



2A - GIWH Control Providers Roundtable

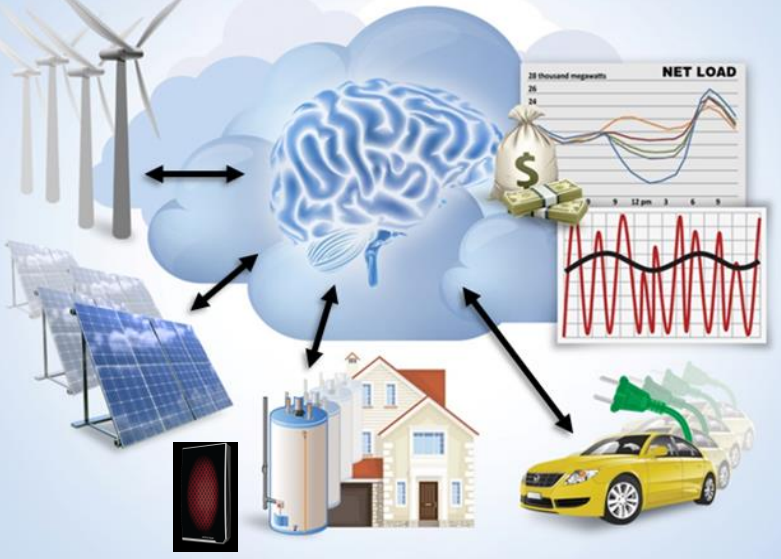
Joseph E. Childs
Sr. Program Manager
Smart Grid Solutions



Powering Business Worldwide

Eaton's Behind the Meter Projects

Synthetic Regulation Reserve DMS

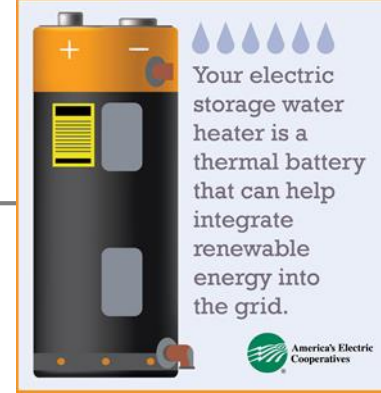


GridBallast - Autonomous Grid Balancing



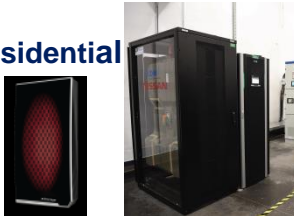
- Water heater control
- ▲ Plug load control
- Other load control

Alonetic*1



X Storage Eaton & Nissan Commercial

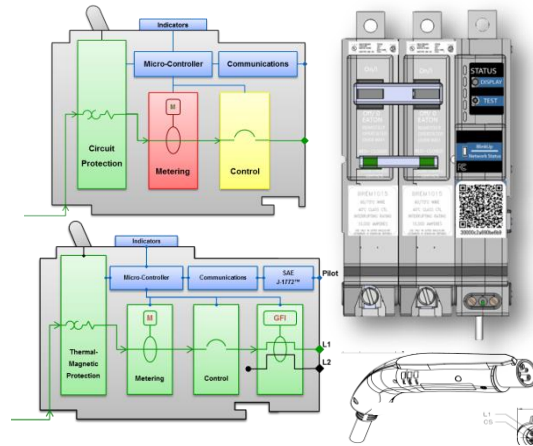
Residential



Grid Solution Eaton & AES

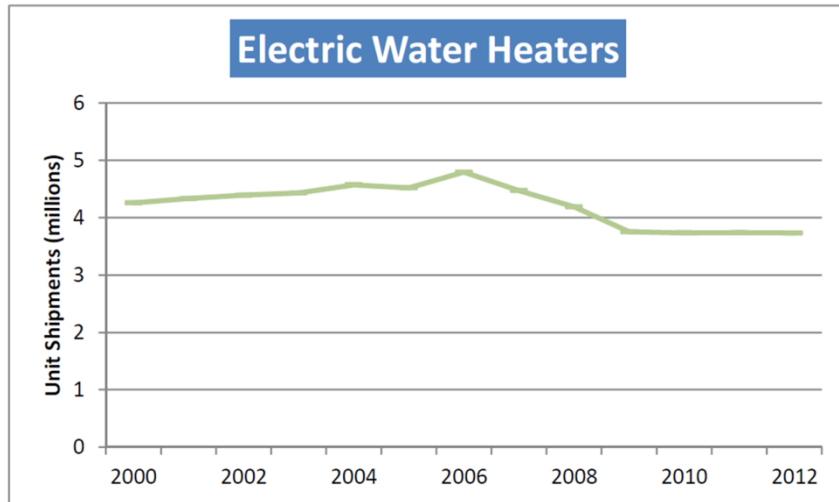


Energy Management Circuit Breaker

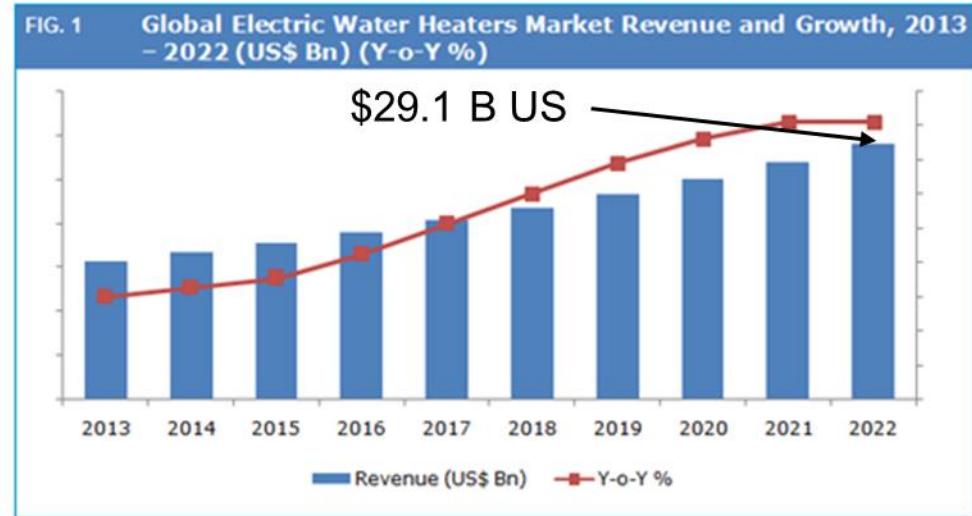


Water Heater Market

- 2nd largest energy use in home
- 3.7 million shipped per year
- 8% replacement per year



Source: *Appliance Magazine* (also available from <http://www.ahrinet.org/historical+data.aspx>)



While the market potential of GIWH is large, the current actual market is small.

GIWH Value Chains

External Value

ISO/ RTO Markets

- Capacity
- Energy
- Reserves
- Regulation
- Frequency

Non-Market Participants

- Capacity
- Energy

Internal Value

Infrastructure Upgrade Deferral

- Dist. Transformer
- Cable Upgrade

Operations

- Voltage Management
- Reverse Power Flow
- Local Situations

Energy Efficiency

Customer Value

Utility Bill

- Energy
- TOU
- DR Incentive

Equipment Diagnostics

- Element Failure
- Dirty Tank
- Sediment Level
- Life Calculation

Alarms

- Leaking Tank
- Maintenance
- Etc.

Value State: **Known & Quantified**
R&D
Largely TBD or Local