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Feedback: A Key Element in Fostering the Thoughtful Use of Energy

Presented to:

NARCU Winter Meeting

Panel: Can we change customer behavior for real?

Washington, DC

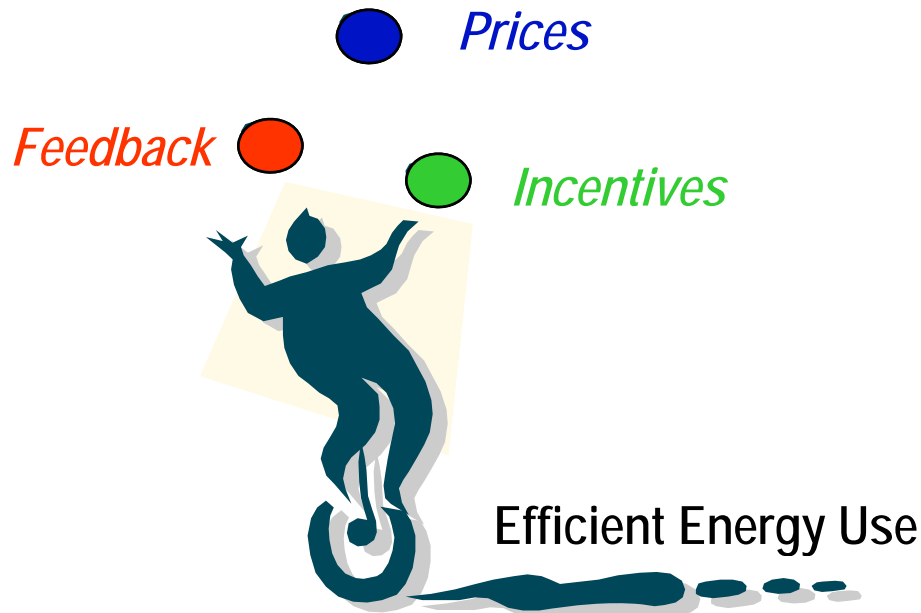
Tuesday, February 17, 2009

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Feedback Defined and Characterized

- What is feedback?
 - “A process whereby the results of action serve continually to modify further action.” Webster’s Pocket Dictionary, 1997
 - Feedback is information whose content derives from exigent experience



Feedback Impacts

% Reduction in HH Energy

Metastudies

- Darby 2001, 2006
- Fischer 2007
- Abrahamse, *et al.*, 2005

Pilots

- Before and after 2000
- Direct vs. indirect
- Slow vs. fast feedback
- North America, Europe



30%

25%

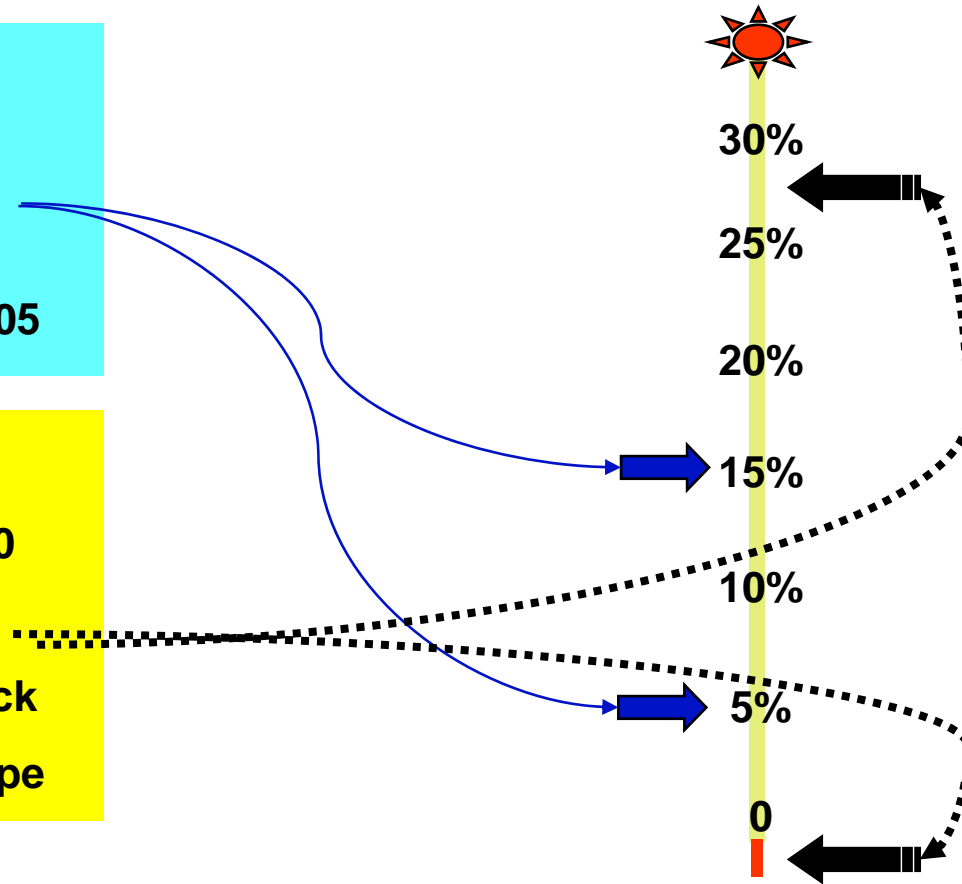
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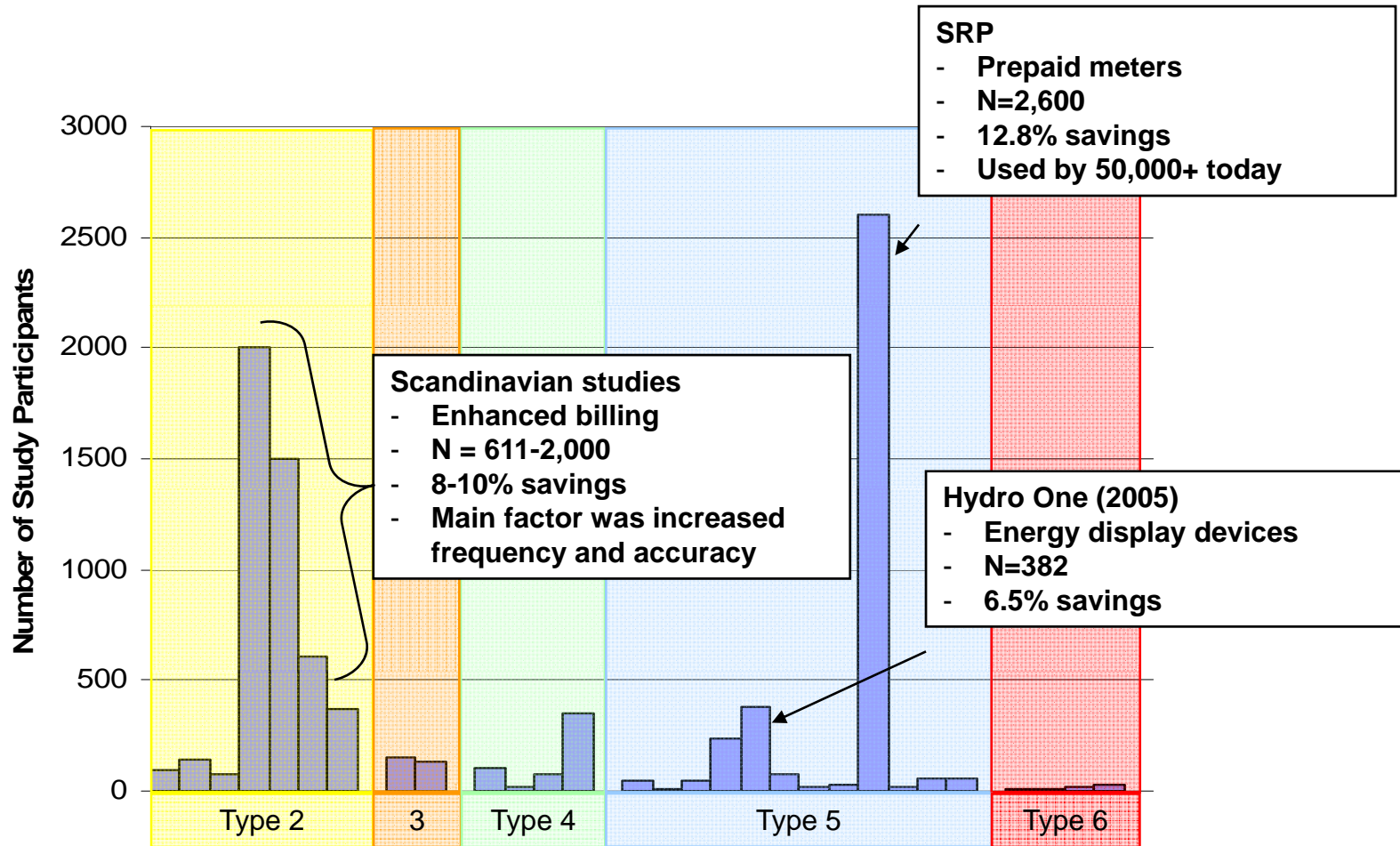
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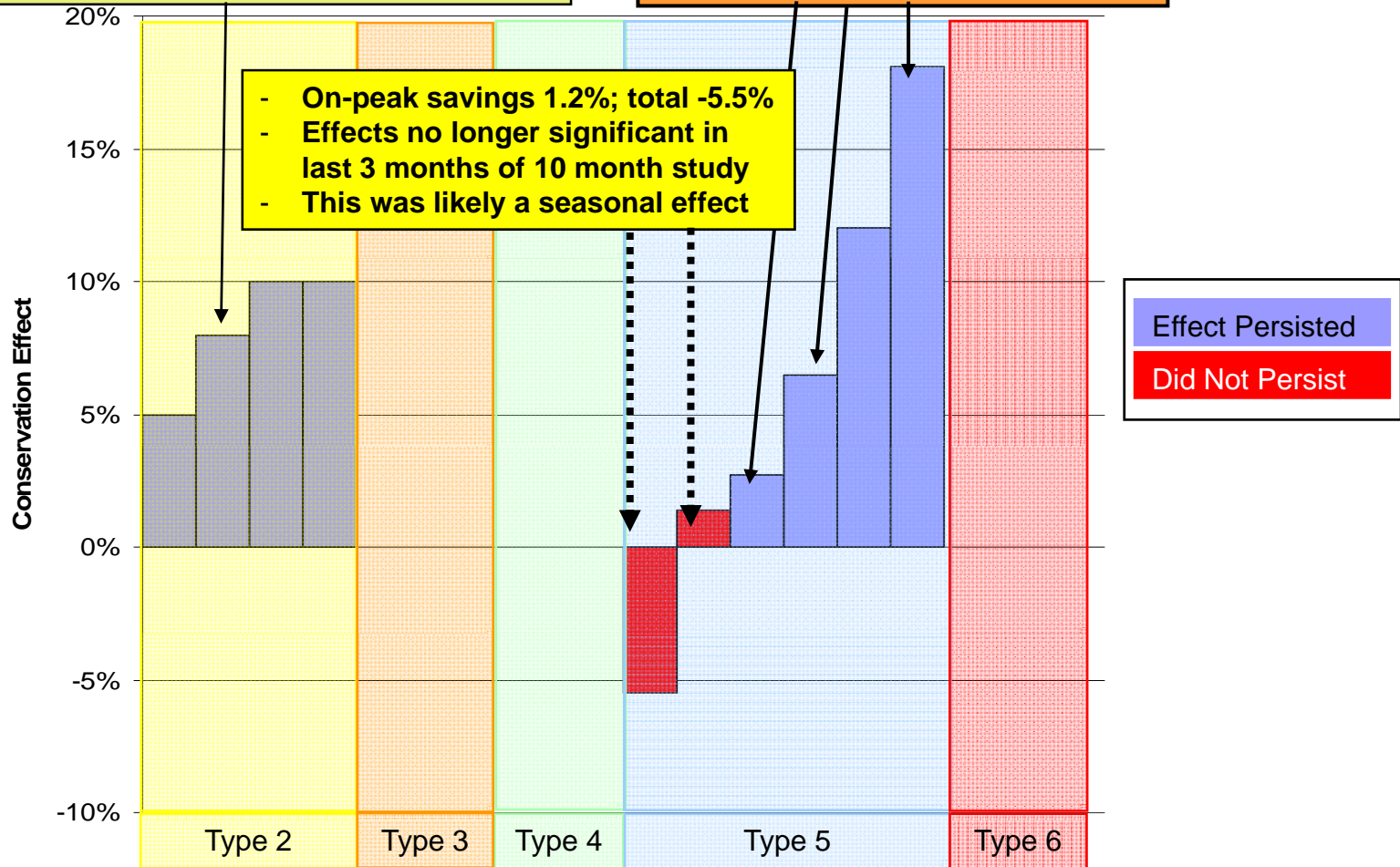
Participation Levels, con't



Persistence of Effects

- Savings at end of the 3rd year was 10%
- Researchers believed that habits formed

- No reduction in conservation effect observed over study durations (12-18 months)
- Based on "time trend" in model



The State of Feedback Research

Our understanding of how feedback influences electricity consumption is incomplete

Extensibility

Can the results be extended to other markets and circumstances reliably?

- **Pilot scale**
- **Sampling frame**
- **Feedback Mechanism**
- **Technology scope**

Veracity

Have feedback impacts been characterized fully and separately?

- **Persistence**
- **Characterization**
- **Verification**
- **Price effects**

Cost-Effectiveness

Are the results robust and comprehensive enough to support tests of program efficacy?

- **Awareness**
- **Willingness to pay**
- **System and societal value**

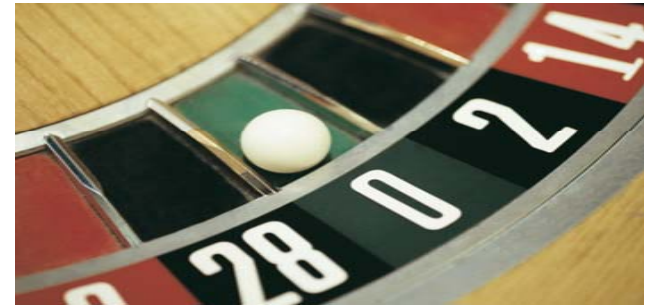
Ongoing Pilot Activity

13 Ongoing Utility Pilots	
Baltimore Gas and Electric	NV Energy
Dominion Virginia Power	OFGEM (UK)
Duke Energy	Omaha Public Power District
Energy Trust of Oregon	SaskPower
Focus on Energy Wisconsin	Sacramento Municipality Utility District
Hydro One	TXU
National Grid, NSTAR, W. Mass. Electric	

Google is coming!  Google is coming!

Resolving the Feedback Effect

- Pick a number from the pool of existing pilot results and go/no go based on the corresponding cost effectiveness
- Everybody do their own pilot and devise and carry out a strategy independently
- Pick a number from the pool of existing pilots and go/no go based on cost effectiveness



Questions?

We welcome comments and suggestions:

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Residential Electricity Use Feedback: A Research Synthesis and Economic Framework. EPRI, Palo Alto, CA. February 2009.
1016844.

The report is publically available and free at:

http://my.epri.com/portal/server.pt?Product_id=000000000001016844