

National Perspective on Cost Effectiveness, Cost Recovery, and Financial Incentives

Colorado DSM Informational Workshop

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Benefit-Cost Tests: Context

- Different interests have different perspectives on costs
 - Consumers
 - Utilities
 - Society
- Properly applied, all of these tests should:
 - Be based on life-cycle benefits & costs
 - Computed on a net present value basis



The Five Benefit-Cost Tests: Participant Test

- Participant test: Will the participant be better off with the investment (i.e. are savings on the bill greater than the cost of the efficiency gain)?
- Benefits include reductions in utility bills, incentives paid by the utility and any state, federal or local tax benefits received, etc.
- Costs include all out-of-pocket expenses incurred as a result of participating in a program
- Ignores impact on utility, non-participants and society of making or not making the investment



The Five Benefit-Cost Tests: Rate Impact Measure

- Does the investment increase prices for non-participants?
- Benefits savings from avoided supply or other system costs
- Costs are program costs incurred by the utility, the incentives paid to the participants, decreased revenues for any period when load has been decreased and increased supply costs for any period when load has been increased
- Ignores related benefits to non-participants, utility and society
- Sometimes called the rate impact test, the non-participant test or the no losers test
- Where sales are growing, rates do not go up anyway



The Five Benefit-Cost Tests: Utility Test

- Does the investment raise the utility's revenue requirement?
- Benefits are avoided supply costs of energy and demand (should include PV of avoided investments as well)
- Costs are the net costs to utility including program costs, excluding participant costs
- Sometimes called the revenue requirement test



The Five Benefit-Cost Tests: Total Resource Cost Test

- Measures the net costs as a resource option based on the total costs of the program, including both the participants' and the utility's costs
- Benefits are avoided supply and delivery costs, including deferred or avoided investments
- Costs are the program costs (including equipment costs) paid by both the utility and the participants plus the increase in supply costs for any period in which load has been increased



The Five Benefit-Cost Tests: Societal Cost Test

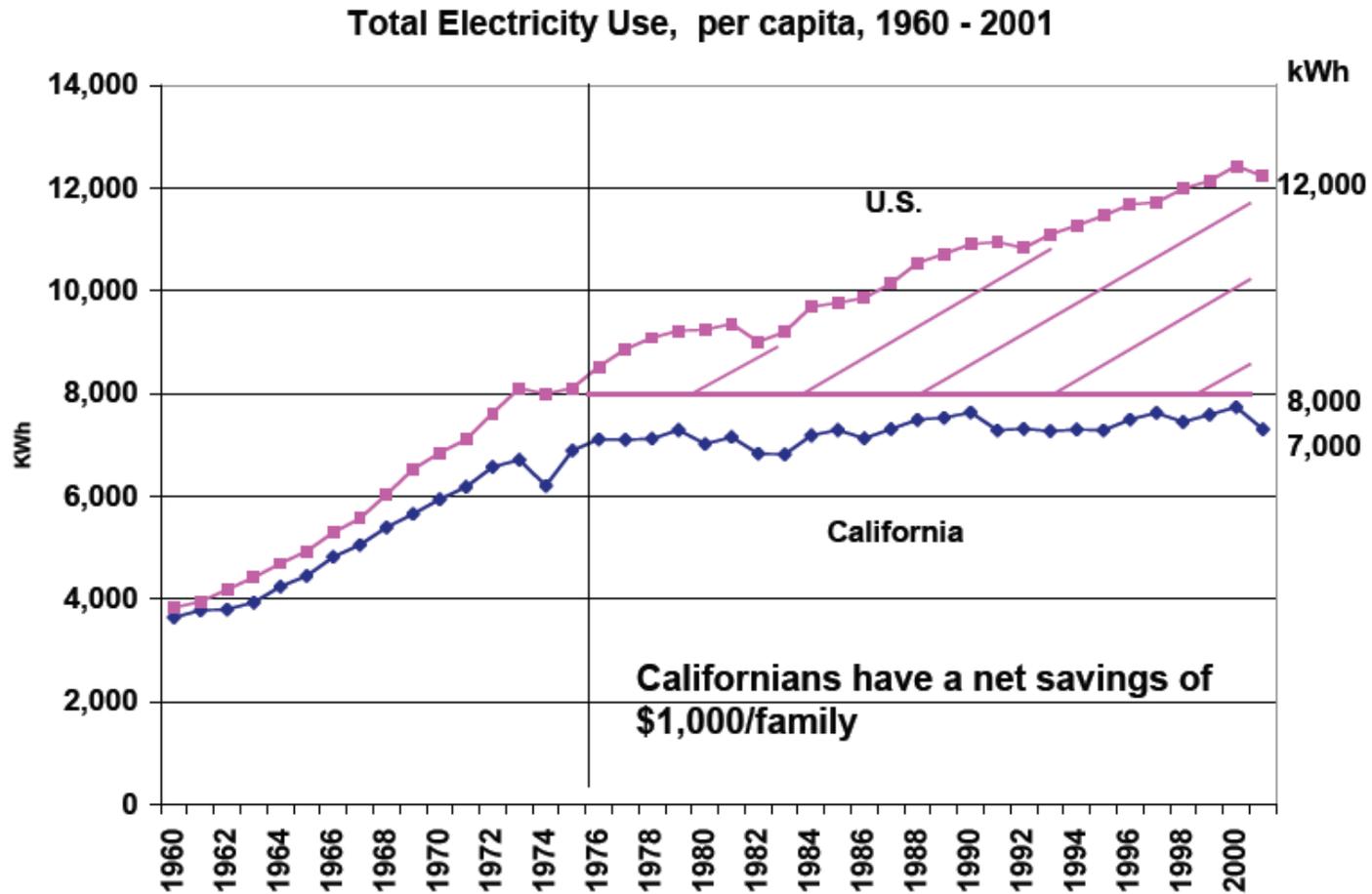
- What is the total net cost/benefit to society, including all collateral impacts?
- Evaluates DSM programs from a broad societal perspective
- Identical to the Total Resource Cost Test except:
 - Benefits include avoided externalities, including:
 - Avoided environmental or social externalities costs (e.g. reduced health care costs), and
 - “Non-price” benefits enjoyed by participants (improved comfort, aesthetic qualities, improved health, etc.).
 - Costs include negative externalities, if any



For Advocates of RIM Test: Caveat Emptor

- Beware: RIM test usually precludes energy efficiency investments, which leads to more supply and delivery costs (and higher prices) in the long-run
- Assumption: A utility is entitled to recovery of costs, so reduction in revenues from efficiency must be made up through price increases to non-participants
- Assumption: “Cost shifting” should be avoided
 - Assumption that *ex ante* cost allocation is superior to *ex post*
 - Ignores associated benefits to non-participants
- Not usually applied to other resource choices, such as new power plants
 - May skew answer
 - Ultimately, question should be placed in context of resource planning – that is, “As compared to what?”

If California Used RIM Test: \$'s Left On the Table





Addressing Utility Incentives for Energy Efficiency

- Decoupling utility revenues from sales volume
- Net Lost Revenue/Expense Recovery
 - Adjustment that tracks the implementation of energy efficiency and uses statistical means to determine net lost revenues
 - Recovery of net lost revenue can be contingent on achieving certain energy efficiency program goals
 - Alternatively, recovery of “program expenses”
- Providing positive incentives for meeting efficiency goals



Decoupling Examples:

- Maryland – Gas Utilities (in place), PEPCO (filed)
- North Carolina – Gas Utilities
- California – 3 IOUs Electric & Gas Utilities
- Oregon – Northwest Natural Gas
- New Jersey (NJNG – Awaiting approval order)
- Utah (Questar)
- Indiana & Ohio (Vectren)



Basic Decoupling

- Holds class average revenues-per-customer (RPC) constant
 - Or may have a periodic increase or decrease in average revenues-per-customer
- Based on prior rate case values
- Monthly (or other periodic) adjustment mechanism similar to traditional fuel and purchase power adjustments
- See Maryland (BG&E) for good example



“Advanced” Decoupling

- RPC value periodically adjusted for inflation and/or productivity
- Can be combined with performance goals and incentives
- Adjustments can be bounded (SDG&E/SoCalGas) and/or “shared” with customers (PG&E/Northwest Natural Gas, Oregon)
- California has the most comprehensive decoupling and PBR mechanisms



Lost Revenue/Expense Recovery Approaches: Kentucky

- Allows lost revenue recovery for both electric and gas DSM programs.
- Recovery mechanisms are determined on a case-by-case basis
- Utilities can recover
 - Full costs of commission-approved demand-side management programs and
 - Net revenues lost
 - Incentives designed to provide financial rewards to the utility for implementing cost-effective demand-side management programs



Lost Revenue/Expense Recovery Approaches: Nevada

- Utility required to track and separate costs
- For Commission approved action plan programs, utility may recover labor, overhead, materials, incentives paid to customers, advertising, marketing and evaluation



Positive Incentives

➤ Arizona

- Required funding levels ~\$10M+ & low income assistance
- Utility keeps up to 10% of net economic benefits

➤ Connecticut

- Utilities receive “performance management fees” tied to performance goals based on lifetime energy savings and demand savings (2004: ~\$5.3M)
- Incentives earned for outcomes from 70-130% of pre-determined goals (2006 budget \$2.9M)

➤ Massachusetts

- Shareholder incentive of five percent of funding for 75%-110% of design level performance
- Regulatory finding: Incentives must be large enough to promote good program management, but small enough to leave almost all of the energy efficiency funds to directly serve customers



Positive Incentives

➤ Minnesota

- Utilities receive a percentage of total net benefits (avoided costs minus program costs) when performance levels are met or exceeded

➤ New Hampshire

- Cost-effectiveness incentive of 4% of budget times cost-effectiveness ratio (actual to planned cost-effectiveness) – minimum ratio of 1.0
- Energy Savings incentive of 4% of budget times ratio of actual to saved energy savings - minimum 65% of planned energy savings



Positive Incentives

➤ Nevada

- DSM bonus rate of return 5% higher than returns for supply investments
- Critical Facilities Incentive for reliability, diversity of supply- and demand-side resources, development of renewable resources, fulfilling statutory mandates and/or retail price stability, can be enhanced return on equity, CWIP treatment or creation of “regulatory asset” account

➤ Vermont

- Efficiency Vermont receives performance incentives for meeting or exceeding specific goals in contract with Vermont’s Public Service Board (PSB)
- Incentive categories:
 - Program Results Incentives (electricity savings & resource benefits)
 - Market Effects Incentives (significant market transformation)
 - Activity Milestones Incentive (exemplary performance for rapid start-up and/or infrastructure development)



Thanks for your attention

- More details available in “The Energy Efficiency Toolkit,” The Regulatory Assistance Project, available at:
<http://www.raonline.org/Feature.asp?select=47>
- See also: “State-Sponsored Energy Efficiency Grant, Loan and Tax Credit Programs,” Energy Programs Consortium (2007) available at:
<http://www.energyprograms.org/briefs/0701-GrantLoandPrograms.pdf>”
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