**RESEARCH PURPOSE**

- Explore behavioral response
- Demand shifting behaviors
- Residential Time of Use pricing program (PowerChoice)

**PowerChoice**

- Three rate seasons
  - Summer (July-August)
  - Swing (May & October)
  - Winter (Nov. – April)
- Weekend and weekday rates
- Varied times of day
  - Off-peak
  - On-peak
  - Super-peak (only weekdays)
Two types of interventions plus control groups
  - Enhanced information
  - Feedback monitor

Three surveys
Collection of billing data
Analyses of survey and consumption data
SMUD PowerChoice TOU Program

RESEARCH IMPLEMENTATION
Letter Example

Note the use of survey information sent by SMUD program manager

A “Whole Lotta Changes Going On”

In a recent survey, 77% of you told us that after joining PowerChoice you did some new things, including:

• Changing how you do laundry (44%) – like shifting to off-peak hours and doing fuller loads
• Changing how you stayed cool (37%) – like increasing the A/C temperature and closing curtains
• Changing how and when you cook (19%)
Feedback Monitor Intervention

→ PowerCost Monitor
  - Sends load data from meter to a wireless device in the home
  - Displays:
    - KW
    - Cumulative kWh
    - Price
    - Time
    - Temperature

→ Training booklet prepared by RIA
  - Included tips and exercises for using the monitor
SMUD PowerChoice TOU Program

FINDINGS TO DATE
Strongest interest is in saving money: 67%+

How easily?
- No changes: 15%
- Lots of changes: 15%

Few early reservations
- Higher bills
- Lifestyle changes

Diagram showing:
- Save Money by Using Electricity at Lower-Cost Times: 96%
- Have Greater Control Over Energy Costs: 85%
- Help SMUD Avoid Potential Brownouts or Blackouts: 82%
- Help the Environment: 76%
- Contribute to Our Energy Security: 62%
### What Households Report Doing

#### SHIFTING

- **Understood shifting as key**
  - Reduced AC use: 80%
  - Changed laundry time: 72%
  - Other:
    - Reset pool filter timer
    - Dishwasher timing
    - Meal & cooking schedule
    - “Tried not to use anything during peak”
    - Changed daily schedule

#### CONSERVING

- **Almost all already conserved, but most tried harder**
  - Reduced AC use
  - AC temperature a little higher
  - Lights off
  - General conservation
  - Other
    - Full loads
    - Hang clothes to dry
What They Didn’t Do

→ A quarter said they did nothing
  • Judged their usage already matched TOU rate
  • Didn’t know what to do
  • Most who didn’t mention money as a motivator changed nothing

→ What didn’t others do – some state limits
  • Didn’t give up AC (like it cool)
  • Line dry clothes
What They Understand

→ Challenge in identifying new behaviors and changing degrees
  - 85% “already conserved”
  - 77% “did something new”

→ AC & pools understood as large users

→ But, actions not always well-targeted
  - Some likely don’t save or shift – e.g., wash dishes by hand
  - Or not much – e.g., ‘nuke’ the coffee, reduce computer use, clothes washing
How Monitor Was Used

32 of 50 say monitor still working

→ Most found it useful
  • All would keep it
  • 78% check it at least daily
  • It prompts discussion about energy in 2/3 of households

→ Monitoring dropped little over time
  • From 26 monitoring at least daily to 25
  • Main decrease was from more than once/day to daily

→ Monitoring prompted changes for 25 (78%)
  • 14 reduced usage
  • 9 time-of-use shift
  • 5 change in washer/dryer usage

→ Of 26 who receive Blue Line Bulletin, 14 (54%) said it was useful
  • Bulletin’s usefulness was unrelated to monitor use or its effect on behavior
To What Effect?

→ Price Effect
  • Participants reduced peak use at entry to program

→ Information Effect
  • No information effect for summer 2007
  • No information effect for winter 2007-08

→ Feedback effect
  • Analysis in process

→ Why?
  • Self-selection into program
  • Already trying to save
  • Doing what they feel they can and need to do

→ Additional reductions in use may be difficult to obtain
Next Steps

Analysis in Process
Report Due in January 2009
The Research Team

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