Home Energy Monitors

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TED
The Energy Detective

Impact of HEM on Value of Energy Knowledge

- Mainstream – Current situation
  - Can't make decisions without information
  - Only feedback available for customer:
    - Consumer needs to go outside and read meter
    - Review monthly electric bill
- New Technology
  - Immediate information available via Home Energy Monitors

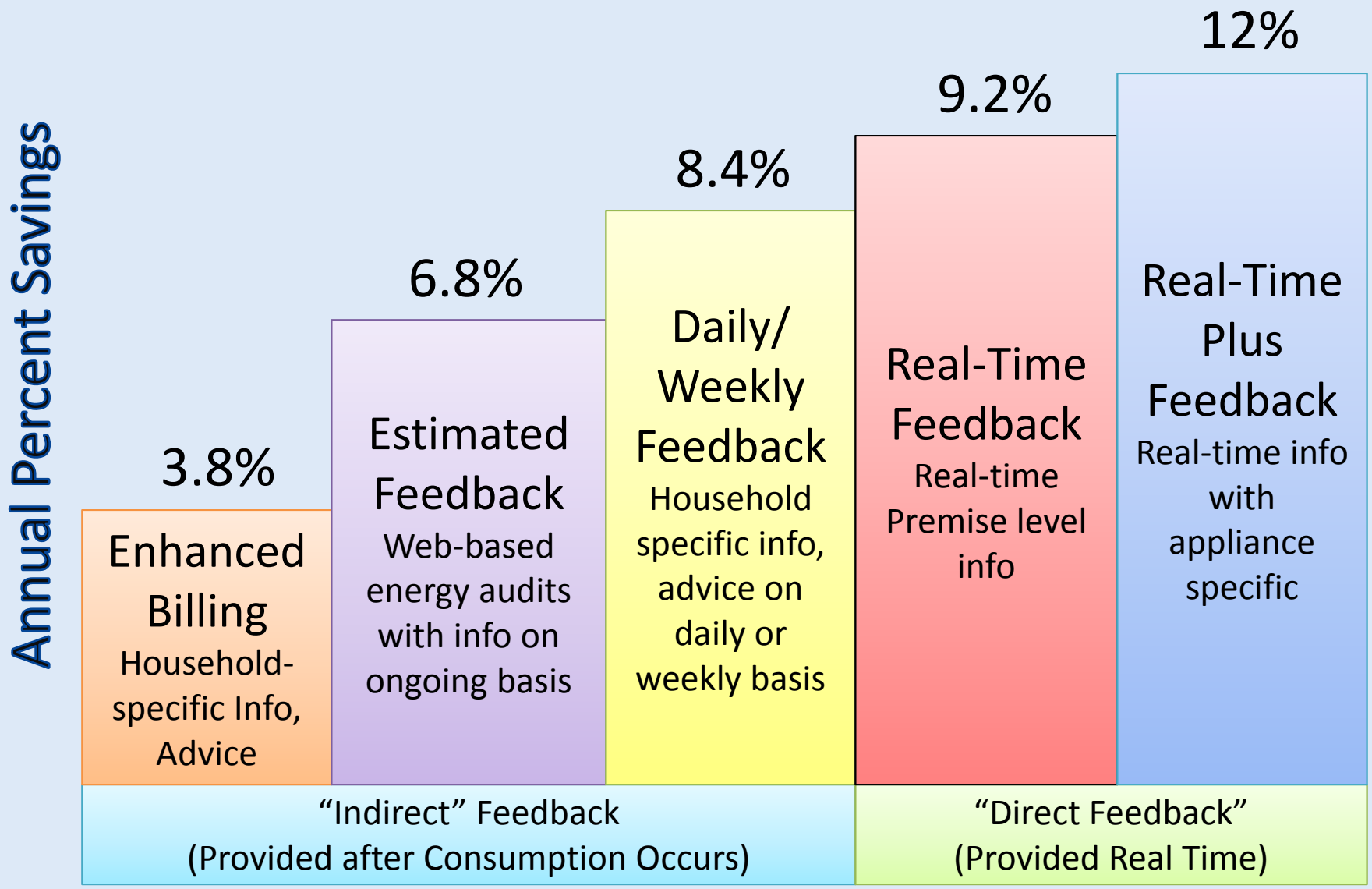
Consumer Awareness

- Consumer education/awareness of available products is largest industry hurdle
- *When asked*, **80%** of consumers are interested in learning of ways to cut energy costs.
- ***MONEY*** is the overriding theme in reducing electricity, not saving the environment, or going 'green'
- The majority of homeowners would purchase an electricity monitor if it would save them *half as much money as they paid for it*; i.e. save $100, paid $200

Residential Electricity Usage

- Residential usage account for **22%** of our nation's total energy consumption
- In the past decade alone, residential energy consumption increased by 23%.
- Projections through 2030 indicate that residential energy usage will increase by 25%.
  - Population growth
  - Increase demand for electricity
  - Growth of electronics industry

Average Household Electricity Savings by Feedback Type*



*Based on 36 studies implemented from 1995-2010. Information from American Council for an Energy-Efficient Economy.

Energy Monitoring Devices















Available Functionality

- **“Disposable” type** – inexpensive, battery-powered, simple, limited functionality
- **Comprehensive type** – more expensive, permanent install, no maintenance, some control features
- **Fully-loaded home automation** – expensive, in-depth data detail, sophisticated control

Energy Monitoring Considerations

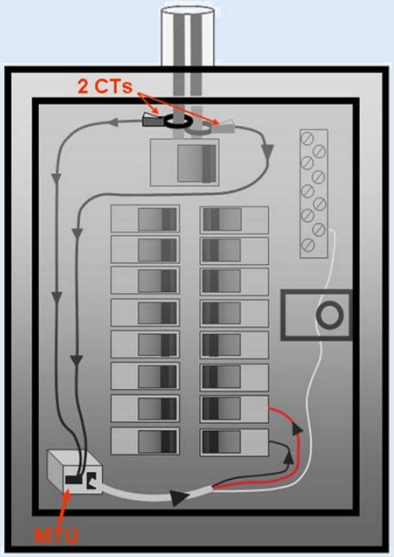
- **Data accuracy** (2% to less expensive models with accuracy within 20%)
- **Sensitivity** (from one watt to 100+ watts) – more sensitive devices can find phantom loads
- **Information** – Voltage, kW, $/kWh, bill projection, variable tariffs, appliance data, historical data, trending, control
- **Maintenance** - Battery replacement a negative

Installation Methods



Individual Outlet

Installs in outlet to measure output to appliance.



Breaker Panel

Two Current Transformers clamp around mains in breaker panel



Meter

Device clamps around certain Utility Meters

Summary

- The HEM as new technology
- The Purpose of the HEM
- What characteristics are important to you/your customer?