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# Rising Electricity Prices: A National Perspective

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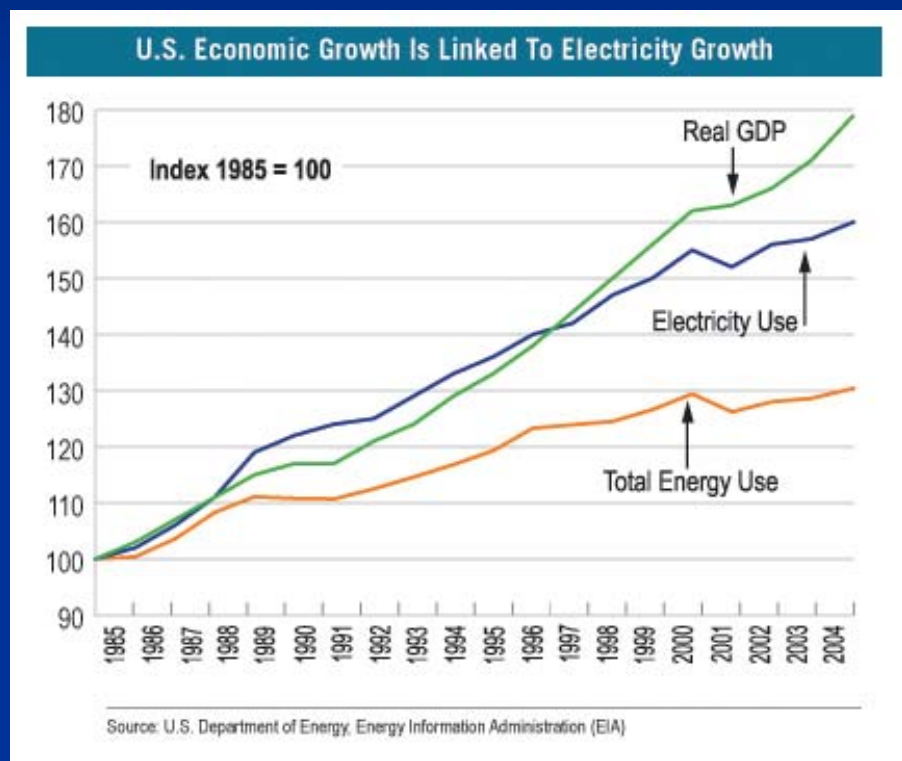
Edison Electric Institute

National Association of State Energy Officials

September 13, 2006

# Electricity Is the Lifeblood of the U.S. Economy

- Electricity intensity in the U.S. economy is significantly related to the general level of economic activity
- Despite continued efficiency improvements, electricity consumption is expected to grow 45 percent by 2030



1985 represents the base year. Graph depicts increases or decreases from the base year.



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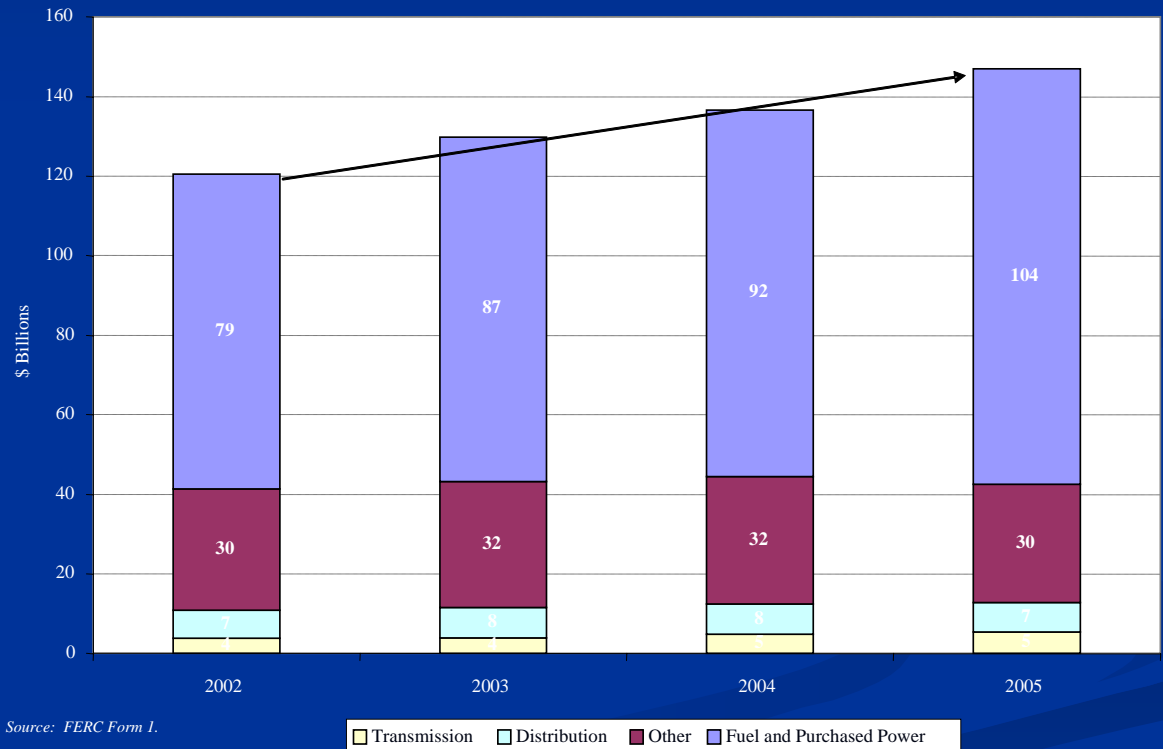
# Key Drivers of Electricity Costs

## Today and Tomorrow

# 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 in the last five years

Drivers of Electric Operations and Maintenance Expenses

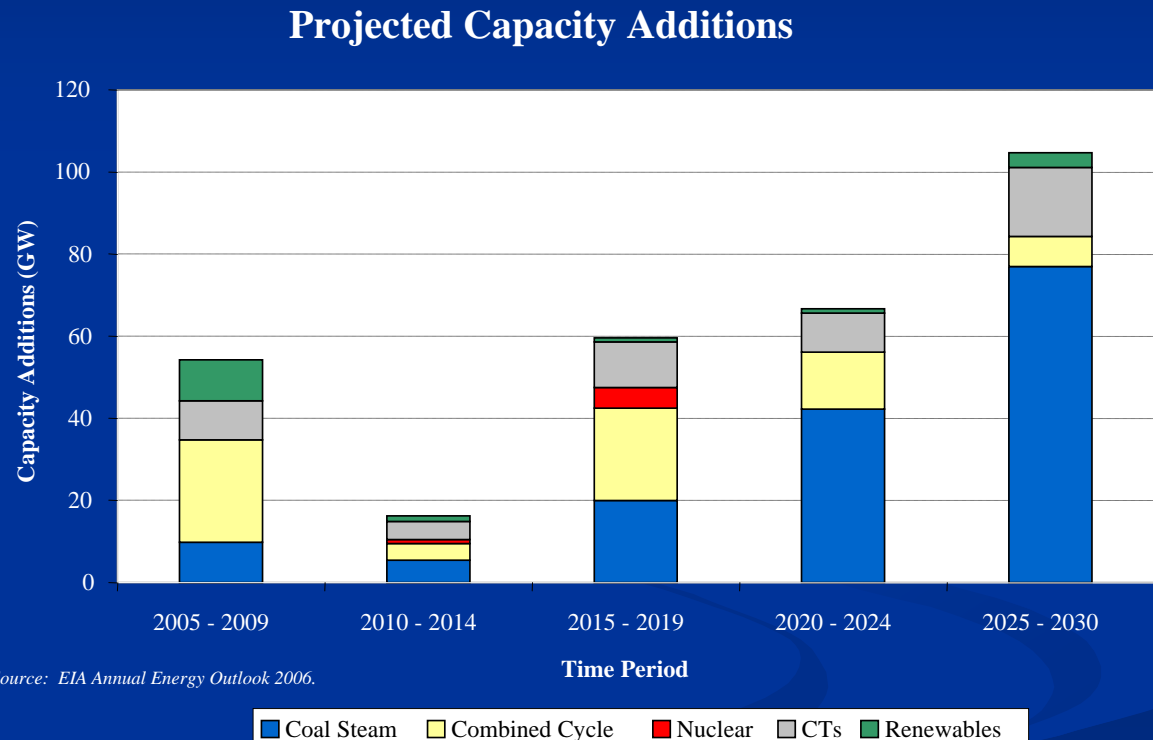


# Rising Fuel Costs: Regulated vs. Restructured States

- Regulated States: Fuel expenses for utility-owned generation are the core component of O&M increase
- Restructured States: Utilities face higher purchased power expenses
- Key issue is the timing of when each state will experience increased fuel costs (rate caps, long-term contracts, etc.)

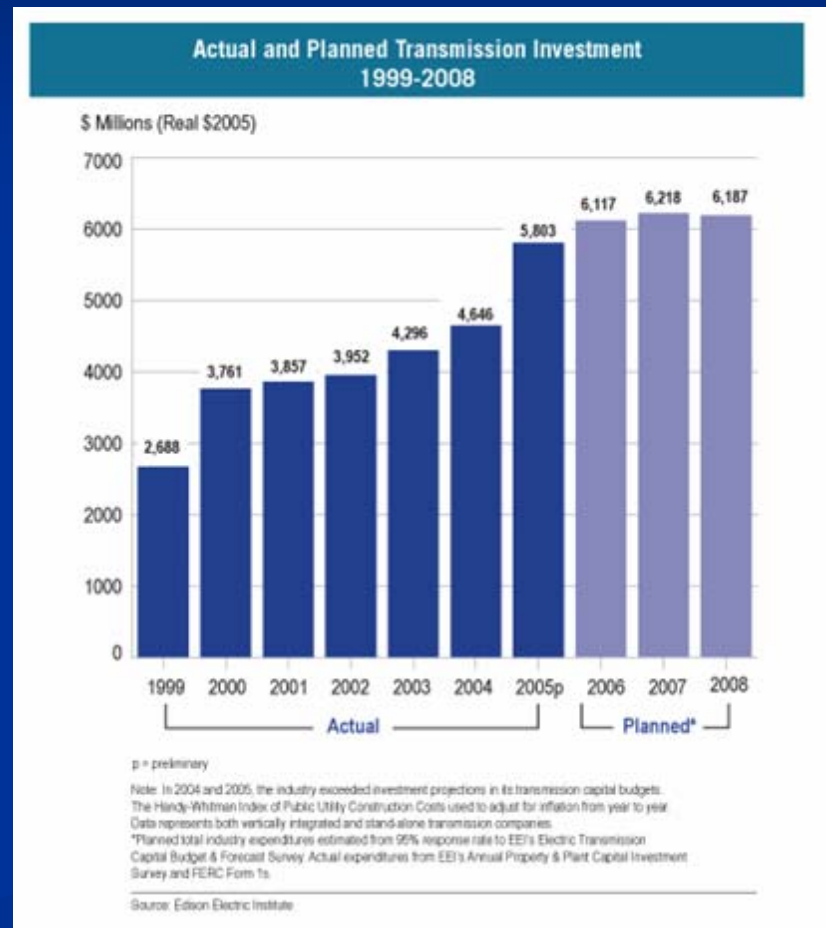
# Infrastructure Investment Costs: Generation

- Over the next 10-20 years, net generating additions are expected to shift to more expensive baseload capacity (mostly coal)
- More expensive renewable capacity will arise from state-level mandates over the next 10 years
- Cost of recent additions not yet fully reflected in rates



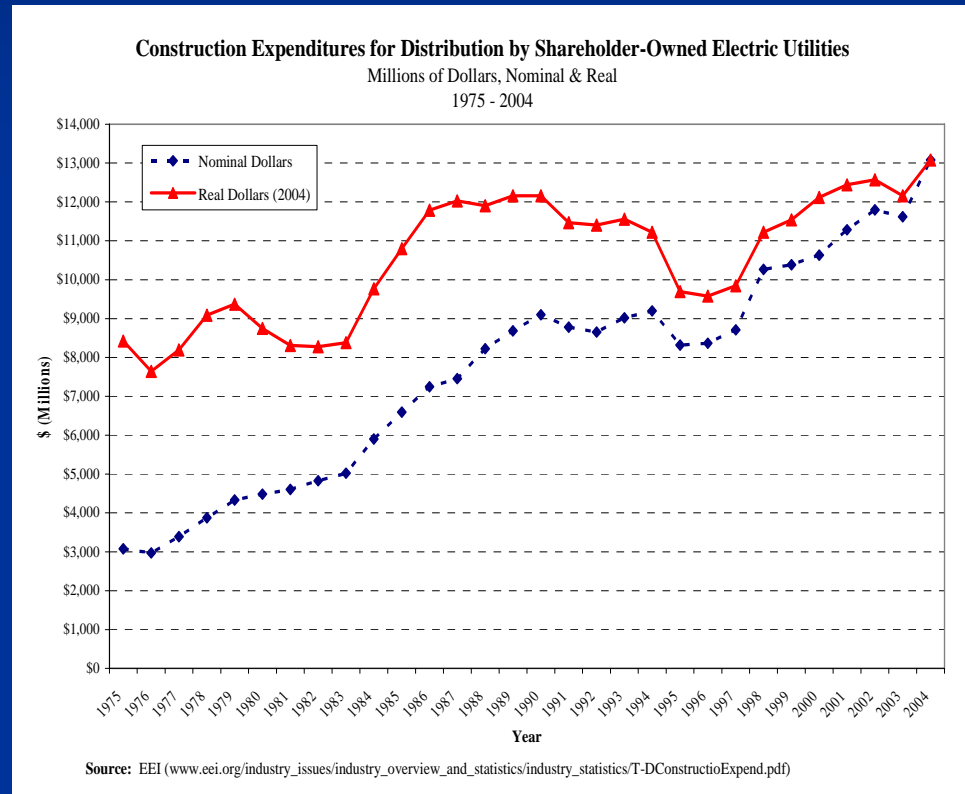
# Infrastructure Investment Costs: Transmission

- 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



# Infrastructure Investment Costs: Distribution

- Continued population and demand growth, coupled with the need to replace an aging distribution infrastructure, will require continued 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



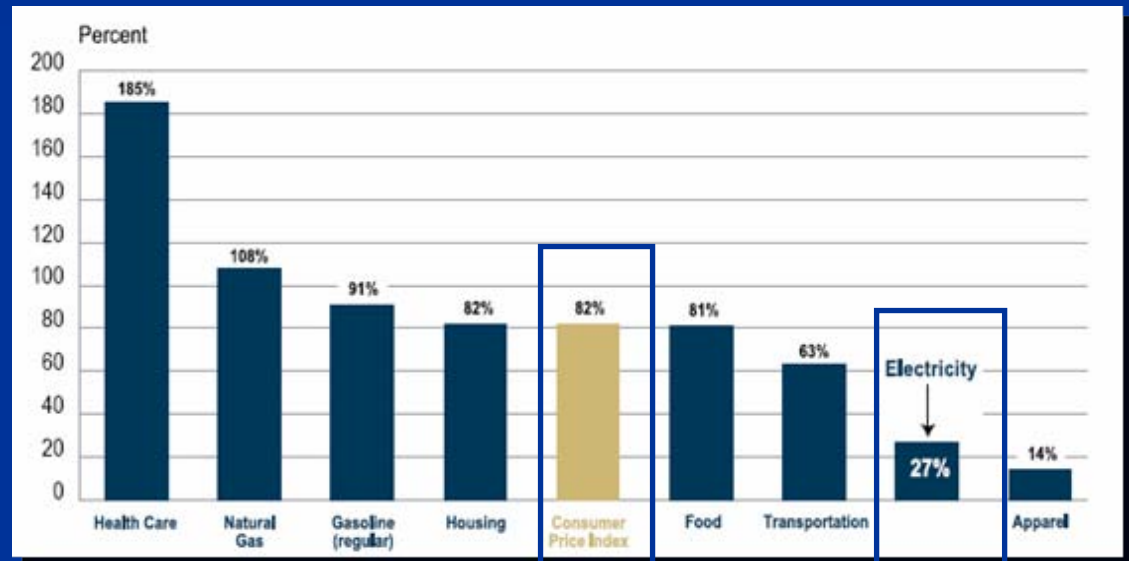
# Environmental Compliance Costs

- From 2002-2005, the electric utility industry spent \$24 billion on compliance with federal environmental laws; state and local rules drive that total even higher
- Two recent federal rulemakings—the Clean Air Interstate Rule and the Clean Air Mercury Rule—will cost the electric utility industry \$47.8 billion in compliance costs between the years 2007 to 2025, according to EPA
- The costs of potential carbon mandates would fall heavily on electric utilities—and their customers

# Electricity Price Trends

- 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)

# The Bottom Line

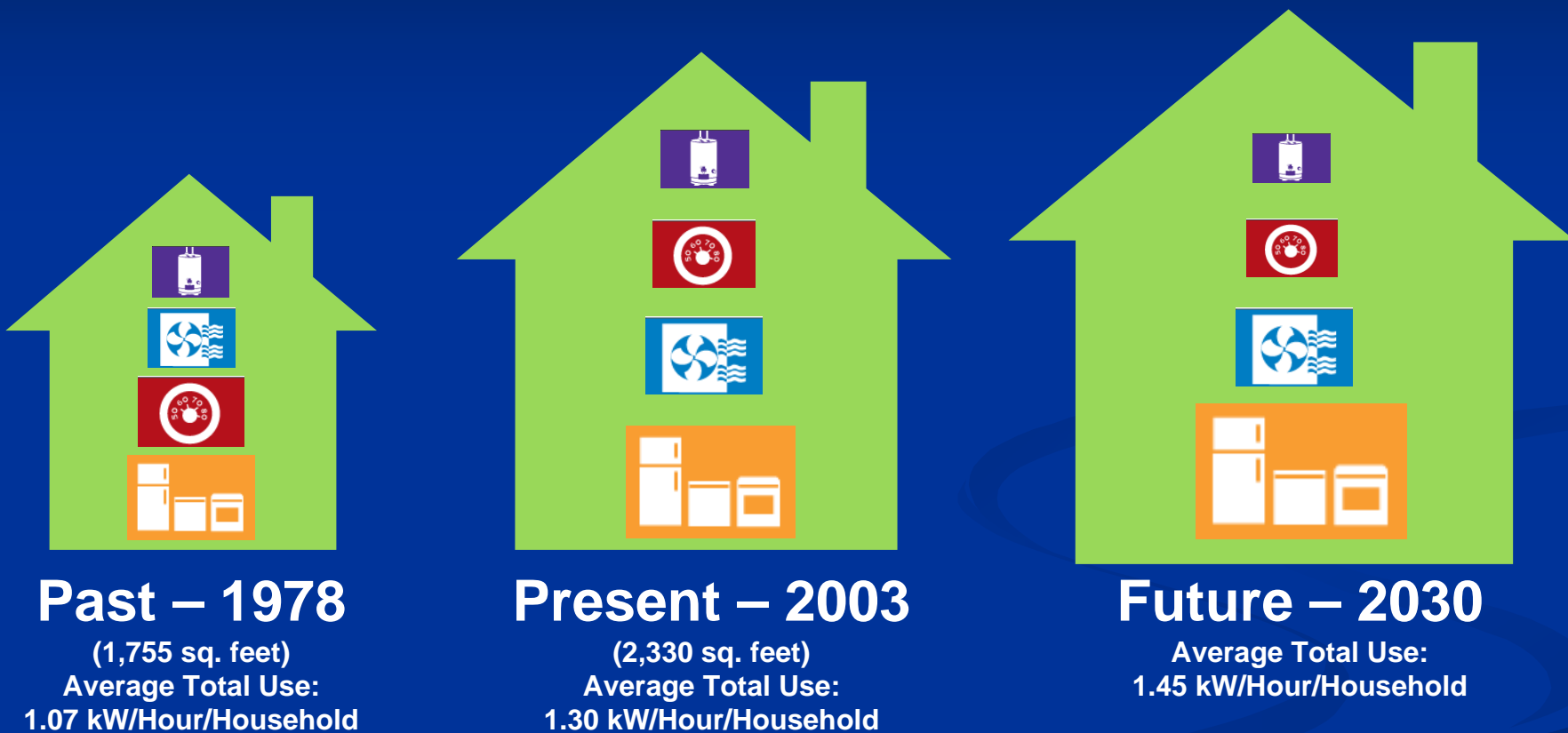
- If utilities are able to make investments in infrastructure improvements, benefits will include:
  - Increased diversity in fuel for generating electricity
  - Improvements in competitive power markets
  - Cleaner generation
  - Increased customer choice and control over energy use



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# Looking Ahead

# Electricity Use in the Typical U.S. Home



Sources: The Brattle Group,  
National Association of Home  
Builders



# Rising Electricity Use in Typical Home

- Average U.S. homes are larger and use more appliances, electronic equipment than ever before
- According to National Association of Home Builders, in 2005:
  - Average size of new homes reached record level of 2,434 square feet, vs. 1,645 sq. feet in 1975 – an increase of nearly 50 percent
  - From 1975-2005, number of new homes built with central AC increased from 46 percent to 89 percent



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# Controlling Rising Costs

# What Are Utilities Doing?

- Many utilities try to “hedge” or enter into long-term, fixed contracts for fuel at set prices
  - Not all companies have this option, and such forward contracts cannot cover all fuel needs
- Utilities have increased the productivity (capacity factors) of their power plants while at the same time decreasing their operations and maintenance costs

# What Are Utilities Doing?

## Energy-Efficiency Programs

- Electric utilities have taken a leading role in developing energy efficiency and demand-response programs for residential, commercial, and industrial customers:
  - Between 1989 and 2004, electric utility efficiency programs saved about 736 billion kilowatt-hours of electricity—enough electricity to power nearly 68 million average U.S. homes for one year
  - Between 2001 and 2004, the electric utility industry invested more than \$6 billion in energy-efficiency programs and services
  - Spending on DSM in 2004 by electric utilities increased by 20 percent over 2003

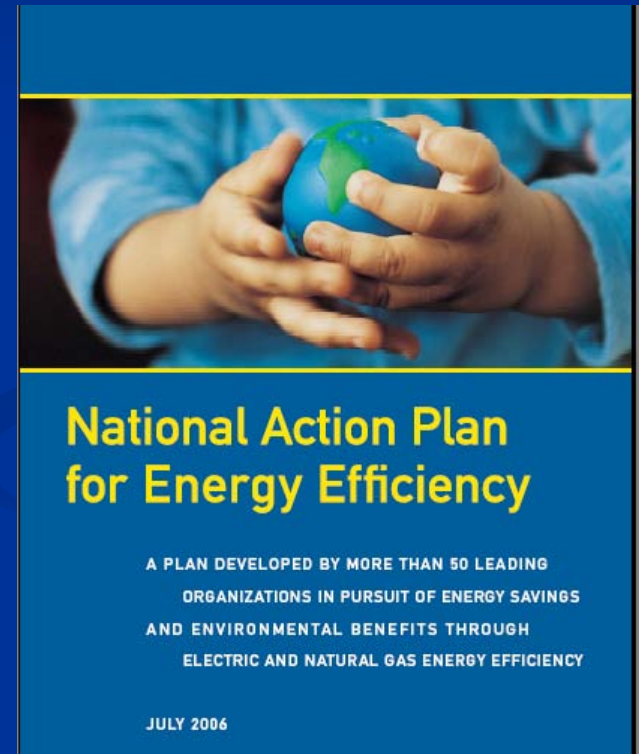
# What Are Utilities Doing?

## Examples of Electric Utility Programs

- Smart-metering
- In-home or online energy audits
- Rebates for energy-efficient appliances
- Low-interest loans to purchase high-efficiency equipment
- Direct load control programs

# National Action Plan for Energy Efficiency

- New initiative to save electricity and natural gas, includes blueprint of options to encourage greater energy efficiency
- In coordination with DOE and EPA, participating groups include: utilities, public utility commissions, energy consumers, and non-governmental groups



# National Action Plan for Energy Efficiency

- EEI outlined five key action areas the industry will emphasize to help implement National Action Plan:
  - create “smart” and energy-efficient buildings
  - promote “smart” and energy-efficient appliances and electric technologies
  - accelerate development of advanced “smart” meters and infrastructure systems
  - support development of electric ratemaking and innovative rate design to give customers more control over electricity bills
  - commercialize plug-in hybrid vehicles

# What Can Customers Do?

## ■ Tax Credits and Incentives

- EAct 2005 contains several federal tax credits for improving the energy efficiency of your home in 2006 and 2007
- Many utilities offer incentives to buy energy-efficient appliances, such as Energy Star® refrigerators, dishwashers, and clothes washers

## ■ Bill Payment Assistance

- Utilities have created programs to help low-income customers with billing assistance and weatherization help
  - Utility fuel funds total more than \$1 billion annually
- Federal programs, such as LIHEAP and the Weatherization Assistance Program, provide assistance to low-income families

# Electric Utility Resources

For a complete list of  
EEI member  
company programs  
and incentives for  
residential,  
commercial and  
industrial  
customers, visit our  
Web site:  
[www.eei.org](http://www.eei.org).

The screenshot shows the Edison Electric Institute (EEI) website. At the top left is the EEI logo and the text 'EDISON ELECTRIC INSTITUTE'. To the right is a search bar with a 'Go' button and a link to 'Advanced Search'. Below this is a navigation menu with links for 'about EEI', 'industry issues', 'products and services', 'meetings', 'magazine', and 'newsroom'. The main content area is titled 'Programs and Incentives' and includes a breadcrumb trail: 'home > industry issues > retail services and delivery > wise energy use > programs and incentives'. The text explains that electric companies face a significant challenge today - meeting a continuously growing demand for power. It lists 'Efficiency and Demand Response Programs' as a resource for 2006. Below this is a section titled 'Help for Low-Income Customers' which discusses the vulnerability of low-income customers and mentions the LIHEAP program. It also lists 'LIHEAP Funding Levels Must Be Increased' as a resource. At the bottom of the main content area, there is a section for 'Energy Efficiency Programs'. On the right side of the page, there is a 'Log In' box with fields for 'user name' and 'password', a 'Submit' button, and a 'remember me?' checkbox. Below the login box is a 'Learn More' box with a list of links: 'demand response', 'how to save electricity in your business', 'how to save electricity in your home', 'programs and incentives', and 'related sites'.

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## Programs and Incentives

Electric companies face a significant challenge today - meeting a continuously growing demand for power. That's why many of these companies offer programs and incentives to improve energy efficiency and reduce energy use.

- [Efficiency and Demand Response Programs](#) - a list of electric company programs for 2006.

### Help for Low-Income Customers

As energy prices rise, low-income customers are the most vulnerable and often must choose between paying their energy bills or buying food and medicine. Increased funding for the federal Low Income Home Energy Assistance Program (LIHEAP) is the most immediate way to guarantee those in need will have energy assistance this winter.

- [LIHEAP Funding Levels Must Be Increased](#) - find out why low-income families need energy assistance now more than ever.

In addition, utility companies have created programs to help low-income customers, including billing assistance, weatherization help, community development and outreach, and more. Many of these companies also establish fuel funds to help those in need with their utility bills, weatherization repairs, and other programs, at a cost of over \$1 billion annually.

- Learn more about [Low-Income Energy Assistance](#)

### Energy Efficiency Programs

Electric utilities also have taken a leading role in promoting efficient energy use with

**Log In**  
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# The Role of Renewables

# The Role of Renewables

## State Programs to Encourage Renewables

- “Green pricing”: customers choose to pay extra for electricity generated from renewable sources
  - Utilities in 44 states and District of Columbia offer option
  - 2004: More than 928,000 customers participated in green pricing programs (93 percent residential)
- Net metering: customers can generate renewable energy and sell excess back to utility at end of month
  - Utilities in 44 states offer net metering option, with more than 15,000 customers in 2004 (89 percent residential)
  - 85 percent of net-metering customers nationwide are in CA

# The Role of Renewables

## State Programs to Encourage Renewables

- Renewable Mandates
  - 2005: 23 states and the District of Columbia had minimum requirements or goals for using renewable energy
- Tax incentives, rebates for renewables
  - Encourage consumers to implement renewable energy systems at home and business

# Limitations of Renewables

- High capital costs to capture and concentrate water, wind, and sun, compared to fossil fuel production
- Hydroelectric:
  - New capacity is limited (pumped storage may offer opportunities in future)
  - Dams raise environmental concerns (disruptive to ecosystems)
  - Developing technology for wave energy and ocean thermal energy not yet commercialized
- Solar:
  - Intermittent
  - Large up-front investment
  - Solar cells create chemical waste concerns
- Wind:
  - Intermittent
  - New transmission lines needed
  - Turbines may endanger birds/bats
  - Siting problems: “Not In My Backyard”



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# The Role of State Energy Officers

# How State Energy Officers Can Help

- Build consensus among stakeholders
- Develop coherent energy policies to promote adequate supply and wise energy use
- Promote energy efficiency programs by utilities
- Support development of electric ratemaking, rate design, and technologies (e.g., “smart” meters) to give customers more control over electricity bills
- Encourage policies that promote energy efficiency as an investment for utilities

# References

- Gregory Basheda, Marc W. Chupka, Peter Fox-Penner, Johannes P. Pfeifenberger, Adam Schumacher, *The Brattle Group, Why Are Electricity Prices Increasing? An Industry-Wide Perspective*, Prepared for the Edison Foundation, June 2006
- U.S. Department of Energy, Energy Information Administration (EIA)
- U.S. Department of Labor, Bureau of Labor Statistics

## M. William (Bill) Brier

M. William (Bill) Brier is vice president, policy and public affairs, at the Edison Electric Institute. Bill's responsibilities include management of public policy and advocacy communication; public opinion research; advertising and exhibits; media relations and outreach; industry publications (including the award-winning magazine, *Electric Perspectives*); publicity and promotion; and electronic information services.

Bill joined EEI in 1983, and is recognized as an industry expert and spokesperson. Bill has been interviewed extensively by national and international media on industry issues, focusing particularly on restructured electricity markets. He has also testified before numerous state legislatures and utility commissions on behalf of EEI's member companies.

Prior to joining the Institute, Bill served as Vice President of Public Affairs at CF Industries, a chemical company. He also held a similar position with Energy Cooperative, an independent petroleum refiner. Bill has worked for RJR Industries and the National Council of Farm Cooperatives.

Bill served as an executive assistant to U.S. Congressman Larry Winn, Jr. (R-Kansas), and was a member of the Kansas House of Representatives from 1968-1970. He is a graduate of the University of Kansas.

