



# What Is New In The United States Energy Markets?

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# What Is New In The United States Energy Markets?

- Congress and the Administration have not passed comprehensive energy legislation nor stand alone reliability legislation – despite the urgency stemming from August 2003 blackout, scandals in the energy industry, and the persistent high cost of natural gas and oil.
- There May be Several Changes This Year.
  - Energy Legislation (House Committees holding hearings this week)
  - Regional Transmission Organizations (e.g., the Midwest ISO start-up of its real-time and day-ahead energy markets)

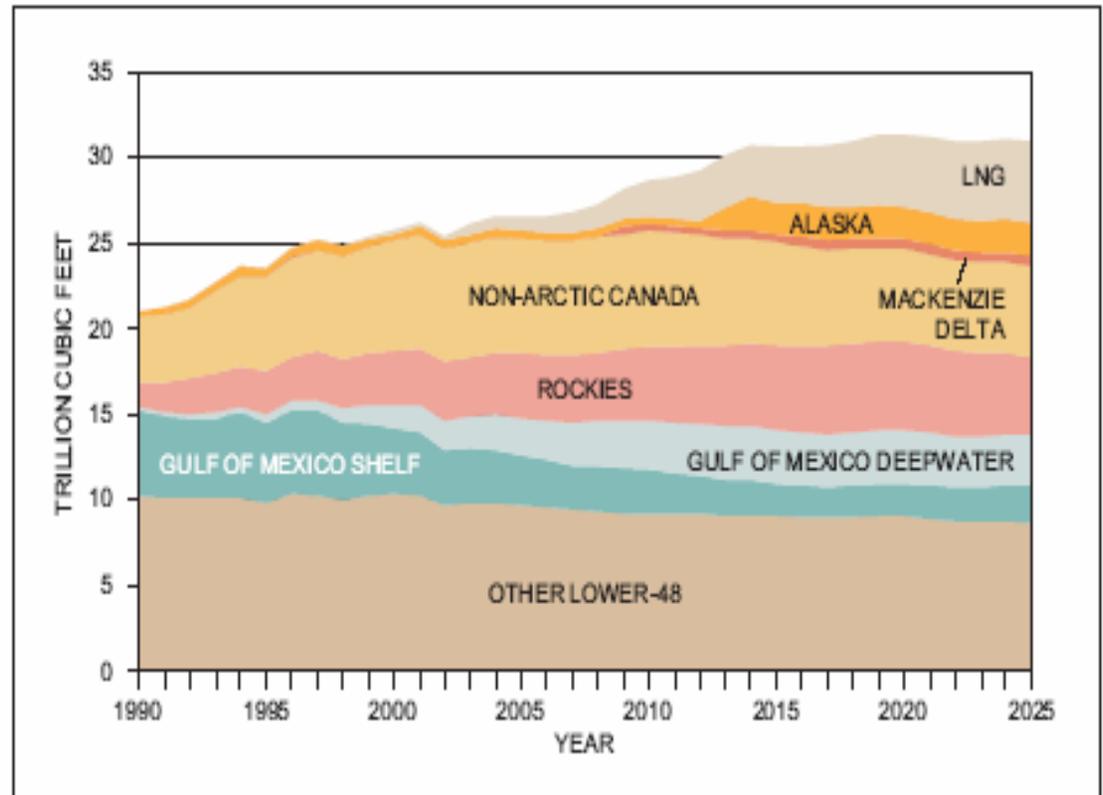
# WHAT IS NEW IN THE UNITED STATES ENERGY MARKETS?

## ON A FEDERAL LEVEL:

- **Natural Gas**
  - More price transparency in natural gas markets
    - Several examples of commodity price manipulation
    - Potential for price manipulation of pipeline capacity
    - FERC is actively engaged in this process
  - Energy bill –IF passed – might give incentives for drilling
- **Electric**
  - Energy Bill?
    - Reliability Legislation as a “stand-alone” or as part of a comprehensive bill
    - Elimination of the Public Utility Holding Company Act?
    - Incentives for building new transmission?
    - Enforcement authority for the Federal Energy Regulatory Commission?
    - Clean-Air (including Mercury) Rules?
    - Promotion of clean coal-technologies?
    - Will Congress and the President solve the nuclear waste issue?

# What's New In Natural Gas

- Since 2000, gas prices have hit historic highs. Despite high gas prices, increases in exploration and recovery haven't been able to restrain price increases. Most of the expected increase in supply is expected to come from LNG rather than domestic supply.
- Despite an increase in the number of natural gas rigs to 1069 from last year's level of 938 and an increase in gas exploration by 14.0%. The natural gas spot prices are up 9.1 percent.
- Winter 2004 / 2005 gas = \$9.38/MMBtu In addition to severe cost increases for residential and commercial, electric power plants, basic industry such as metals, automobiles, plastics, and agriculture is dependent on natural gas.
- Since 1993, 90% of all electric power plants were fueled by natural gas.
- 90% of the cost of producing ammonia is natural gas. 22% of US nitrogen fertilizer production has shut down so the US now imports 50% of nitrogen-based fertilizer

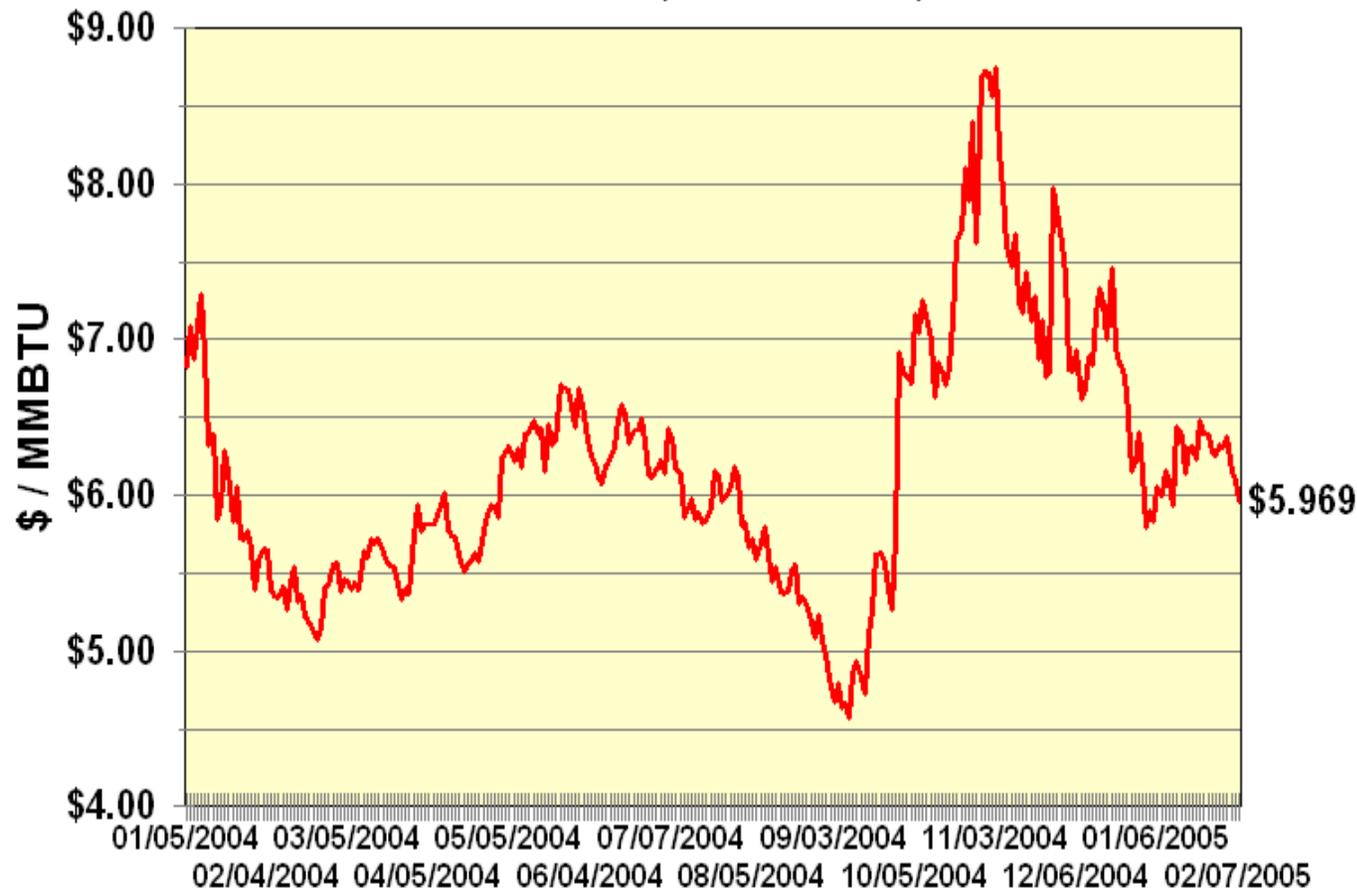


Source: National Petroleum Counsel, "Balancing Natural Gas Policy," Sept. 2003.

# What's New In Natural Gas

## Recent Volatility and High Prices

NYMEX Natural Gas Futures  
Close (Front Month)



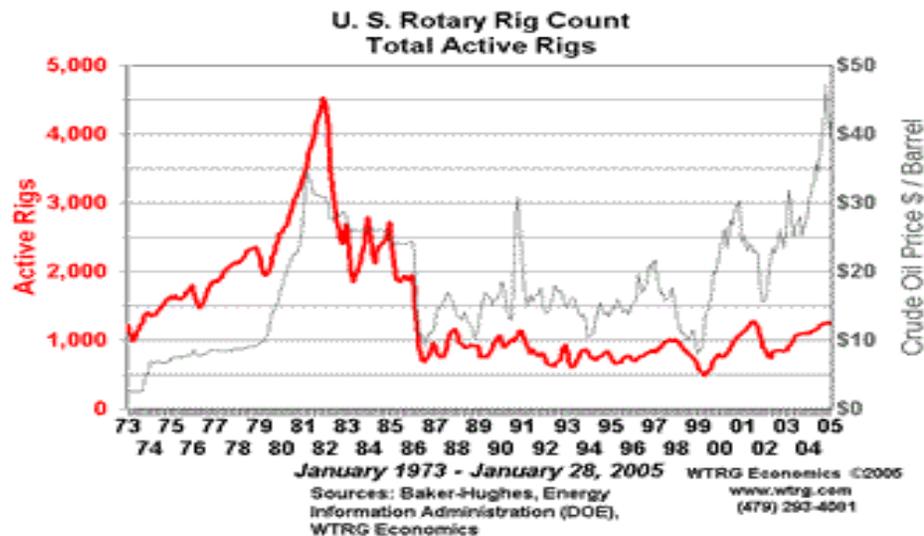
Jan 5, 2004 - Feb 7, 2005

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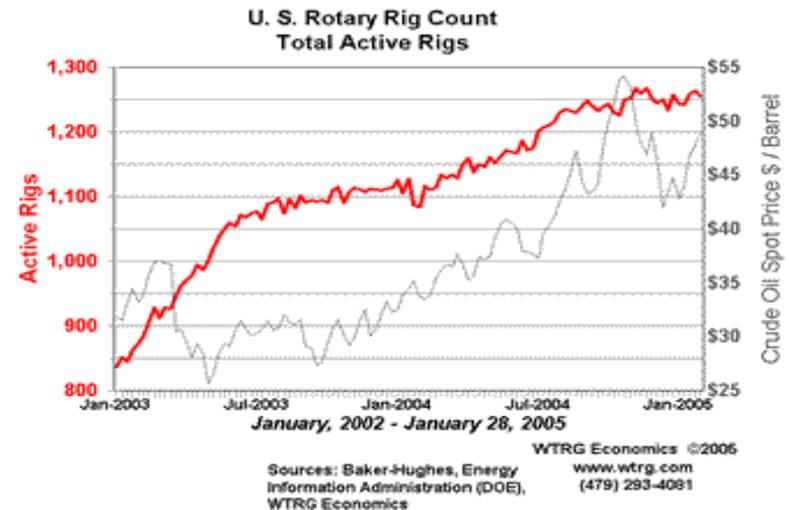
# What's New In Natural Gas

Number of "Rigs" Producing Natural Gas & Oil In The U.S. Does Not Track Well With The Price Of Gas & Oil

Long term

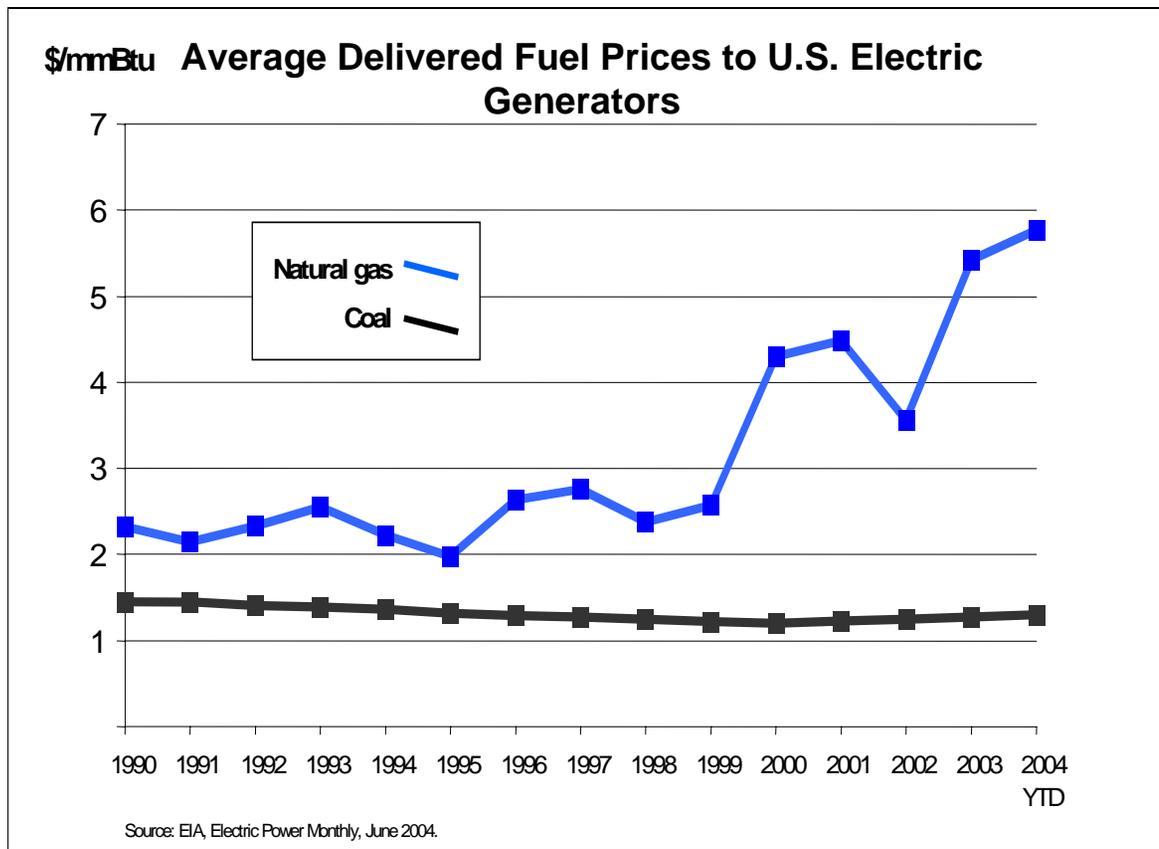


Short Term

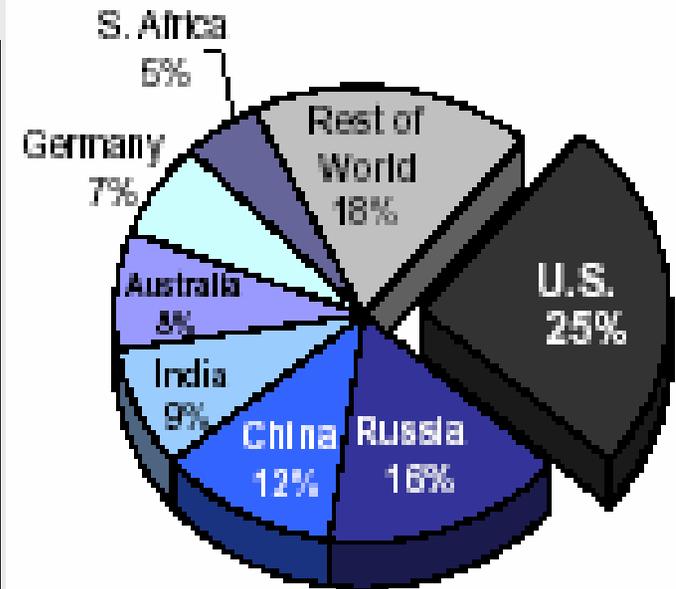


# What Is New In The U.S. Energy Markets?

- Coal is essential for the U.S. economy.



## World Coal Reserves



In contrast U.S. holds:

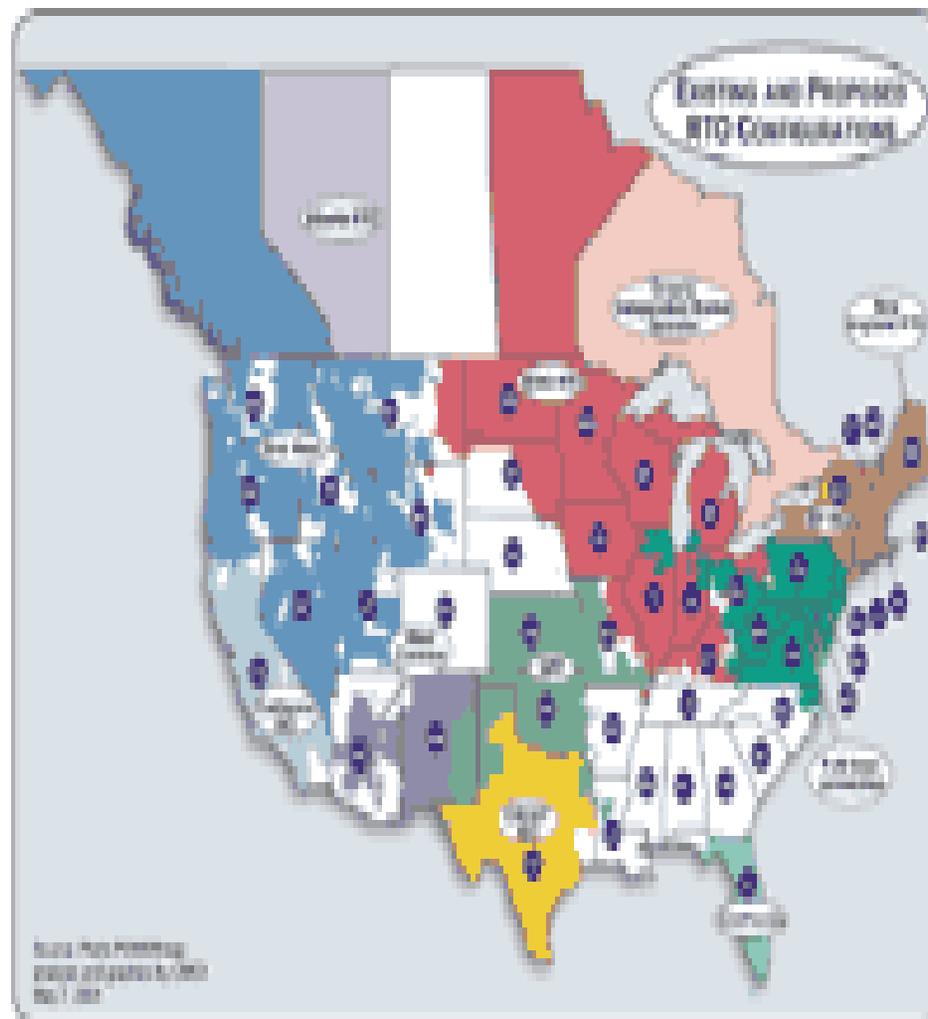
-- 2% of world oil reserves

-- 3% of world natural gas reserves

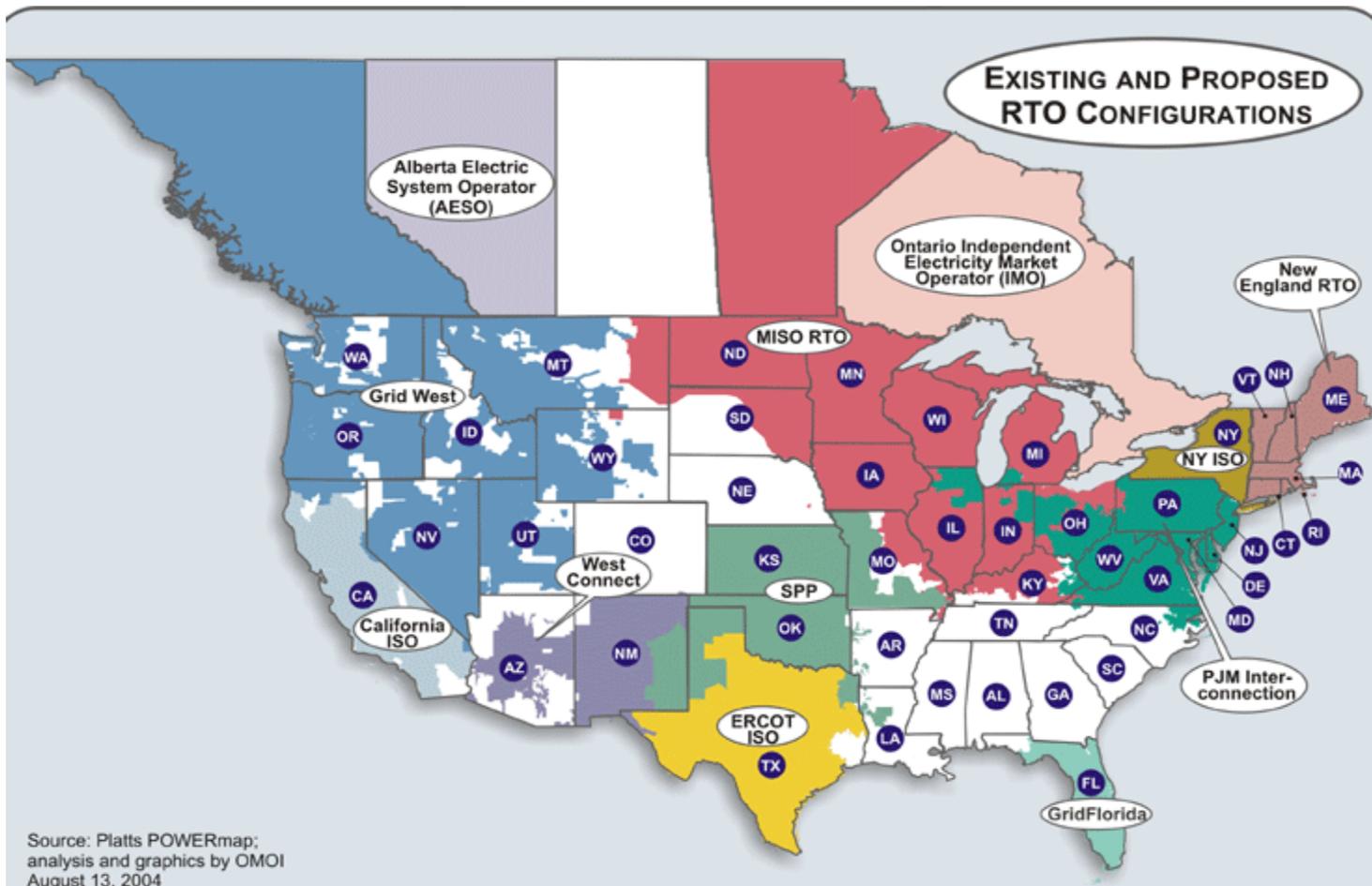
# WHAT IS NEW IN THE UNITED STATES ENERGY MARKETS?

## On A State Level

- Law Suits From Northeast To Force Clean-Air Act Compliance By Generators In Midwest
- Regional Transmission Organizations
  - Some States Don't Want Them (to varying extents)
  - Some States Want Them (to varying extents)
    - States in Midwest Formed Organization of Midwest ISO States ("OMS"). PJM, Southwest Power Pool (SPP), and New England are also forming regional state committees.
  - What Are The Benefits Of RTOs?
    - How should the benefits / costs be transmitted to consumers.
    - With RTOs having transparent real-time prices, has the time arrived for more accurate retail prices (e.g., real-time and time-of-day)?

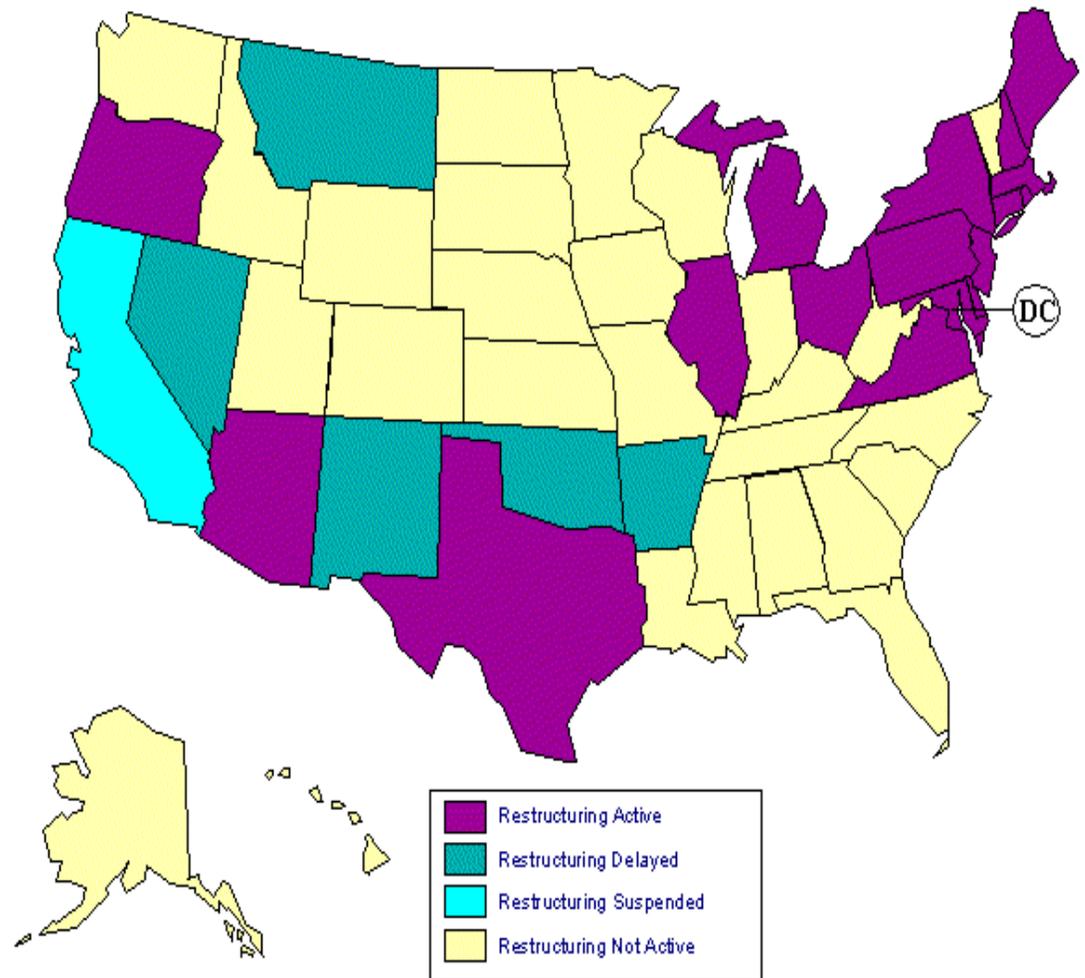


# What's New With RTOs In The United States?



# What's New In Retail Competition- An Update?

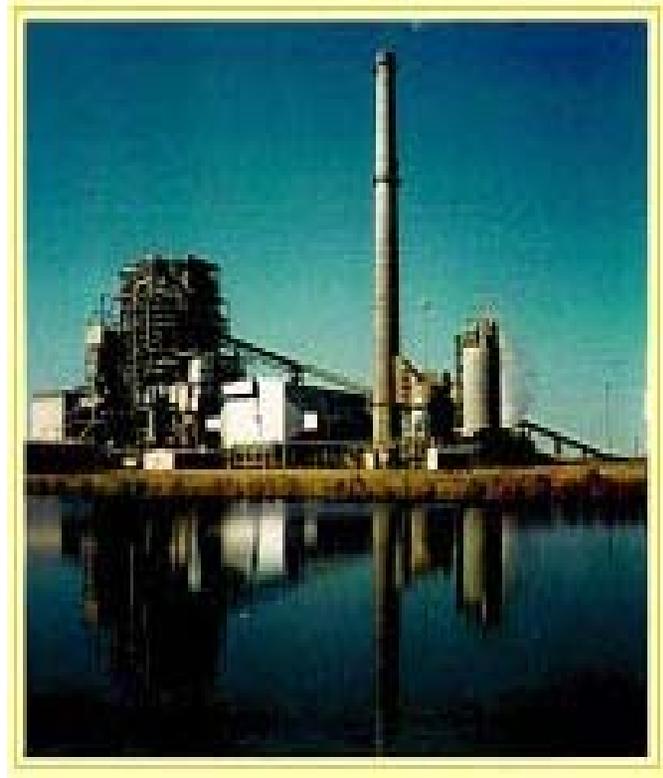
- In the U.S., there was considerable interest in competition during the late 1990s. A combination of events such as the “meltdown” in California and the perception by consumers that the benefits of retail choice are small seemed to have limited the interest in retail competition among those states that haven't already enacted retail competition.
- Indiana is one of the lowest cost states and state policy makers believe that most of the benefits of restructuring occur in the wholesale market.



Source: Energy Information Administration. The EIA notes that they do not plan to update this graphic.

# What's New In Generation of Electricity?

- **As A Critical Component of National Energy Policy We Need to Know How New Baseload Generating Units Will BE Built?**
  - In 1998 and 1999 the Midwest experienced significant price spikes – the price of electricity on the wholesale markets went to \$1.00 / kWh! Merchant power plant developers flooded the market in anticipation that these price spikes would be the norm – they proved to be the exception. Now, the Midwest has lots of gas-fired peaking units.
  - Chastened by the “irrational exuberance” of the price spike era, no one wanted to build any generating unit. Even in traditionally regulated states, with a greater assurance of cost recovery, there is a reluctance to build new generating capacity or large cycling capacity
  - We know that many of the baseload units are at the end of their useful life. In part, this is due to Clean-Air standards. What will fill the void for these units?
  - How will the United States respond to concerns about coal? Will we give serious consideration to “Clean Coal” technologies? If Congress and the President finally address the nuclear storage issue, will nuclear power be more acceptable? With the high price and extreme volatility in natural gas prices, how much reliance does the United States want to place on natural gas?
  - To offset the need for baseload generation, how much of the nation's power requirements can be met with customer owned generation, alternative energy and demand response programs?



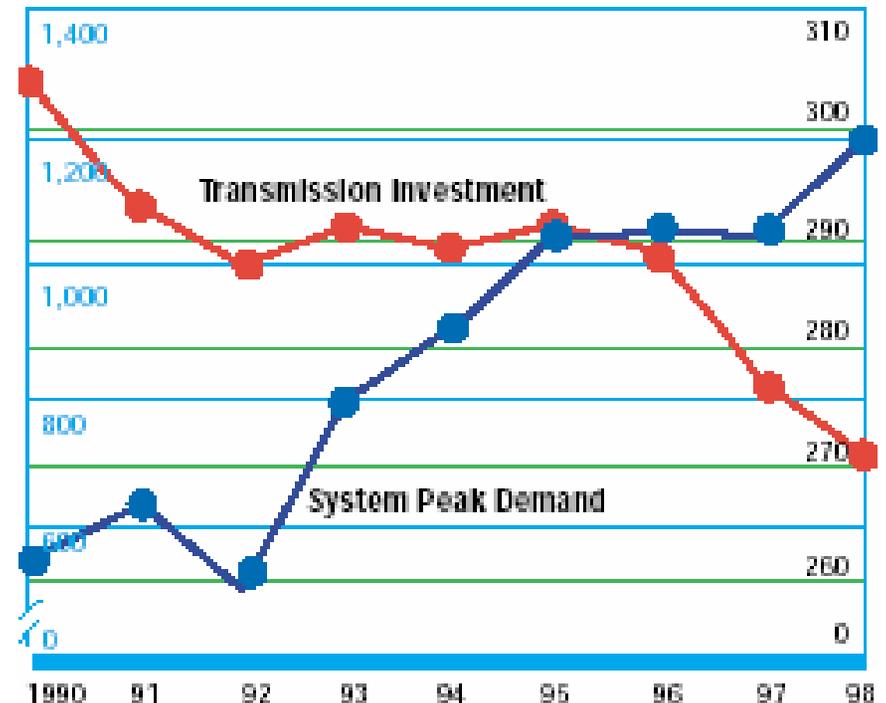
# What's New In Transmission?

- Following the blackout, there seemed to be a consensus that the U.S. was underinvested in transmission. As the chart illustrates, there was a drop in transmission related investment from the 1990s. If this graph were to go back to the 1970s and 1980s, it would show a substantial increase due to the construction of large baseload generators during this period.
- To some extent, we may be able to get more out of our existing wires. Historically, overloads on the “wires” were handled by physically terminating power transactions (“Transmission Loading Relief” – TLRs). We are hopeful that when “congestion” occurs in the future that pricing (“Locational Marginal Cost Pricing” LMP) that RTO will provide better price signals.

We should not overreact or under-react. It is essential that the Investment in new transmission is the most cost-effective alternative so as to prevent under-investment in generation or demand-management.

## U.S. Investment in New Electric Power Transmission

(Millions of 1990 Dollars)



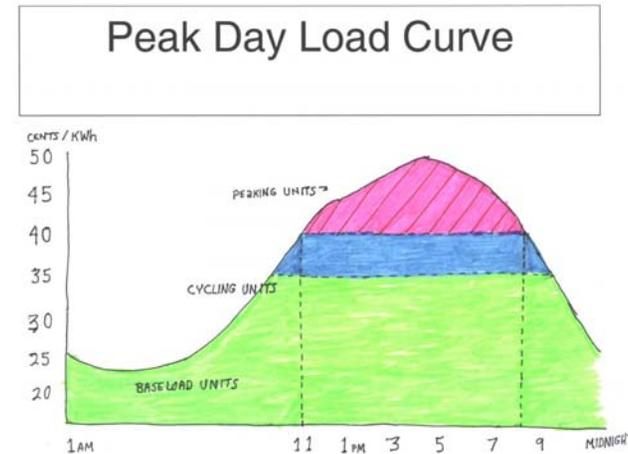
Growth in peak demand for electricity has far outstripped investment in transmission capacity. As a result, transmission constraints could aggravate already limited supplies of power and could result in high prices in some areas of the country.

Source: PA Consulting Group, based on data from the EIA data base.

# What's New In Pricing?

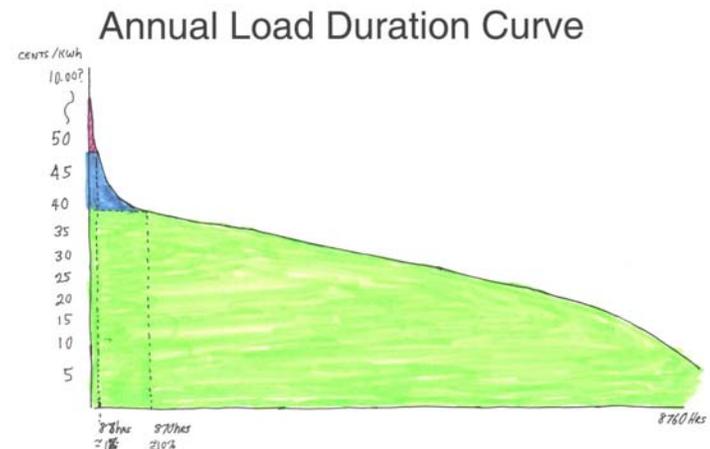
- **With RTOs Providing Transparent Real-Time Price Signals, We Have An Opportunity To Consider The Consumer Benefits That Would Result From Reductions In Their Use Of Electricity During Critical And Expensive Peak Periods.**

- Some consumers in retail competition states with in the PJM have recently expressed concern that they are not seeing lower prices. Demand response might provide a partial answer
- California recognized the value of demand-response to late to prevent their crisis. In the last two years, PJM and other RTOs are in various stages of program development to encourage demand response to limit the exercise of market power, serve as a substitute for generation, and to reduce congestion.
- For “traditionally regulated states,” how can we make sure that customers realize the benefits of wholesale market reform and pay the appropriate costs?



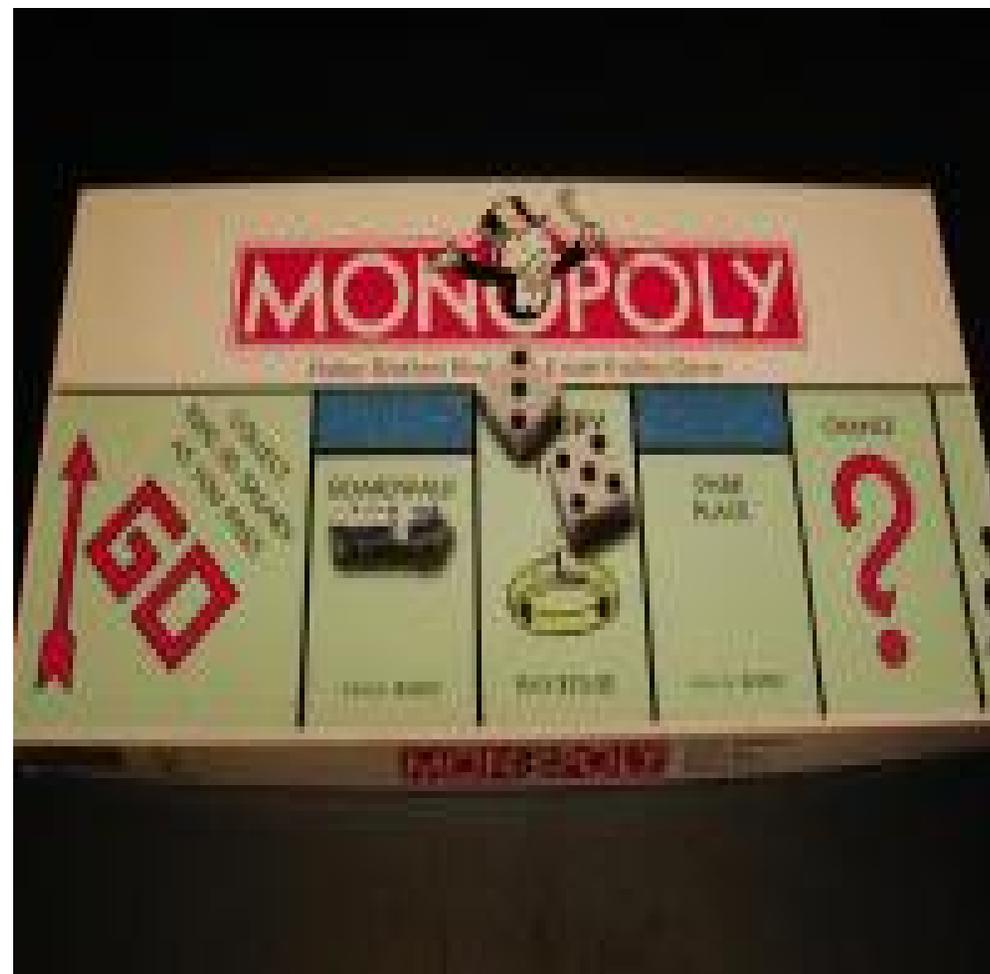
- **In the U.S., the critical peak periods are likely to be just a few hours of the year.**

- Recent studies suggest increased customer acceptance and satisfaction.
- We can use Demand Response to reduce the need for generating units or transmission facilities.
- We can use Demand Response to reduce our use of relatively expensive fuel sources.
- We can use Demand Response to reduce the market power of generators.



# What's New In Market Monitoring And Corporate Governance?

- After ENRON (and others) What Lessons Have We Learned?
  - There is a demonstrable need for truly Independent monitoring of the electric and natural gas markets
  - There is a need to mitigate abusive behavior in the real-time markets



# What Is New In Corporate Governance?

- Corporate Governance
  - The Congress passed the Sarbanes – Oxley Bill requiring more accountability by Boards of Directors and Management, The U.S. Securities & Exchange Commission have suggested reforms, The New York Stock Exchange has required reforms for the Exchange and suggested corporate reform, NY's Attorney General has taken corporations to court, Pension Funds have started to use their clout.
  - In short, there is a need to make corporations and their directors more accountable to investors and the public interest. This is certainly true in the energy business.