National Perspective on Program Administration and Design Issues

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Overview of Talk

• Role of Energy Efficiency in the West

• Program Administration
  - Key functions in administering and delivering EE
  - Alternative Approaches: Utility, State Agency, Third-party
  - Policies on program delivery

• Program Design
  - Role of DSM Bidding
  - Incorporating Market Transformation strategies as part of EE program design
  - Examples of “Best practices”: Residential programs
California and Pacific Northwest utilities administer large-scale energy-efficiency programs

Energy efficiency programs expected to offset significant share of demand growth at some utilities

* Energy demand does not include load reductions from EE programs, or reserve margins

- Five utilities (Avista, PSE, PG&E, SCE and SDG&E) proposed EE programs that reduce growth from 1.6–2.6% per year to under ~0.5%
- Impacts of other EE strategies (efficiency standards, building codes) not included
What does it take to administer and deliver Energy Efficiency programs?

- General Administration and Coordination
  - Propose & manage budget for portfolio of programs; maintain contracts with primary contractors; maintain IT system for reports to PUC, legislature

- Program Development, Planning, and Budgeting
  - Facilitate public planning and input process; propose general program descriptions and budgets

- Program Administration and Management
  - Manage budget and sub-contracts for individual programs; provide detailed program design; propose program changes based on experience and market response

- Program Delivery and Implementation
  - Market individual programs; provide program delivery services (e.g., energy audits, tech. assistance, rebates); develop M&V guidelines; develop individual projects

- Program/Market Assessment and Evaluation

KEY QUESTION: What functions are done by Energy Efficiency Administrator (EEA) and/or Third Parties?
Energy Efficiency Program Administration (and Governance) Models

Selection Process

1) Continue Utility Administration
2) Use Existing State Agency (and Expand their Scope)
3) Create New Non-Profit Corporation with Board of Directors

Eligible Bidders
- Non-profit organizations
- For-profit firms
- Utilities (?)
- State agencies (?)
Energy Efficiency Administration: Connecticut

- Utility administration with a public/stakeholder advisory board (ECMB)

- Accomplishments
  - facilitates DPUC regulatory approval of C&LM programs, budgets, goals, incentives, M&V
  - coordinated statewide programs
Energy Efficiency Administration: California

- **Utility Administration with informal advisory groups**
  - PRG: sub-set of non-financially interested PAG members who assess utility portfolio plans and solicitations
  - PAG: provide input on program design

- **Third-Party Program Contractors:**
  - 20% of EE budget reserved for programs designed & administered by third-parties
Energy Efficiency Administration: New York

• Expanded Scope for Existing State Agency (NYSERDA)
  - MOU between NYPSC and NYSERDA; NYPSC approves 5 year Operating Plan
  - 5-yr SBC Funding is $1.1B thru 2011: EE ($547M), LI ($232M) and R&D ($279M)

• In NYC, utility also administers programs
  - 2-yr Funding for targeted congestion relief: NYSERDA ($112M) and ConEd ($112M)
Energy Efficiency Administration: Oregon

- Non-profit Corporation model
- NEEA has strong track record of success, which increased support for non-profit model (Energy Trust of OR)
Continued Utility Administration

• Pros
  - Technical and administrative experience on utility staff
  - Well-developed regulatory channels for oversight and accountability
  - Often have established infrastructure and network with market participants (e.g., vendors)

• Cons
  - Financial disincentives to pursue energy efficiency
  - Potential and perceived (by market participants) conflicts of interest
  - Service territory boundaries may lead to market and administrative inefficiencies

• Suggestion
  - Establish Advisory Committee process to facilitate stakeholder input
Existing State Agency Model

• **Pros:**
  - Statewide scope can harness economies of scale
  - Agency objectives/mission are potentially compatible with EE goals

• **Cons:**
  - State procurement requirements may limit ability to select “best-value” programs/proposals
  - Lack of experience and ability to attract qualified staff
  - Potentially greater political exposure of program funds
Third-Party Administration: Create New Non-Profit Organization

• Pros:
  - Structure and mission can be strongly aligned with policy goals
  - Ability to create lean, efficient administration
  - High probability of attracting qualified administrative and technical staff

• Cons:
  - Institution building takes long time and significant political will and resources (e.g. typically requires enabling legislation)
  - Warranted only if funding duration is sufficiently long
Lessons Learned: Utility Administration with Advisory Process

- Advisory committees can facilitate and broaden stakeholder input and enhance EE portfolio and programs

- Advisory Boards to PUCs
  - Act like an Exec. Board not a “staff” Board (CT ECMB vs. CA CBEE)
  - Hire technical consultants; plan to spend ~1-2% of EE budget
  - Establish processes (e.g. bylaws, members, officers, voting rules, public notice)
Lessons Learned: Changing Administration

- Regulatory vs. Contract model?
  - Expect high switching costs if move toward contract model (CA, NJ)
  - Contract model: Min. 3 year term with option to renew for multi-year period (VT, WI)
  - Be creative: inter-agency (NY) or grant (OR) agreement

- Plan for transition
  - Prepare for unexpected (e.g., lawsuits, how to transfer $$ from utility)
  - Longer than expected (~2-3 years minimum)
  - Minimize disruption in program offerings to customers and loss of EE services infrastructure and capability
Lessons Learned: Changing Administration (cont.)

• Require EE Administrator to develop a long-term strategic plan (and ST action plan)
  - Energy Trust of Oregon is good example

• Non-profit corporation model needs:
  - Broad political/legislative support
  - “Independent” Board of Directors
  - Accountability/oversight (strategic plan, budget, annual report, advance notice of LT contracts, indpt. mgmt review)
  - Procurement guidelines
Policies on Program Delivery

• Role of utility EE administrator vs. third parties (e.g., contractors, vendors) has been contentious in some states
  - Scope of work performed by utility staff; need to define functions/roles
  - Selection processes

• Questions for regulators
  - Linkage to longer term goal? Example - how best to create a vibrant energy-efficiency services industry?
  - Extent to which EE Pgm Administrator uses competitive processes to select implementers?
  - Does EE Pgm. Administrator have incentives to outsource activities? What is their core competency?
  - How to avoid “micro-managing” (and potentially increasing program costs)?
Policies on Program Delivery (cont.)

- Approaches
  - 1) Utility Administrator decides third party roles based on program design and core competencies
    ▼ Upfront input from Advisory Group can help
  - 2) PUC adopts explicit policies or targets
    ▼ Target example: In CA, 20% of EE program funds designed and administered by third-parties; RFP process
    ▼ EE Administrator directed to develop RFP for third parties to manage, design and deliver EE programs; solicit innovative program concepts
      • 1998 CA Third Party Initiatives ($8.5M)
      • 2000 SCE Third Party Initiative ($2.1M)
      • 2000 CA Summer Reliability Initiative ($6.8M)
Program Design issues

- Role of DSM Bidding: Overview
- Incorporating Market Transformation strategies as part of EE program design
- Examples of “Best practices”: Residential programs
Demand-Side Bidding: Overview

• RFP soliciting bids for energy savings projects with the incentive level proposed by the bidder

• Eligible Bidders
  - ESCOs and end users

• Bid evaluation criteria
  - Proposed payment for energy savings and other factors

• Performance-based contract
  - Contract specifies incentive payments, minimum savings levels, & contract term
  - Payments linked to actual savings, based on M&V protocol and plan
Demand-Side Bidding Experience: Summary

- Implemented by ~35 utilities (1987-95)
- Utilities in aggregate contracted for about 480 MW of peak demand reduction
  - DSM bidding program typically resulted in 10-50 MW of savings
  - ESCOs provided bulk of savings (~85%); also large end users directly
- Utility payments ranged from 2 to 7 cents per kWh saved (avg. of 4.5 cents), levelized over lifetime of the measures
U.S. Experience with Demand-Side Bidding Experience: Summary (cont)

- Contract terms typically 7-15 years
  - Shorter terms in more recent programs

- Overall Economics
  - DSM bidding programs provided savings at lower cost than utility supply alternatives
  - But total cost of energy savings from DSM bidding programs was not lower than utility rebate program costs

- Recently, Standard Performance Contract programs favored by ESCOs and more utilities (NJ, NY, CA, TX)
Market Transformation: Definition

- Market Transformation for energy efficiency is a strategy or program undertaken to establish energy efficient products and technologies as common product offerings in the competitive market place.

- Market transformation initiatives are:
  - strategic interventions
  - that cause lasting, beneficial changes in the structure or function of a market
  - or the behavior of market participants
  - resulting in an increase in the adoption of energy efficient products, services, or practices.

Source: Schlegel & Coakley, ACEEE MT Workshop, March 2000
Examples of Market Transformation

- Commercial lighting 1985-1998
- Manufactured housing - Northwest 1988-1999
- Resource efficient clothes washers 1989-1999
- Residential gas furnaces - Wisconsin 1982-1996
- Super-efficient refrigerator program 1992-1996
- Residential window energy ratings 1989-1999

Source: Schlegel & Coakley, ACEEE MT Workshop, March 2000
Who is Doing Market Transformation?

- National: Consortium for Energy Efficiency (CEE)
- EPA/ DOE Energy Star Program
- Pacific Northwest: Northwest Energy Efficiency Alliance (NEEA)
- Regional alliances: Northeast Energy Efficiency Partnership (NEEP) and Midwest Energy Efficiency Alliance (MEEA)
- Energy Efficiency Program Administrators
  - Utilities in CA, MA, CT
  - NYSERDA
  - Efficiency Vermont
Applying Market Transition Approach in DSM Program Design

- Address market barriers and opportunities
- Effect lasting changes
- Set long-term goals with near-term objectives
- Work with existing market channels
- Build on market trends
- Track market changes and progress
- Coordinate efforts to leverage maximum effect

Source: Schlegel & Coakley, ACEEE MT Workshop, March 2000
Set Long-term MT Goals with Near-term Objectives: Residential HVAC

• Establish *multi-year goal* for large, systemic change
  - Permanently change the market to one where high-quality installations (proper sizing/charging/air flow and minimization of duct leakage) of high-efficiency HVAC equipment are standard practice

• Set *near-term objectives* tied to long-term goal
  - Increase consumer awareness of the benefits of high efficiency HVAC
  - Enhance HVAC contractor skills and tools
  - Lower the incremental cost of high efficiency HVAC equipment & services

• Identify and track *market indicators*
  - % market share of program-qualified HVAC equipment
  - Increase in consumer awareness of high-efficiency HVAC equipment
  - Number of qualified contractors.

Source: Schlegel & Coakley, ACEEE MT Workshop, March 2000
Energy Efficiency Program Portfolio for Residential Customers: “Best Practices”

- **Lighting**
  - Promote a variety of CFLs: RFP for Mfg/retailers (buydown at wholesale and cooperative promotion)

- **HVAC**
  - Equipment Replacement: Tiered consumer and contractor rebates for replacement and performance testing [Nevada Power, APS]
  - Quality Installation: Contractor Training
  - Performance-based tune-up [CT]
  - Very-high Efficiency Pilots: Ductless, mini-split heat pumps (SEER-16); pilots in CT, MA, AZ

- **New Homes**
  - Stimulate Mass Market: “Energy Star” and Builder Incentives
  - “Bring up the Bottom”: Code Training & Enforcement
  - “Push the Envelope”: Support Federal tax credit homes [SRP] and Zero-Energy Homes [SMUD]
Energy Efficiency Program Portfolio for Residential Customers: “Best Practices”

- **Promoting Appliances**
  - Point-of-sale promotion
  - Coordinate with Energy Star campaigns
  - Support Federal standards process

- **Low-income**
  - Work with Comm. Action Agencies (e.g. qualifications and outreach/marketing)
  - Partnerships between electric, gas (and water?) utilities: joint RFP for program delivery
  - Neighborhood blitz strategies
  - Integrate with appliance replacement programs
Additional Resources on Program Design

Best Practices for Energy Efficiency Program Benchmarking

http://www.eebestpractices.com

Consortium for Energy Efficiency (CEE)

http://www.cee1.org

Energy Star

http://www.energystar.gov

ACEEEEAmerica’s Best: Profiles of America’s Leading Energy Efficiency Programs

York & Kushler, ACEEE, 2003

http://www.aceee.org/pubs/u032.htm
Background Slides
Incremental EE Program Effects: Summer Peak Capacity Savings

- Somewhat larger range in utilities’ summer-peak capacity savings
- Caveat—most utilities in the Pacific Northwest did not report capacity (MW) data—the results are derived from energy data
Energy Efficiency Administration: Wisconsin

- Existing State Agency model (2002 to July 2007)
  - 3-yr. contract between DOA and Program Area Administrators (+ 1-yr. extensions); Budget = $40M/year in 2005
- Significant “raiding” by state legislature and Governor has led to new approach
DSM Bidding Programs (1987-95)

- Winners Selected
- RFP Issued; Winners Not Selected
Demand-Side Bidding Program Design Variables

- Part of “all-source" RFP or stand-alone DSM RFP? Based on kWh or peak kW savings?
- Are all markets eligible or just some?
- What is the minimum size (energy and/or demand savings) for proposed projects?
- What are the economic criteria for bid evaluation - utility costs only or total project costs?
- Are comprehensive projects favored?
- How much performance risk does the project developer bear?
Demand Side Bidding: Measurement and Verification

- Contracts include M&V requirements and methodologies
- Techniques include end-use metering, analysis of utility bills before and after project implementation, weather normalization, adjustments for occupant behavior
- Use standard protocols such as the IPMVP
- Energy savings M&V routinely practiced and no longer controversial
- M&V costs typically 3-5% of total project costs
Lessons Learned: Demand-Side Bidding

- Separate RFPs for DSM resources are preferable
- Rank and select projects based on cost to utility per unit of energy savings and peak demand reduction
- Encourage DSM developers to propose comprehensive projects
  - Award extra points in evaluation and extra payments in implementation for comprehensive projects
- Allow relatively wide performance bands, e.g., 80-120% of contract savings target
Lessons Learned: Demand-Side Bidding Programs

- Bidding process (RFP, proposal evaluation, contracting) can take significant time.
- Use of a minimum payback period (1-2 years) can minimize free riders.
- Customer contribution has been higher in utility rebate programs compared to DSM bidding programs.
- Some utilities shifted from variable payment bidding programs to standard offer programs.
  - Standard Performance contract offers a fixed incentive level per unit of energy savings.
## Comparison of Risks between Rebate and Bidding DSM Programs

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<th>Development Risk</th>
<th>Utility Rebate Programs</th>
<th>DSM Bidding</th>
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<tbody>
<tr>
<td>Proper Installation/Commissioning</td>
<td>Participants</td>
<td>DSM Developer</td>
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<tr>
<td>Market Penetration Risk</td>
<td>Utility/ratepayers</td>
<td>DSM Developer</td>
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</tbody>
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## Performance Risk

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<th>Ratepayers</th>
<th>DSM Developer</th>
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<tbody>
<tr>
<td>Energy Savings</td>
<td></td>
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<td>Program Cost Effectiveness Risk</td>
<td>Ratepayers</td>
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