

Energy efficiency in Kentucky: Demand-side management

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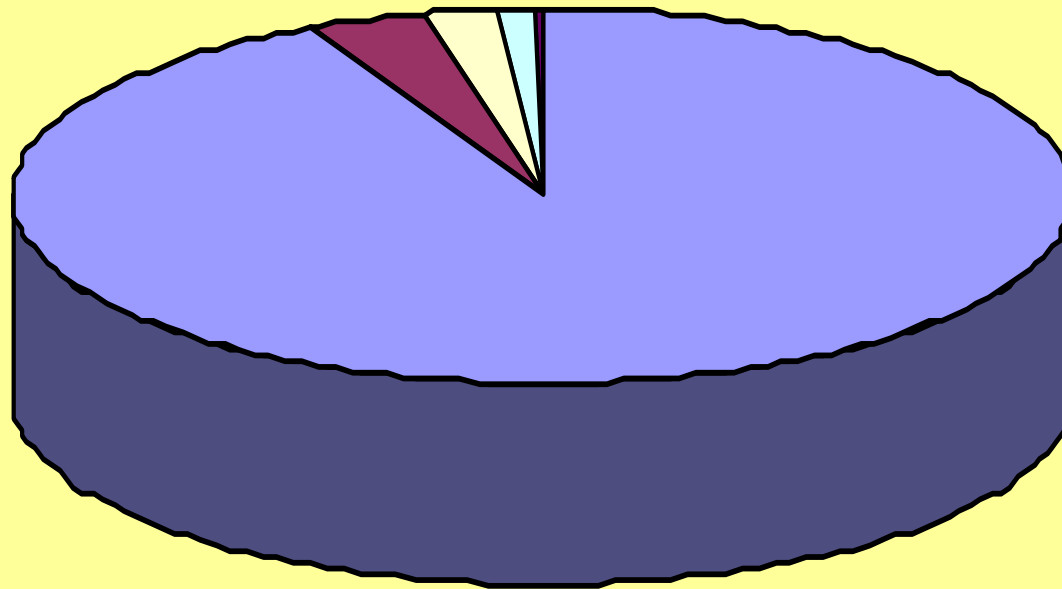
Kentucky: electric generation

20,160 MW generating capacity

72% of capacity is coal-fired

90 million MW-hours (2009)

Kentucky Actual Electric Generation by Fuel - 2009



Coal – 92.7%

Kentucky: inexpensive electricity

“all-in” prices as of March 2011
(cents per kwh)

	KY	US
All customers	6.81 (5)	9.66
Residential	9.15 (12)	11.64

Electric Distribution Service Areas

PSC Regulated Rural Electric Utilities

- Big Sandy RECC
- Blue Grass Energy Cooperative
- Clark Energy Cooperative
- Cumberland Valley Electric
- Farmers RECC
- Fleming-Mason Energy Cooperative
- Grayson RECC
- Inter-County Energy Cooperative
- Jackson Energy Cooperative
- Jackson Purchase Energy Corporation
- Kenergy Corporation
- Licking Valley RECC
- Meade County RECC
- Nolin RECC
- Owen Electric Cooperative
- Salt River Electric Cooperative
- Shelby Energy Cooperative
- South Kentucky RECC
- Taylor County RECC

PSC Regulated Investor Owned Utilities

- American Electric Power (AEP)
- Duke Energy Kentucky, Inc.
- Kentucky Utilities Company (KU)
- Louisville Gas and Electric Company (LG&E)

TVA Regulated Utilities

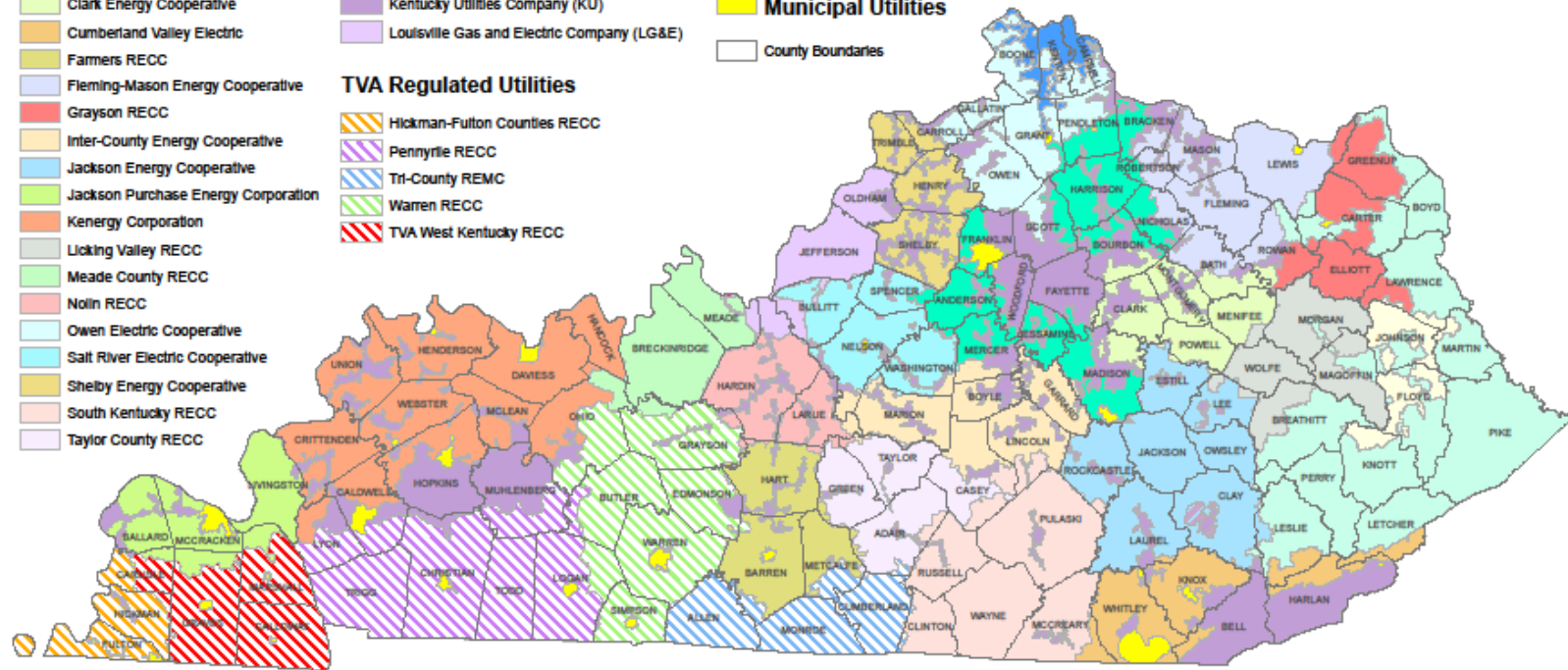
- Hickman-Fulton Counties RECC
- Pennyrile RECC
- Tri-County REMC
- Warren RECC
- TVA West Kentucky RECC

Multi-Service Areas

- Jackson Energy Cooperative & KU
- Meade County RECC & LG&E

Municipal Utilities

- County Boundaries



Kentucky has 30 municipal systems serving over 300,000 customers. Twelve of these are provided wholesale power by the Tennessee Valley Authority (TVA) and are regulated by them. The others are self-regulated by the municipality. The boundaries for the municipal systems were either derived from the Public Service Commission's certified territory maps, or from boundaries submitted for informational purposes to the PSC from the municipalities. If the municipal service area boundaries were unknown, a circle was placed around the urbanized area.

The electric service areas are compiled from certified territory maps on file with the Public Service Commission. These are legal documents which define the retail service area of electric suppliers regulated by the Commission (Kentucky Statute 278.017). The legal certified territory boundaries are drafted on 1:24,000 USGS topographic maps, and can be assumed to have an accuracy of 100 feet. This map, which was compiled from the data, is for informational purposes only, and has no legal standing.



Kentucky Public Service Commission
July 14, 2009

Applicable regulatory mechanisms:

- Integrated resource plans (IRPs) - 807 KAR 5:058
- Certificate of public convenience and necessity (CPCN) - KRS 278.020 (1)
- Ratemaking authority - KRS 278.030 and others
- Demand-side management – KRS 278.285

Operation of all mechanisms is determined by statute, regulation and legal precedent

Demand-Side Management (“DSM”)

Statute – KRS 278.285

- **Enacted in 1994**
- **Major Features –**
 - **Separate applications**
 - **Industrial opt out**
 - **Surcharge mechanism**
 - **Class specific**
 - **Program costs**
 - **Lost revenues**

Demand-side management:

- **Utilities may propose plans**
- **PSC has no authority to require DSM**
- **Programs may include smart meters, home energy assistance programs**
- **Cost-effectiveness**
- **Consistency with IRP**

Demand-side management:

- **Recovery of program costs, including incentives**
- **Recovery of DSM costs includes foregone revenue**
- **Most utilities have DSM programs**
- **Several utilities have pilot programs to test smart grid technologies in combination with time-of-day or demand-based variable rate structures**

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

DSM/Energy Efficiency Programs Delivered by Utilities in Kentucky

Residential Programs

Energy Audits/Analysis

Compact Fluorescent Bulbs

Comprehensive Energy Education

Direct Load Control of Air Conditioners / Water Heaters

Geothermal Cooling and Heating Incentives

New Home Construction – Energy Star

High Efficiency -

High Efficiency -

Heat Pumps

Clothes Dryers – Energy Star

Refrigerators – Energy Star

Air Conditioners – Energy Star

Lighting

Water Heaters

Mobile Homes – New Construction

Heat Pump – Mobile Home Retrofit

Programmable Thermostats

Low-Income Weatherization

Low-Income Energy Assistance

Pilot on-bill financing program for energy efficiency improvements

DSM/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

DSM/Energy Efficiency Programs in Kentucky (Examples)

Air conditioner load control (LG&E/Kentucky Utilities)

Similar programs in place at most
jurisdictional electric utilities

- Radio-controlled device mounted on outside AC unit
- Allows AC compressor (not interior ventilation fan) to be turned off remotely for 10 minutes per hour during times of peak demand – weekdays only
- Customer receives \$5 monthly credit during four-month cooling season (June-Sept.) for \$20 total
- Capacity to reduce loads by 220 MW during peak times

DSM/Energy Efficiency Programs in Kentucky (Examples)

Smart meter pilot program (LG&E)

- **Testing whether residential customers will modify electric usage in response to price signals**
- **Pairs “smart meters” with in-home devices that display usage and rates**
- **Tiered rates that rise as overall system demand rises**
- **Expanded to include appliances that automatically respond to price signals**

DSM/Energy Efficiency Programs in Kentucky (Examples)

Energy efficiency rebates (East Kentucky Power Cooperative/member distribution cooperatives)

Heating and cooling systems

- Old system must be at least 10 years old
- New system must meet certain efficiency standards
- Rebate of up to \$500

Insulation

- Sealing of homes to reduce heating/cooling losses
- Incentives of up to \$410

New home incentives

- Incentives of up to \$250 for purchasers who choose to purchase new homes meeting certain energy efficiency standards

DSM/Energy Efficiency Programs in Kentucky (Examples)

On-bill financing

- **Approved recently as pilot by PSC**
- **Four smaller electric cooperatives in cooperation with a regional NGO focused on community economic development**
- **Targeted to low-income ratepayers who cannot afford large investments in energy efficiency**
- **Energy efficiency improvements are financed over time through modest charge on monthly bill**
- **Reductions in consumption offset additional charge**

Питання?



Щиро дякую!

THANK YOU