Demand-Side Management and Energy Efficiency Programs in Kentucky

Presentation to the Georgian National Energy
and Water Supply Regulatory Commission

Frankfort, Kentucky
May 2010

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Agenda

- Demand-Side Management (“DSM”) and Energy Efficiency Programs - Objectives
- Federal Legislation
  - Public Utility Regulatory Policies Act
  - Energy Policy Act of 2005
  - Energy Independence and Security Act of 2007
- Governor Ernie Fletcher’s Energy Plan
- Governor Steven L. Beshear’s Energy Plan
- Kentucky Legislation
  - Enacted
  - Proposed
- The DSM Statute, KRS 278.285
- Funding Energy Efficiency – National Action Plan for Energy Efficiency

Demand-Side Management and Energy Efficiency Programs - Objectives

- Defer or eliminate need for additional capacity
- Provide opportunities for customer to reduce usage / bills
- Reduce output of highest cost generation / fuel costs
- Reduce level of emissions
- Free-up capacity to make off-system sales

Federal Legislation - Public Utility Regulatory Policies Act

- PURPA

- Purpose
  - conservation of energy supplied by electric utilities
  - optimal efficiency of electric utility facilities and resources
  - equitable rates for electric consumers (PURPA section 101)

- Originally included six Federal standards

- Five of the standards concerned customer rate determination and design
  - cost of service
  - declining block rates
  - time-of-day rates
  - seasonal rates
  - interruptible rates

- Sixth federal standard
  - load management techniques

PURPA - Kentucky Commission Action

- Initiated Administrative Case No. 203 in March 1979
- Reviewed – purposes of PURPA
  - Conservation
  - Utility Efficiency
  - Equitable Rates
- Other Commission Objectives
  - Minimize economic dislocation – rate continuity - gradualism
  - Rate structure to allow for stable earnings – revenue stability
  - Simple and understandable rates – understandability

PURPA - Kentucky Commission Action (continued)

- Commission adopted -
  - Cost of service standard
    - Rates based on cost with rate continuity
    - Embedded cost of service study
    - Marginal cost of service study
  - Declining block rates
    - Replace with flat or inverted block volumetric rate
    - May continue with declining block with COSS support
  - Time-of-Day Rates
    - Shift usage from peak to off-peak
    - Gradual implementation
      - mandatory for certain industrial customers
      - load research
      - implement for a target group – load research
      - cost-benefit study

PURPA - Kentucky Commission Action (continued)

- Commission adopted -
  - Seasonal Rates
    - Implement when cost-justified
    - Kentucky Utilities – Kentucky Power
    - Monitor load research and COSS
  - Interruptible Rates
    - Required each electric utility file an interruptible rate tariff
    - Recommended each set a percentage goal for interruptible load
    - Allowed each to limit interruptible requirement to a minimum demand
  - Load Management Techniques
    - Company evaluations were in progress
    - Established a task force to continue review

Federal Legislation – Energy Policy Act of 2005

- EPAct 2005
- Enacted August 8, 2005
- Five New Federal Standards
  - Net Metering
  - Fuel Diversity
  - Fossil Fuel Diversity
  - Time-Based Metering and Communications (“Smart Metering”)
  - Interconnection Standards

EPAct 2005 - Kentucky Commission Action

- Initiated Administrative Case No. 2006-00045 on February 24, 2006
  - Smart Metering
    - Time-of-use pricing
    - Critical peak pricing
    - Real-time pricing
  - Interconnection
- Did not adopt either standard
  - Smart Metering
    - Low rates
    - Significant costs
    - Uncertain benefits
  - Interconnection
    - Existing interconnection requirements
    - Existing net metering tariff

EPAct 2005 - Kentucky Commission Action (continued)

- Initiated Administrative Case No. 2007-00300 on August 2, 2007
  - Fuel source diversity
  - Fossil fuel generation efficiency
- Did not adopt either standard
  - Consideration required in Integrated Resource Plan
  - Prevailing statutes

Federal Legislation – Energy Independence and Security Act of 2007

- EISA 2007
- Enacted December 19, 2007
- Four New Federal Standards
  - Integrated Resource Planning
  - Rate Design Modifications to Promote Energy Efficiency
  - Smart Grid Investments
  - Smart Grid Information

EISA 2007 - Kentucky Commission Action

- Initiated Administrative Case No.2008-00408 on December 13, 2008
  - Still In Progress
  - Considering each new standard
- Smart Grid and Smart Meters
  - Commission has initiated collaborative process to consider
  - Parties in the administrative case participating

Kentucky's Energy Opportunities for Our Future Governor Ernie Fletcher, 2005 – General Highlights

Energy Efficiency: Saving Energy, Saving Money, and Protecting the Environment

- Kentucky government agencies and institutions to reduce energy use
- Procurement policies to encourage energy efficiency
- High performance, efficient design for new construction of state facilities
- Public-private partnerships to promote energy efficiency through education
- Initiatives to help business improve profitability through energy efficiency
- Examine building codes and specifications relative to energy efficiency
- Strengthen energy education for school children

Intelligent Energy Choices for Kentucky's Future – Kentucky's 7-Point Strategy for Energy Independence Governor Steven L. Beshear, November 2008 General Highlights

- **GOAL: Energy efficiency to offset 18% of projected energy demand in 2005**
- Improve energy efficiency of homes, building, industries, and transportation fleet
- **Near-Term Actions (1-3 Years)**
  - Improve energy efficiency of state facilities and transportation fleet fuel economy
  - Energy Efficiency Resource Standard ("EERS") – reduce energy consumption by 16% of projected 2005 consumption
  - On-going public energy efficiency awareness and education program
  - Incentives for plug-in hybrid electric vehicles and highly fuel efficient vehicles

Intelligent Energy Choices for Kentucky's Future – Kentucky's 7-Point Strategy for Energy Independence Governor Steven L. Beshear, November 2008 General Highlights (continued)

- **Mid-Term Actions (4-7 Years)**
  - Develop a "Smart Grid" Policy to facilitate next generation of DSM Programs
  - Evaluate Rate Design and Ratemaking alternatives to enhance cost-effective energy efficiencies
- **Long-Term Actions (> 7 Years)**
  - Integrate advanced "Smart Grid" technologies and communication systems into the power grid
  - Reevaluate the EERS goal to determine if additional reductions are achievable

Kentucky Legislation Enacted

- 2007 Second Special Legislative Session

- House Bill 1 – Incentives for Energy Independence Act
  - Provides tax credits and other incentives
    - Energy efficiency
    - Alternative fuel facilities
    - Related investments

  - LEED rating system in building construction

  - Replace 50% of state vehicles
    - Hybrid vehicles
    - Alternative fuel source vehicles

  - Kentucky Alternative Fuel and Renewable Energy Fund Program

Kentucky Legislation Enacted (continued)

- House Bill 1 – Incentives for Energy Independence Act (continued)
  - Section 50 – directs PSC to
    - Study statutes and regulations
    - Identify impediments to energy efficiency
    - Make recommendations to General Assembly
  - Electric Utility Regulation and Energy Policy in Kentucky ("Section 50 Report")
    - Few impediments – KRS 278.285, the DSM Statute
    - Encourage diversification – amended KRS 278.465, Net Metering
    - No reason to account for externalities under current regulatory scheme
    - Commission currently has ability to modify rate structure

Kentucky Legislation Proposed

- 2010 Regular Legislative Session – Did Not Pass

- House Bill 3 – An Act to advance clean energy use and production
  - Objectives
    - Diversify sources of generation
    - Increase efficiency – supplier and consumer
    - Reduce carbon emissions
    - Develop
      - renewables,
      - clean coal,
      - carbon storage, and
      - energy efficiency

  - Clean Energy Portfolio Standards
    - Percentage benchmarks – nonindustrial demand
      - Renewable energy resources
      - Low-carbon resources and efficiency measures

  - Gradual increase to 2017, then 12% efficiency

Demand-Side Management (“DSM”) Statute – KRS 278.285

- Enacted in 1994 – Foundation laid in 1983

- Major Features –
  - Stand-alone applications

  - Industrial opt out

  - Surcharge mechanism
    - Class specific

    - Program costs

    - Lost revenues

    - Financial rewards

Demand-Side Management Programs

- Regulatory Considerations
  - Policy Goals – Purpose of DSM
  - Resistance by Utilities, Customers
- Regulatory Incentives
  - Cost Recovery
  - Means of Recovery
- DSM Programs of Utilities in Kentucky
  - Direct Load Control Programs
  - High Efficiency Appliance Rebates
  - New Construction Incentives
  - Weatherization – Energy Assistance

Energy Efficiency Measures in Kentucky

- Regulatory efforts to introduce Energy Efficiency
- Developing an Energy Efficiency Strategy in Regulation
- Timeline
  - Long Process – 1983
  - DSM Statute – 1994
  - Changing Economics

Energy Efficiency Programs Delivered by Utilities in Kentucky

Residential Programs

Energy Audits/Analysis

Comprehensive Energy Education

Direct Load Control of Air Conditioners / Water Heaters

Geothermal Cooling and Heating Incentives

High Efficiency -

- Heat Pumps
- Refrigerators – Energy Star
- Lighting
- Mobile Homes – New Construction

Programmable Thermostats

Low-Income Weatherization

Compact Fluorescent Bulbs

New Home Construction – Energy Star

High Efficiency -

- Clothes Dryers – Energy Star
- Air Conditioners – Energy Star
- Water Heaters
- Heat Pump – Mobile Home Retrofit

Low-Income Energy Assistance

Energy Efficiency Programs Delivered by Utilities in Kentucky (continued)

Commercial Programs

New Construction

Efficient Refrigeration

Efficient Heating, Ventilation, and Air Conditioning (“HVAC”)

Efficient Lighting

HVAC Diagnostics and Tune-Up

Direct Load Control of Air Conditioners / Water Heaters

Demand Response

Industrial Programs

Demand Response (Load Shedding)

Demand response (Supply Generation)

High Efficiency Motors

Variable Speed Drive Motors

Combine Heat and Power (“CHP”) Projects

Energy Efficiency Programs

- Evaluating Utility Energy Efficiency Programs
  - Third Party Evaluations

    Impact Evaluations

    Efficiency Evaluations

- Funding Energy Efficiency Programs in Kentucky
  - Base Rates
  - DSM Surcharges

Funding Energy Efficiency
National Action Plan for Energy Efficiency
(“NAPEE”)

- Action Plan developed by a Leadership Group – July 2006
  - Utility Commissioners
  - Utility representatives
  - Representatives of Stakeholder Groups
- Facilitated by –
  - U.S. Department of Energy (“DOE”)
  - U.S. Environmental Protection Agency (“EPA”)
  - Number of Expert consultants
- Discusses policy, planning, and program issues based on a formal work plan

Funding Energy Efficiency
NAPEE (continued)

- Recommendations
  - Recognize energy efficiency as high-priority energy resource
  - Need long-term commitments to implement cost-effective energy efficiency
  - Communicate benefits of, and opportunities for, energy efficiency
  - Promote sufficient, timely, and stable funding to deliver cost-effective energy efficiency
  - Modify policies to create utility incentives to deliver cost-effective energy efficiency
  - Modify ratemaking practices to promote investments in energy efficiency

Funding Energy Efficiency NAPEE (continued)

- Funding – Ability to recover energy efficiency costs in timely manner
  - Revenue requirement or resource procurement funding
  - System benefits charges
  - Rate-basing
  - Shared-savings
  - Incentive mechanisms

Funding Energy Efficiency NAPEE (continued)

- Modify policies to align incentives
  - Address “throughput” incentive
    - Decoupling
    - Increased customer charges
    - Tariff rider (surcharge)
    - System benefits charge
    - Increase Return on Equity (“ROE”)
    - On-Bill Financing
  - Eliminate rate designs that discourage energy efficiency
    - Declining block rates
  - Adopt rate designs which encourage energy efficiency
    - Inclining block rates (inverted)
    - Time-of-use rates – seasonal, time-of-day
    - Dynamic rates – real-time pricing, critical peak pricing
    - Two-part rates – base level of usage