

# Energy Conservation: Involving the Campus Community

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# Motivating Energy Conservation Behavior

1. Creating Behavior Change
2. Creating Effective Messages
3. Creating a Culture of Change

Social scientists studying  
persuasion, communication  
and behavior change.

What motivates behavior change?

# Myths

- People just need to know the facts
- People just need to be aware of the issues & consequences
- People just need to see the \$\$
- Attitudes lead to behavior

- **Information/Education Campaigns**
  - Educate and inform people
- **Awareness Campaigns**
  - Relay the severity of a problem or issue
- **Persuasion Campaigns**
  - Communication techniques
- **Social Marketing Campaigns**
  - Understand barriers +

# Save Energy, Save Money.

**The choice is yours.**

**Save energy and money by:**

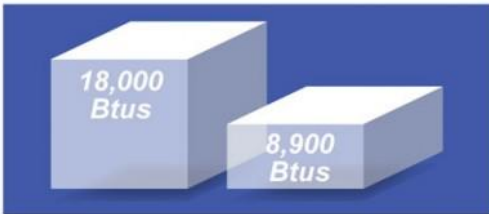
- Using compact fluorescent bulbs. They use less electricity and last 6-10 times longer than standard incandescent bulbs.
- Setting your thermostat to 68 degrees or lower this winter. Every degree below 68 degrees can save four percent on your heating bills.
- Caulking around windows and weatherstripping around doors to keep warm air in and cold air out.
- Replacing your heating air filters every 30-90 days.



# Seven amazing facts about energy efficiency



... that **energy efficient investments** have cut United States energy consumption in half from 1970 to 2008 — from **18,000 Btus** to about **8,900 Btus** (as measured per dollar of economic output). In one year alone such investments are estimated to have generated approximately 1.7 quads of energy savings.



... that U.S. **electric power sector efficiency improvements** could save **7 to 11%** in reduced power needs — like increasing the ratio of advanced meters (which has now reached 4.7% vs. less than 1% in 2006).



... that if Americans **increased their use of public transit** to the same rate as Europeans — for roughly 10% of their daily travel needs — the U.S. could reduce dependence on imported oil by more than **40%**.



... that U.S. energy consumption could be cut **11%** by 2020 through **building efficiency measures** like more efficient lighting, water heating, and appliances. Medium-sized retail buildings could save as much as 50%.



... that sales of Energy Star-qualified **compact fluorescent lights** (CFLs) nearly doubled last year. 290 million CFLs (which use approximately **75% less energy**) were sold in 2007 and account for over 20% of the U.S. market.



... that registrations of **new hybrid vehicles** rose **38%** in 2007, and should become 5.3% of all car sales by 2012. If the U.S. switched to hybrid and all electric vehicles, it could cut gasoline use in half by 2035.

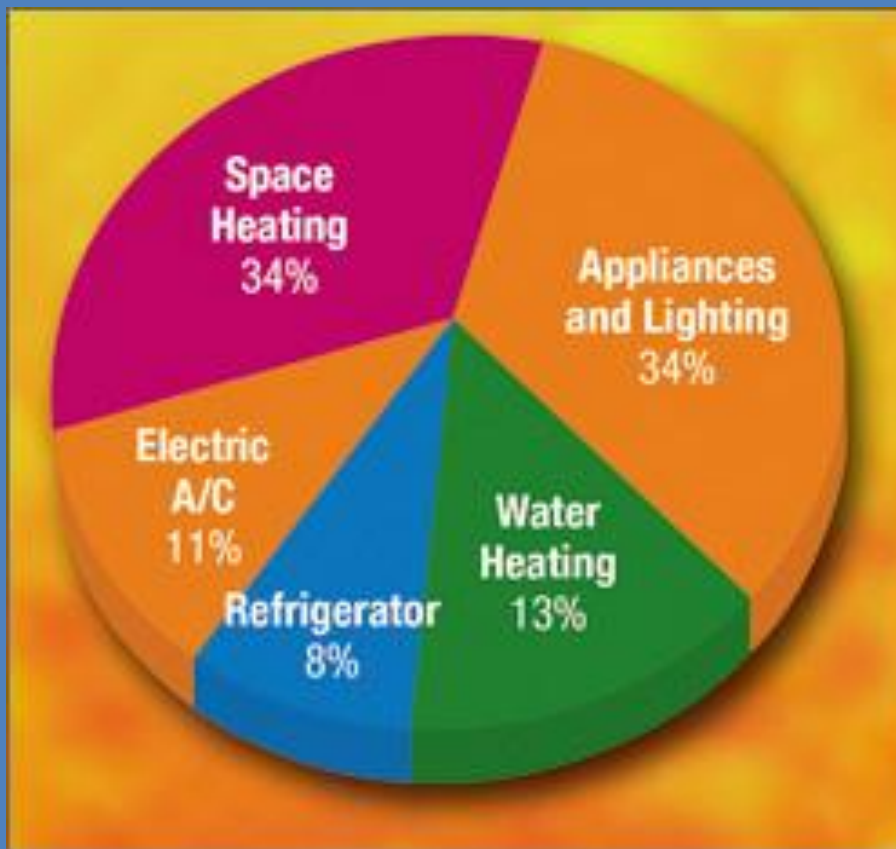


... that global sales of **fuel cells** rose **10%** last year, and nine million tons of hydrogen were consumed in the U.S. ... GM plans to have 1,000 hydrogen fuel cell vehicles on the road in California by 2014.









<http://www1.eere.energy.gov/consumer/tips/appliances.html>

# TURN OFF MONITORS



**TURNING OFF ONE  
MONITOR SAVES  
500 KWH/YEAR.**

1000 monitors turned off  
saves enough electricity  
to light about 200 homes  
each year.

**TURN IT  
OFF** ☺

Energy to  
provesmart.

# Does knowledge lead to behavior?

- Knowledge correlates with behavior

True

- Education increases knowledge

True

- Increasing knowledge leads to behavior change

False

# What motivates behavior?

- Knowledge is not a motivator of behavior.
- Lack of knowledge can be a barrier.
- Educational interventions can be effective in these situations:
  1. Already motivated, but have no knowledge
  2. Have knowledge, but it is incorrect
  3. Do not have the right kind of knowledge
    - **Procedural knowledge**

# Beware of Vampire Power!



- Standby power is” phantom power.”
- Unplug all chargers and wall jacks while not in use.
- Turn off appliances and electronic equipment using a surge-protector/power strip.

Mueller, L. (2012). Tips to taper home energy costs. Utah State University Extension.

# Electric Air Conditioning – 11%



Run as warm as comfortable—  
78°F and higher when away.

Use fans to circulate air.

Close drapes or blinds on  
sunny windows.

Mueller, L. (2012). Tips to taper home energy costs. Utah State University Extension.

# What motivates behavior?

We tend to appeal to just 2 types of values

- Self-enhancing
  - Power, wealth, success, ambition
  - enhance self
- Self-transcendent
  - Helpful, honest, forgiving , loyal
  - enhance other
- *There are more values !*



# Awareness Campaigns

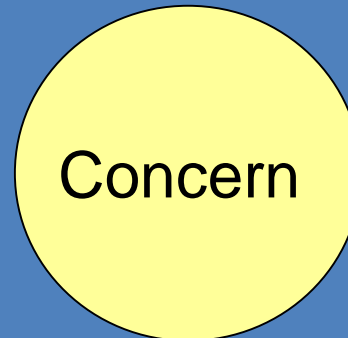
Serious -  
incidence rates



“Only 35% of plastic water bottles are recycled”

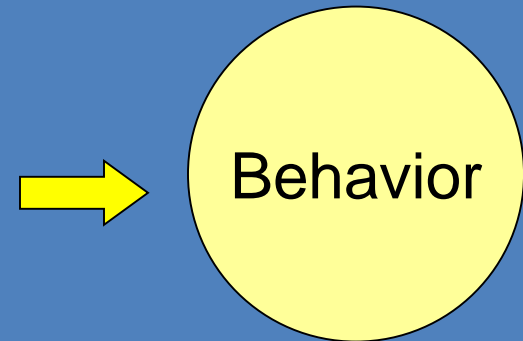
“Mass transit usage is down 48% this year”

Alarm



“It’s important to recycle my bottles or get reusable.”

“Too many people are driving their cars to work”



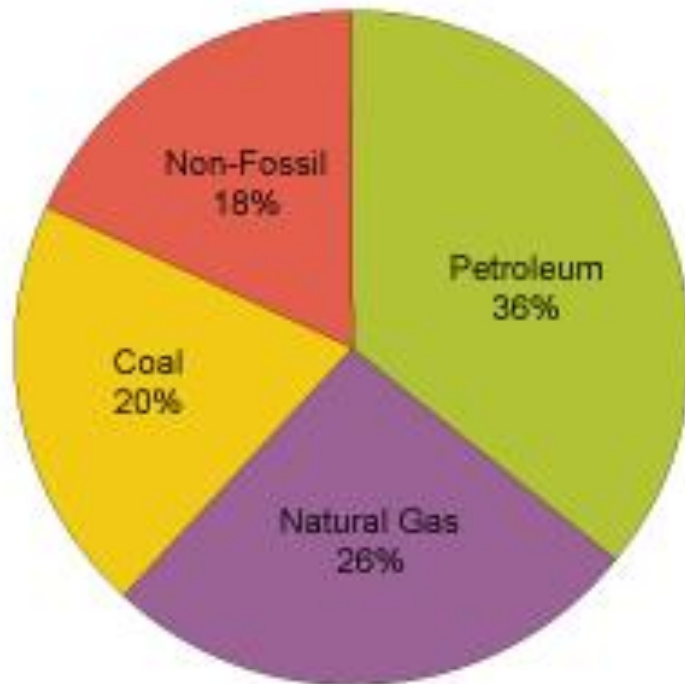
“I will recycle my bottles”

“I’m going to take the bus”

- Awareness campaigns can produce the opposite of goal
  - they use norms describing undesired behavior
- boomerang effects
  - can cause the opposite effect as some conform with perceived social norms

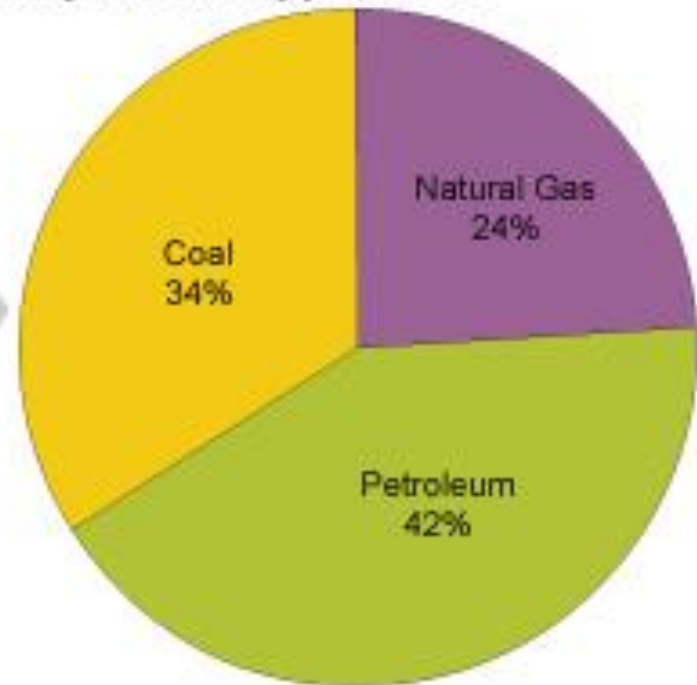
Fishbein, M., Hall-Jamieson, K., Zimmer, E., von Haefen, I., & Nabi, R. (2002). Avoiding the boomerang: Testing the relative effectiveness of anti-drug public service announcements before a national campaign. *American Journal of Public Health, 92*, 238–245.

## U.S. Energy Consumption by Major Fuel Type, 2011



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 (May 2012), preliminary 2011 data.

## Resulting U.S. Energy-Related Carbon Dioxide Emissions by Major Fuel Type, 2011



Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 12.1 (May 2012), preliminary 2011 data.

**Of all Americans who change their own oil, only 10% of them dispose of their waste oil in the proper manner. Recycle used oil.**

In College Station, an estimated 200,000 gallons of used oil are dumped improperly down the sewers, in empty lots, in holes in the ground, on weeds, and in landfills. All by people who change their own oil. Used oil and oil filters are banned from the landfill and dumping is illegal. Recycling is the only legal method of disposal.

A single quart of oil will foul the taste of 250,000 gallons of water. And as little as one pint of used oil can create an acre-sized slick on surface water. Oil kills the floating organisms in fresh water that feed fish, and it kills aquatic life.

We cannot afford to have our drinking water contaminated. Every one of us has to share the responsibility for transforming used oil from a liability into a major asset.

## **Don't Forget:**

*You can make a difference!  
If you change your own oil,  
don't dump it. Recycle it!*

**You  
can make a  
difference!  
If you change  
your own oil,  
don't dump  
it.**

**Recycle it!**

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### **For more information contact:**

City of College Station  
Public Works Department  
2613 Texas Avenue  
College Station, Texas 77842  
(979) 764-3690



# **Don't Dump It.**



## **Recycle Used Oil and Oil Filters.**

*Give Your Dirty Oil and  
Oil Filter A Fresh Start!*

## Tennessee's Had Enough. Have You?

### dirty secrets

48% of Tennesseans polled say that they have *knowingly* thrown trash on the street.

About 1 in 5 people say they do this on a *regular* basis.



What makes an effective message?

# Who is your audience?

- Speak to your core – the converted
- Speak to the unconverted
- Strong message from a credible source – back it up with facts
- Be personal – “You”
- Appeal to self-interest – relevant
- Appeal to identity – someone like you
- Create a vision





# Some Tips

- The more you know about your audience, the better the communication
  - what they care about, preferred channels
- The more you use the receivers' language and history, the better

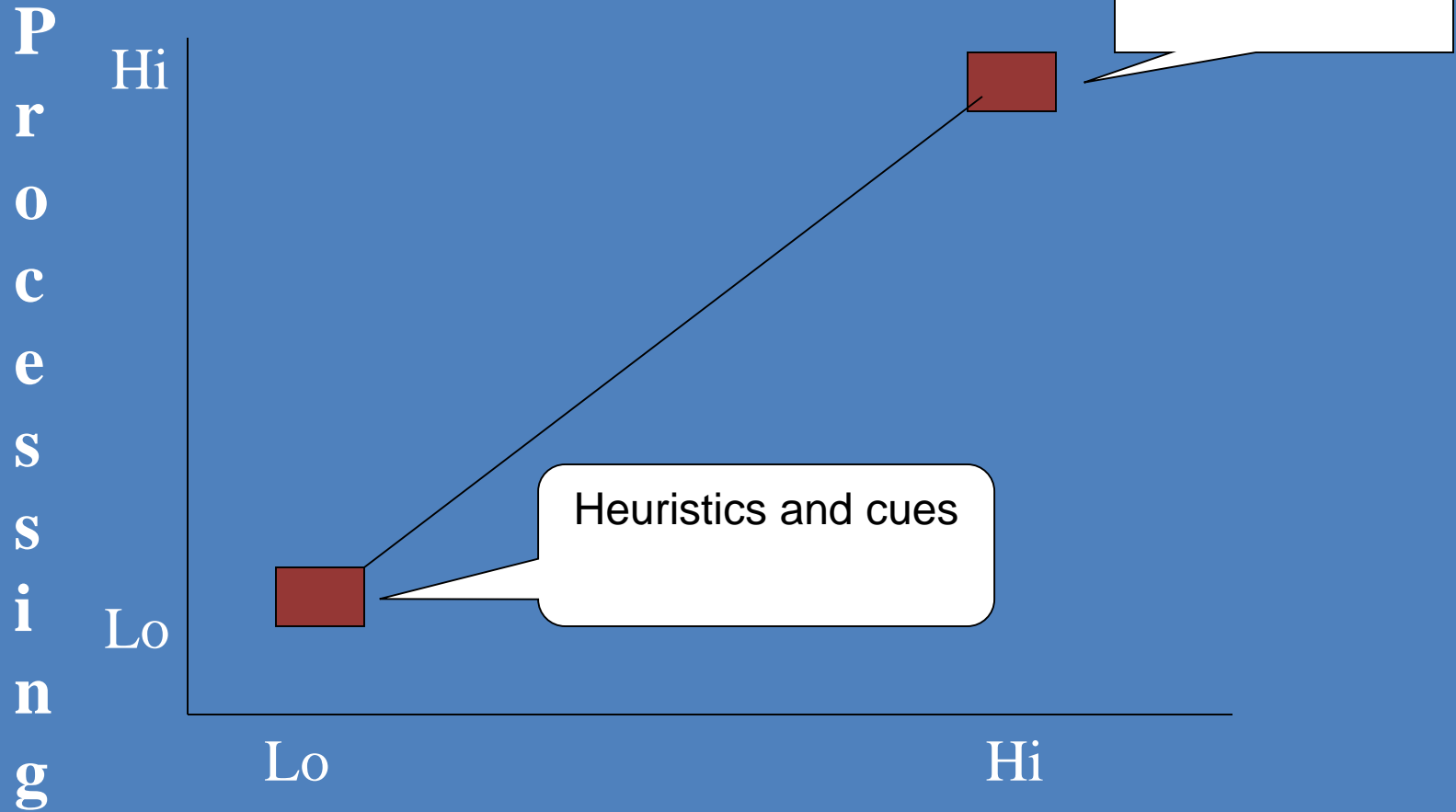
# Central Route to Persuasion

- Evaluation leads to favorable thoughts or counterarguments
- motivated and able to consider the content of a message
- More likely if the issue is personally relevant or it gives clarity
- Repetition and written messages help
- Leads to enduring change

# Message Factors

- Argument strength
- Source credibility
- Source likeability

# Advertising Effectiveness



Motivation and Ability to Scrutinize

# Peripheral Route to Persuasion

- motivation or ability to think is low
- persuasion results from non-issue relevant communication
- Must use “peripheral persuasion cues”
  - Attractive message source
  - Reward
- No thought required
- Repetition helps

**Risky**

A movie poster for the X-Men Origins: Wolverine film. It features Hugh Jackman as Wolverine, wearing his signature white tank top and holding his adamantium claws. The background is a dramatic, cloudy sky. Text on the poster includes "X-MEN ORIGINS OF WOLVERINE" in the top left, "got milk?" in the top right, "X marks the spot" on the left, and a paragraph of text in the center. At the bottom, it says "body:milk" and "www.bodymilk.com".

X-MEN ORIGINS OF WOLVERINE  
DARK OF THE MOON

got milk?

X marks the spot

My adamantium  
regenerative might has been  
wound, but my ability to  
reheal is a miracle.  
And, hey, you're the hero.  
Just don't let  
a universal conspiracy  
turn you into a mutant. Be  
real. It's not the end of  
the world. There's just  
certain mutant food.

body:milk  
www.bodymilk.com

Marvel

Drink milk.

Lose weight?

Looking to drop a few pounds? Including enough milk in your diet can make the route you take the nutritional support you need for healthy, effective weight loss. In fact, emerging research suggests that drinking 3 glasses of milk daily when dieting may promote the loss of body fat. This milk-fueled milk muscle.

The highest level of protein in milk (4-8g) helps explain these weight loss benefits. Recent studies indicate that calcium is part of the body's natural system for burning fat. Milk protein is essential for building and keeping muscle. And milk is the only beverage that naturally provides the unique combination of calcium and protein for healthy, effective

weight loss support. In fact, no other single food item provides more calcium to America's diet than milk. So it's time to add healthy weight loss to the already extensive list of good things that milk can do for your body.

If you're serious about losing weight the healthy way, make sure to exercise, limit your calories and drink at least 3 glasses a day of lowfat or fat-free milk, which have the same amount of calcium, protein and other nutrients as whole milk. For more information on these key studies and additional important research on dairy and weight loss, visit [healthyweightsthemilk.com](http://healthyweightsthemilk.com).

got milk?

©2005 U.S. Milk Processors and Producers. All rights reserved. Milk is a natural food. Drinking milk is a healthy choice. The milk you drink should be pasteurized. For more information on the benefits of milk, visit [www.gotmilk.com](http://www.gotmilk.com). Milk is a natural food. Drinking milk is a healthy choice. The milk you drink should be pasteurized.

www.gotmilk.com

# Attention Getting

- Attention - distracted
  - Surprise
    - <http://www.youtube.com/watch?v=uorWEiUaKQo>
  - Mystery
- Vivid Message
  - Paint a vivid picture
  - Emotional
  - Tell a story
  - Trigger imagination



# Unplug or the Polar Bear Gets It!



Loeb, L. & Siccardo, G. (2010). Emotionally Engaging Students to Change Behaviors and Conserve Resources: Unplug or the Polar Bear Gets it! *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, [Volume 6](#), [Issue 2](#), pp.19-34.

# Behavior Change Strategies

- Likeable source
- Reciprocity
- Scarcity
- Be careful of incentives
- Commitment
- Prompts
- Modeling – social proof, norms
- Feedback

# Importance of commitment and consistency

- Public commitment- bumper sticker, t-shirt, magnet
  - Enhances involvement
  - Enhances commitment
  - Provides norms



# Important considerations

- Retrieval or encoding cues
- Norms



**THANK YOU**  
**FOR TURNING OFF THE LIGHT**  
**WHEN LEAVING.** *-The Management*

# Norms

**Social norms**—common, accepted behaviors such as saying “God Bless you”

- Create conformity
- Cultural, formed through socializing
- Powerfully influence behavior
- Most impact in novel situations

# Norms

- Descriptive – info about what most people do
- Injunctive – social approval and disapproval
  - <http://www.youtube.com/watch?v=j7OHG7tHrNM>





**IN THE FIGHT  
AGAINST LITTER  
AND POLLUTION,  
WE STILL HAVE  
SO FAR TO GO.**



*People start pollution.  
People left stop it.*

# Using norms to create change



# Using Norms



# Report Highway Littering Online

**LITTERBU**

**LitterButt.COM**

Join thousands of others clean up our roads and environment! Report license plates of motorists throwing litter from their cars!



<http://www.nyc.gov/html/fund/html/projects/stompoutlitter.shtml>



Most people **don't**  
drop litter

Do us all a favour -  
**put your litter in the bin**  
WE WILL prosecute if we have to



[www.tameside.gov.uk/mostpeople](http://www.tameside.gov.uk/mostpeople)



**Most people**  
put their butts in the bin



We'll **prosecute** people who don't.  
Most people would expect us to.  
No ifs or buts (as it were).



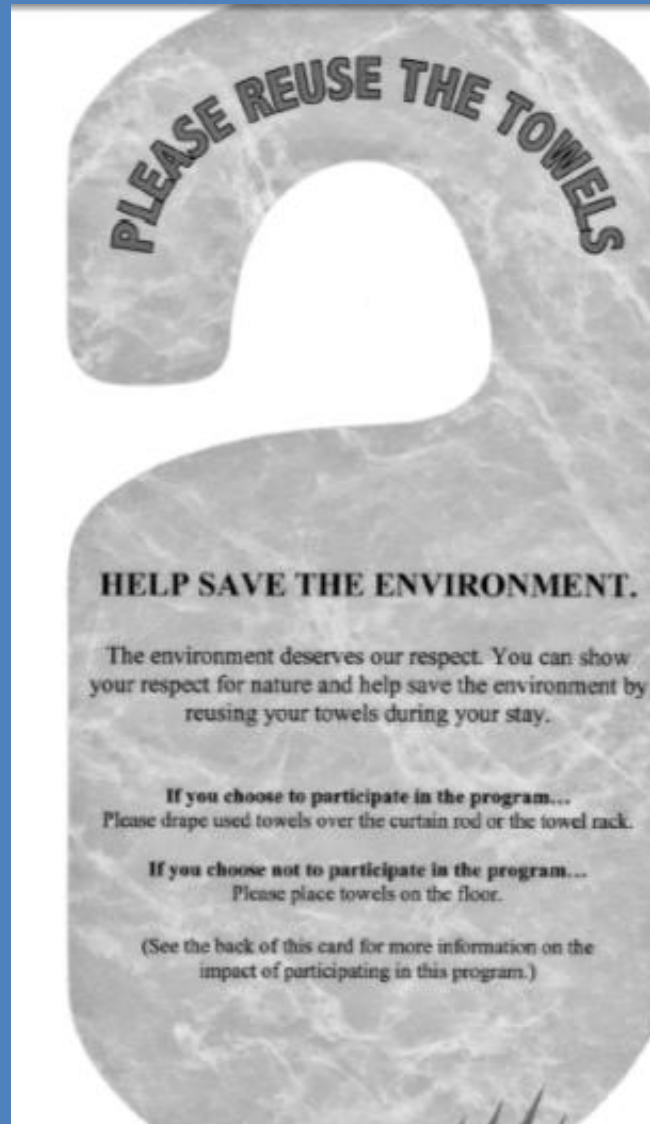
[www.tameside.gov.uk/mostpeople](http://www.tameside.gov.uk/mostpeople)



# Oil

- <http://www.youtube.com/watch?v=7LIP4UNBANM&feature=relmfu>
- New messages – Excluding improper descriptive norms “50% not collected” increased persuasion

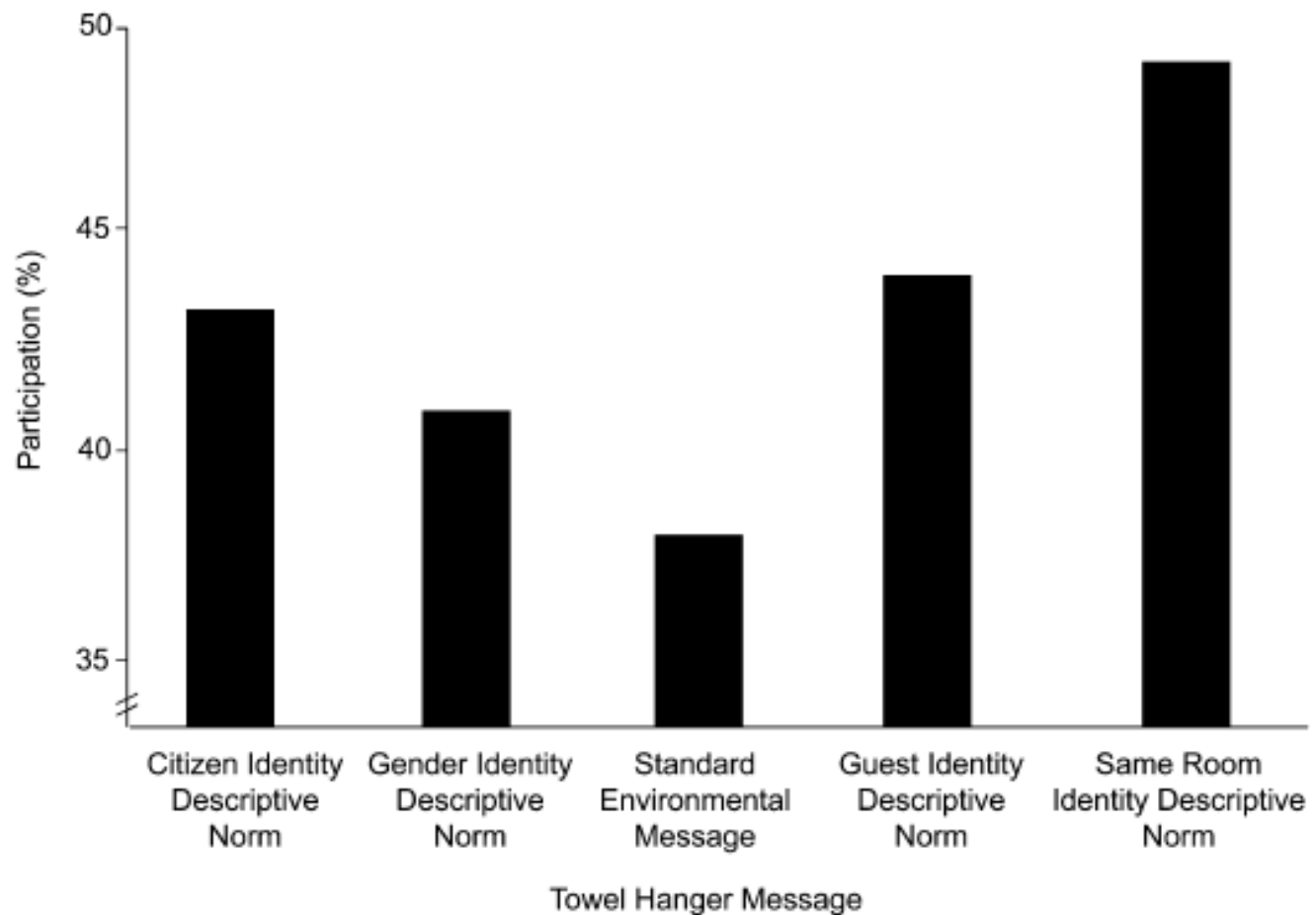
Nolan, J.M., Schultz, P.W. , & Knowles, E.S. (2009). Using public service announcements to change behavior: No more money and oil down the drain. *Journal of Applied Social Psychology*, 39, 5 1035-1056.



Goldstein, N. J., Cialdini, R., & Griskevicius, V. 2008 A room with a viewpoint: Using normative appeals to motivate environmental conservation in a hotel setting. *Journal of Consumer Research*

- **(standard)** HELP SAVE THE ENVIRONMENT. “You can show your respect for nature and help save the environment by reusing your towels during your stay.”
- **(guest identity)** “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests participated in our new resource savings program by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay.”
- **(same room, descriptive norm)** “JOIN YOUR FELLOW GUESTS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests who stayed in this room (#xxx) participated in our new resource savings program by using their towels more than once. You can join your fellow guests in this program to help save the environment by reusing your towels during your stay.”
- **(citizen identity)** “JOIN YOUR FELLOW CITIZENS IN HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 75% of the guests participated in our new resource savings program by using their towels more than once. You can join your fellow citizens in this program to help save the environment by reusing your towels during your stay.”
- **(gender identity)** “JOIN THE MEN AND WOMEN WHO ARE HELPING TO SAVE THE ENVIRONMENT. In a study conducted in Fall 2003, 76% of the women and 74% of the men participated in our new resource savings program by using their towels more than once. You can join the other men and women in this program to help save the environment by reusing your towels during your stay.”

## TOWEL REUSE RATES AS A FUNCTION OF SIGN IN ROOM (EXPERIMENT 1)



Goldstein, N. J., Cialdini, R., & Griskevicius, V. 2008 A room with a viewpoint: Using normative appeals to motivate environmental conservation in a hotel setting. *Journal of Consumer Research*



# Other Techniques/Tips:



# Disrupt –then- Reframe

- Used when there is resistance to change
- Confusion increases social influence
- “Would you like to buy a notecard? They’re just 200 pennies. That’s just \$3. That’s a bargain.”
- “Typically, there will be a collection center in less than 47,520 inches from your home, that’s  $\frac{3}{4}$  of a mile. It’s convenient!!”

# Efficacy

© 2009 Lisa Strud  
Peasodoodles 2009



I got it,  
no problem!

Can do attitude

# Compare these statements

- Aluminum dumped into our landfills today will remain there for over 200 years.
- Recycling a single aluminum can saves enough energy to power your television for three hours or to run a 100-watt light bulb for almost four hours. Imagine how much energy you alone could save if you recycled every aluminum can you used in a year!



## Green Initiative

# BE ENERGY EFFICIENT

Since 2007, the Exchange has decreased its annual energy consumption by 5.5%. This reduction in energy use is equivalent to:

- Saving **284 acres** of forest land
- Taking **5,621 vehicles** off the road - freeing the air of carbon dioxide
- Reducing oil consumption by **1,210 gallons**
- Reducing electricity consumption that **3,479 homes** would use



# Creating a Culture of Change

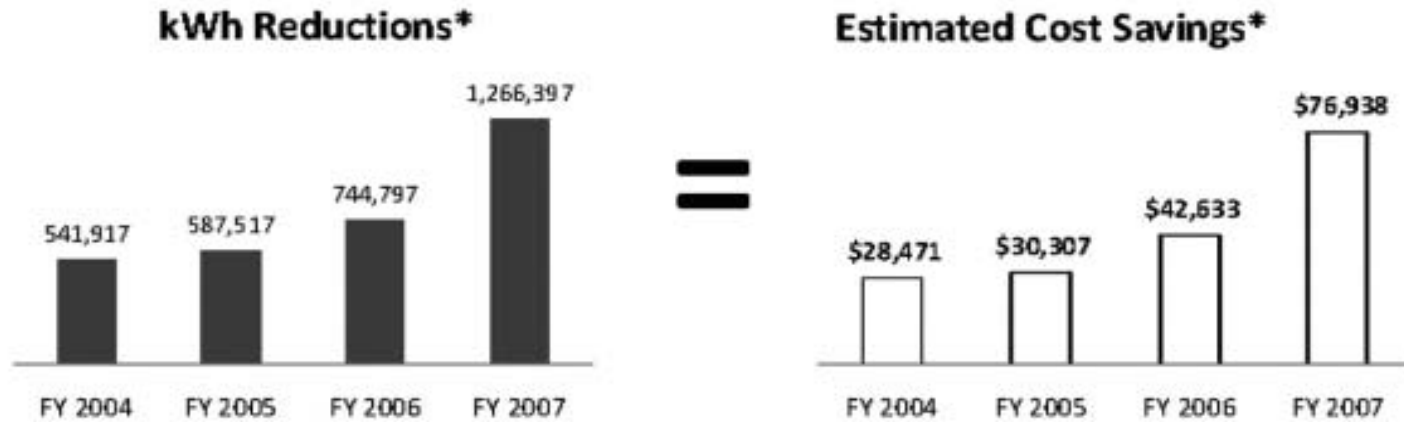
- Individual Role Models
- Leadership
- Culture
  - Empowerment
  - Collective identity

Schelly, C. Cross, J., Franzen, W., Hall, P., Reeve, S. (2011). Reducing energy consumption and creating a conservation culture in organizations: A case study of one school district. *Environment & behavior*, 43, 3, 316-343.

Tip:  
Do not make solely  
about automation



# Rocky Mountain High School Reductions in Electricity Use 2004-2007



## Environmental Impact of kWh Reductions in 2007



**2000**

**Coal Burned =**  
**10 Railcars (1 ton)**  
**CO<sup>2</sup> Emissions =**  
**1913 tons**



**2007**

**Coal Burned =**  
**5.2 Railcars (1 ton)**  
**CO<sup>2</sup> Emissions =**  
**1004 tons**

\*Compared to Fiscal Year 2000 kWh use.



- **Charismatic Leaders**
  - Can be students, faculty, staff
- Branding
- Excitement
- Competition

# Enjoy creating change!



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UNIVERSITY OF  
**Nebraska**  
Lincoln