



**Continuing Low Rates and High Reliability:  
A Perspective on the Missouri's Investor-owned  
Electric Utilities**

Chuck Caisley

President

Missouri Energy Development Association

**Missouri Energy Task Force**

August 30, 2006

The **Missouri Energy Development Association** is comprised of Missouri **investor-owned** natural gas, electric and water utilities. Its purpose is to develop, organize and promote measures that will advance the ability of investor-owned utilities to build, maintain, protect and provide the utility infrastructure and services that are critical to the economic well being of Missouri business and the health and safety of Missouri citizens.

# MEDA

MISSOURI ENERGY DEVELOPMENT ASSOCIATION

# Members

## ELECTRIC COMPANIES



## GAS COMPANIES



## WATER COMPANY



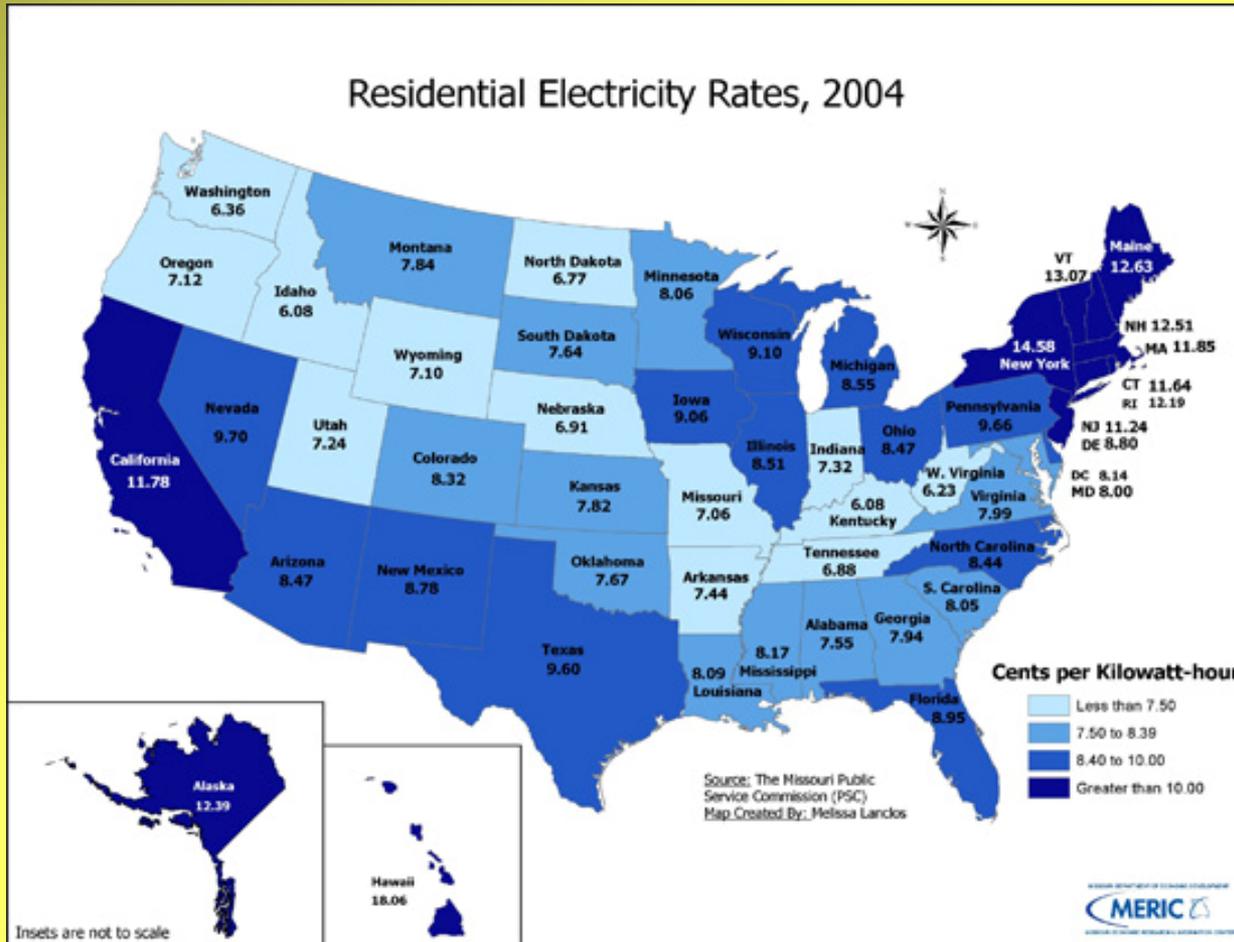
# Missouri Has Exceptional Electric Service & Rates

**TODAY:** Missouri consumers have some of the lowest rates for electricity in the United States. In addition, Missouri's investor-owned electric companies, as a whole, are consistently in the top quartile of reliability.

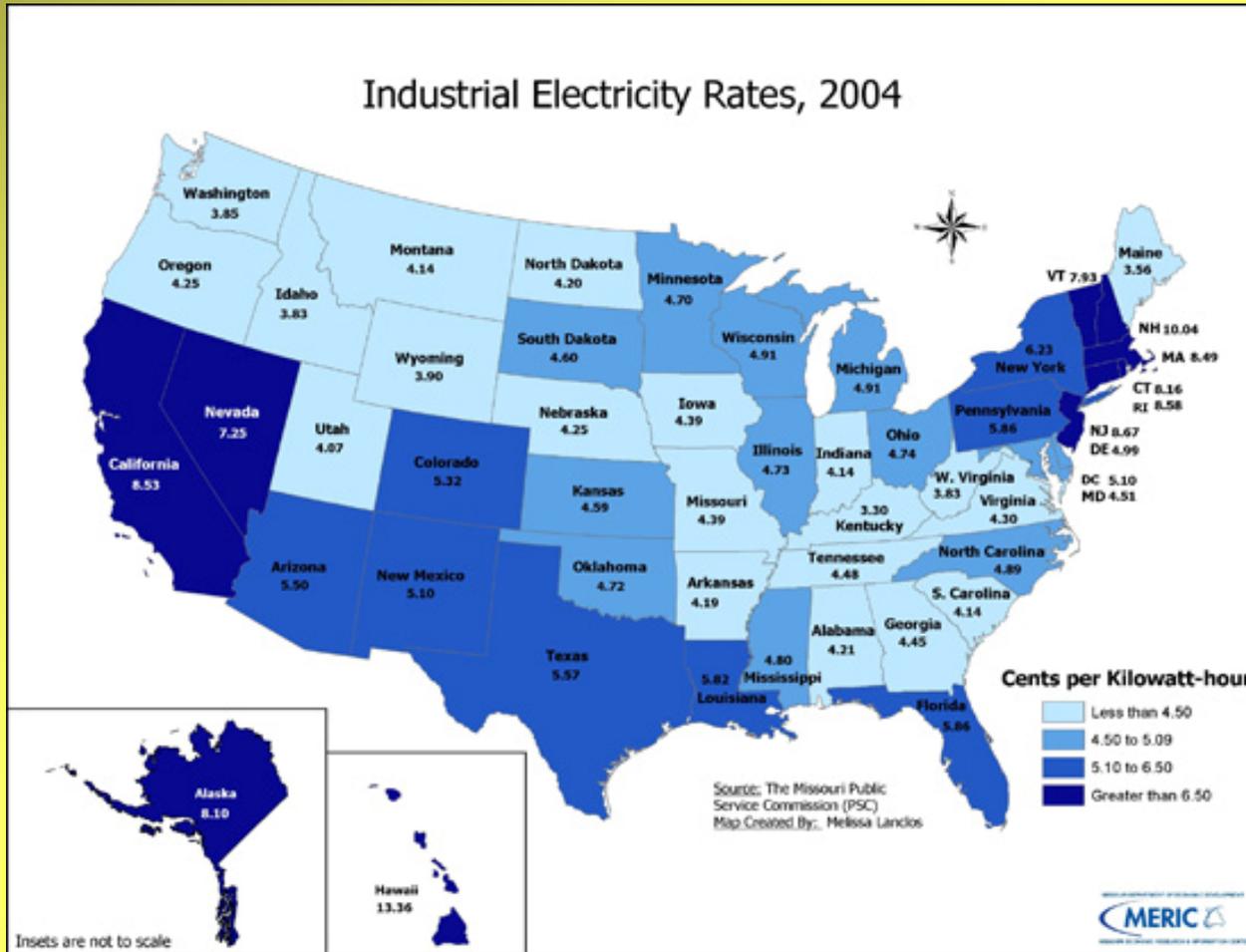
**TOMORROW:** A variety of issues face Missouri's investor-owned electric utilities which are prudent to recognize and address:

- **Fuel costs are rapidly rising** for most types of fuels used to generate electricity.
- **Environmental regulations** are costly and a present a moving target.
- **Aging Infrastructure** will require costly investments in new and rebuilt generation, and upgrades and maintenance to transmission and distribution systems.
- **Consumer demand for electricity is growing** and the need to encourage **energy efficiency** is important.

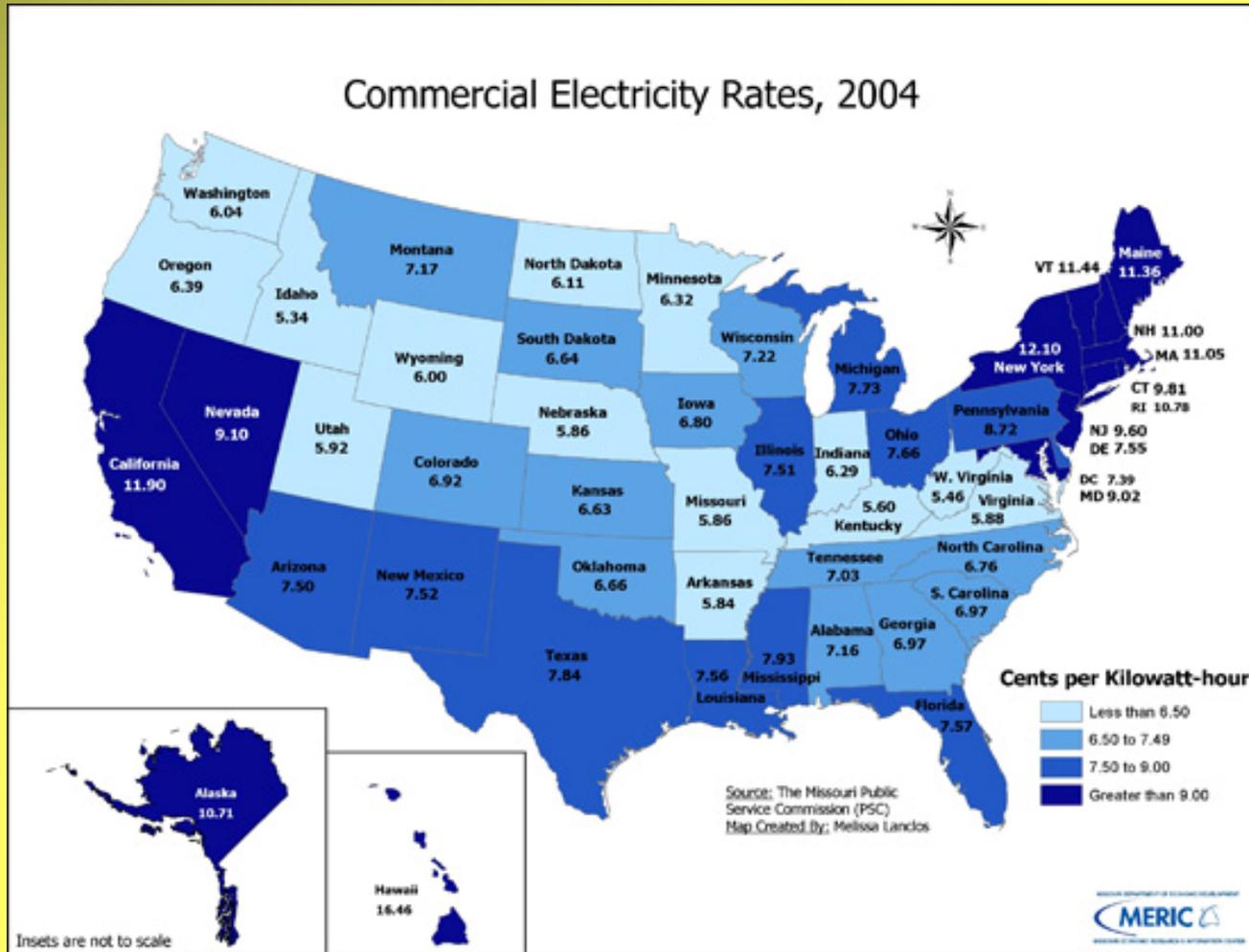
# Missouri Has Low Residential Rates



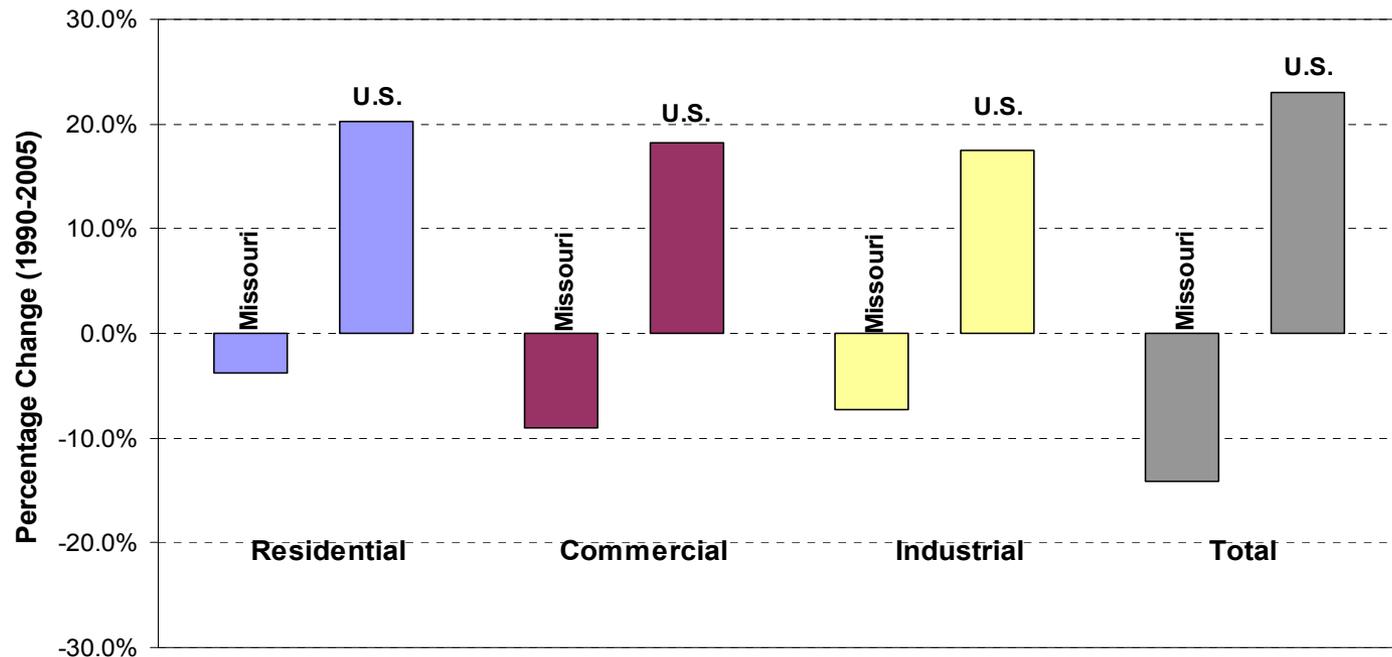
# Missouri Has Extremely Competitive Industrial Rates



# Missouri Has Competitive Commercial Rates



# Percentage Change in Missouri and National Retail Rates: 1990-2005



\* In nominal dollars

Source: Energy Information Administration

# Electric Bills

## Question:

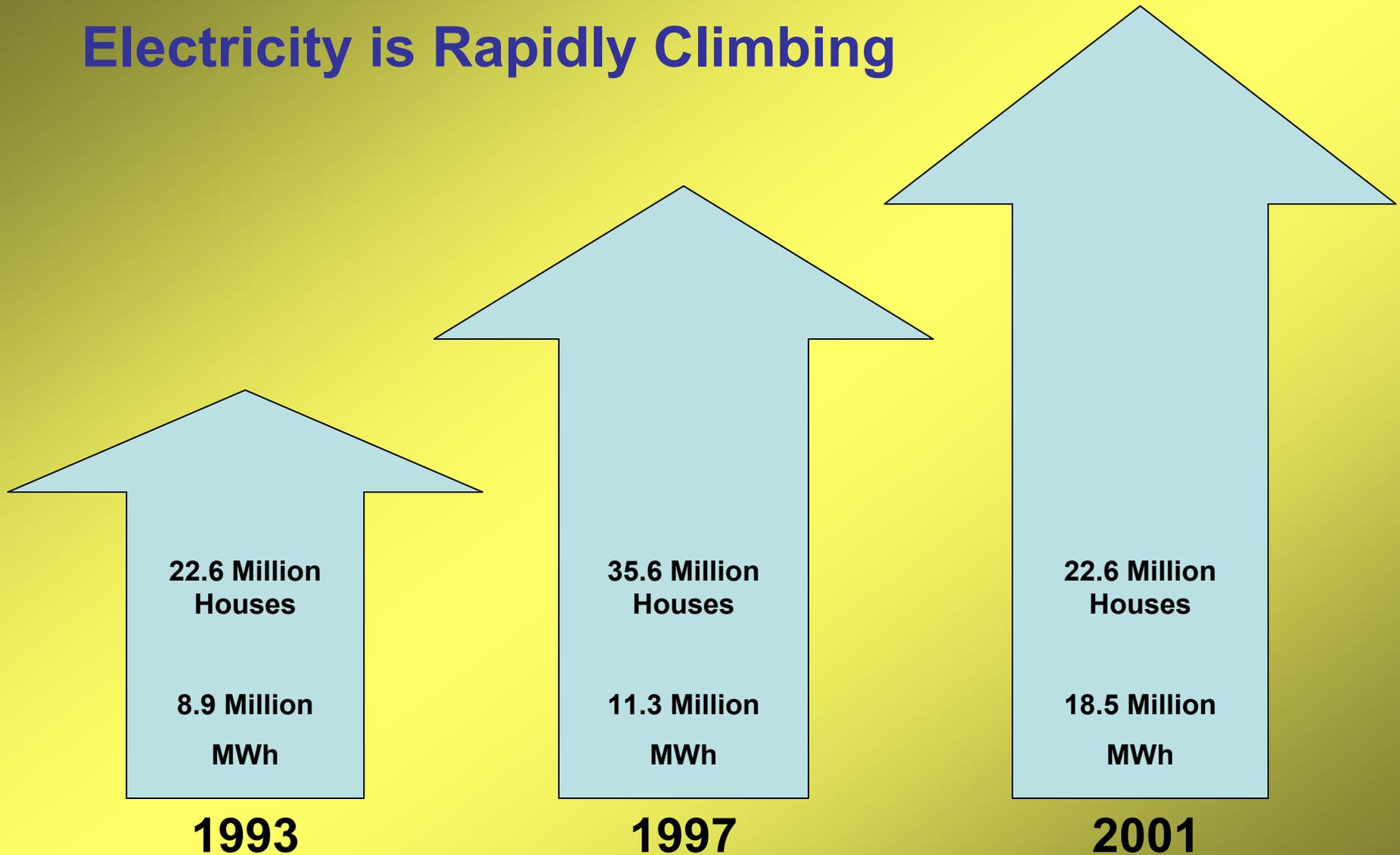
“I always hear that electric rates are lower than those in other states. But my bill just keeps getting higher and higher. How is that possible?” –Missouri Residential Customer

## Answer:

Consumer demand for electricity is growing at an average of more than 2% a year. Consumers live in larger homes and often maintain multiple “redundant” appliance such as refrigerators. In addition, consumers own more appliances and devices such as computers, cell phones, DVD players, sound systems and other devices that operate on electricity.

**Missouri consumers are using more electricity.**

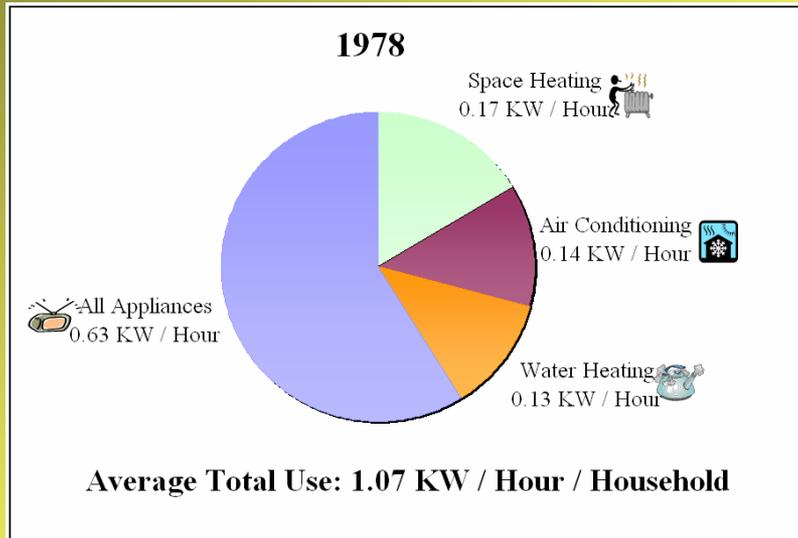
# Consumer Demand For Electricity is Rapidly Climbing



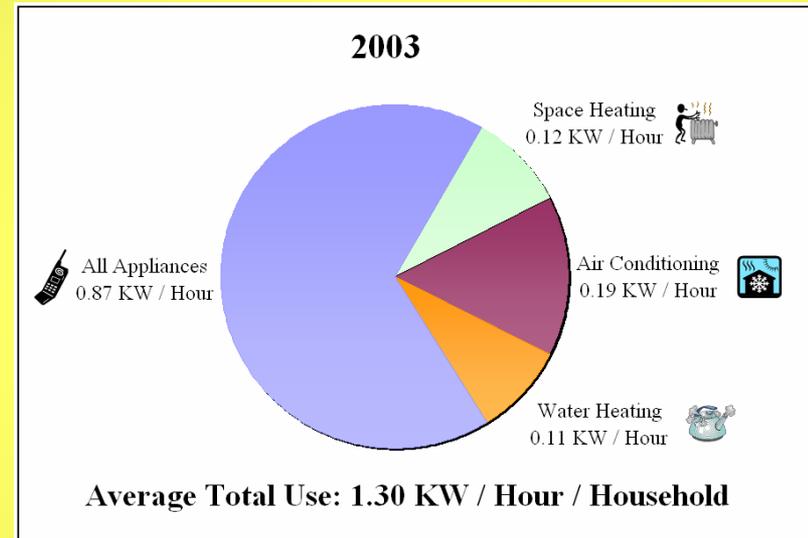
Houses With Computers and Corresponding Electricity Usage.

# Electricity Use in the Typical U.S. Home

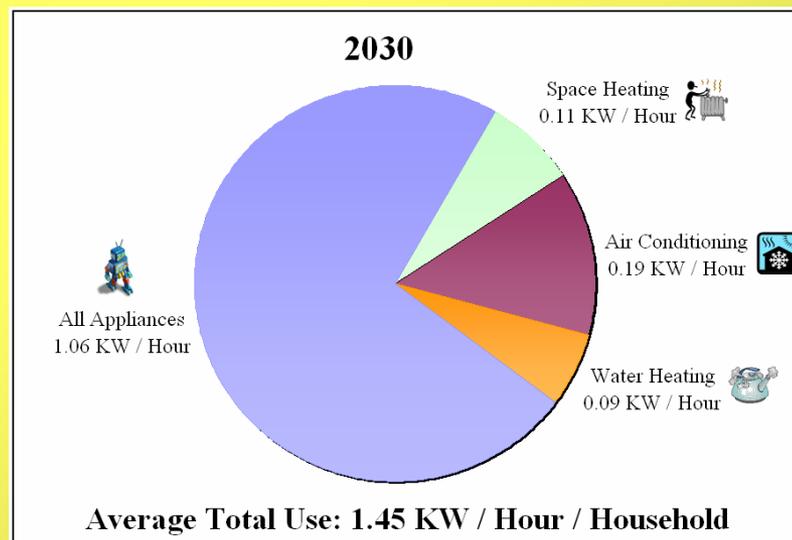
## PAST



## PRESENT



## FUTURE



# Consumers Use More, But Spend Less

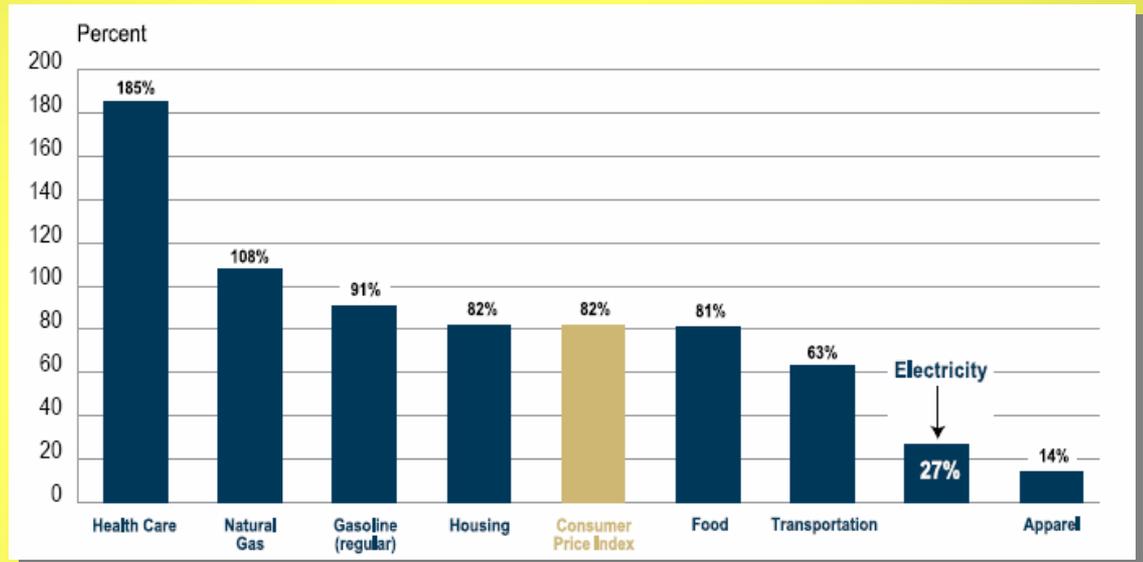
**While consumers are using more electricity, they are spending less of their household income on electricity.** In addition, electricity prices, unlike the prices for most other goods, did not keep pace with the rate of inflation for many years, despite an ever increasing national appetite for electricity:

- From 1985-2000, electricity prices rose on average 1.1 percent a year, while inflation rose at a rate of 2.4 percent a year during the same timeframe.
- Since 2000 electricity prices have increase at a 2.4 percent annual rate, which is slightly higher than the 1.99 percent rate of inflation. Since 2000 electric utilities across the U.S. have experience higher fuel prices and have begun reinvesting in generation and transmission and distribution at a greater pace.
- In 1994, the average U.S. household spent 2.7 percent of their income on electricity. In 2004, the average U.S. household spent 2.5 percent of their income on electricity.

# Electricity Is A Bargain

- The national average price for electricity today is less than what it was in 1980, when adjusted for inflation
- Even with recent price increases, the growth rate for electricity prices remains comparable to, and even lower than, other important consumer goods

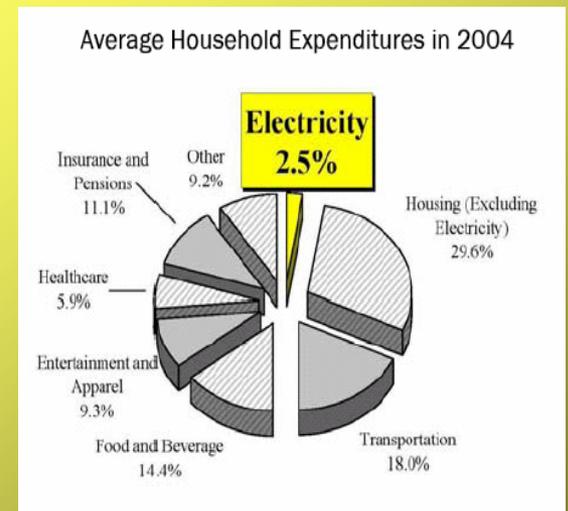
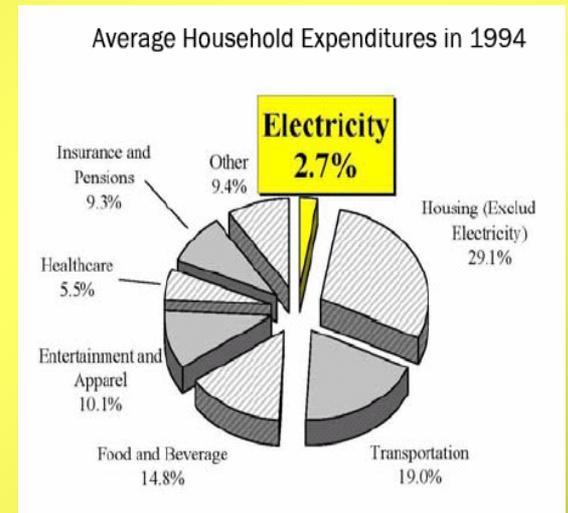
Increase in cost of selected consumer goods  
1985 – 2005 (nominal dollars)



Sources: U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Energy, Energy Information Administration (EIA)

# Average Household Expenditures

- Greater demand for electric power does not translate directly into higher household expenditures
- The average American household's total spending on electricity has fallen steadily over time



# Challenges on the Horizon: Fuel Costs

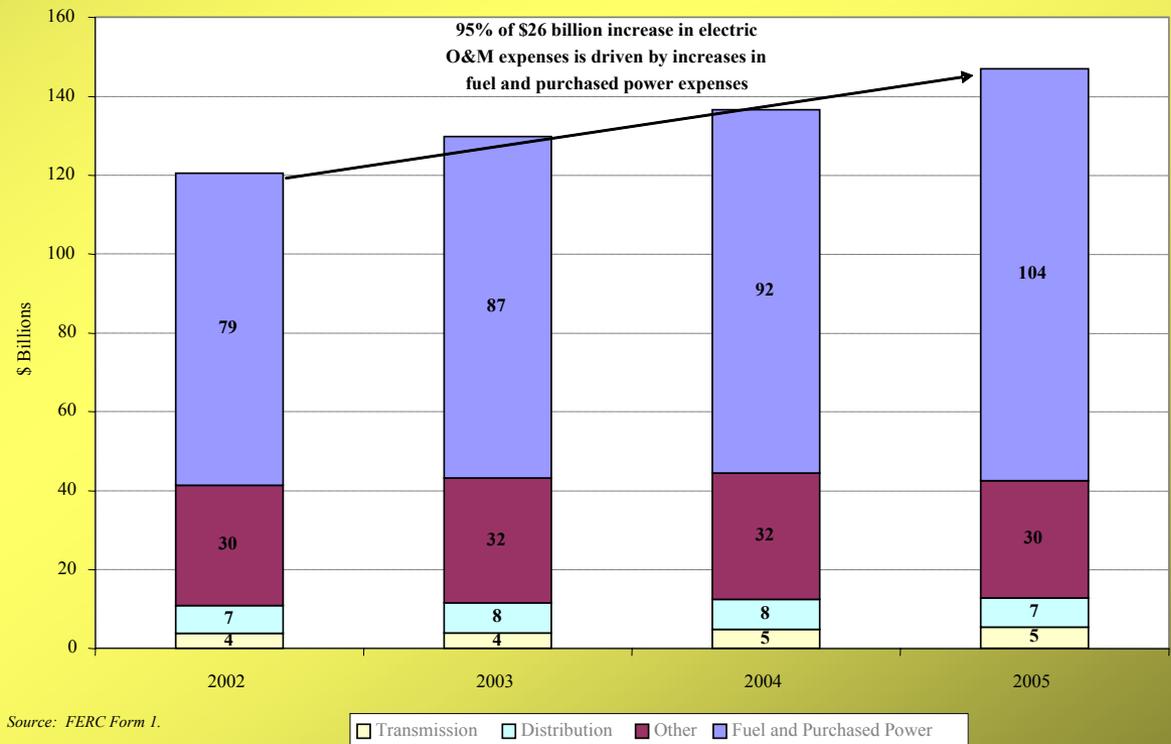
One of the greatest attributes of electricity is its ability to be generated from many diverse fuel sources. These sources include coal, nuclear energy, natural gas, oil, hydropower and other renewable energy resources such as wind and solar.

- Purchased power and fuel are the largest operating expenses for electric utilities.
- Fossil fuel prices peaked in the early 1980's and then trended downward until 1999. Since 1999, fuel prices (especially for natural gas) have risen considerably. The price of coal is increasing too.
- In the 1980's and 1990's amid environmental concerns utility companies were encouraged to build power plants fueled by natural gas. Natural gas has increased from \$2.57/million in 1999 to \$8.20/million Btu in 2005.
- **Fuel diversity is a key to affordable and reliable electricity.**
- The electric industry is one of the most capital-intensive industries in the country. It takes billions of dollars to build and maintain power plants and transmission and distribution systems. In order to continue to build and maintain a diverse generation portfolio, investor-owned utilities need policies that help them remain in a competitive position to attract investment capital.

# Rising Fuel Costs

- Fuel prices greatly affect the price of electricity
- On an industry-wide basis, fuel and purchased power costs account for roughly 95 percent of the 22-percent increase in operations and maintenance (O&M) expenses experienced by utilities

## Drivers of Electric Operations and Maintenance Expenses



# Challenges on the Horizon: Fleet Age

Missouri's fleet of power plants used to generate electricity is aging and in need of retrofitting for environmental compliance, rebuilding to improve efficiency or face decommissioning:

- Average age of Missouri investor-owned coal plants: 36.5 years (KCPL's Iatan 1 was the last Missouri investor-owned coal plant built in 1980)
- Average age of Missouri investor-owned generation (coal and nuclear): 34.5 years
- Average life of a coal plant: 46 years (operational lifetimes can range from 40 to 60 years with environmental upgrades and some rebuilding)
- Decommission costs are substantial and impending: A 1800 MW coal plant could cost as much as \$140 million to completely decommission
- Some smaller coal plants (400-600 MW) may not have the generation capacity to justify making environmental upgrades and will have to be decommissioned
- Any generation that is lost must be made up through building new generation, purchasing wholesale power or increasing energy efficiency.
- It takes on average about 10 years to design, locate, permit and build a coal power plant.

# Challenges on the Horizon: Environmental Regulations

Working to ensure compliance with environmental and emission laws is a complex process and one that must be taken very seriously. Adding to this complexity is the fact that the environmental rules differ from region to region, routinely change and are increasingly expensive demanding large capital expenditures to ensure compliance. Ultimately, consumers and businesses pay for environmental regulations.

- Missouri's investor-owned electric utilities will spend between **\$2.242 billion and \$3.07 billion** on environmental compliance under the Clean Air Mercury Rule (CAMR) and Clean Air Interstate Rule (CAIR) through 2016.
- If a carbon rule is enacted these numbers could double.

# Challenges on the Horizon: Transmission & Distribution

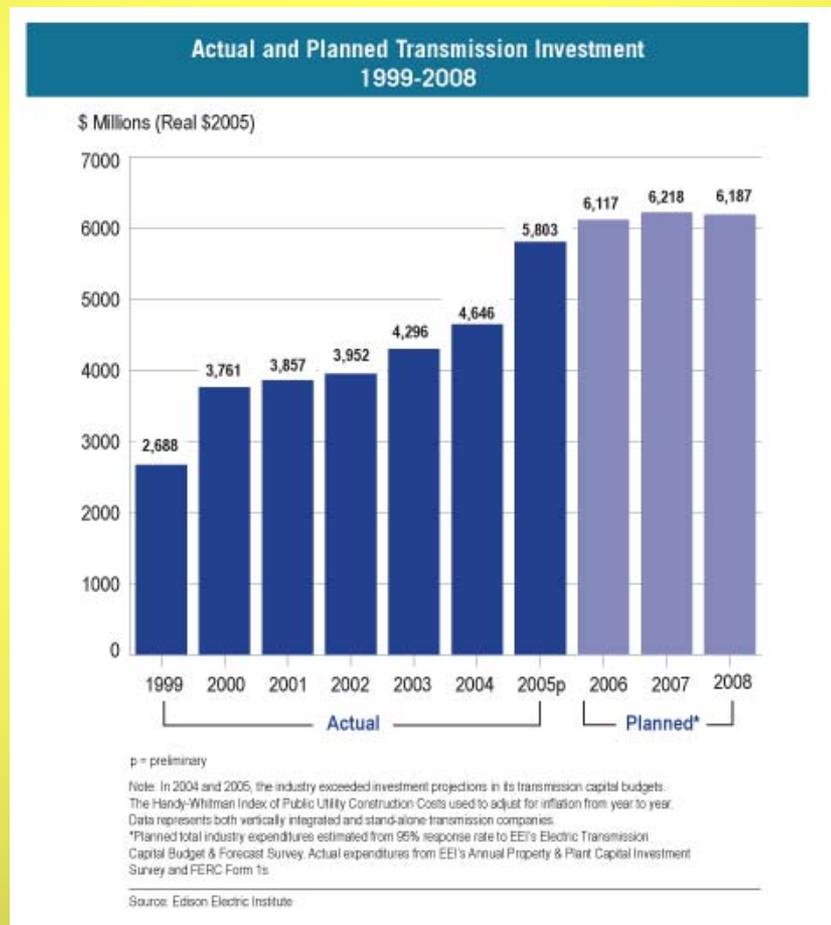
Transmission and distribution systems in Missouri are already generally well maintained. Missouri's electric grid compares favorably with neighboring states with Missouri's investor-owned electric utilities, as a whole, are consistently in the top quartile of reliability.

However, in addition to new power plants, electric utilities must reinforce the nation's electric delivery infrastructure such as high-voltage transmission lines, substations and distribution systems that carry electricity to the customer.

- Investment in power lines lagged behind the growth in demand for electricity during the 1980's and 1990's.
- Federal regulatory changes deregulating the sale of wholesale power and the advent of regional transmission organizations have increased demand for use of the transmission grid.
- Increased attachments from phone, cable and other providers created increased stress the system.

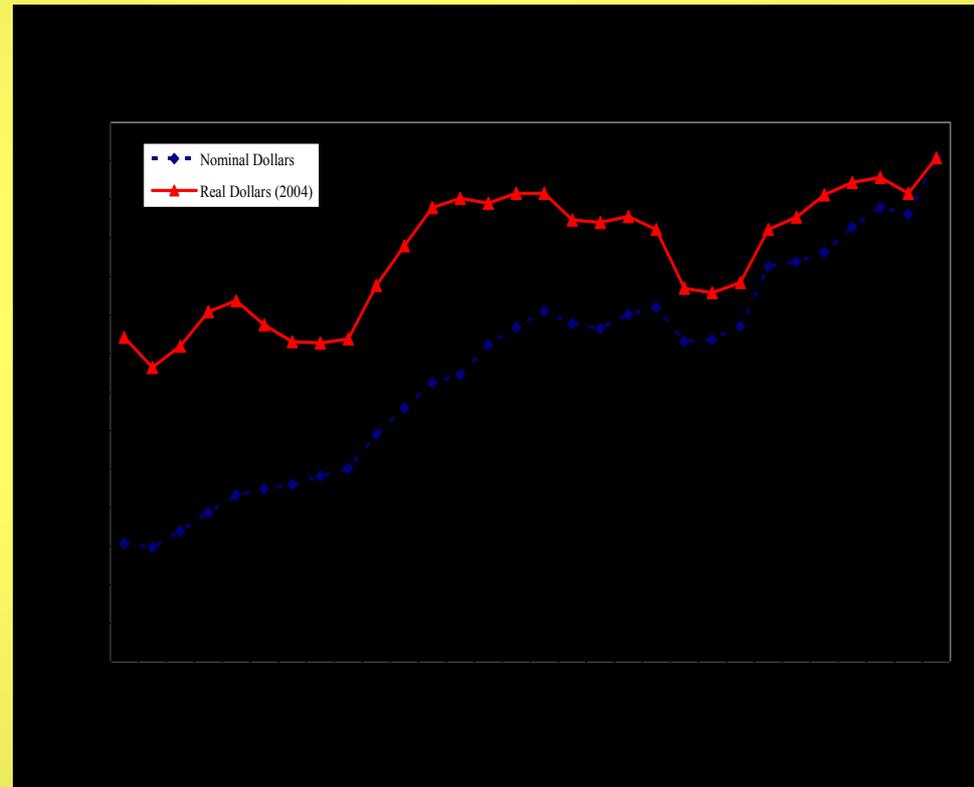
# National Infrastructure Investment Costs: Transmission

- Significant increase in investment coinciding with surge in generating capacity
  - 116-percent increase since 1999
  - \$18.5 billion planned through 2008 on transmission infrastructure—a 25-percent increase over the previous three years
- Benefits include newer technologies, bigger markets, lower prices, reliability



# National Infrastructure Investment Costs: Distribution

- The need to replace an aging distribution infrastructure, coupled with continued population and demand growth will require continued increase in distribution system investments
- If recent investment trends persist, distribution investment will average \$14 billion per year over the next 10 years
- Likely to exceed generation and environmental capital spending in the next decade



# Under-grounding the System

With recent storms and electric outages, there has been increase public discussion of under-grounding electric transmission and distribution systems. Implementing underground systems and other similar initiatives must be carefully considered as they are extremely costly and complex to put in place. In the end, they are usually hard to justify given the fact that Missouri customers experience relatively few prolonged outages.

- Burying power lines costs about \$1 million per mile on average or about ten times what it costs to install overhead lines.
- Under-grounding an existing system would likely raise rates as much as ten times if the power lines were still usable and not depreciated in value
- Under-grounding a system that was in need of significant maintenance or replacement would likely raise rates as much as 5 times
- An underground system will suffer less frequent outages; however, outages will take much longer to fix because they are hard to locate and will cost more to repair since the infrastructure is located underground
- Some Missouri companies have special tariffs that allow specific customers to pay more to underground a system

# Missouri Public Policy Encourage Capital Investment To Foster Long-Term Low Rates & Reliable Service

**Conclusion:** In the late 1970's and early 1980's Missouri's investor-owned utilities added newer coal and nuclear power plants to their generation portfolios. While customers experienced higher rates during the early stages of those projects, as a result of those investments over the last thirty years Missourians have reaped the benefits of lower rates and high reliability.

Missouri investor-owned utilities are entering a similar building and investment phase where new generation capacity, upgrades to transmission and distribution systems, investments in cleaner generation and a focus on energy efficiency will provide the path to continuing low rates and reliable service.

Missouri energy policy needs to recognize that large capital investment are necessary to fund these critical projects and should encourage a regulatory and legislative structure that increases Missouri's investor-owned utilities ability to compete for scarce investor capital.

Missouri should encourage a flexible environmental policy that encourages use of renewable energy sources and demand response programs.

Prudent investment now will yield lower rates and high reliability for years to come.

# Sources

- Public regulatory filings for Missouri Investor-owned electric utilities: Empire District Electric, Ameren UE, Aquila and Kansas City Power & Light
- “Rising Electricity Costs: A Challenge for Consumers, Regulators and Utilities”  
Edison Electric Institute, May 2006
- Department of Energy, Energy Information Administration
- Missouri Department of Economic Development, MERIC