# **Energy Channel 2.0 – Work in Progress**



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#### **Energy Channel 2.0 - Motivation**

Energy awareness presents an opportunity to decrease energy consumption, but the effectiveness shown for the displays is varied, even contradictory.



By Cotopaxi Energy Large display layout



### **Energy Channel 2.0 - Hypothesis**

Permanent Energy savings can be achieved by providing customers with energy awareness that





#### **Energy Channel 2.0 - Goal**

- Developing a proof of concept of an energy monitor with improved features that address known issues ...
  - Easy access (inexpensive) and "plug and play"
  - > displays convenient and non-intrusive energy information
  - > provides constant engagement
  - > Uses one of customers' convenient display
- ...conduct further evaluation of users' response and acceptance

Sponsors







# **Energy Channel 2.0 - Background**

Energy Channel 1.0: In March 2014, CalPlug successfully demonstrated a prototype displaying smart meter data in DirecTV's engineering laboratory.





### **Energy Channel 2.0 - Background**

- Current solutions in Energy Awareness
  - Instantaneous Consumption
  - Accumulated measurement (last week, last month,..)
  - Resulting Economic Cost





- Previous research on Energy Displays seems to point that feedback should be:
  - 1. Clearly and simply presented with easy access
  - 2. Comparisons with other references
  - 3. Presented in meaningful and motivating terms
  - 4. Multiple options for feedback types
  - 5. Provided real time or as soon after consumption as possible
  - 6. Appliance-specific consumption breakdown



1.- Clearly and simply presented with easy access





- 2.- Comparisons with other references such as:
  - > Previous periods
  - Zone average





- 3.- Presented in meaningful and motivating terms
  - Motivating / Engaging
  - Make more informed decisions on energy use
  - Understand how to save energy/money by receiving tailored advice, based on usage





- 4.- Multiple options for feedback types
  - > Allow customization/personalization of the interface



By QAGraphics





- 5.- Provided real time or as soon after consumption as possible
  - View the cost of energy per hour as you use it
  - Identify picks based on consumers' action or habits



Devices and dataflow involve in Energy Channel 2.0

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- 6.- Appliance-specific consumption breakdown
  - Energy statistics at the load level
  - Identification of savings actions
  - Optimal scheduling strategies





<sup>(</sup>Zoha et al., 2012)



# **Energy Channel 2.0 - Summary**

#### 1. Easy Access

Providing an application for easy access and operation, and it is independent on content providers (cable or internet TV).

#### 2. High Granularity – real-time

- > Collecting real time energy information at a high sampling rate.
- 3. Specific, consistent, and credible information
  - Providing actionable information and several ways of constant engagement in energy efficiency (alerts, auto-audit, gamification).



#### Thank you!

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