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Using Psychology to Reduce Energy Use



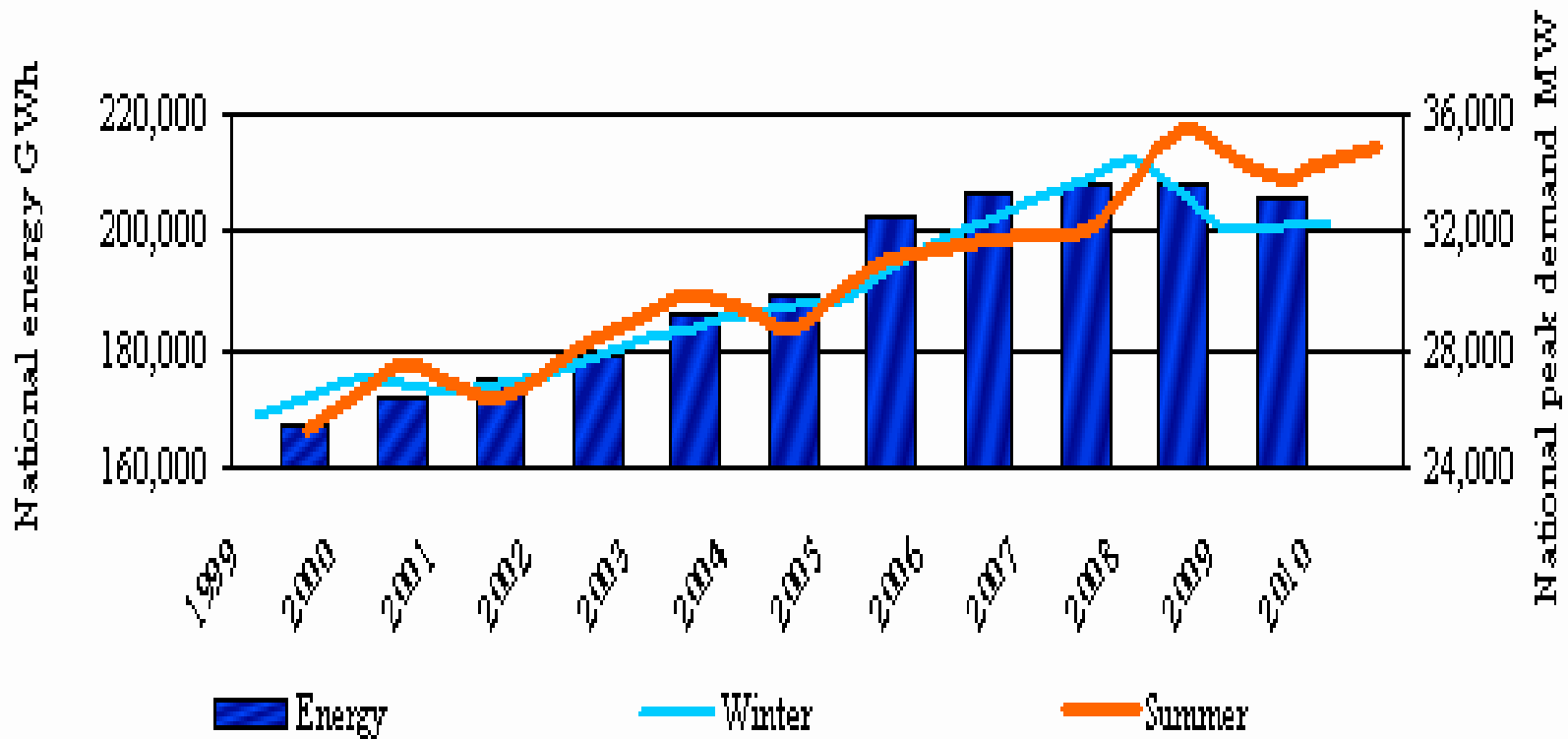
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Action On Numerous Fronts

- Legislation and regulation to control emissions
- Investment in alternative and energy efficient technologies
- Economic instruments to alter prices
- Information to inform and persuade
- Behaviour change interventions – social change



Barriers to change

- Electricity is invisible and cheap;
- Decisions are about energy services, not energy use;
- People have poor understanding of how to save energy; and
- Powerful habits.



Workplace problems

- No financial incentive;
- No “priming”;
- No “context”;
- No control.



Reducing electricity use

- behaviours which need to be changed ;
- what causes these behaviours;
- interventions to change these behaviours and/or their known antecedents; and
- systematic evaluation of the effects of the interventions.





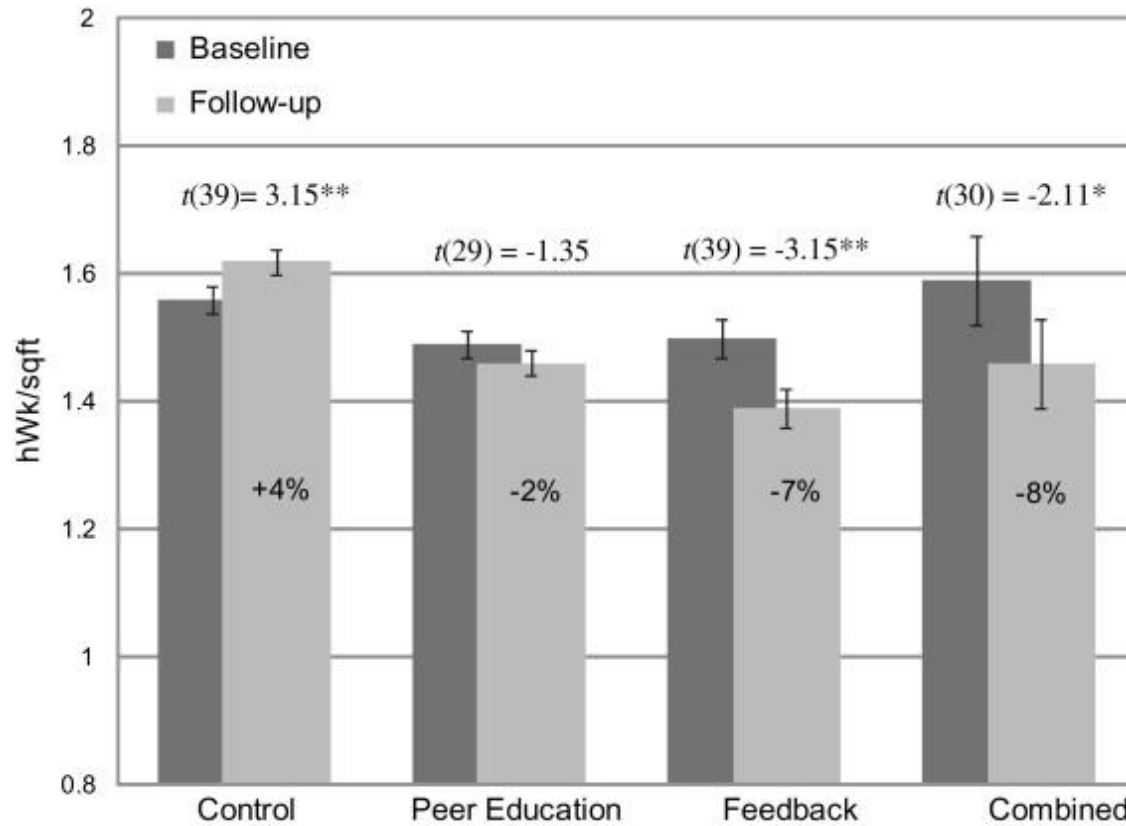
Interventions

Antecedent:

- Commitment - public
- Goals – easy or hard; assigned vs. self selected
- Information

Consequent:

- Rewards
- Feedback – individual or comparative (descriptive norms)





Descriptive Norms

The relationship between descriptive norms and behaviour is greatest:

- when the expected benefits of the action are high;
- group identification is strong;
- injunctive norms also indicate the approval of others.



Condition and Graphic

Doorhanger Text

Descriptive
Normative
Information



Join Your Neighbors in Conserving Energy. Summer is here and most people in your community are finding ways to conserve energy at home. How are San Marcos residents like you conserving this summer? By using fans instead of A/C! Why? In a recent survey of households in your community, researchers at Cal State San Marcos found that ____% of San Marcos residents often use fans instead of air conditioning to keep cool in the summer. Using fans instead of air conditioning- Your Community's Popular Choice!

Self-Interest



Save Money by Conserving Energy. Summer is here and the time is right for saving money on your home energy bill. How can you save money this summer? By using fans instead of A/C! Why? According to researchers at Cal State San Marcos, you could save up to \$54 per month by using fans instead of air conditioning to keep cool in the summer.

Environment



Protect the Environment by Conserving Energy. Summer is here and the time is right for reducing greenhouse gases. How can you protect the environment this summer? By using fans instead of A/C! Why? According to researchers at Cal State San Marcos, you can prevent the release of up to 262 lbs of greenhouse gases per month by using fans instead of air conditioning to keep cool this summer! Using fans instead of air conditioning- the Environmental Choice.

Social
Responsibility

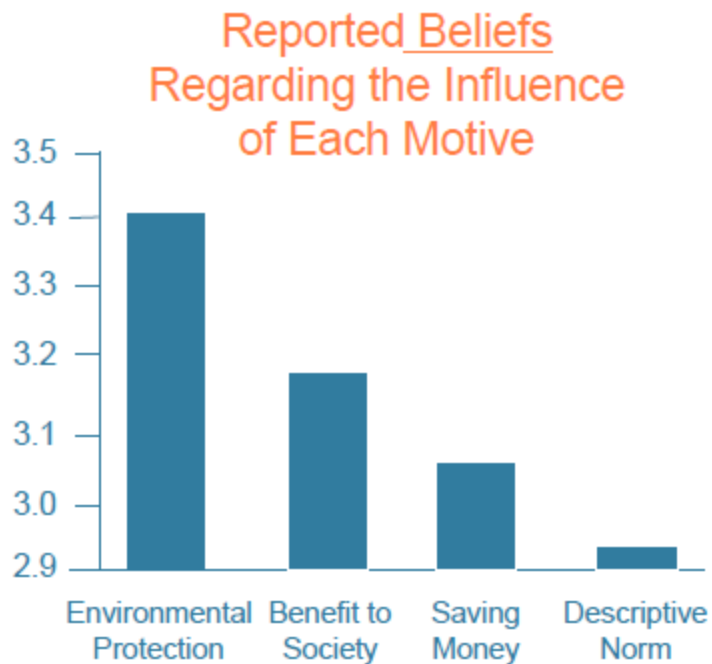


Do Your Part to Conserve Energy for Future Generations. Summer is here and we need to work together to conserve energy. How can you conserve energy for future generation? By using fans instead of A/C! Why? According to researchers at Cal State San Marcos, you can reduce your monthly demand for electricity by 29% using fans instead of air conditioning to keep cool this summer! Using fans instead of air conditioning- the Socially Responsible Choice.

Information Only

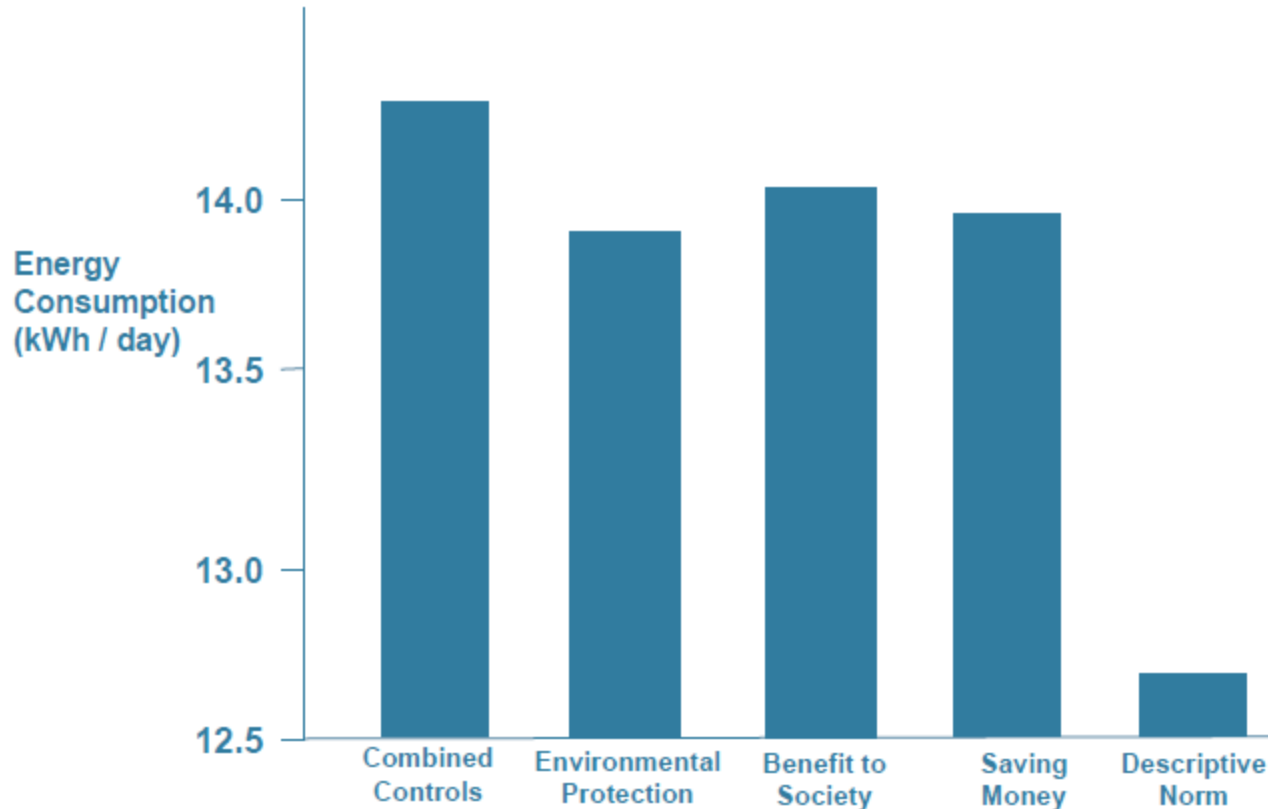
Energy Conservation. Summer is here and the time is right to conserve energy. How can you conserve energy this summer? By using fans instead of A/C!

California Energy Savings Survey

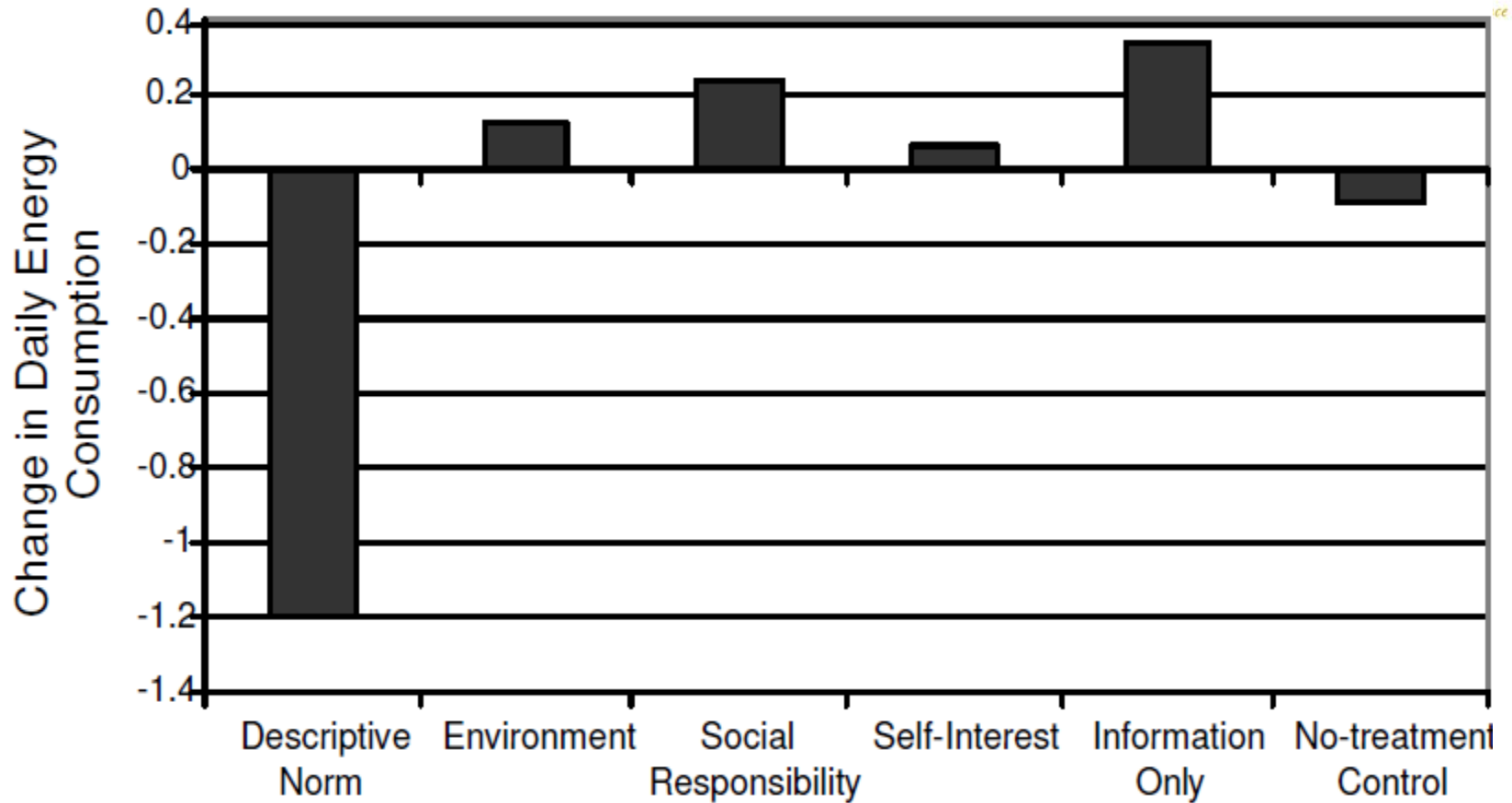


Different Motives to Conserve Energy

Field Experiment



Energy Conservation Appeal

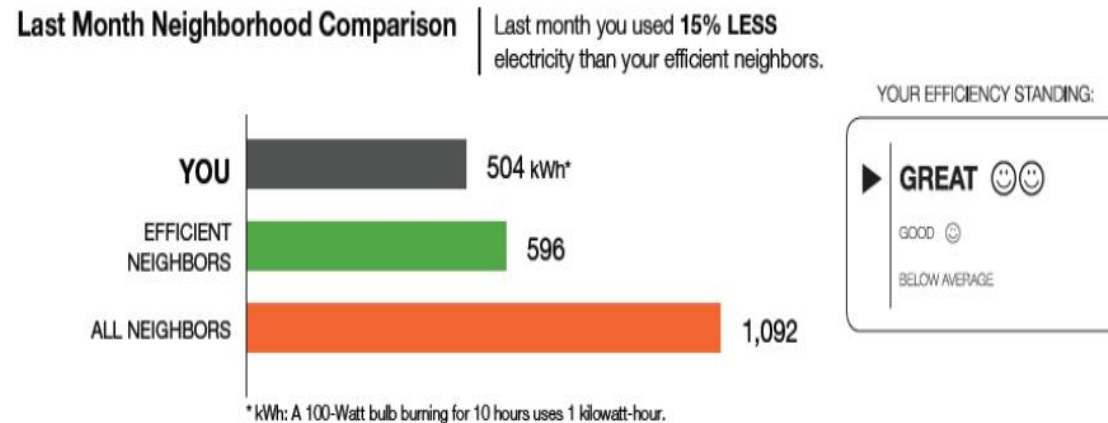


Change in average daily energy use

Cialdini & Schultz, 2004

9 Figures

9.1 Home Energy Reports: Social Comparison Module



9.2 Home Energy Reports: Action Steps Module

Action Steps | Personalized tips chosen for you based on your energy use and housing profile

Quick Fixes

Things you can do right now

- Adjust the display on your TV**
New televisions are originally configured to look best on the showroom floor—at a setting

Smart Purchases

Save a lot by spending a little

- Install occupancy sensors**
Have trouble remembering to turn the lights off? Occupancy sensors automatically switch

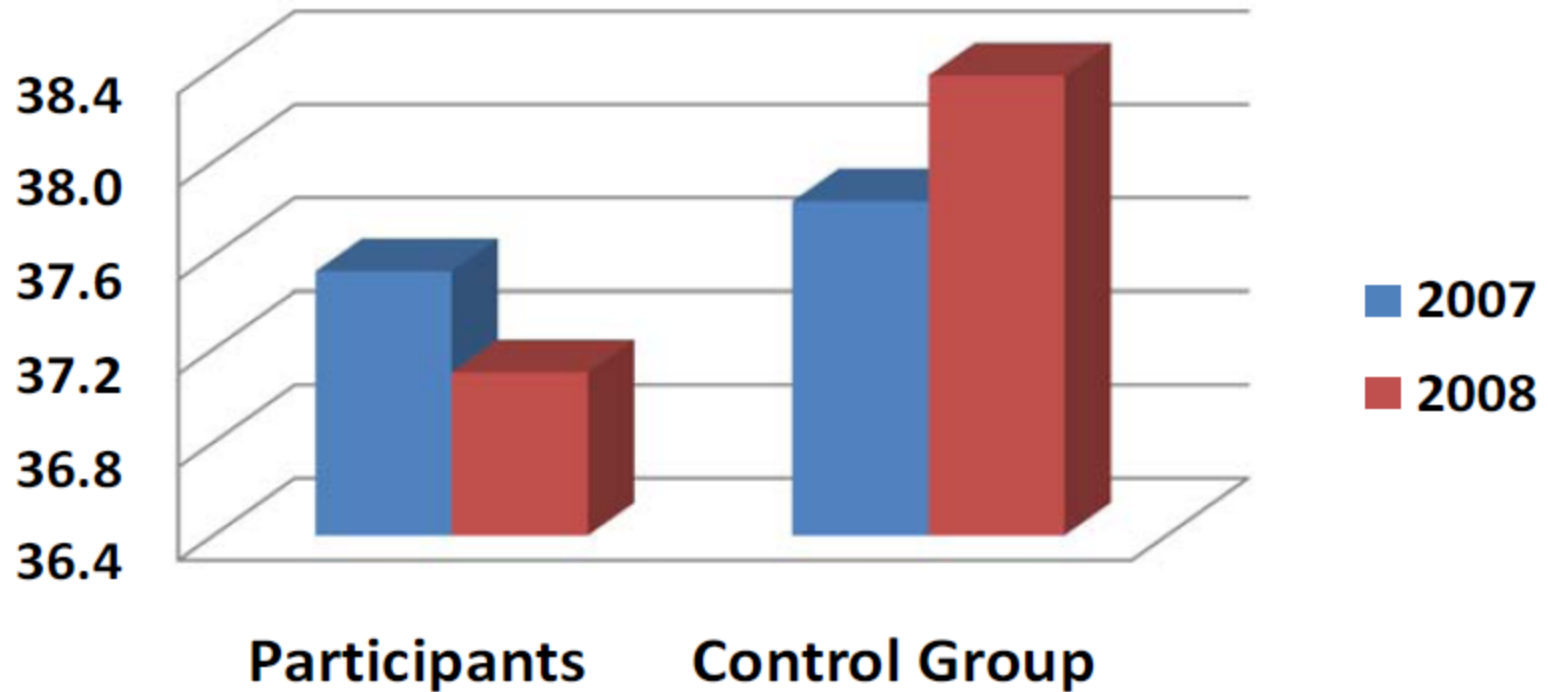
Great Investments

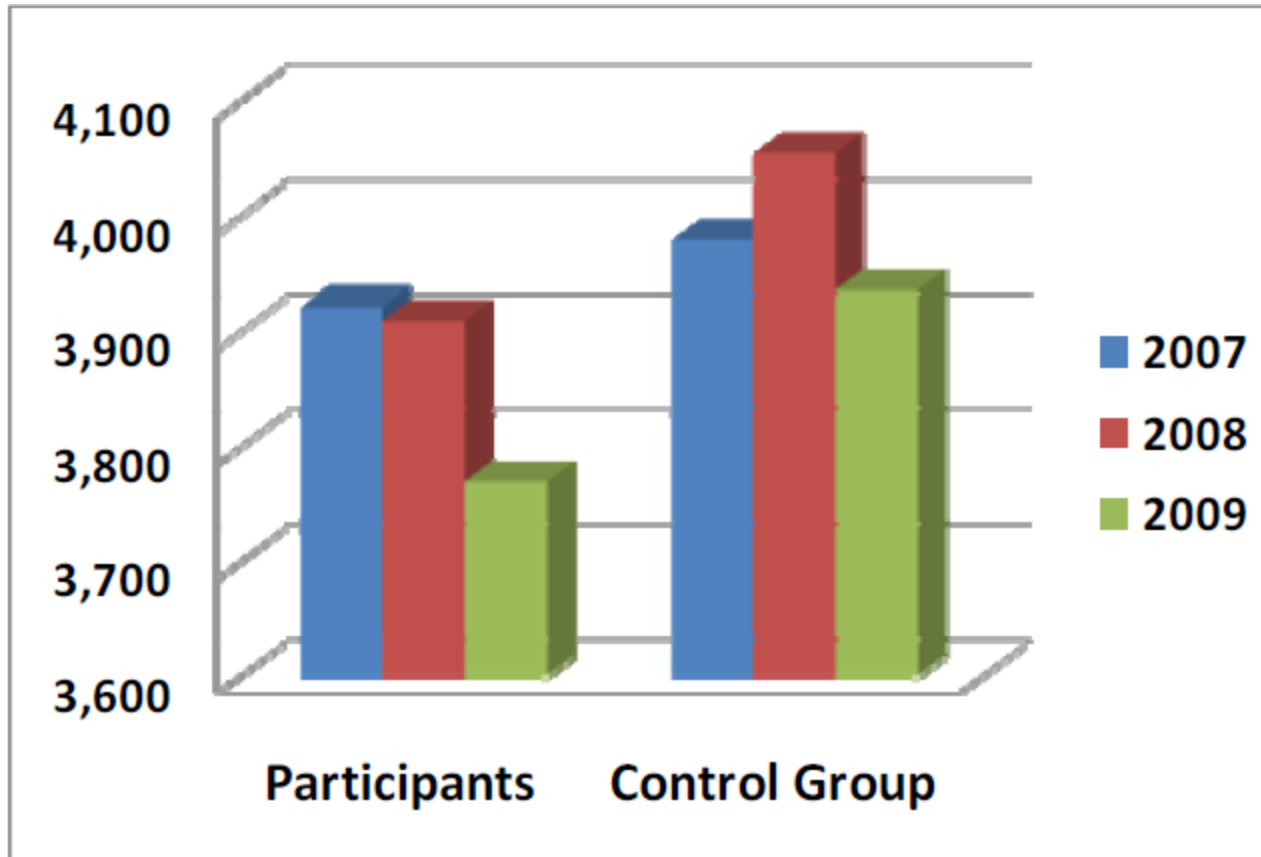
Big ideas for big savings

- Save money with a new clothes washer**
Washing your clothes in a machine uses significant energy.



Summer KWH/Day/Customer







Energy savings among the treatment population are sustained and improving

Percentage Program Impact



- The pretreatment differences between the test and control group are indiscernible and statistically insignificant
- The post-treatment results demonstrate a clear trend of increasing savings among the test group relative to the control group

Source: OPOWER, Data through 12/31/2010



Types of descriptive normative feedback

- Based on average performance of similar others
- Based on rank order
- Based on relative savings – “biggest loser”
- Based on actual behaviour – e.g. Thermostat setting.

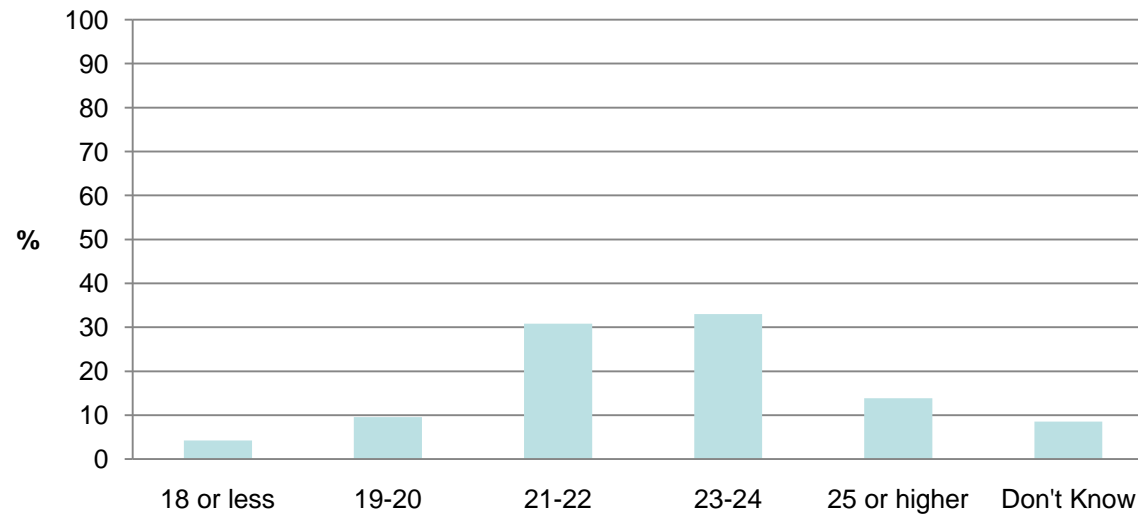


Evaluation

- **Does the technique actually produce behaviour change?**
- **Does it retain its effectiveness after repeated presentations to the same person/group?**
- **Is the change is durable? Is the behaviour change long-term and self-maintaining?**

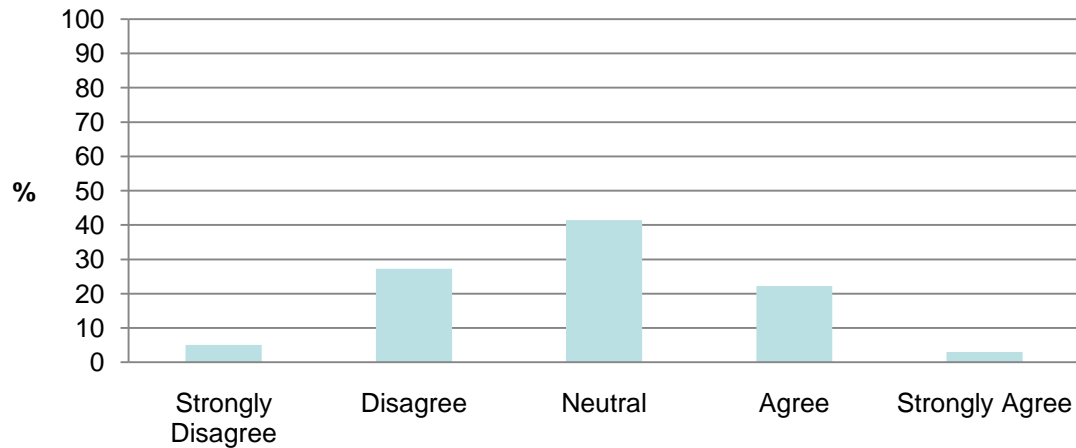


What temperature do you generally have your air-conditioning set to?



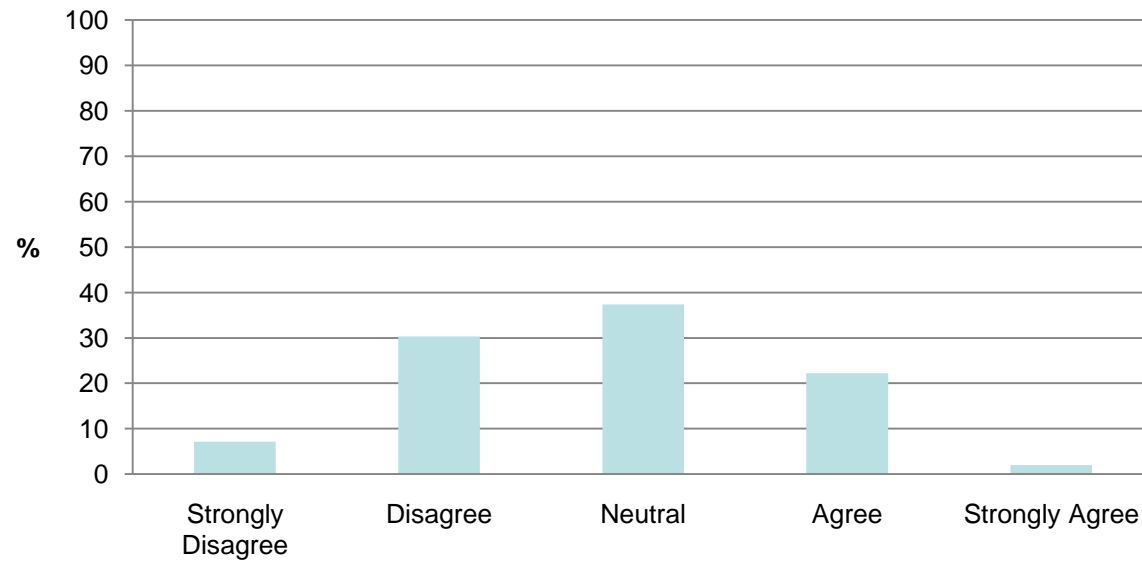


Overall, my household uses much less electricity than other similar households



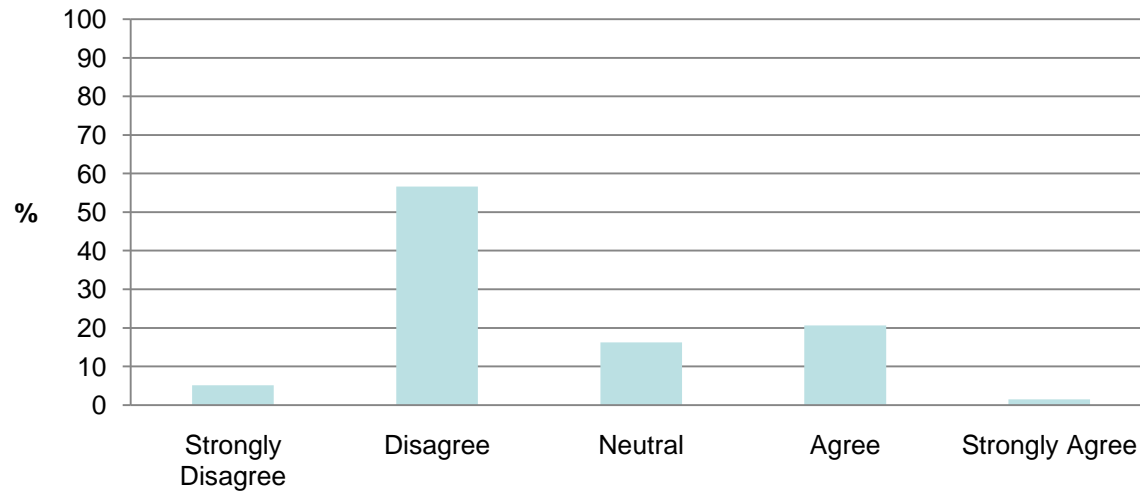


Overall, my household is more energy efficient than other similar households





I will try to reduce my household electricity use over summer





Electricity consumption predicted (regression analysis) by:

- Air conditioner thermostat setting
- Frequency dishwasher use

Electricity consumption increased by 23% from January to March (mean number of units consumed per household increasing from 2119.95 in January to 2615.47 in March).