



U.S. DEPARTMENT OF ENERGY  
**SOLAR DECATHLON**

2011

# The Future of the Smart Home Systems and Services

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September 24, 2011



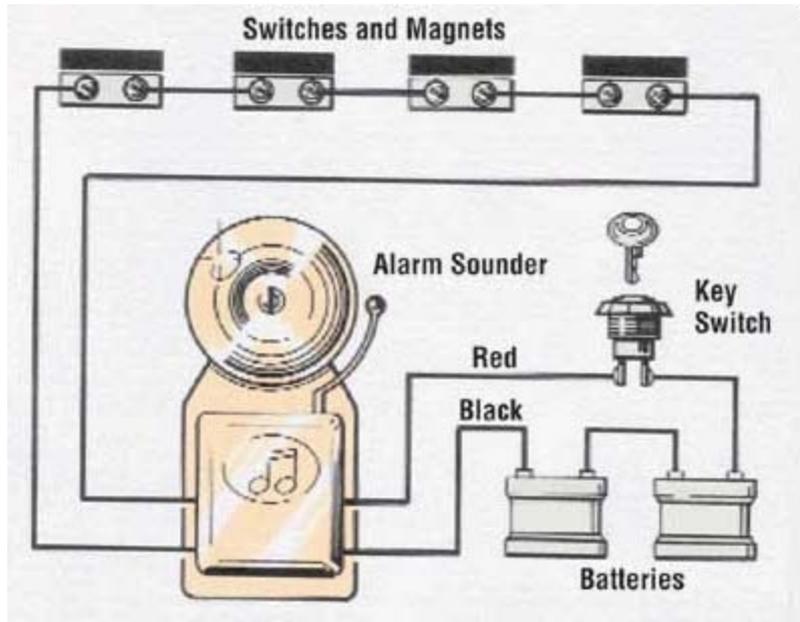
# Agenda

- History of connected home systems
- Current state
  - Technology
  - Capability
- Future possibilities
- The Schneider Electric story



# A brief history of home systems

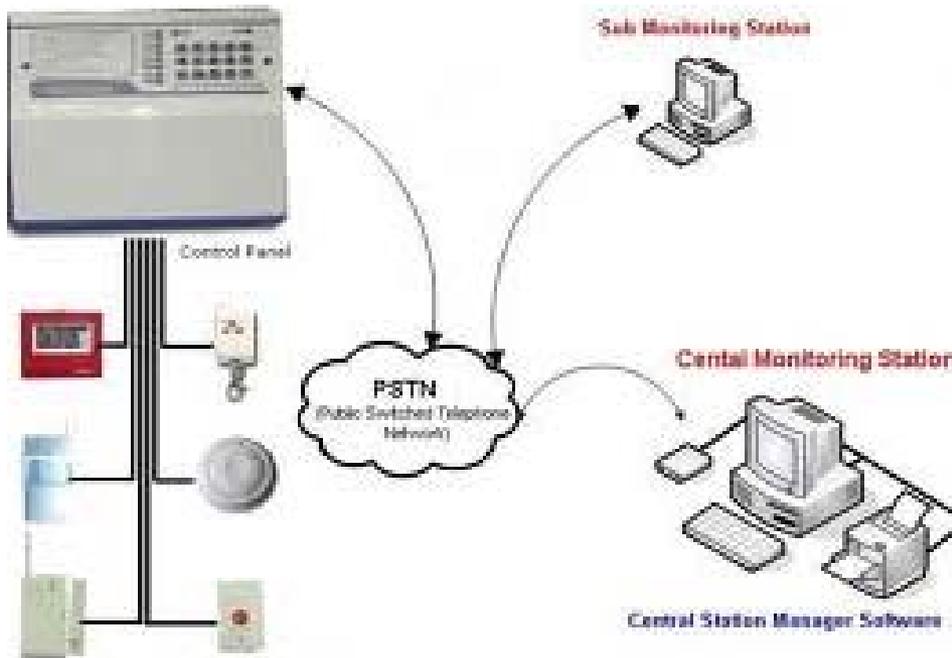
- It used to be like this....





# A brief history of home systems

- Then it looked like this...

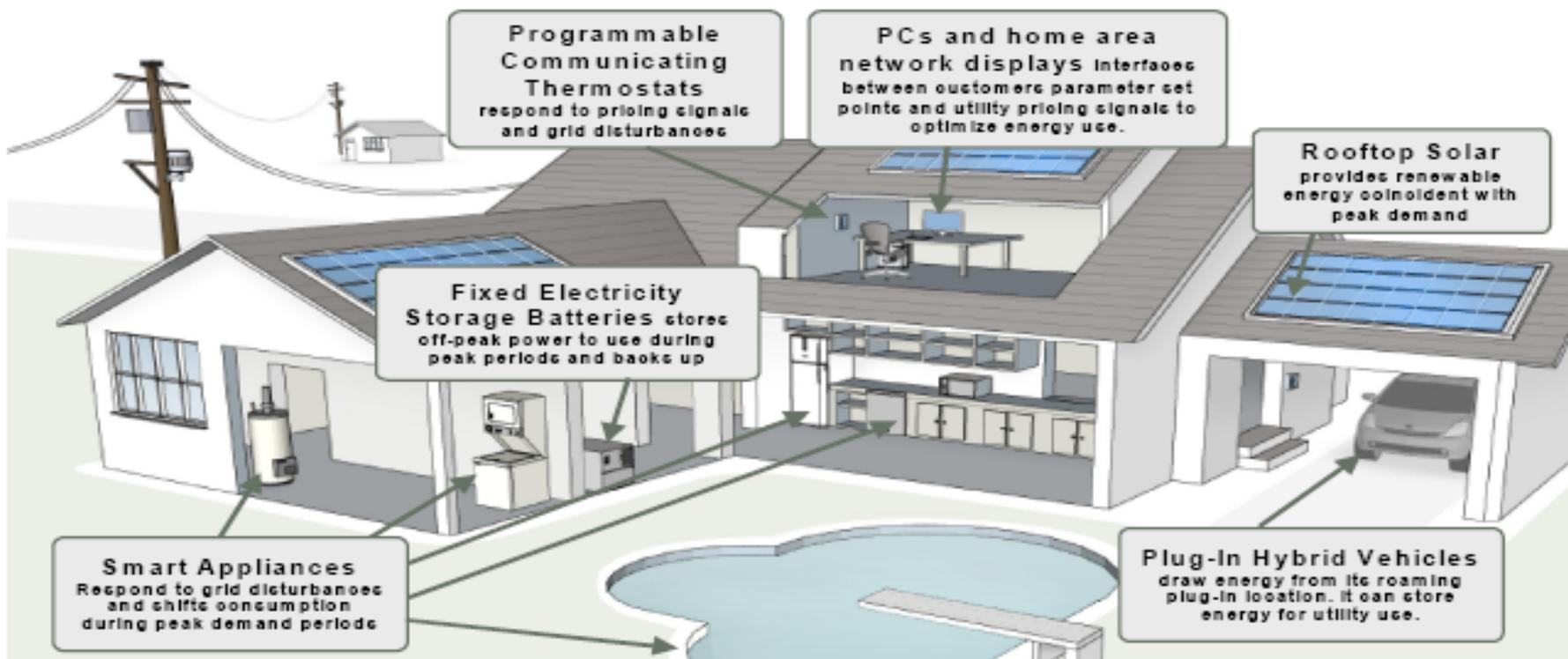




# Current State

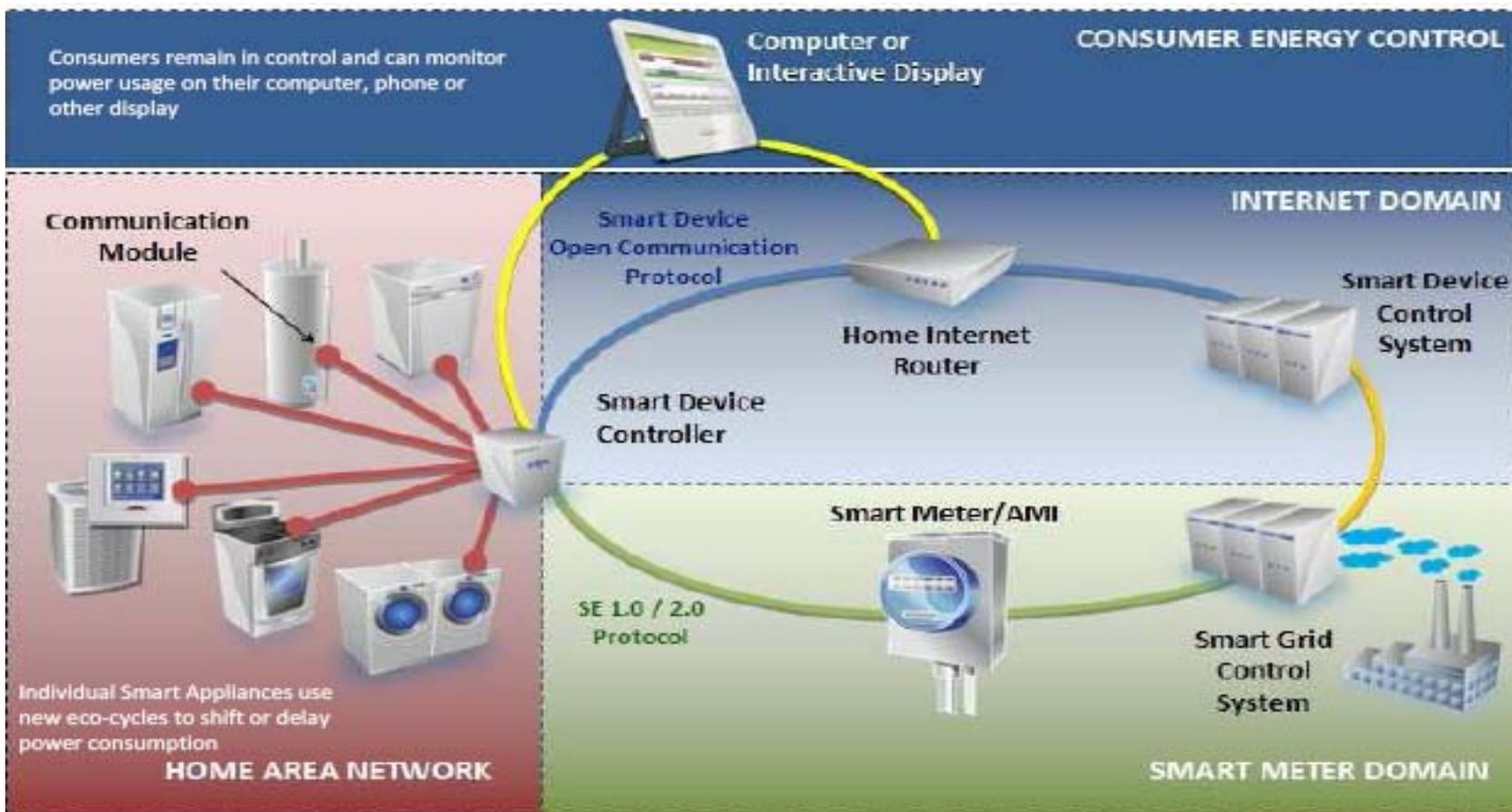


# Systems within the home



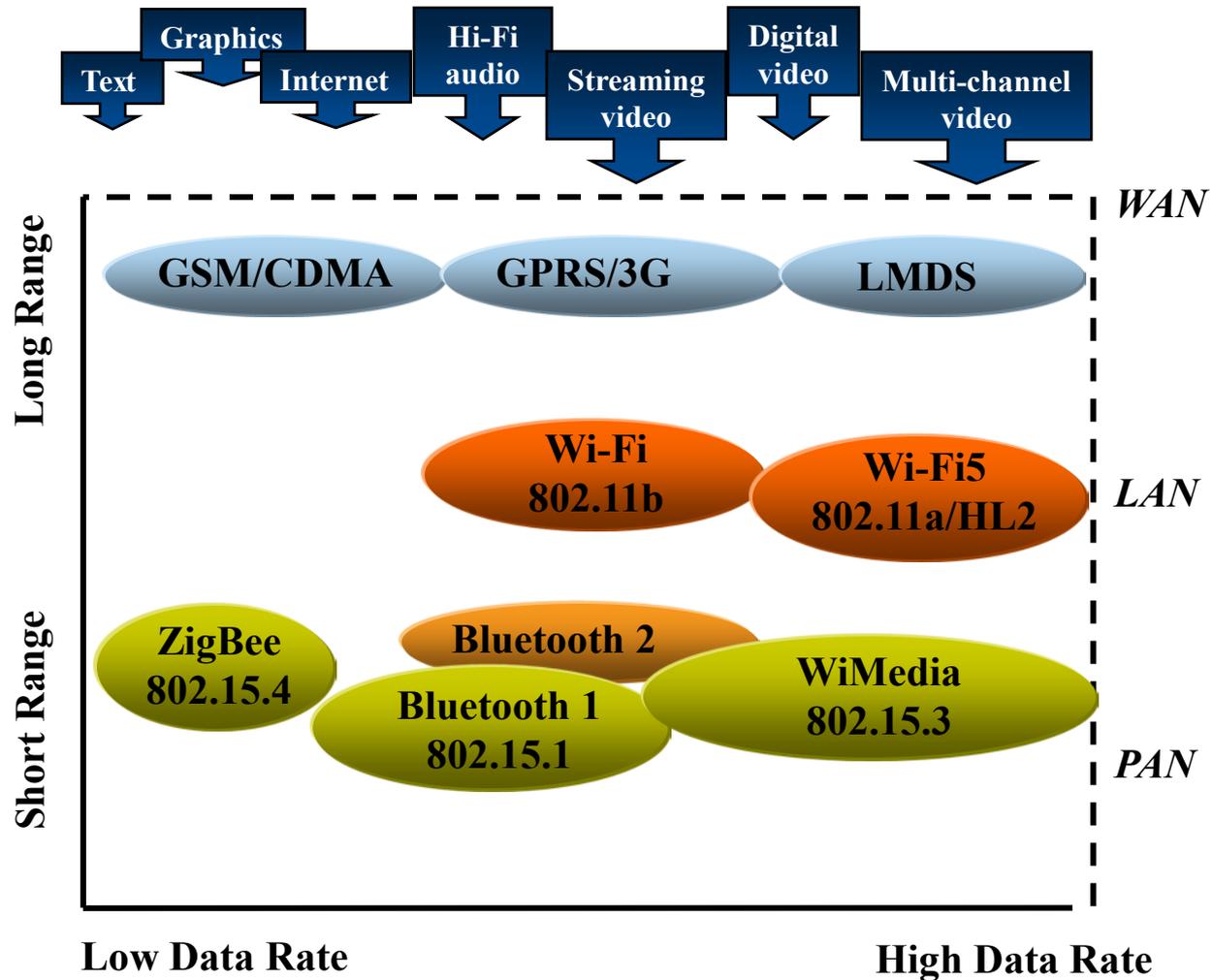


# External Systems





# Communication Protocols





## Why ZigBee?

- Standard in a fragmented market
  - Many proprietary solutions, interoperability issues
- Low Power consumption
  - Users expect battery to last months to years!
- Low Cost
- High density of nodes per network
- Simple protocol, global implementation



# Current state

- We've got technology like this...

## Input Devices



## Wireless Infrastructure



## Interface Devices





# Web-Dashboards

**eragy**  
Today - Jun 27, 2011  
Thank you for joining us for the launch of MyCragg.com! We will be frequently adding new features. Do you have a feature you would like to see? We welcome your [feedback](#).

Dashboard | Energy | Account | Alerts

### Dashboard - My house

#### My Cost Status

SPENT TODAY: \$0.00 | SPENT THIS BILL PERIOD: \$69.62  
ESTIMATED BILL FOR THIS PERIOD: \$81.87  
\$68.13 less than your monthly budget of \$150.00  
CURRENT UTILITY RATE (COST PER kWh): \$0.18 (Tier 2)

#### My Power Now

#### My Circuit Details

Circuit Cost (5/25-6/24): \$72.93

#### My Alerts

You have not had any alerts over the past 35 days.

Welcome Derek | Residence: Residence1 | Online Help

DASHBOARD | ENERGY MANAGEMENT | HOME CONTROL | MY WORLD | SETTINGS

### Energy Usage

Usage Date	Low (\$/kWh)	Medium (\$/kWh)	High (\$/kWh)	Estimated (\$/kWh)
05/06	8	8	0	0
05/08	12	3	0	0
05/10	10	10	2	0
05/12	5	10	6	0
05/14	0	0	0	18
05/16	0	0	0	18
05/18	0	0	0	18
05/20	0	0	0	18
05/22	0	0	0	15
05/24	0	0	0	18
05/26	0	0	0	18
05/28	0	0	0	15
05/30	0	0	0	18
06/01	0	0	0	18
06/03	0	0	0	15
06/05	0	0	0	18
06/07	0	0	0	18

### Weather

San Diego, California 92111

Hi / Lo : 65°/55° F  
Humidity : 58 %  
Wind : 8 mph W  
Pressure : 30.01 in

65°F

### Smart Ideas

Turn off appliances



# Current state

## Smart Phone Controls



# A Case Study- Dockside Green

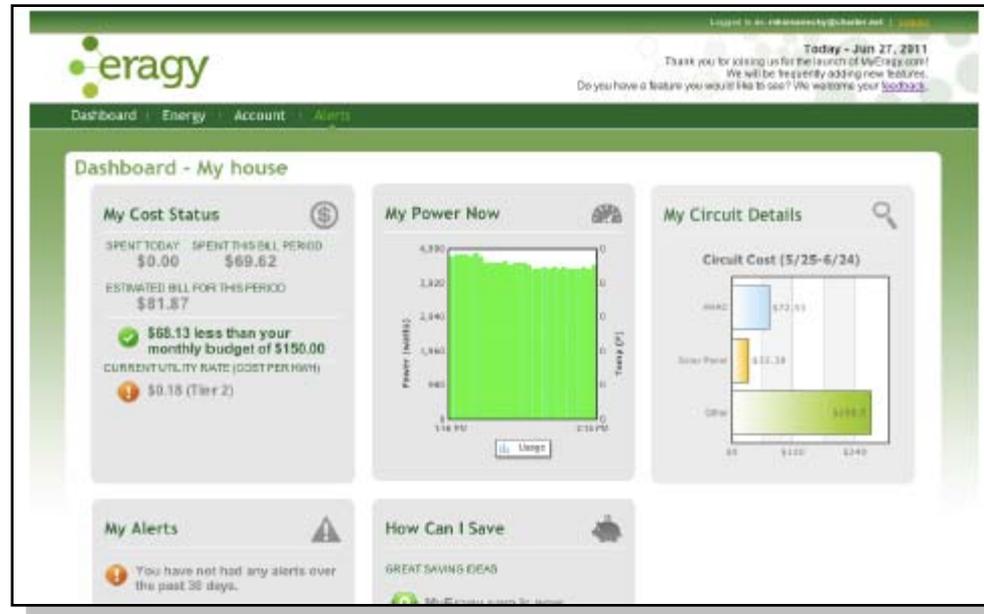


- A LEED Platinum building
- Biomass Heating/Cooling
- In-room Building Management Technology





# A Case Study- Dockside Green





# Future State

- What's driving the change?
  - Changing social drivers
    - Expectations for connectivity
    - The Twitter Effect
  - Economic factors
    - The energy dilemma
      - Increased per capita consumption *AND* a need to decrease emissions
    - Water management
  - Latent needs
    - Security
    - Savings



# The Future is Now

- Cutting-edge technology...
  - Energy signature detection
  - Cloud-based algorithms
- ...Enabling customer-focus capabilities
  - Preventative maintenance
    - HVAC
    - Appliances
  - Self-management
    - Sump pumps
    - HVAC



# Schneider Electric story



# Schneider Electric Story

A simple **integrated solution** to manage the home energy eco-system and an opportunity to turn a functional home into a **smart and exciting** place

Load Management

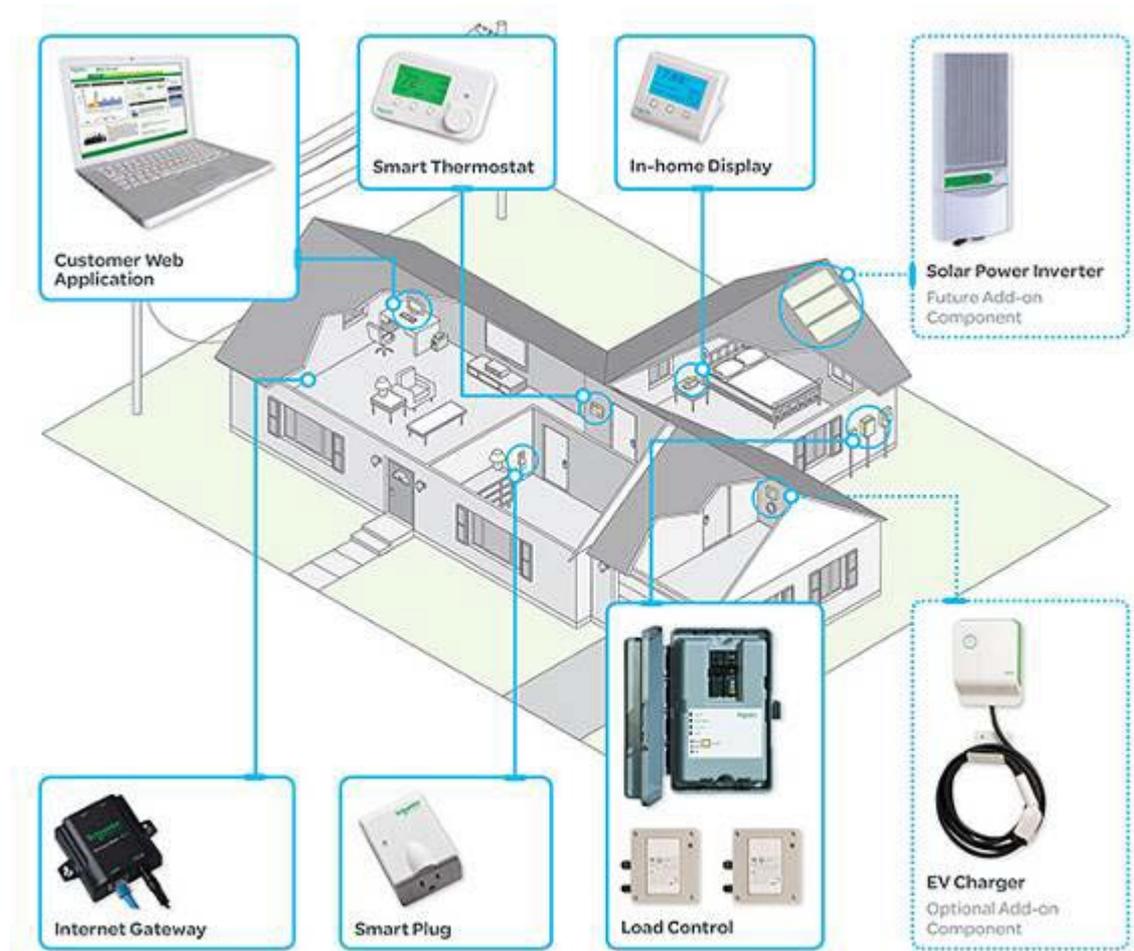
HVAC Management

Demand Response

Electricity Monitoring

Remote Access

Smart Grid Software





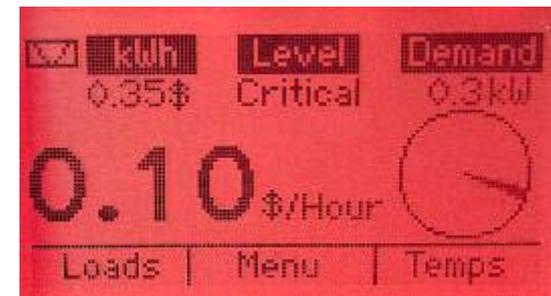
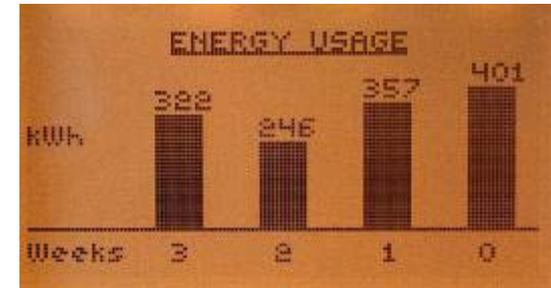
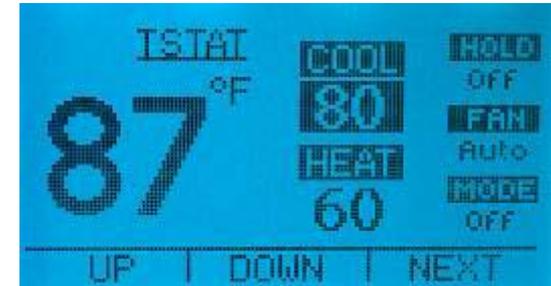
# Wiser Core System: Raising Awareness

## Values

- Increased consumer involvement & awareness
- Set it & forget it
- Innovative color signaling
- Remote manager

## Specifications

- ZigBee Smart Energy
- Integrate with utility smartmeter
- 115 VAC (wall adapter)
- Rechargeable battery
- Wall or Table mount





# Remote access and management





## Wiser in action



“ I installed the Wiser system because I was interested in saving money in my home.

My kids could care less... they like being able to automate the lights around the house! ”

- Gary Kuzkin-



# Questions?

Thank You!

Find out more at [www.schneider-electric.us/go/resi](http://www.schneider-electric.us/go/resi)