



Information, Choice and Flexibility

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Introduction

- Technology advancements contribute to new CDM possibilities
- Availability of more instantaneous customer-specific and load-specific information will significantly change the CDM landscape
- Must be more innovative regarding pricing and provision of financial incentives



Introduction (continued)

- Must be prepared to talk about interaction of CDM programs, rather than programs in isolation
- All of this leads to an active consumer, implying an empowerment of consumers who will be looking for and exercising their choices.





Overview of Presentation

- Will focus on 4 areas
 1. Consumer as an adaptive participant
 2. Impact of provision of more immediate information
 3. Importance of creative and flexible prices
 4. Interaction and flexibility of programs



Consumer as an Active Participant

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- With a more interactive grid the consumer now actively participates and makes choices
 - Consumer has multiple objectives
 - Cost-savings
 - Environmental concerns
 - Lifestyle choices
 - Comfort

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- With more exercise of choices, energy managers and planners must understand that demand is stochastic and is not deterministic
 - Consumer choices will evolve as technologies evolve and consumer learns about what is suitable and what is not
 - Implication is that choices may change through time and related issue is persistence of response



Provision of Immediate Consumption Feedback

Value of Instantaneous Feedback

- In the past billing frequency at most on a monthly basis
- Usually no breakdown of kWh by time of day
- By the time customer received billing information, connection between customer's actions and resulting bill is lost
- Does real-time feedback empower residential customer with information needed to reduce their electricity consumption?




Pilot Results: Conservation Impacts Depend on

- heating/water heating/air conditioning configuration
- socio-demographic characteristics
- price of electricity
- predisposition to conservation




Great Variation in Responsiveness

- Average responsiveness varies between 3% and 18%
- Consultation one or more times per day, ranges from 33% to 72% of pilot participants
- Households with electric heating conserve between 0% and 18%
- Higher reduction for electric water heating households




Variation (continued)

- Lower reductions in summer months for households with air conditioning
- Higher income households show reduced conservation
- Households with higher levels of education show increased conservation



Variation (continued)

- In some jurisdictions, seniors show higher conservation & in others, lower conservation
- Seasonality affects conservation
- Jurisdictions with lower prices show reduced conservation



Variation (continued)

- Households with predisposition to conservation show increased conservation
- There is variation on whether conservation response increases, decreases or stays the same through time



The Future of Instantaneous Feedback

- Need feedback on disaggregated loads of major uses (e.g., air conditioning, electric heating)
- Need disaggregated feedback by zone
- Need disaggregated feedback by pricing periods



Feedback Future (continued)

- Consider different methods of feedback (e.g., smart phone, I-Pod apps)
- Allow for customer feedback and interaction



Creative and Flexible Pricing



Pricing

- Need to move away from one size fits all
- Objective should be to provide pricing plans that best meet objectives and needs of consumers, while minimizing costs of delivery and covering all costs



Pricing (continued)

- Like other products (e.g., telecommunications) have menus of possible price structures that may vary in definition of peak, relative peak and off-peak price ratios and frequency of high demand charges
- The menu may include innovative TOU pricing, variable peak pricing, critical peak pricing and real-time pricing plans



Pricing (continued)

- Will have to be more flexible and move away from traditional cost-of-service rate design
- May mean gradual movement into more innovative rates



Pricing (continued)

- Cannot ignore the role that rates play in success of CDM programs
- With more flexible pricing policy, some CDM programs stand a better chance of success



Interaction of Programs

Impacts will depend on combinations of programs

- Example:
 - utility controls + TOU pricing
 - conservation rebates + IHD + innovative rates
- Impacts are not additive, partly because multiple programs are competing for conservation coming from same discretionary load



Necessity for Flexibility

- With multiple programs, customers will choose and different customer groups will respond differently
- While some programs may be substitutes for each other, others may be complementary
- From a measurement and attribution perspective, we may no longer be able to attribute demand or conservation responses solely to one program



Necessity for Flexibility (continued)

- Therefore, program offerings need to be flexible (e.g., different technologies, different ways of providing information, different ways of pricing, and multiple offerings of programs)



Thank you

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