



Northeast Energy Efficiency Partnerships

M&V 2.0 – EXPERIENCE TO DATE: What is up with Residential?

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Background

- Home Energy Management Systems (HEMS) is a big focus for NEEP as it relates to the future of EE.

HEMS are:

- Any hardware and/or software system that can:
 - monitor and provide feedback about a home's energy usage,
 - and/or**
 - enable advanced control of energy-using systems and devices in the home

What do we really mean?

- Range from In-home display, Online portal, load monitor, platform, Smart: thermostat, appliance, lighting, plug, hub, switch, etc.

As part of the [HEMS Research Report](#), NEEP reviewed and updated inventories of HEMS technology from existing resources including a comprehensive list as part of the [PG&E HEMS Market Characterization](#), while expanding the inventory lists and providing costs and potential linkages where appropriate. The inventory chart below is the technology assessment from the HEMS Research Report. **DISCLAIMER:** NEEP does not take responsibility for the products listed here or for the accuracy of the information presented.

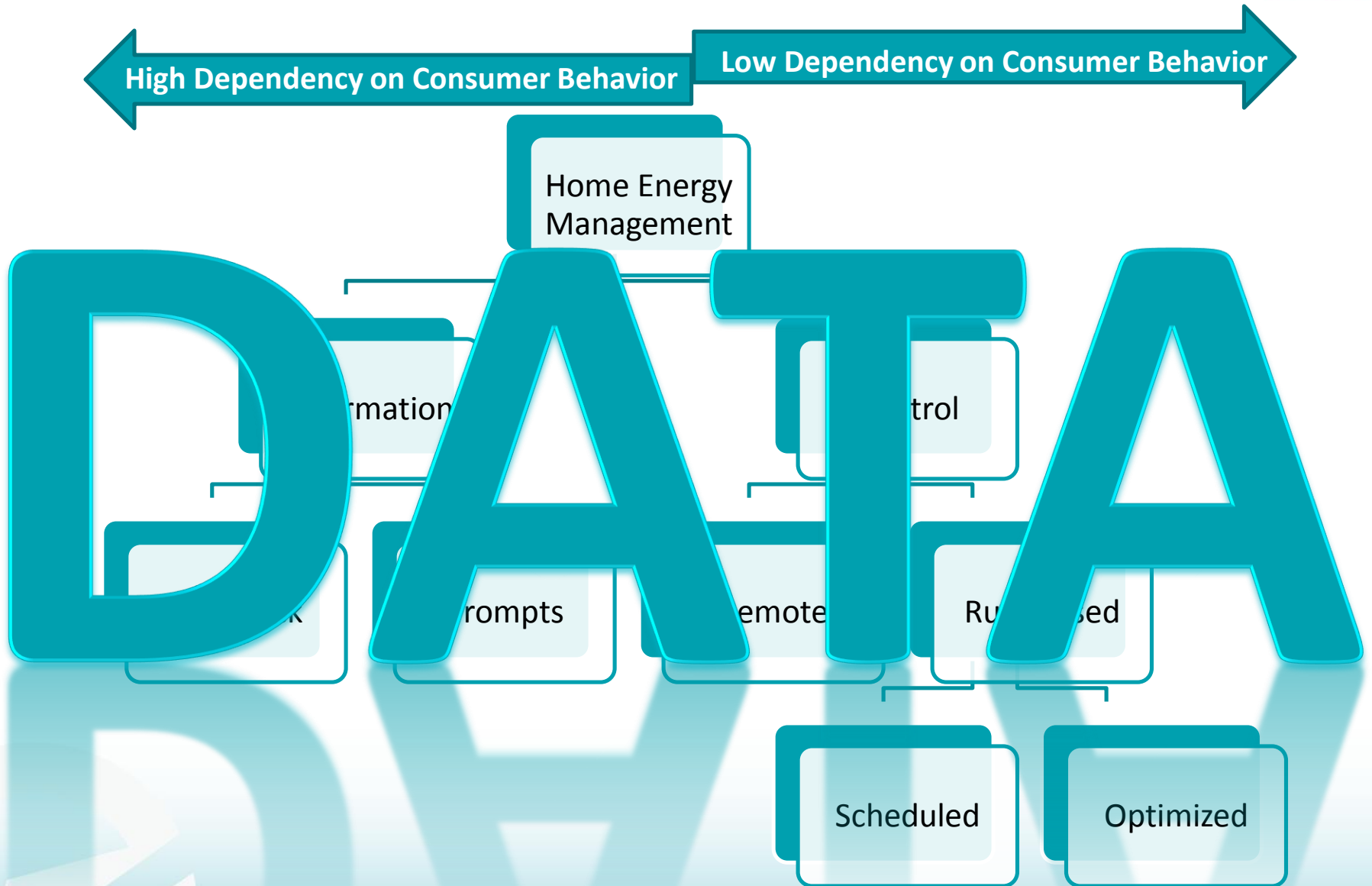
[Download Spreadsheet](#)

HEMS Technology Assessment

HEMS Technology Assessment: Last updated 2/2016

Company	Product	Description	Product Category
1B First Build	Chill hub Smart refrigerator control	Chill Hub Smart refrigerator and smart refrigerator control hub	Smart Appliance
Aclara	Customer Care Solutions	Unique content and analytics that improve the effectiveness of customer care and billing, enhances customer energy management and increases customer satisfaction by helping customers better understand and manage their bills	Energy Portal
ADT	ADT Pulse	The ADT Pulse® portal provides secure access so you can monitor and manage your home's energy and security via most web-enabled devices.	Smart Home Platform

HEMS Design



Different Types of Evaluation



HEMS as a widget:

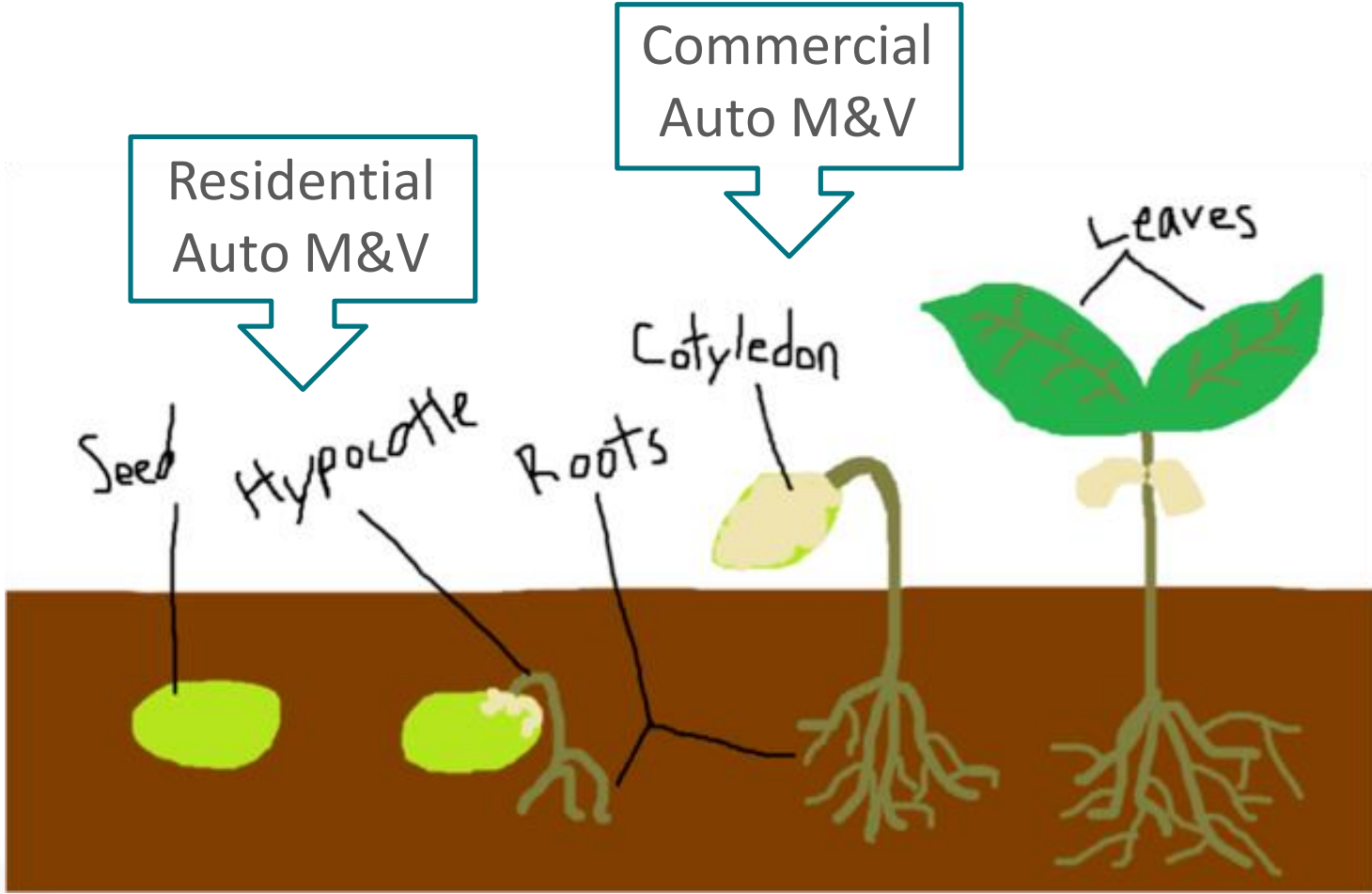
- Often don't have inherent efficiency over alternatives
- HEMS EM&V to prove savings from:
 - behavioral/operational savings from the occupants' interaction
 - savings from automation algorithms
 - savings from additional retrofits motivated by feedback
 - DR

HEMS as (E)M&V Tool, enabling residential Auto-M&V:

- Systems are collecting data.
- Can be used to provide real(er) time feedback to PAs
- Can also theoretically report back to demonstrate:
 - Savings from efforts to home (i.e. home performance retrofits)
 - Savings from behavioral actions
 - Savings from efficiency products within the home



Where are we?



Where are we?

Ethan Goldman

Energy Informatics Architect

Vermont Energy Investment Corporation



Tim Guitermann

Director of Quantify Solutions

EnergySavvy

