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National Association of Regulatory Utility Commissioners Energy Regulatory Partnership Program

Public Benefit Programs

Demand Side Management, Renewable Energy and Low
Income Customer Programs

Raj Addepalli – NYS PSC
Chief, Resource Policy and Planning
Office of Electricity and Environment
NYS Department of Public Service

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Public Benefit Programs

- Public benefit programs are those programs undertaken that are considered to be in the public interest, that the market place on its own may not provide due to ‘market failures’
- We will address three specific programs here: Demand Side Management, Renewables, and Low Income Programs
- Typically, costs are relatively easy to compute, but benefits, particularly non quantifiable and secondary benefits, or externalities, are difficult to compute, thus leading to controversy over public benefit programs

Public Benefit Programs

Demand Side Management

- DSM has two primary objectives:
 - Energy Efficiency
 - Reduce overall energy consumption of specific end use devices and systems by promoting high efficiency equipment, and improved building design; typically reduces energy consumption over many hours of the year
 - Load Management
 - Programs designed to achieve load reductions at peak load either by clipping or shifting; could also include valley filling; have some, but little impact on energy consumption
- Benefits include
 - Defers need to build new facilities
 - Conserved fossil fuel energy sources
 - Reduces emissions

Examples

- Energy Efficiency Examples
 - Energy saving lighting and appliances
 - High efficiency heating, ventilation, and air conditioning systems
 - Advanced electric motors and devices
 - Efficient Building design
 - Advanced Heat recovery systems
- Load Management Examples
 - Direct Load control
 - consumer load that can be interrupted during peak demand periods by utilities through direct intervention
 - Interruptible Load
 - consumer load interrupted in accordance with contractual arrangements during peak load period either by direct control of the utility or by action of consumer at utility's request

Examples (cont'd)

- Other Load Management
 - Shift peak load to off peak
 - Space heating/water heating storage systems
 - Accomplished through
 - TOU, real time pricing mechanisms
 - Substitution with other types of energy for electricity
 - Switch from electric to gas air conditioning
 - Self generation

Drivers of DSM

- Consumer Characteristics that influence DSM
 - Demographics
 - Income
 - Knowledge
 - Attitude
 - Motivation
- External influences
 - Economic conditions
 - Energy prices
 - Technologies
 - Regulation
 - Tax credits, incentives
 - Incentives to utilities

History of Energy Efficiency in NYS

- Demand Side Management
 - 1980's Commission ordered utilities to design DSM programs on a limited scale.
 - 1990's Commission instituted comprehensive DSM programs that realized considerable savings in electricity usage.
 - Programs emphasized energy efficiency and frequently employed financial incentives such as customer rebates targeted directly at end-use electricity consumers.
 - Estimated savings from DSM between 1990 and 1996 was 5,744 GWh.

Systems Benefit Charge

- In 1998, in conjunction with electric industry utility restructuring, New York established the System Benefit Fund, financed through assessment of a System Benefit Charge (SBC) on customer bills.
- The SBC funds energy efficiency programs administered by the New York State Research and Development Authority (NYSESRA).
- The SBC was established to fund efforts that would no longer be administered through utilities as a result of restructuring.
- SBC Programs from 1998 to 2006 saved an estimated 2,362 GWh of energy resulting in concomitant capacity savings of 1,091 MW.
- SBC expenditures as of the end of 2006 totaled \$772 million.
- New York Power Authority and the Long Island Power Authority also incorporated their own energy efficiency programs, savings over 15,000 GWh.

Programs under SBC

- Examples of programs funded through the SBC:
 - New York Energy Smart Loan Fund – facilitates energy-efficiency improvements through reduced-interest financing
 - Smart Equipment Choices- helps cover cost of capital replacement of lighting and controls, motors, HVAC, commercial kitchen equipment.
 - Coordinated Peak Demand Reduction – control and reduce loads on specific NY electric utility systems and educate public on energy efficiency and to shift consumption to off-peak periods.
 - EmPower New York: Electric reduction measures, particularly lighting and refrigerator replacements, insulation, and health and safety measures aimed at low-income families.
 - Home Performance - Building Performance Institute (BPI) Accredited Home Performance contractor will perform an assessment of your home, make recommendations for energy improvements and provide a cost estimate to do the improvements.

Energy Efficiency Portfolio Standard (EEPS)

- The Commission instituted a proceeding in April to establish an *Energy Efficiency Portfolio Standard* and directed Staff to convene parties and establish the procedures necessary to accomplish these goals.
- The Commission's Order establishes a target for New York's electricity usage, reducing it by 15% from expected levels of 2015.
- The benefits of energy efficiency include:
 - forestalling the building of new generation
 - reducing use of finite fossil fuels
 - reducing customers' energy bills
 - developing independent energy sources for NYS to reduce energy imports
 - mitigating the environmental impacts of burning fossil fuel for energy, i.e greenhouses gases.

EEPS Program

- The objective of this proceeding is to balance cost impacts, resource diversity and environmental effects by decreasing the state's energy use through increased conservation and efficiency.
- Staff analysis concluded that the estimated annual reduction in energy consumption by 2015 is 27,400 GWh per year.
- In 2015, the estimated peak load reduction achieved would be 5,487 MW which translates to approximately 6,390 MW of avoidable installed generation capacity.
- Costs projected represent only a small fraction of the over \$200 billion New Yorkers will spend on energy over a lifetime of the program.
- Staff is directed to immediately prepare its energy efficiency programs and design proposals with a report from the ALJ by end of June.

Revenue Decoupling Mechanisms

- The Commission instituted this proceeding to examine potential delivery rate disincentives against the utilities' promotion of energy efficiency, renewable technologies and distributed generation.
- Commission is concerned that while some progress has been made by shifting recoveries of utility fixed delivery costs to fixed charges, existing rate designs still may discourage utilities from actively promoting energy efficiency.
- The Commission ordered the utilities, in their rate cases, to develop and implement mechanisms that true-up forecast and actual delivery service revenues and, as a result, significantly reduce or eliminate any disincentives caused by the recovery of utility fixed delivery costs via volumetric rates or marginal consumption blocks.
- This Order is a complimentary tool to assist in meeting the goals outlined in the Energy Efficiency Portfolio Standard.

What is a Renewable Portfolio Standard (RPS)?

- Several states have implemented a RPS – which requires a certain percentage of the state's electricity to be generated by renewable energy resources.
- Renewable energy resources may include: wind, solar, biomass, and hydro.
- Some RPS statutes or rules allow retailers to trade their obligation as a way of easing compliance with the RPS.
- Benefits of RPS include:
 - Helps to diversify a state's energy supply.
 - Promotes environmentally benign forms of electricity, reducing pollution.
 - Creates initial market demand to help make fledgling industries become more viable.

Renewable Portfolio Standard

- In 2004, The Commission adopted a Renewable Portfolio Standard requiring 25% of the state's electricity produced by renewable resources by 2013.
- The program was designed to require eligible renewable resources are awarded a certain level of financial incentives to support development.
- Utilities assess surcharge on delivery portion of the customers' bill monthly.
- Total funding through 2013 is approximately \$765 million.
- One percent of renewable energy sales is expected to result from voluntary green market programs to reach the goal of 25 percent.
- Main Tier resources includes medium to large scale electric generation that compete against each other on a kWh price premium basis for RPS funding.
- Second Tier or "Customer-Sited" Tier shall consist of "behind-the-meter" facilities that are not generally economic competitive with the Main Tier technologies.

RPS Goals

- Target: 25% of retail sales served by 2013
- Existing resources account for about 19.5%
- Incremental requirement satisfied as follows:
 - **Main Tier.....(9,850,000 MWh)**
 - **Customer-Sited Tier.....(200,000 MWh)**
 - Voluntary Green Retailing.....(1,830,000 MWh)
 - State Agency Purchases.....(300,000 MWh)
 - TOTAL.....(12,180,000 MWh)**

RPS Program Economic Benefits

- Investment in New York approaching \$2 billion
 - Short/long term jobs
 - Purchases of local goods/services
 - Host community payment/taxes
- Expected economic benefits to New York:
 - \$700+ million for contracted/in-service resources
 - \$2+ billion possible at the close of the program

RPS Progress Report

- First solicitation in 2004, resulted in 7 renewable energy projects awarded \$166.4 million for 821,617 MWh, with contracts beginning January 1, 2006 for up to 10 years.
- April 2007, NYSERDA awarded \$295 million in contracts to 21 generators including: 10 hydro facilities that will be upgraded; 9 new wind facilities; and 2 biomass facilities. Average price is \$15/MWh.
- New contracts estimated to produce 2.6 million MWh of electricity annually.
- Customer-Sited Tier solicitation to take place Fall of 2007.
- State has reached approximately 30% of incremental goal needed to reach 25% of the state's electricity is produced by renewable energy resources by 2013.
- Goals and targets may need to be readjusted based on the Commission's Energy Efficiency Portfolio Standard.
- Program review expected in 2009.

RPS Interaction with Competitive Market

- New York is a deregulated market – wholesale and retail competition is current policy.
- Utilities are not vertically integrated, do not own generation.
- NYSERDA is the central buyer on behalf of all ratepayers of all the utilities in state – ratepayers contribute funding via delivery rates
- NYSERDA pays fixed production incentive (\$/MWh).
- Developers bid on what payment they need - they make assumptions on what they will receive in the competitive wholesale market.
- Energy is delivered through the NYISO on hourly scheduled basis.

Reliability of Intermittent Resources

- A study was conducted on how much wind generation the system can accommodate without affecting reliability
- The study concluded that over 3,000 MW of wind resources can be accommodated, with minor adjustments to NYISO's planning, operation and reliability practices.

New York's Low Income Programs

- Low-income programs vary from different monetary assistance to weatherization programs that help improve the energy efficiency of a home.
- The Commission places a high priority on ensuring that low-income customers have resources to pay their energy bills, especially during the cold winter season.

Low Income Programs

- Budget
 - Some funding from Federal Government
 - Some funding from State Government
 - Some funding from other electric and gas utility customers
- Commission monitors utility activities; encourages coordination among state agencies with responsibility for assisting low-income customers

New York Low-Income Programs

- NYS utilities maintain low income programs and rates that are reviewed and updated in individual rate cases.
- These programs can include all or some of:
 - lower charges for service
 - budgeting instruction and assistance
 - arrears forgiveness
- As well, there are programs through social services that assist those unable to pay.
- Federal Home Energy Assistance Payment (HEAP) funds are also available to assist those having difficulty in paying their energy bills.
- The utilities assist customers in apply for these state and federal funds and facilitate the process.
- NYS Public Service Law (PSL) prohibits shut offs during winter cold weather periods and when the customer is receiving social service funds.
- Deferred payment accounts, spreading payments out over time, are also required by NYS PSL to assist customers pay their arrears.

Examples of Utility LI Programs

- NYSEG Power Partner Program: eligible customers receive a reduced basic service charge. Program serves about 22,500 customers per year. Funding provided by NYSEG.
- Central Hudson Powerful Opportunities Program: eligible customers receive a one-time credit of up to \$200 per account per year. Funded by Central Hudson.
- Con Edison Energy Share Program: eligible customers receive a one-time bill credit of up to \$200 per account per year. Funded by private contributions and Con Edison matches the donations dollar for dollar.