GIWH

• The Community Storage Initiative!
Thank You!

Steven Koep, National Utility Sales Manager
Vaughn Thermal Corporation
715-248-7752; skoep@vaughncorp.com