

# Smart Energy Profile 2.0 (SEP 2.0)

December 12, 2012

## Mike Bourton

Co-Founder and Business Development at Grid2Home

# What is Smart Energy Profile 2.0

- What is SEP 2.0?
  - Networking and application integration platform for messages between customer devices and energy services providers
  - Is small inexpensive embedded downloadable software that resides on consumer devices and appliances
  - Scalable and addressable
    - IPv6 protocol centric and is physical layer Independent
  - Secure Communications and Encrypted
  - Customer devices have zero configuration
- What does it do?
  - Peak load shaving
    - By deferring the consumer high energy loads. E.g. Air Con, Pool Pumps
  - Modify consumer behavior
    - Provide real time energy usage with in home displays
    - Real time or time of use pricing
  - Manage Residential Loads/Generation – Electric Vehicles/Renewables
    - By intelligently managing the load and generation, to prevent local distribution issues

# The Home

- The Home Area Network (HAN) allows home owners and their devices to participate in Utility programs
  - Lower Bills
  - Earn rewards
  - Go green
- Smart Energy Profile 2.0 (SEP 2.0) is the protocol that enables the Smart Grid Home Area Network (HAN)
  - Started under ZigBee Alliance
    - Now partners with WiFi and HomePlug Alliance and others
    - CSEP formed for common Interoperability and certification
  - SEP 2.0 works in conjunction with multiple communication technologies (physical layers)

# SE2.0 Physical Layers

- IEEE 802.15.4 (or ZigBee)
  - Low power WPAN
  - Up to 100-250 kbit/s, Mesh
- IEEE 802.11
  - WiFi physical layer - WLAN
  - Will become popular for consumer driven applications
  - Participated in a public live demonstration
- PLC
  - Competing standards – IEEE 1901/ITU G.hn AND IEEE 1901.2/ITU G.hnem
  - G3
  - SAE/ISO Electric Vehicle Charging
    - HP-GP
- Other
  - DECT
  - Bluetooth
  - Ethernet

# The Home Area Network - Connectivity

