Three Fundamental Questions

Why do gas conservation programs and rebate amounts differ between states and utilities?

How did my local natural gas utility determine that a $1,000 cash rebate for a water heater conversion is the right incentive?

How can a gas consumer participate in the program development and rebate setting process?
Utility-Funded Natural Gas Efficiency Programs
(120+ Programs in 38 States - AGA Survey)
Gas Conservation Programs
Policy Initiatives

- State-level energy policy – many dating back to the energy crises of the 1970’s. 50 states – 50 policies.
- Programs are typically authorized by state statute or rule.
  - Regulated utility programs approved by the state PUC.
- Growing trend: Energy Efficiency Resource Standard (EERS)
  - State establishes target savings goals for utilities.
  - 26 states with electric goals; 12 states with natural gas goals.
  - Some states provide financial incentives for utilities to meet goals (ROE allowance/decoupled rates).
- Goals and programs may be linked to related policy initiatives.
  - State Building Code standards.
  - Carbon emission/greenhouse gas standards.
Gas Conservation Program Types

**Efficiency**
- Replace existing gas equipment with new high-efficiency equipment. Some states allow in new construction.
- Example: storage tank water heater - EF of .54 replaced with tankless water heater - EF of .80.

**Fuel Substitution**
- Replace existing non-gas equipment with new high-efficiency gas equipment. Some states allow in new construction.
- Example: Electric fryer replaced with gas fryer.
Gas Conservation Program Designs

Residential
- Energy Audits
- Appliance Rebates
  - Furnace
  - Water Heater
  - Cooking
  - Clothes Drying
- Low Interest Loans
  - Appliances/Thermal improvements
- Low-income Programs
  - Weatherization materials

Commercial/Industrial
- Energy Audits
- Food Service Equipment
  - Appliance Rebates
    - Fixed $ amount
    - $/Btu or $/kW displaced
- Water Heater/Boiler
  - Rebates
  - Boiler tune-ups
- Customized Programs
  - Engineering/design assistance
  - Individualized Rebates
U.S. Electricity and Natural Gas Energy Efficiency Program Spending or Budgets by Year, 1993 - 2010 ($ billions)

Source: American Council for an Energy Efficient Economy (ACEEE) and American Gas Association
### Natural Gas Conservation Programs

#### Spending by Customer Type

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>$463.50</td>
</tr>
<tr>
<td>Low-Income</td>
<td>$313.60</td>
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<tr>
<td>C&amp;I</td>
<td>$278.10</td>
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<tr>
<td>Other</td>
<td>$88.80</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$1,144.00</strong></td>
</tr>
</tbody>
</table>

*Source: AGA Natural Gas Efficiency Program Report - 2009*
Energy Conservation Cost Recovery

Utilities are allowed to recover “applicable and appropriate” program costs from ratepayers.
- PUC oversees rate setting and program administration.
- General statutory provision for “cost based rates”.
- Base rates; Tariff rider; Surcharge
- Annual audit; true-up of costs and revenue; reset rates annually.

Recoverable Costs:
- Rebates, loans, free products to consumers
- Marketing and promotional activities
- Program administration/overhead
- System facility investments
- Research and Development – Demonstration projects
Conservation Program Cost Effectiveness Tests

Most states require that each utility conservation program demonstrate that program benefits exceed program costs, over the program life.

- **Participants Test**
  - Do customers derive an economic benefit from program participation?
  - Program design: minimum rebate amount; change in participation at given rebate levels; marketability assessment.

- **Ratepayer Impact Measurement (RIM) Test**
  - What happens to fuel and non-fuel rates over the long-term?
  - Are non-participating utility customers subsidizing program participants?

- **Total Resource Cost Test**
  - Do the total avoided supply/capacity cost benefits exceed total (participant and utility) program costs?
  - Societal Test option: Externalities (national security, environment).
Conservation Cost Effectiveness Tests
Examples of Cost and Benefit Inputs

Costs
- Consumer Costs
  - Equipment or appliance purchase cost.
  - Installation cost.
  - Sales or other taxes.
  - Incremental O&M.
  - Cost of removal.
  - Overhead/cost to participate.
- Utility Costs
  - Incremental supply costs to support fuel substitution program load growth.

Benefits
- Consumer benefits
  - Utility bill reduction.
  - Rebate amount.
  - Avoided capital and operating costs.
  - Salvage value of old equipment.
  - Tax credits.
- Utility Benefits
  - Savings from avoided supply resource costs attributable to efficiency programs.
Conservation Cost Effectiveness Tests
Examples of Cost and Benefit Inputs

**Costs**
- **Utility Costs (cont.)**
  - Decreased revenues from sales (efficiency programs).
  - Rebates or other incentives.
  - Incremental O&M costs.
  - Program administration.
- **Societal Costs**
  - Environmental impacts.
  - Health care.
  - National Security.
  - Water resources.

**Benefits**
- **Utility benefits (cont.)**
  - Increased revenue from sales (fuel substitution programs).
  - Revenue from cost recovery rates.
  - Avoided O&M costs.
- **Societal Benefits**
  - Reverse of the listed costs.
  - Fuel diversity supports lower price volatility risk.
  - Avoided electric generation and transmission costs.
Opportunities to Influence Conservation Program Policy and Incentives

- Limited Federal government interest in establishing mandated, standardized conservation programs.
- State policy setting process.
  - Many state Legislatures are reviewing energy policy.
  - Gas utilities would welcome support of policies that focus on site vs. source total energy evaluations; emission reductions; gas infrastructure expansion and fuel substitution programs.
- State regulatory process.
  - Rebate amounts, admin procedures generally differ by utility.
  - Some utility led attempts at program consolidation.
  - State-administered programs – limited success.
Opportunities to Influence Conservation Program Policy and Incentives

State regulatory process (cont.).

- Most state’s have a public annual (or periodic) conservation goal setting or program review process.
  - Virtually no participation by commercial end-users (some manufacturers, AARP, industrial users).

- Most state’s allow utilities to file new or revised conservation programs at any time to revise:
  - Rebate amounts
  - Adopt other financial incentives
  - Change admin procedures
  - Add new products, technologies, energy savings measures

- Utility Custom Rebate Programs may allow customers to structure programs to specific circumstances.
Opportunities to Influence Conservation Program Policy and Incentives

State Regulatory Process (cont.)

- Best entry into the process is through individual utilities.
- Commercial customer data assistance:
  - Cost and benefit data.
    - Appliance purchase, operating and maintenance costs.
    - Consumption levels.
  - Appliance service life.
  - Marketing assessment – is the program design attractive?
    - What impact do non-energy factors have on appliance decisions (emissions, maintenance, appliance design, green)?
  - Penetration levels – will the program achieve the goals?
  - Trends in equipment and technology use.
Opportunities to Influence Conservation Program Policy and Incentives

- State Regulatory Process (cont.)
  - Research and Demonstration Programs
    - Utilities seeking to install and test new products
      - Tankless Water Heaters
      - Gas heat pumps
      - Commercial fryers
      - Desiccant dehumidification
      - Industrial processes (boiler optimization)
  - Identify commercial store locations for installations
    - Utility covers most or all of product installation costs.
    - Utility pays for monitoring equipment, shares results.
Natural Gas
Energy Conservation Programs

The Mechanics of Rebate and Incentive Design

Questions or Comments?