



# Panel Discussion: Utility Energy Efficiency Programs

## Workshop on Clean Energy Development Strategies in East Africa

July 16-18, 2012, Arusha, Tanzania

Managed by USEA in Collaboration with EAC

Funded by USAID



THE  
**CADMUS**  
GROUP, INC.

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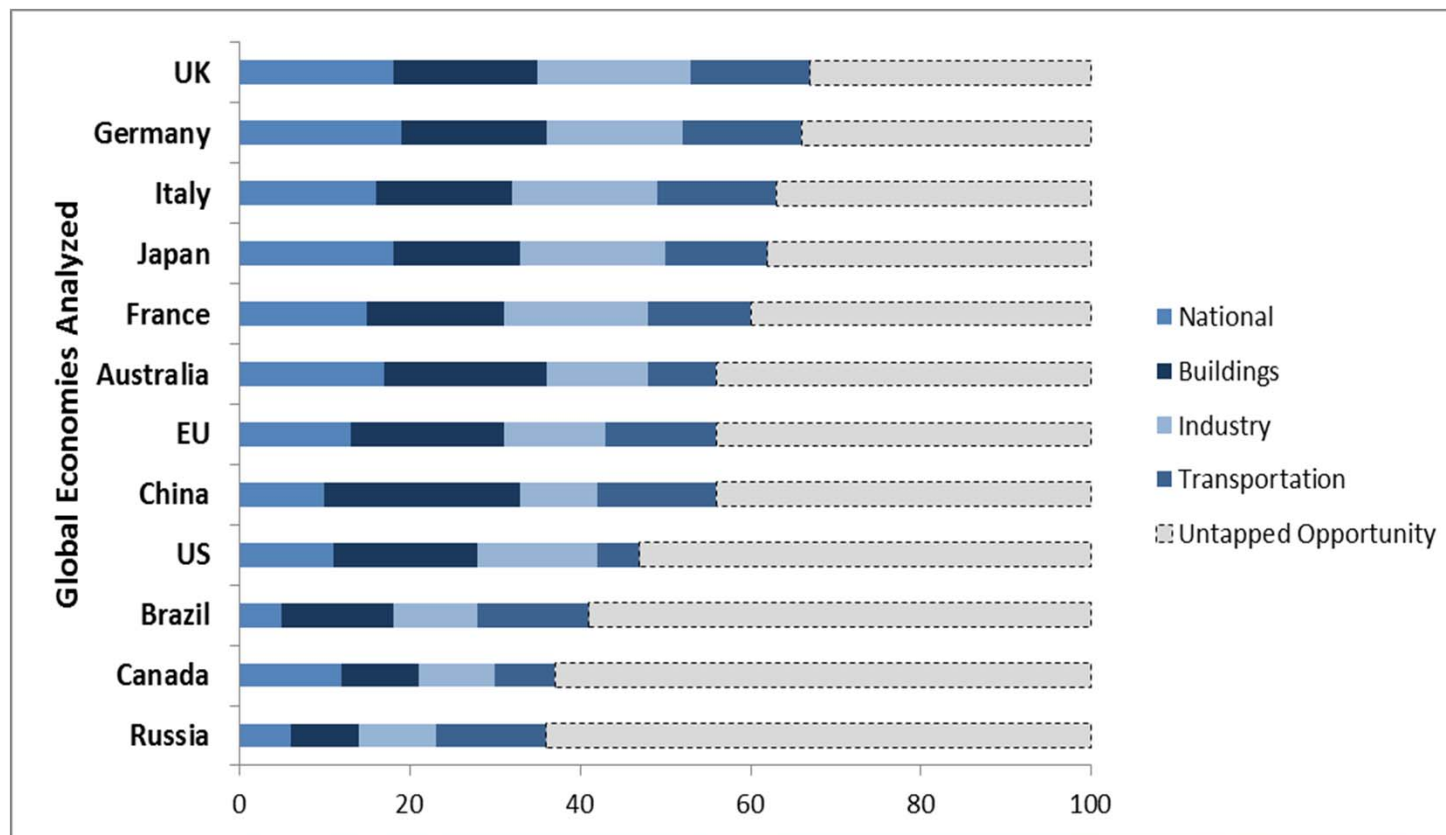
Portland, Oregon USA

# Energy efficiency

- Uses less energy to accomplish the same or greater results
  - Reduces costs and pollution
  - Creates stronger economy
- Is a full-fledged, clean energy resource

# Then why do we waste so much of a good resource?

## ACEEE International Scorecard 2012

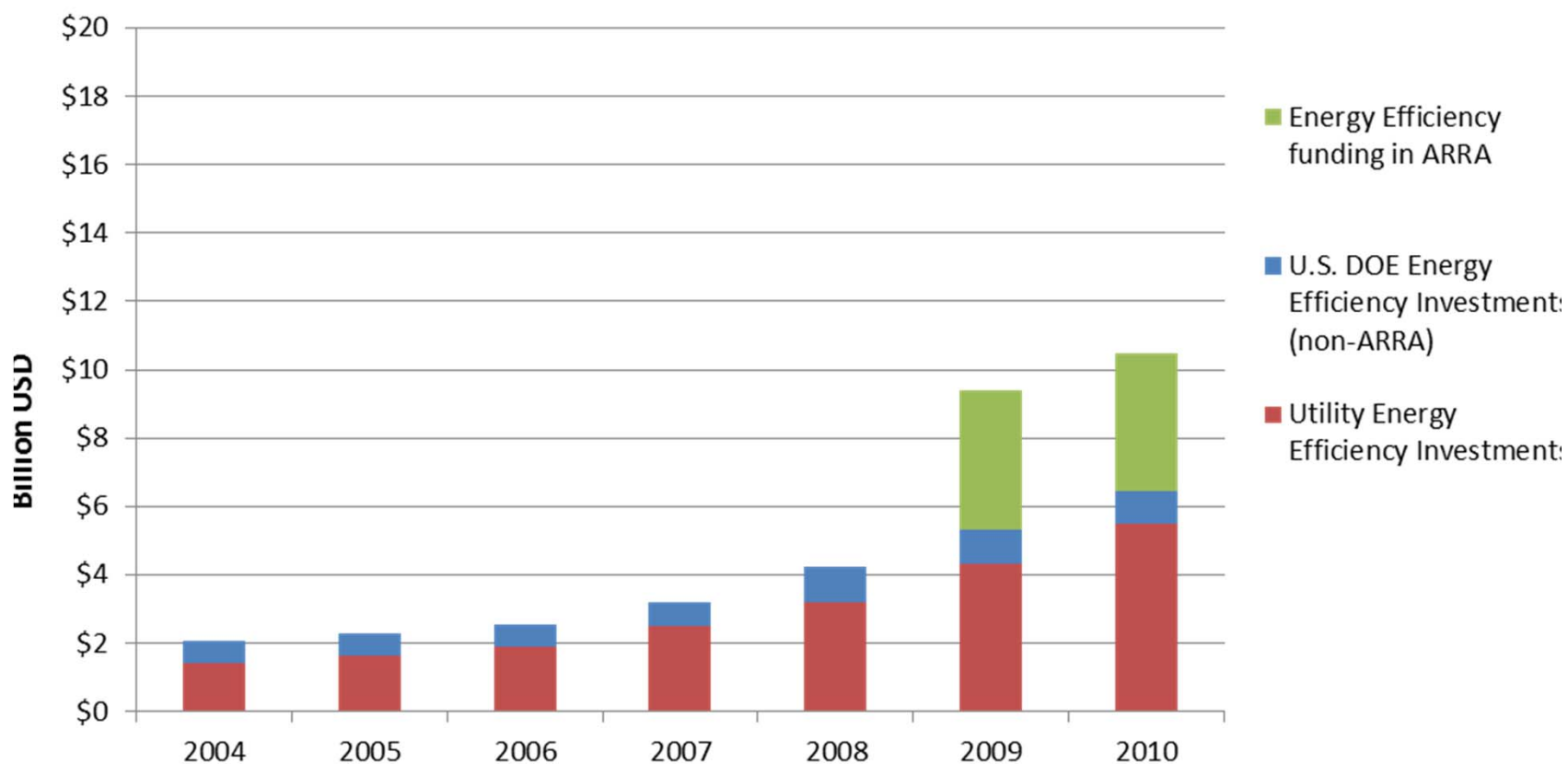


# 2012 McKinsey Report on Energy Efficiency in the U.S.

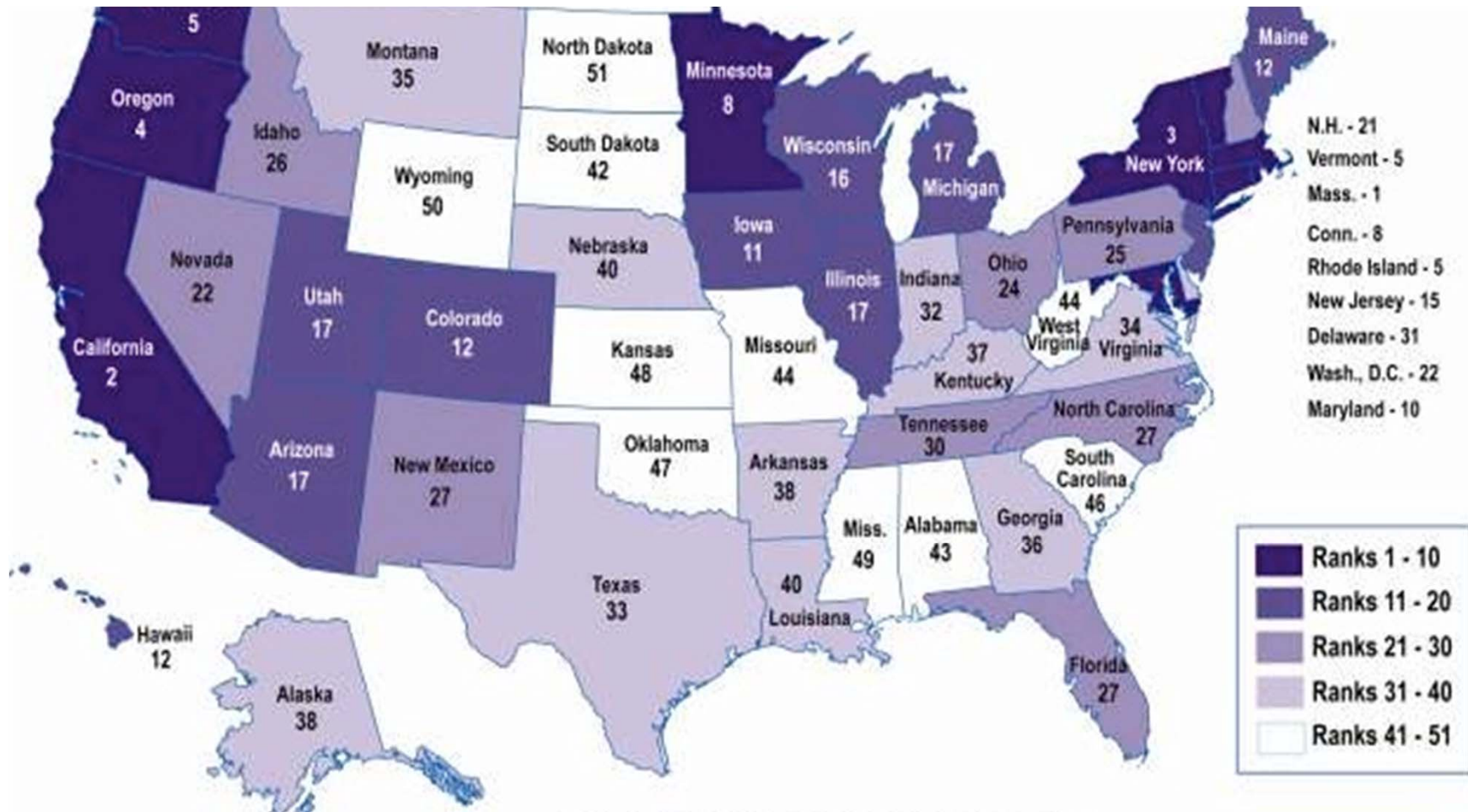
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- *US economy has the potential to reduce annual non-transportation energy consumption by roughly 23 percent by 2020, eliminating more than \$1.2 trillion in waste. . .*
- *The reduction in energy use would also result in the abatement of 1.1 gigatons of greenhouse-gas emissions annually—the equivalent of taking the entire US fleet of passenger vehicles and light trucks off the roads.*

# U.S. Spending on Energy Efficiency



# Results Vary a Lot!





# Building Energy Efficiency Programs – the Big Divide

## Homes



## Businesses



# Efficiency Programs: Many Sizes, Shapes

## Building Vintage



- New Construction
- Retrofit
- Maintenance/Tune-Up

## Target Markets & Actors



- Residential Single Family
- Multifamily
- Large/Small Commercial
- Low Income

## Savings Approach



- Energy Efficiency
- Demand Response
- Conservation & Education

## Implementation Strategy



- Turnkey
- Utility Delivered
- Open Market/Contractors
- Manufacturer/retailer

## Measure Approach



- Technology based
- Whole Building
- Education
- Services

## Delivery and Incentive Strategy



- Prescriptive rebates
- Direct Install
- Performance-based
- Upstream

## Marketing and Communications Strategy



- Mass Media
- Direct Outreach
- Grassroots
- Social Media

## Metrics



- Budgets
- Cost Effectiveness
- Participation
- Savings



# Behavior Change: The Final Frontier



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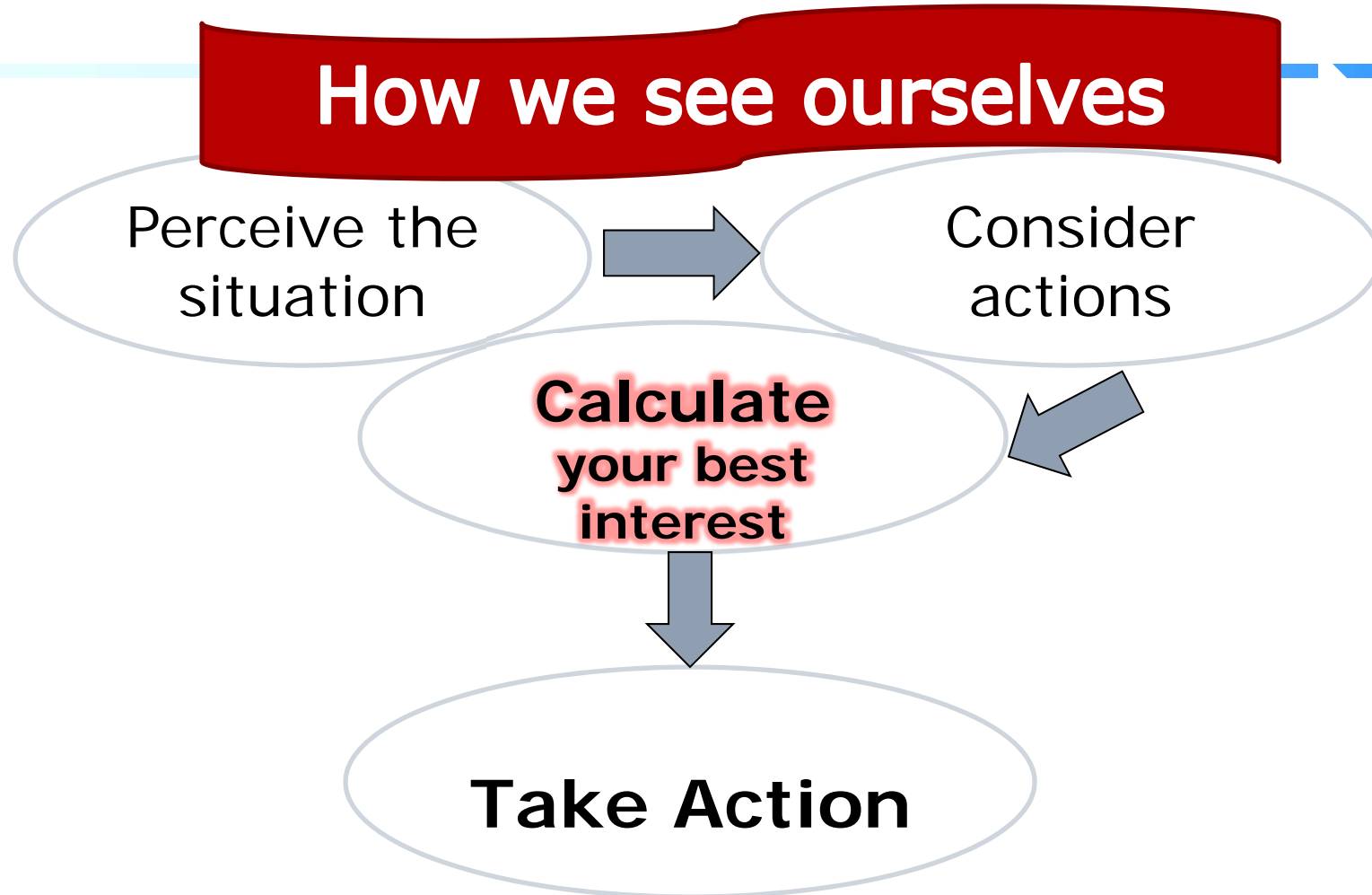
*A revolution doesn't happen when society adopts new tools, it happens when society adopts new behaviors.  
-- Clay Shirky, Digital Guru*

# Behavioral Rules

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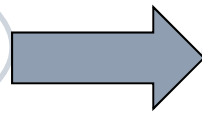
- Neuroscience
- Social psychology
- Behavioral economics

# Rule 1: Mind the Brain Gap



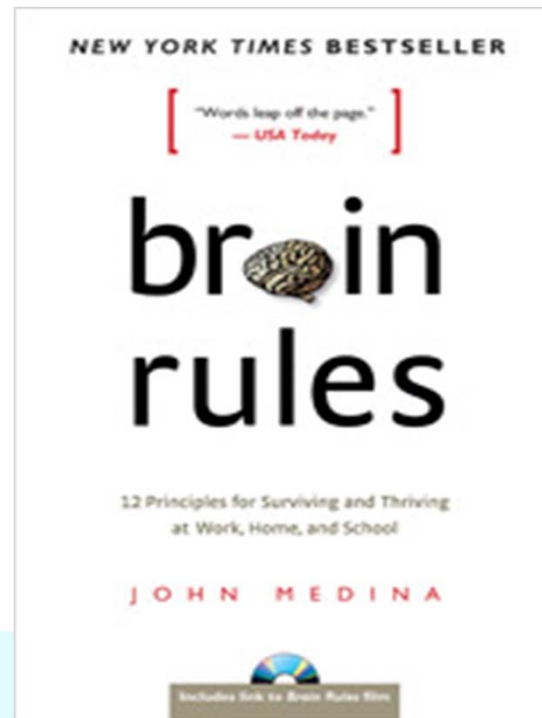
# How we mostly operate

Perceive the  
Situation



Take Action

<http://www.brainrules.net/>



# We are of Two Minds



## Habitual

- Lizard/**puppy** brain
- **Multi-tasking**

## Executive

- New/**adult** brain
- **Single minded**



# The Mind of Energy Experts

U.S. Government Federal law prohibits removal of this label before consumer purchase.

## ENERGYGUIDE

Refrigerator-Freezer

- Automatic Defrost
- Side-Mounted Freezer
- Through-the-Door Ice

XYZ Corporation  
Model ABC-L  
Capacity: 23 Cubic Feet

**Estimated Yearly Operating Cost**

**\$67**

\$57 \$74

Cost Range of Similar Models

**630 kWh**  
Estimated Yearly Electricity Use

Your cost will depend on your utility rates and use.

- Cost range based only on models of similar capacity with automatic defrost, side-mounted freezer, and through-the-door ice.
- Estimated operating cost based on a 2007 national average electricity cost of 10.65 cents per kWh.
- For more information, visit [www.ftc.gov/appliances](http://www.ftc.gov/appliances).

energy  
ENERGY STAR

Lists key features of the appliance you're looking at and the similar models that make up the cost range below.

The maker, model, and size tell you exactly what product this label describes.

What you might pay to run the appliance for a year, based on its electricity use and the national average cost of energy. The cost appears on labels for all models and brands, so you can compare energy use just like you would price or other features.

The cost range helps you compare the energy use of different models by showing you the range of operating costs for models with similar features.

An estimate of how much electricity the appliance uses in a year based on typical use. Multiply this by your local electricity rate on your utility bill to better judge what your actual operating cost might be.

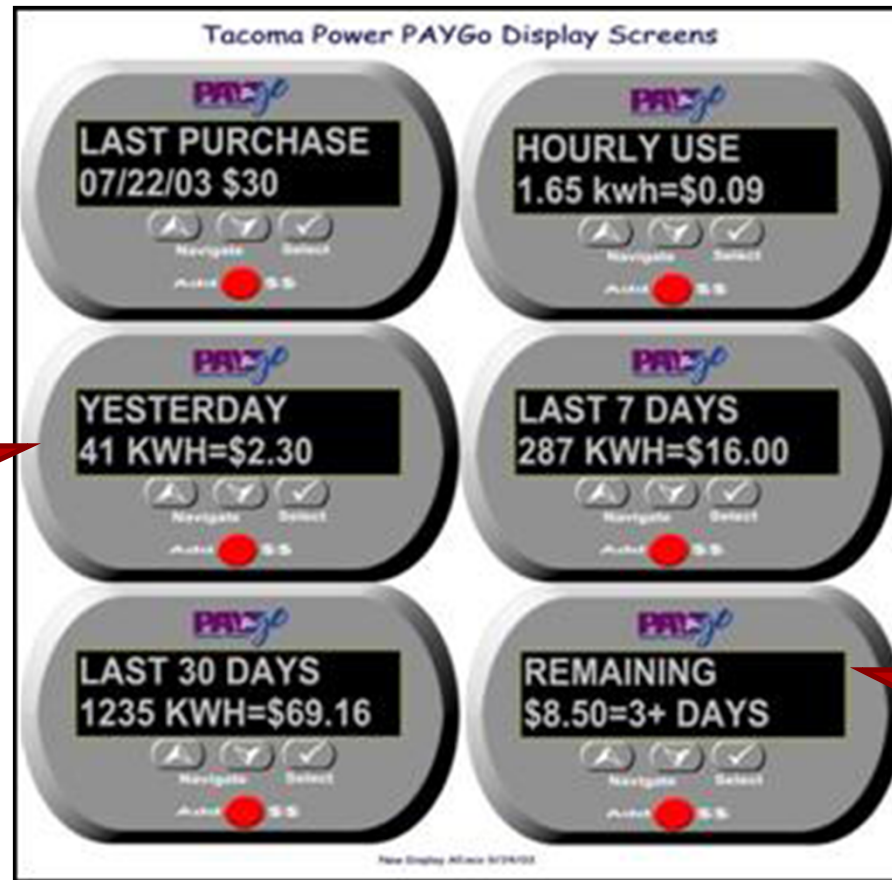
If you see the ENERGY STAR logo, it means the product is better for the environment because it uses less energy than standard models.

# The Mind of the Consumer

**New Label Design in US  
estimated could save:  
*100 billion more kWh /year***



# Mind the Brain Gap: Target Executive Brain Moments




# Mind the Brain Gap: Be Visual



**One business reported:** *In two days the Energy Orb did more to educate [our] employees about our participation in PG&E's demand response program than I [did] in a year and a half.*

# Rule 2: Create Reciprocity


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- When you give you get
  - Indebtedness is uncomfortable
- Towel Hanging 1: 
  - Hotel told guests they contributed on their behalf to environmental cause
    - Result: More guests reused towels



# Rule 3: Use Social Norms

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- We deny their power
- Solarize SE Portland 
- Towel Hanging 2
  - **Okay:** *Save the environment*
  - **Better:** *Join fellow guests to save the environment*
  - **Best:** *Most guests in this room hung up their towels*



# So, Science Says:

✓ Mind the Brain Gap



✓ Create Reciprocity



✓ Use Social Norms



# Programs you may want? All need behavior change!

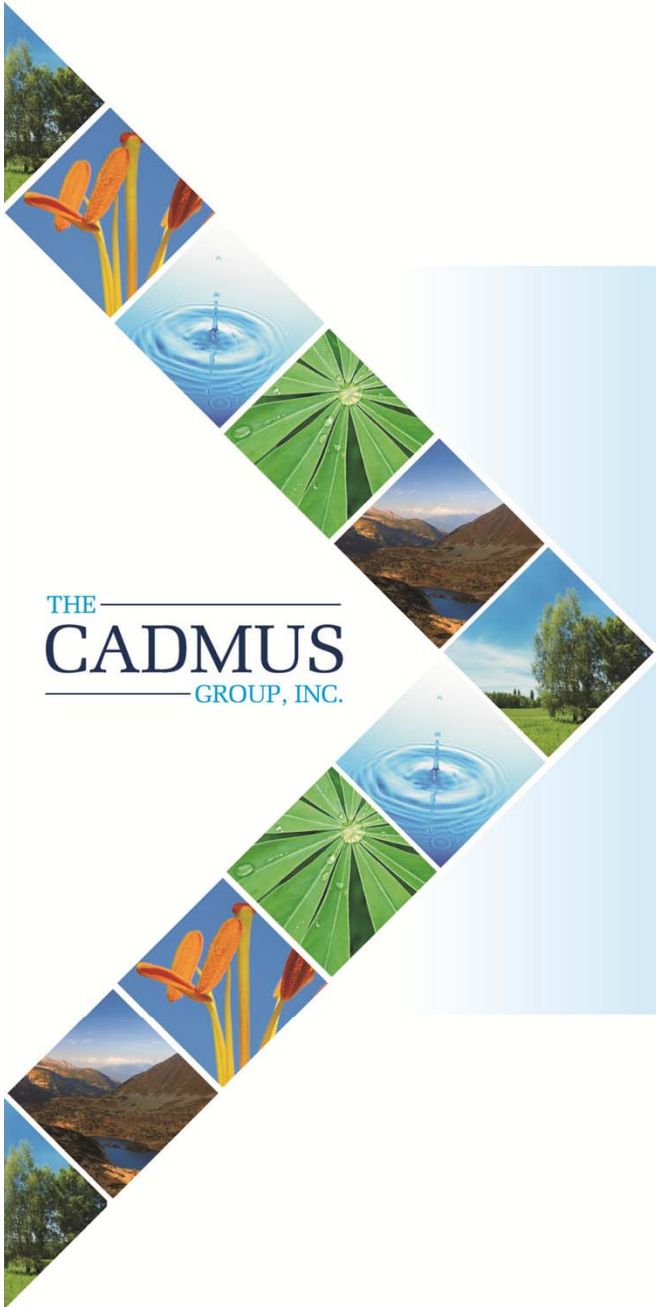
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1. Operations and maintenance
2. Codes and Standards, Labeling
3. New Building Programs – Net Zero
4. Controlling “vampire” load - gadgets
5. Adopting new technologies
6. Financing – On-Bill Financing
7. Changing cultural norms

# My Sources



- *Brain Rules*, John Medina
- *Influence: The Psychology of Persuasion* and *Yes! 50 Scientifically Proven Ways to Be Persuasive*, Robert Cialdini
- *Predictably Irrational* and *The Upside of Irrationality*, Dan Ariely
- *Nudge*, Richard H. Thaler, Cass R. Sunstein
- *Sway: The Irresistible Pull of Irrational Behavior*, Ori Branfman and Rom Branfman
- *Process Evaluation Insights from Program Implementation*, Jane S. Peters, PhD
- *National EE Best Practices Study* <http://www.eebestpractices.com>
- *Delivering Happiness: A Path to Profits, Passion, and Purpose*, Tony Hsieh
- *Drunkard's Walk: How Randomness Rules our Lives*, Leonard Mlodinow
- *Habit: The 95% of Behavior Marketers Ignore*, Neale Martin
- Friends, colleagues, family



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# Thanks!

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