

National Symposium on Market Transformation

Sponsored by: ACEEE and CEE

Washington D.C. March 30, 2009



Impacts of Behavioral Assumptions on Energy Efficiency Program Design and Development – badly needed program innovations and how to get there.

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The Bottom Line

1. The behavioral assumptions underlying EE program design strongly influence program effectiveness.
2. Historically, EE programs have been derived from the PTEM policy paradigm.
3. In the past few years programs have begun to evolve beyond the simple assumptions about behavior in the PTEM paradigm.
4. As this has occurred, attribution has become a powerful source of conflict between regulators and utilities – a problem made much worse by recent federal intervention into energy efficiency markets.
5. Developing effective energy efficiency programs requires significant expansion in the use of experimental and quasi-experimental designs in program design and evaluation.
6. The 800 lb. Gorilla in the room – in the context of the blizzard of money from the stimulus package we need to find a way keep our eye on the prize – the point is not to spend money it is to improve energy efficiency.

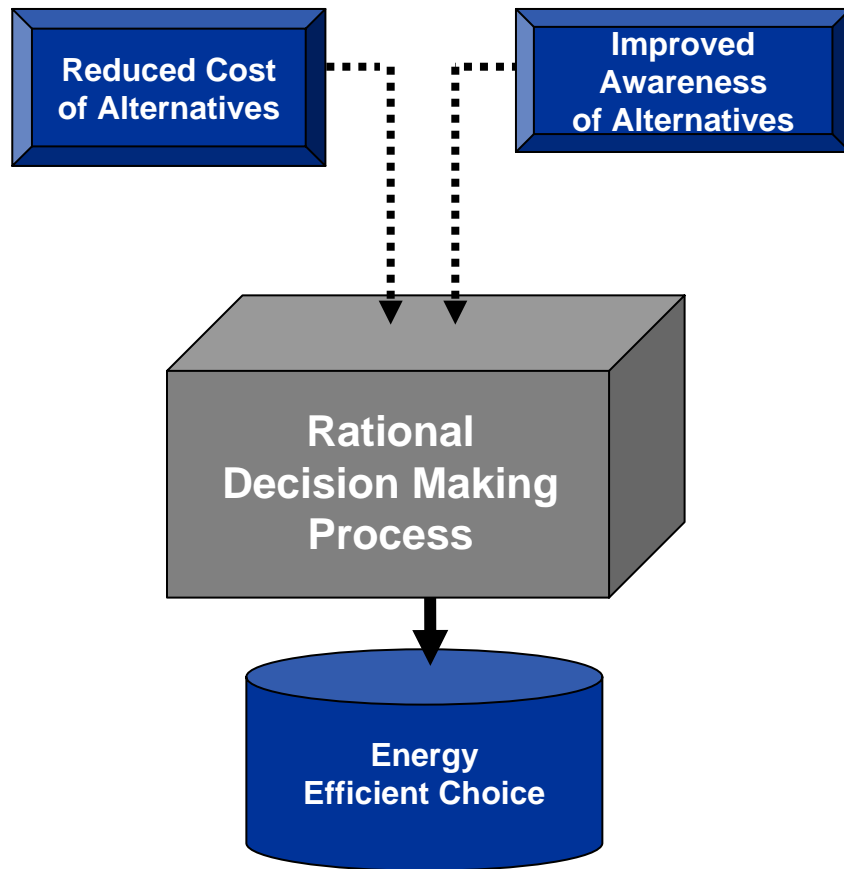


How Behavioral Assumptions Impact Program Effectiveness

1. Content of the value propositions presented to prospective customers (e.g., cost-benefit)
2. Communications channels used
3. Decision making target
4. Marketing mechanisms used



The PTEM paradigm – Physical, Technical Economic Model



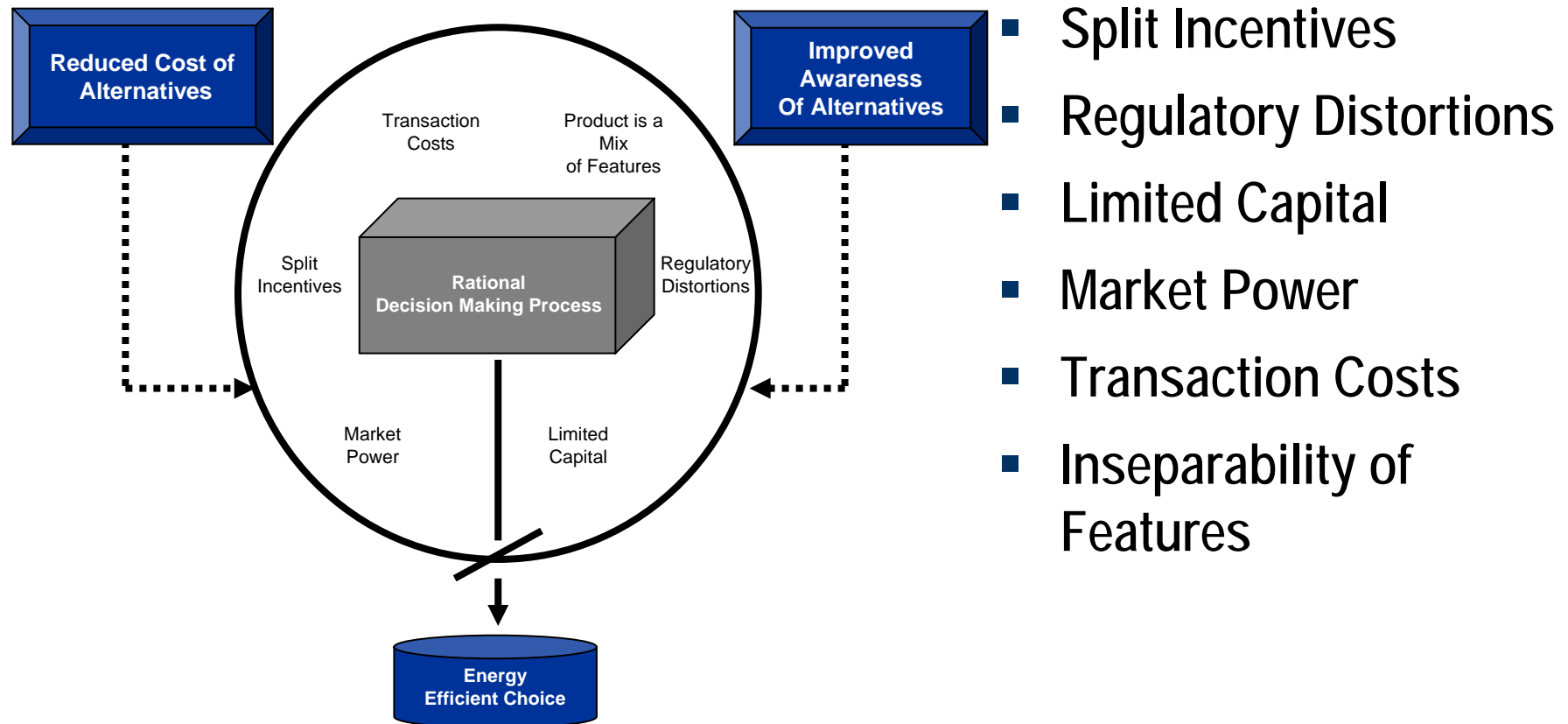
- Efficiency improvement comes from changing technology not behavior.
- Adoption decision is the exception.
- Other consumer behaviors are of secondary concern.
- Decision maker is assumed to be economically rational.
- Programs concentrate on providing information to improve awareness and incentives to offset first cost, risk and other costs.

Classic PTEM Programs

- Tax credits for making building energy efficiency investments in buildings.
- Direct subsidies to targeted market segments to make energy efficiency improvements.
- Appliance rebates to consumers who purchase energy efficiency equipment.
- Information programs designed to increase consumer awareness and knowledge of energy efficient alternatives.
- Stimulus package contains massive infusion of capital directed at PTEM based programs.



MT Paradigm – Market Transformation

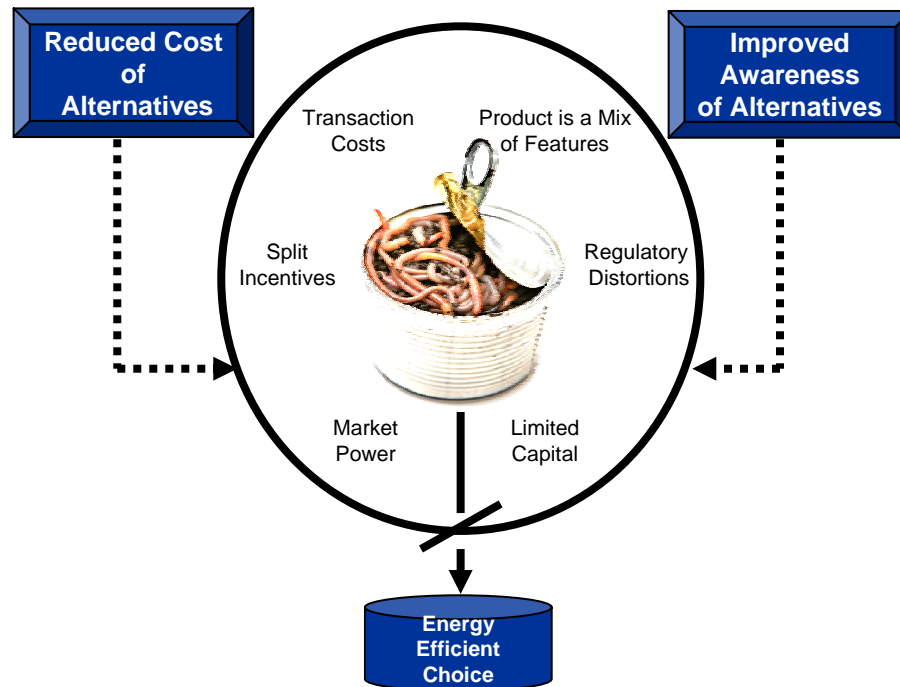


Examples of MT Programs

- Federal efforts to encourage decoupling and other actions by regulators to encourage energy efficiency.
- Energy efficient construction codes and appliance standards.
- Energy Star appliance efficiency labeling.
- Incentives provided upstream of consumers to encourage parties in the supply chain to make, distribute and offer energy efficient alternatives to consumers.
- Grants to state and local governments to encourage actions that governments can take to foster energy efficiency in their respective jurisdictions.



BDP Paradigm – (Behavioral Decision Making)



- Behavioral school of thought about consumer decisions concerning energy efficiency principally dominated by:
 - Psychology
 - Sociology
 - Anthropology
 - Organizational Behavior
 - Behavioral economics
- Energy use (and energy efficiency) are viewed as byproducts of human actions.
 - Mobility
 - Sustenance
 - Security
 - Household maintenance
- Decision to purchase energy using equipment is just one of many behaviors that humans exhibit that affect their energy consumption.

Examples of BEP Programs

- Experience with these programs is limited but evolving.
- Efforts to discover messages that cause consumers to frame energy efficiency decisions in terms of alternative decision making heuristics like altruism, conformity, risk reduction, etc. – rather than cost-benefit.
- Efforts to improve efficiency of marketing efforts by focusing on consumers who have a higher propensity to engage in EE – numerous vendors now in the market.
- Efforts to use feedback to consumers regarding whether their energy efficiency behavior is “out of the ordinary” in comparison to their neighbors’.



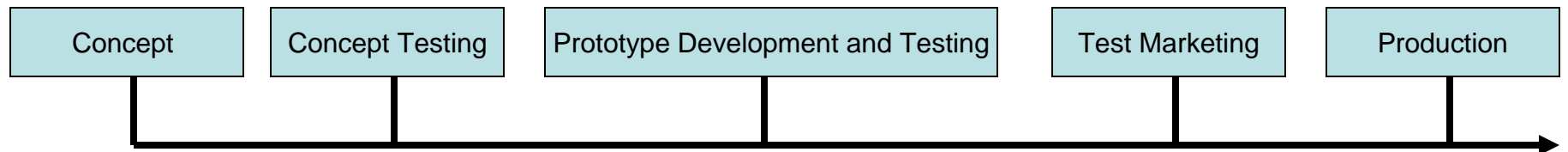
Example: California at the Crossroads

1. California is a leader in developing and supporting EE programs.
2. California utilities increasingly moving from PTEM to MT and BEM to find significant energy savings.
3. Significant tension between the need to implement programs for which savings can be easily documented and programs that are at the same time effective.
4. New program development approach is needed which encourages Research and Development to improve program performance.
5. Fundamental missing ingredient – Experimentation.
6. Will require changes in regulatory practice and organization.

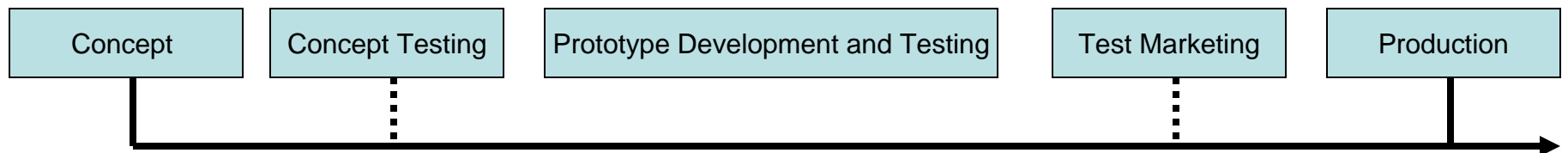


Innovation and Experimentation – Hand In Hand

Normal Product/Service Development Process



Typical Energy Efficiency Program Development Process



Development process for EE programs frequently shortcuts all important research, development and demonstration steps – leading to faster implementation of often ineffective programs that are hard to terminate.

Research and Development vs. Evaluation

- Better or more evaluations as they are currently defined may be useful in resolving conflicts over attribution – but maybe not.
- Current evaluation designs are not useful for testing alternative energy efficiency program designs, particularly designs involving alternative behavioral assumptions about the adoption decision making process.
 - Evaluations are typically focused on verification rather than testing
 - Evaluation cycle (1-2 years) is much too long to serve the needs of program designers – needs to be closer to 90 days
 - Process evaluations fall far short of providing the kind of definitive evidence about causal relationships required for program development
- Experiments are needed not measurement and evaluation.

Experiments About What?

- Effectiveness of alternative program target methodologies designed to improve the efficiency of marketing.
- Effectiveness of different value propositions (e.g., impact of decision on ability to express conformity, elevate personal status, express support for community, reduce personal and societal risk, altruism, improved comfort and convenience).
- Effectiveness of inducing cognitive dissonance by providing information regarding congruity between deeply held beliefs and behavior.
- Effectiveness of marketing through social networks and community organizations.
- The list goes on.



Unfortunately there are Significant Institutional Barriers to Innovation

- EE is funding contingent on near term savings and no provision has been made to support program development and testing.
- Resource acquisition based rationale for supporting EE programs blinds regulators and utilities to significant opportunities.
- Implementation of R&D cycle in the development process requires significant organizational modifications for both utilities and regulators.
- There is hope!!! Using federal funding available through stimulus package, states and utilities can make these important changes to foster improvement in program effectiveness.

For a more in depth discussion see...

Go to

www.ciee.ucop.edu

and look under the heading of Energy Efficiency Programs. In there you will find a tab called White Papers on Behavior. There you will see copies of the papers underlying this presentation.

1. "Behavioral Assumptions Underlying Energy Efficiency Programs and Policies"
2. "Using Experiments to Foster Innovation in Energy Efficiency Program Development"

