

Western Energy Market Overview: Trends and Issues in Electricity and Natural Gas Markets

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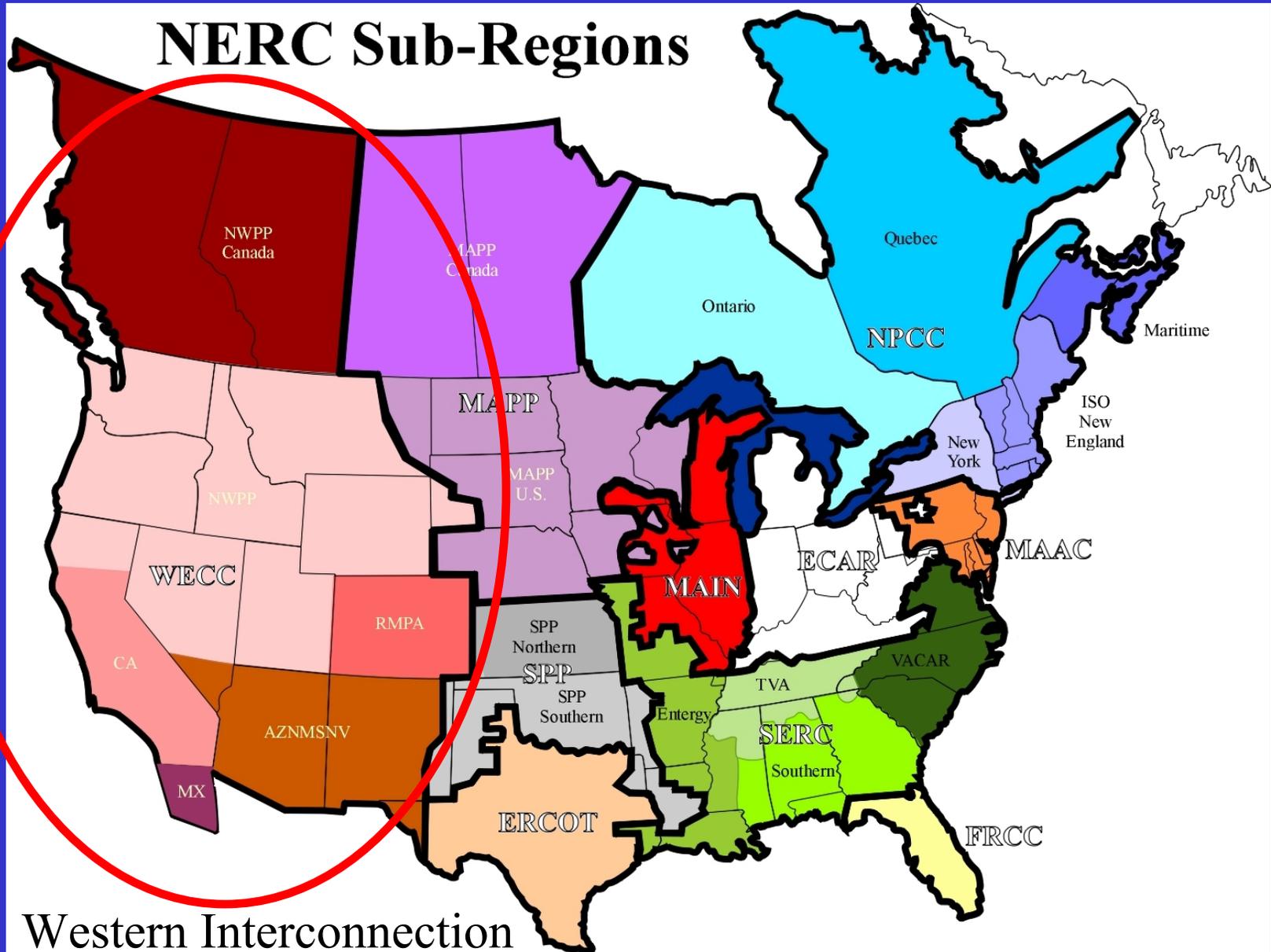
Outline of Presentation

- Current electricity situation
- Gas price risk
- Utah's competitive edge

Current Electricity Situation

- Supplies adequate in Western grid for next few years
- Utah has second lowest electricity prices in the West
- Utah has high electricity growth
- Less opportunity for abuses that led to 2000-2001 Western electricity crisis
- Utilities moving to minimize exposure to wholesale market

NERC Sub-Regions

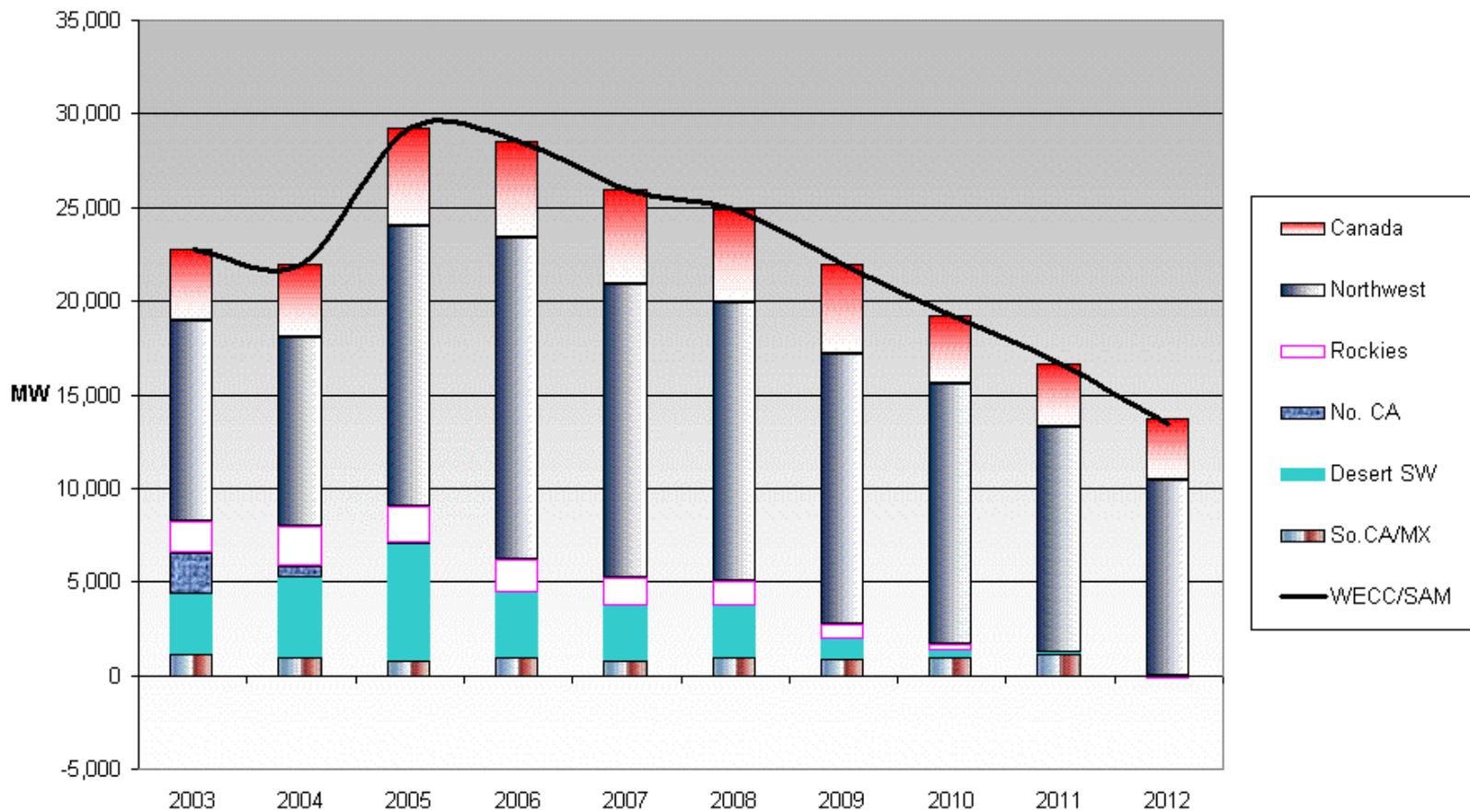


Western Interconnection

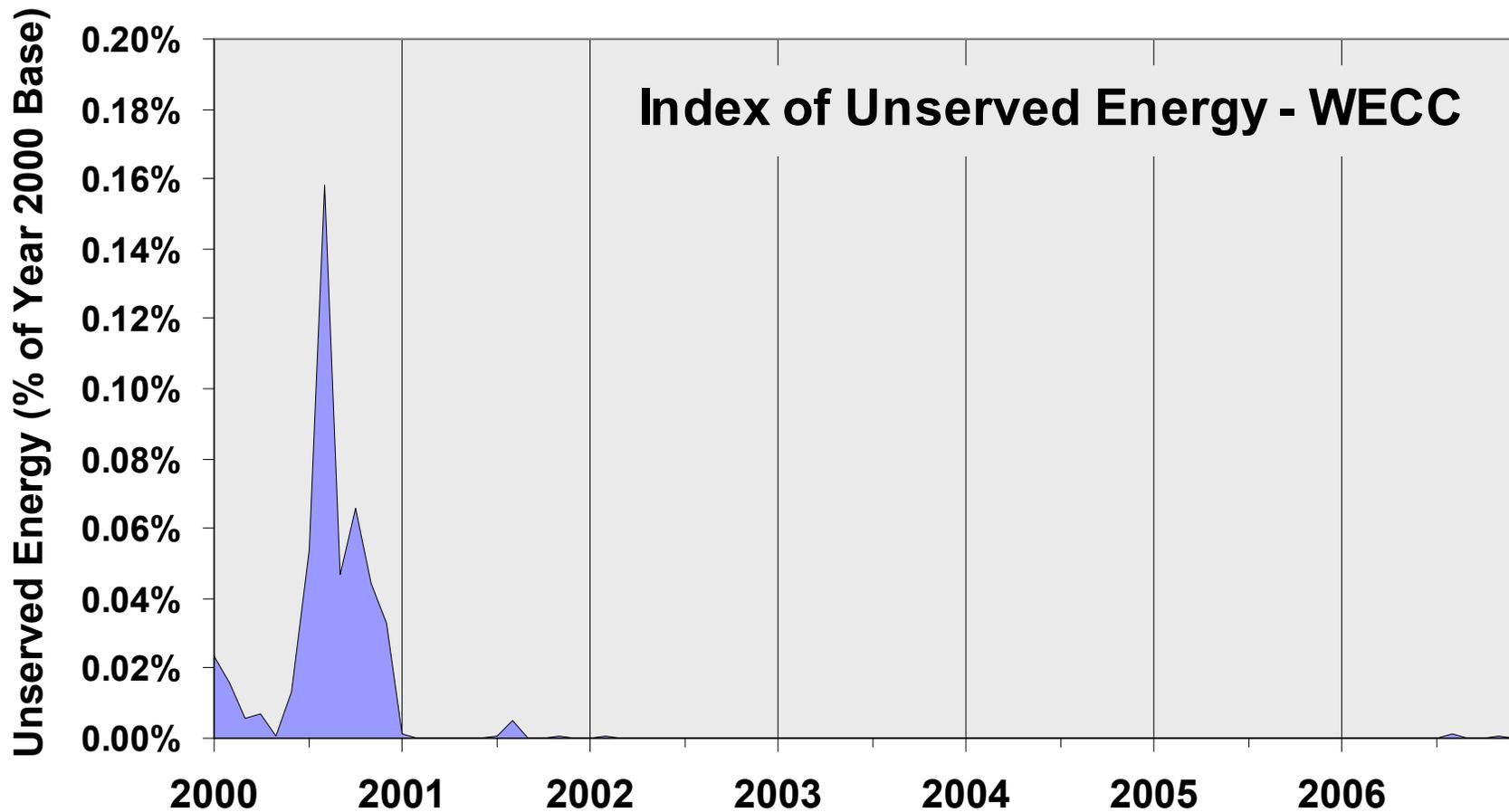
Draft WECC Outlook: Best Case

SAM August Surplus by Area

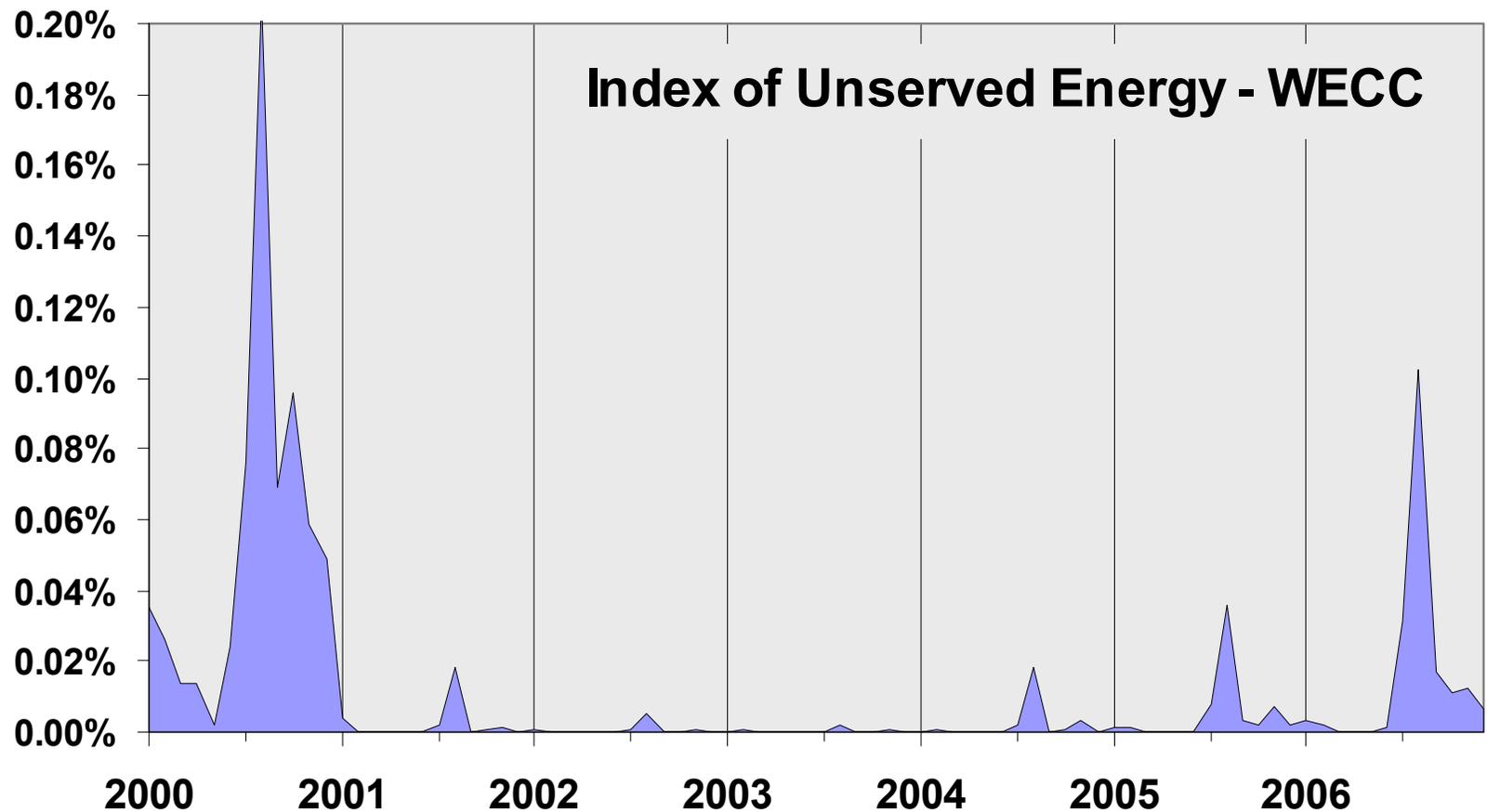
(including all generation additions, 7% margin, peak data outages, reduced OTC Transfers)



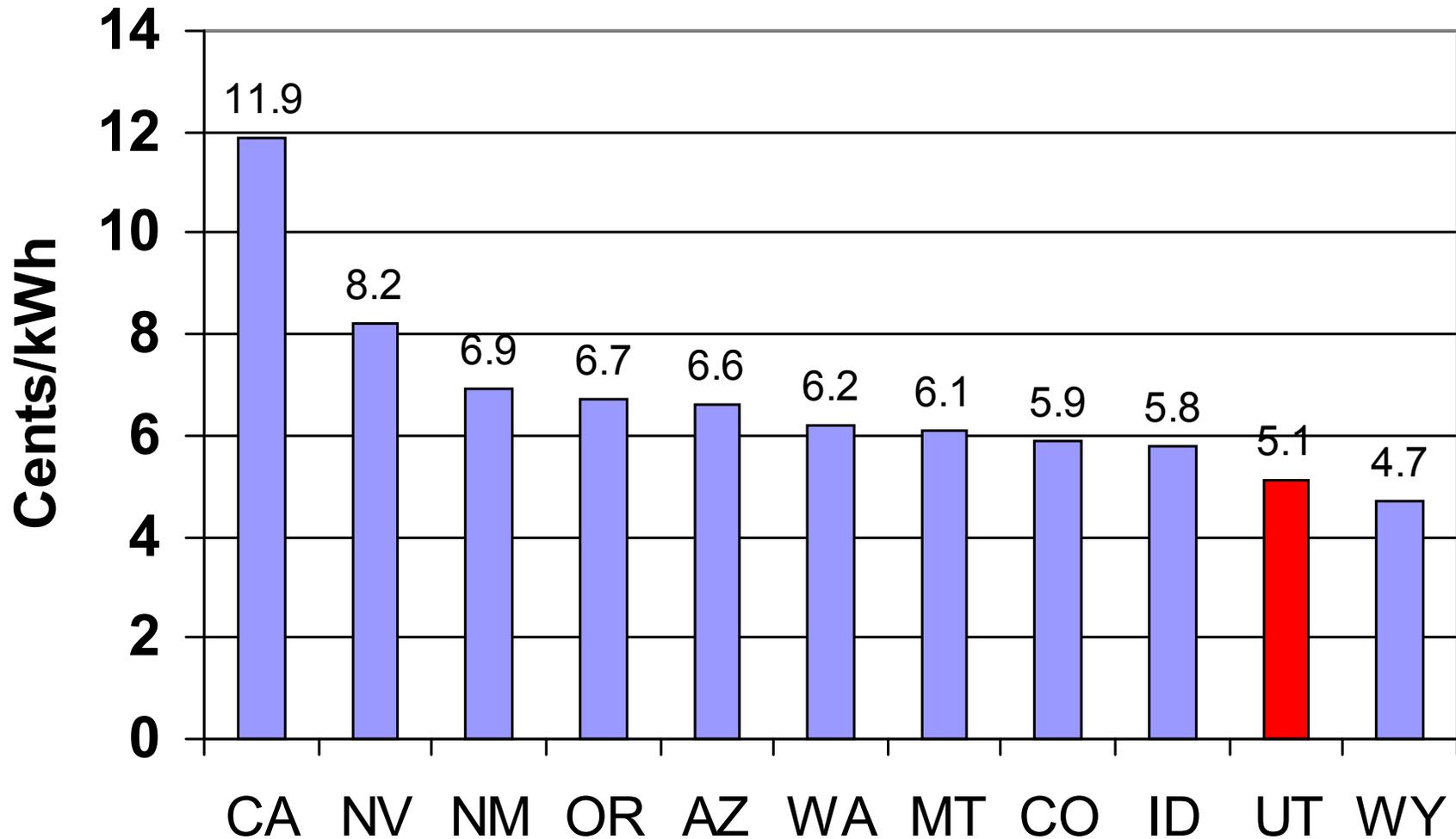
WRAT Base Case: no shortfall potential evident through 2006



WRAT Worst Case: Significant shortfall potential by 2006



2002 Average Electricity Rates



Less Opportunity for Market Abuses

- 2000-2001 showed huge impact on economy of dysfunctional electricity and natural gas markets
 - Geography did not protect from California fallout
 - High risks of being caught short
- Today
 - FERC is awake
 - Market monitoring
 - Price caps
 - Investigations and penalties
 - More long-term contracts
 - More attention paid to resource adequacy
 - Recent utility resource plans minimizing exposure to wholesale market

But Problems in Electric and Gas Markets Remain

- Cloud of refunds/litigation from 2000-2001
- Cancellation of planned power plants
- Lack of transparent markets
 - No central power market in the West
 - No transparency in published energy prices
- Inefficient pricing of electric transmission

Pendulum Swings

Pre-2000-2001

- Wide open retail and wholesale competition
- Spec generation plants

- Resource planning
- Minimize market exposure



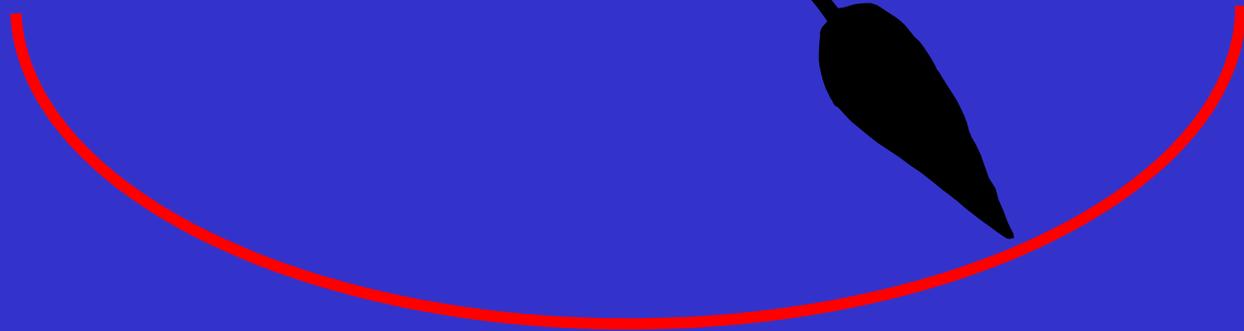
Pendulum Swings

- Wide open retail and wholesale competition
- Spec generation plants



Today

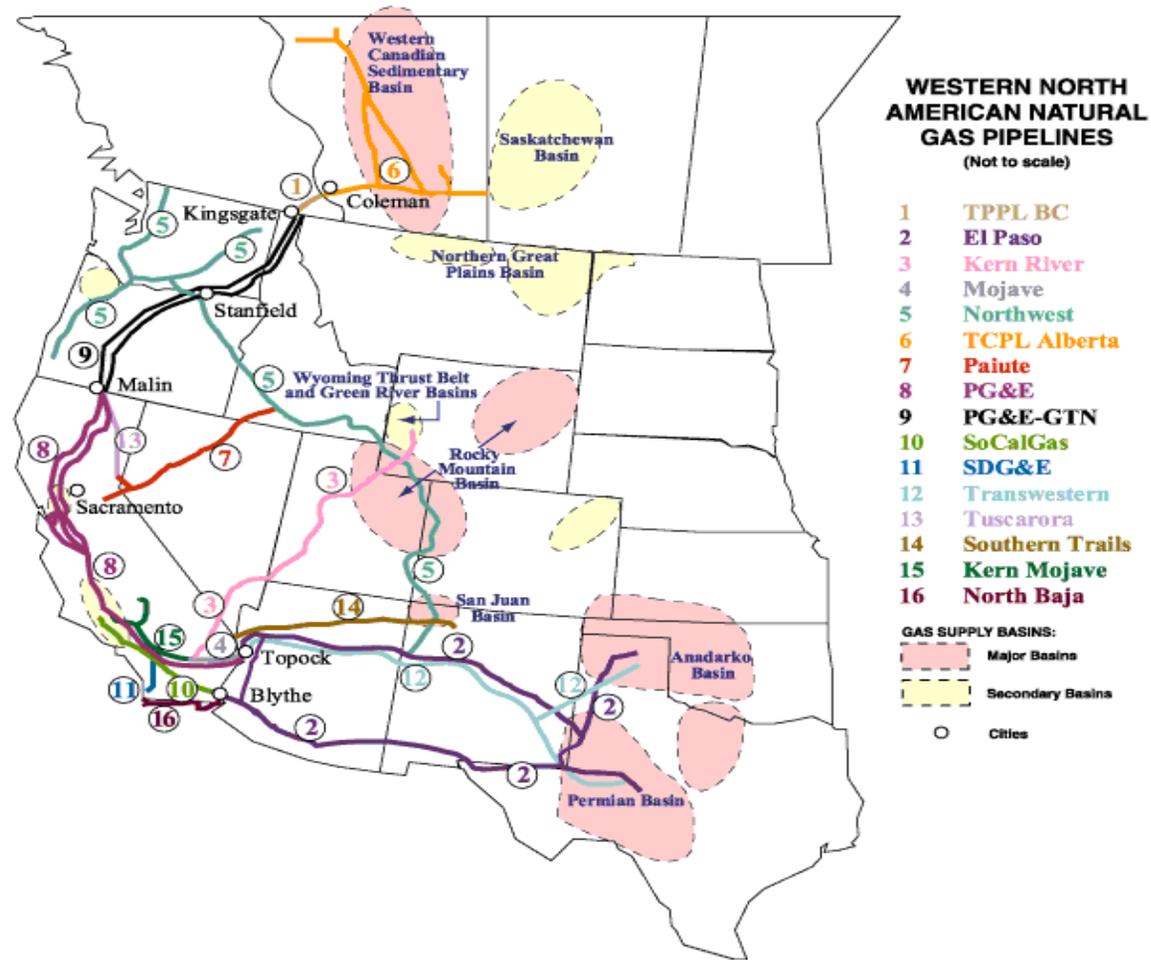
- Resource planning
- Minimize market exposure



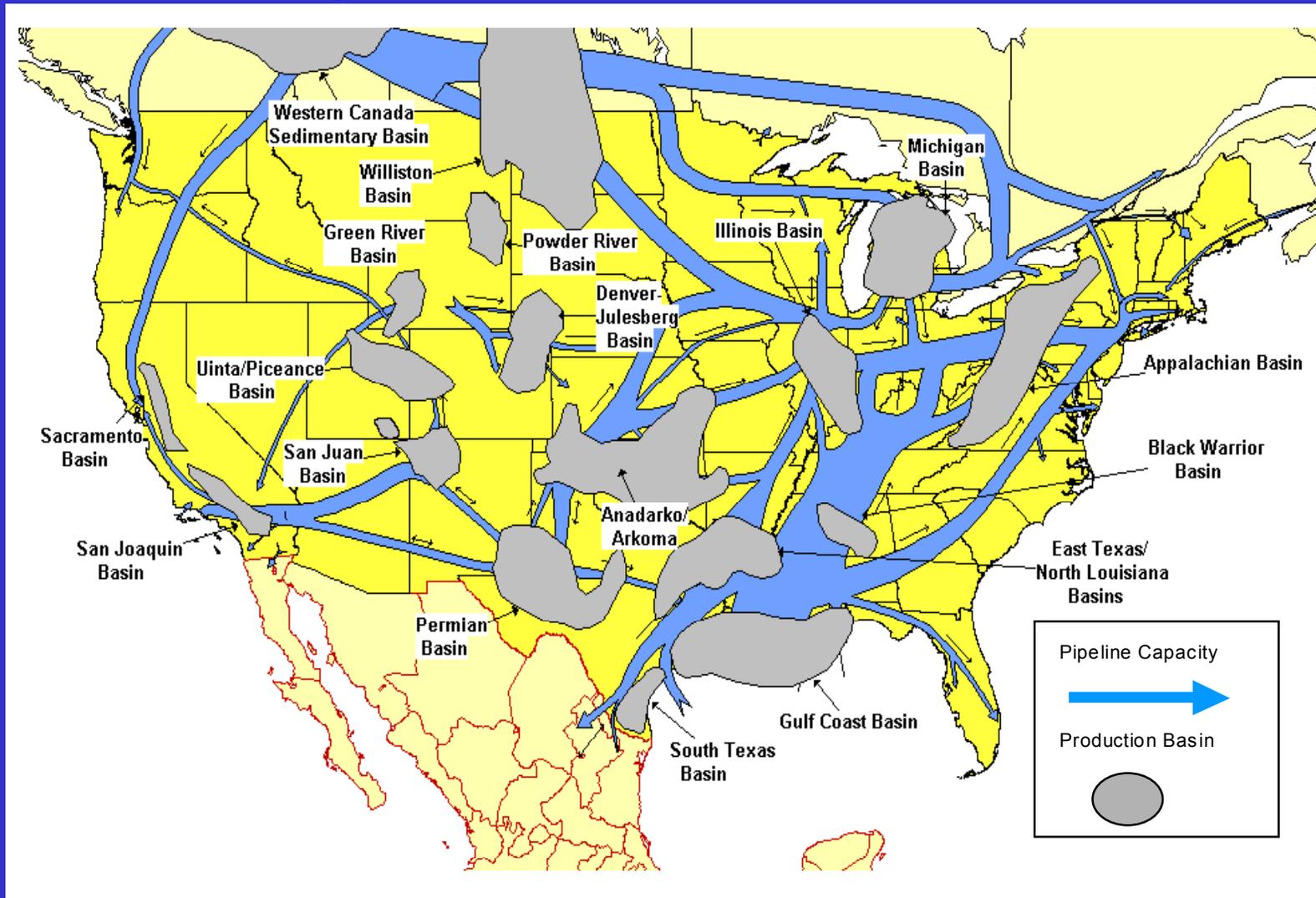
Natural Gas

- Gas and electricity are linked
- Gas uncertainties
 - Gas prices
 - Gas storage
 - Demand response

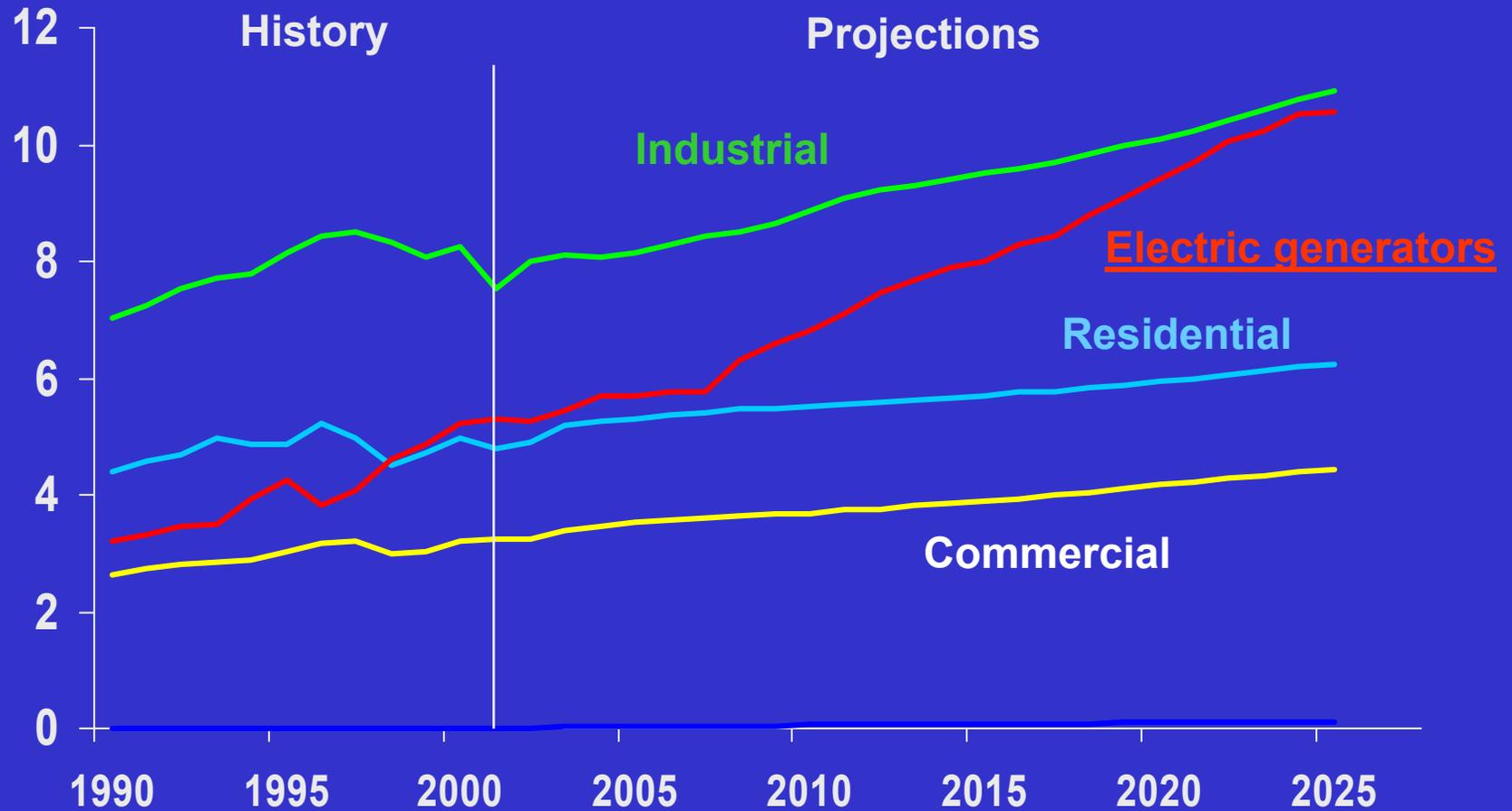
Physical Markets in the West



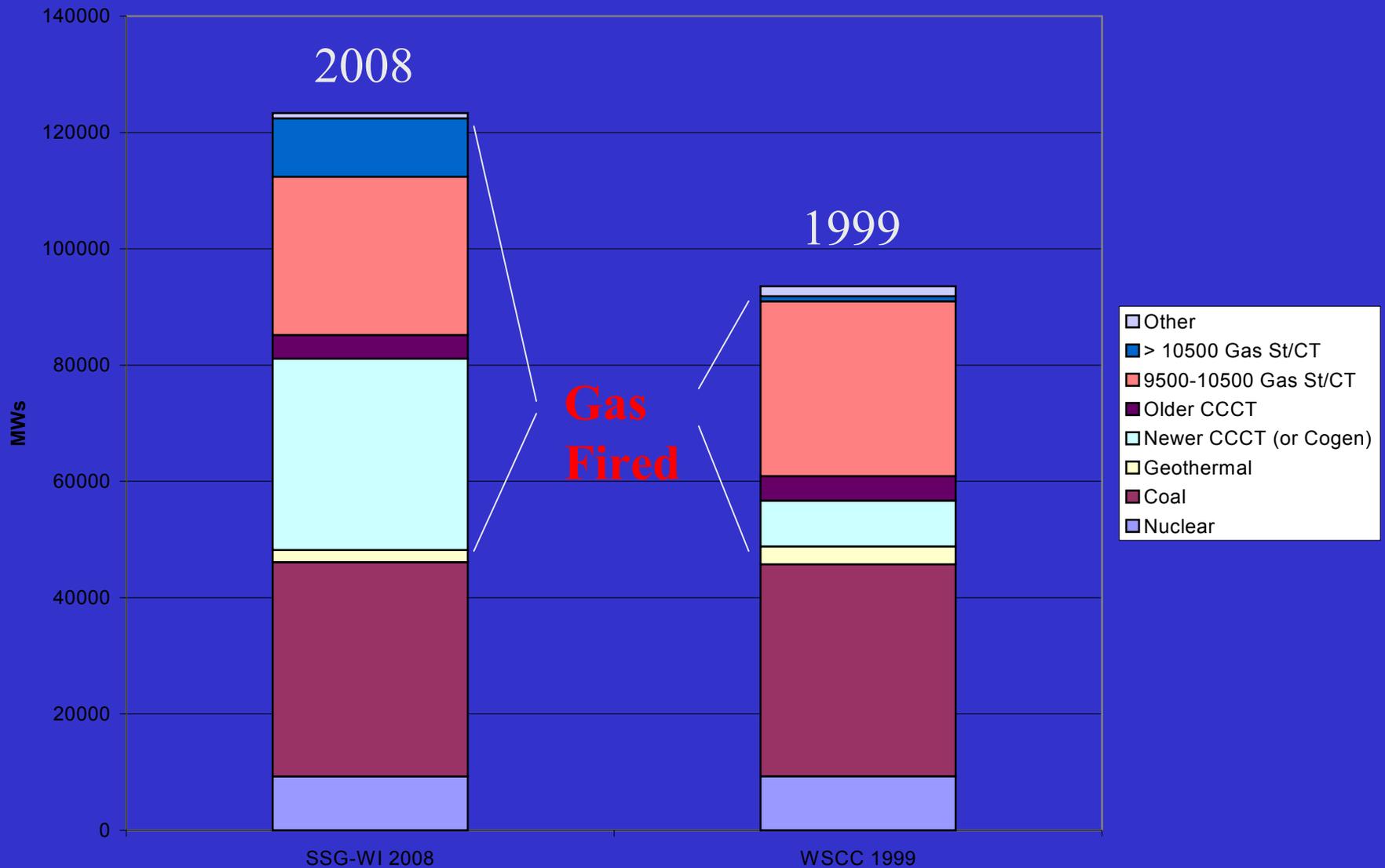
Producing Basins And Regional Natural Gas Flows



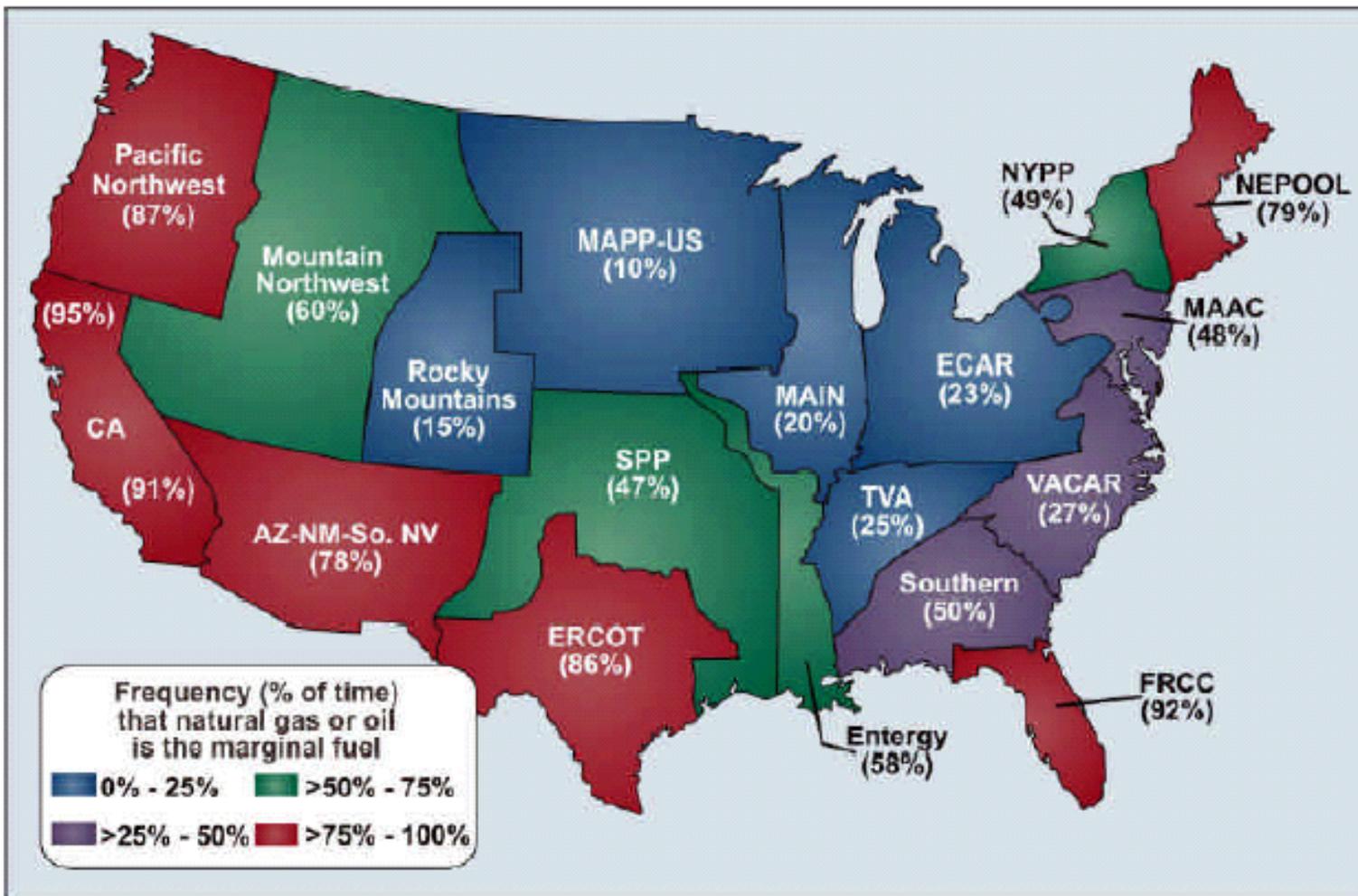
U.S. Natural Gas Consumption by Sector (trillion cubic feet)



Thermal Generation in the West



Natural gas-fired generation frequently sets the regional wholesale electric price



Note: Percent of time natural gas or oil is projected to be on the margin in 2003.
Source: Cambridge Energy Research Associates (CERA), April 30, 2003.

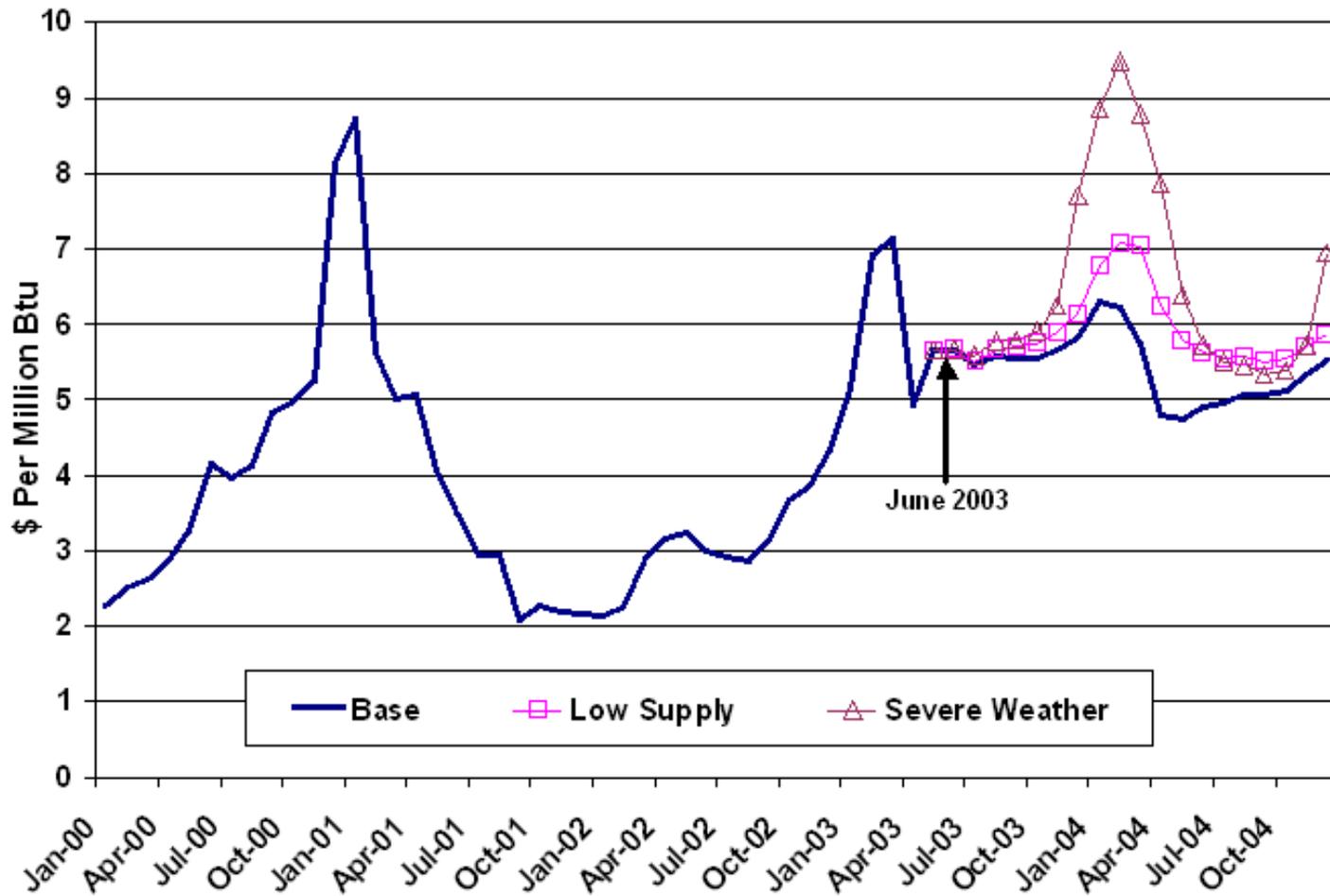
Unease about gas prices and supply

- Greenspan warnings

“...The long-term equilibrium price for natural gas in the United States has risen persistently during the past six years from approximately \$2 per million Btu to more than \$4.50. ... The perceived tightening of long-term demand-supply balances is beginning to price some industrial demand out of the market.” –July 10, 2003

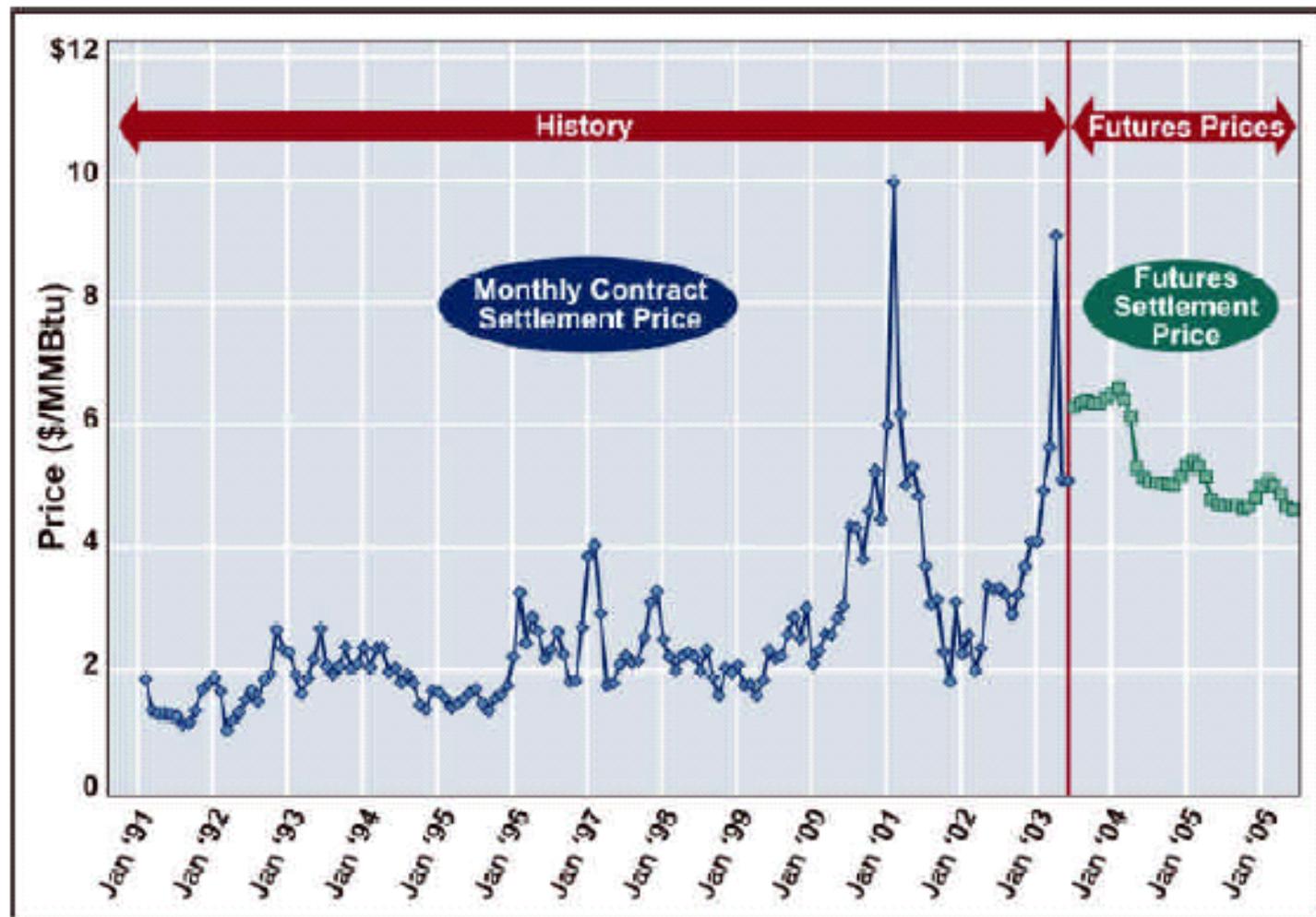
- Impacts on gas-using industries outside electric generation
- Winter outlook and gas storage

Spot Natural Gas Price Scenarios



Sources: History: EIA; Projections: Short-Term Energy Outlook, June 2003

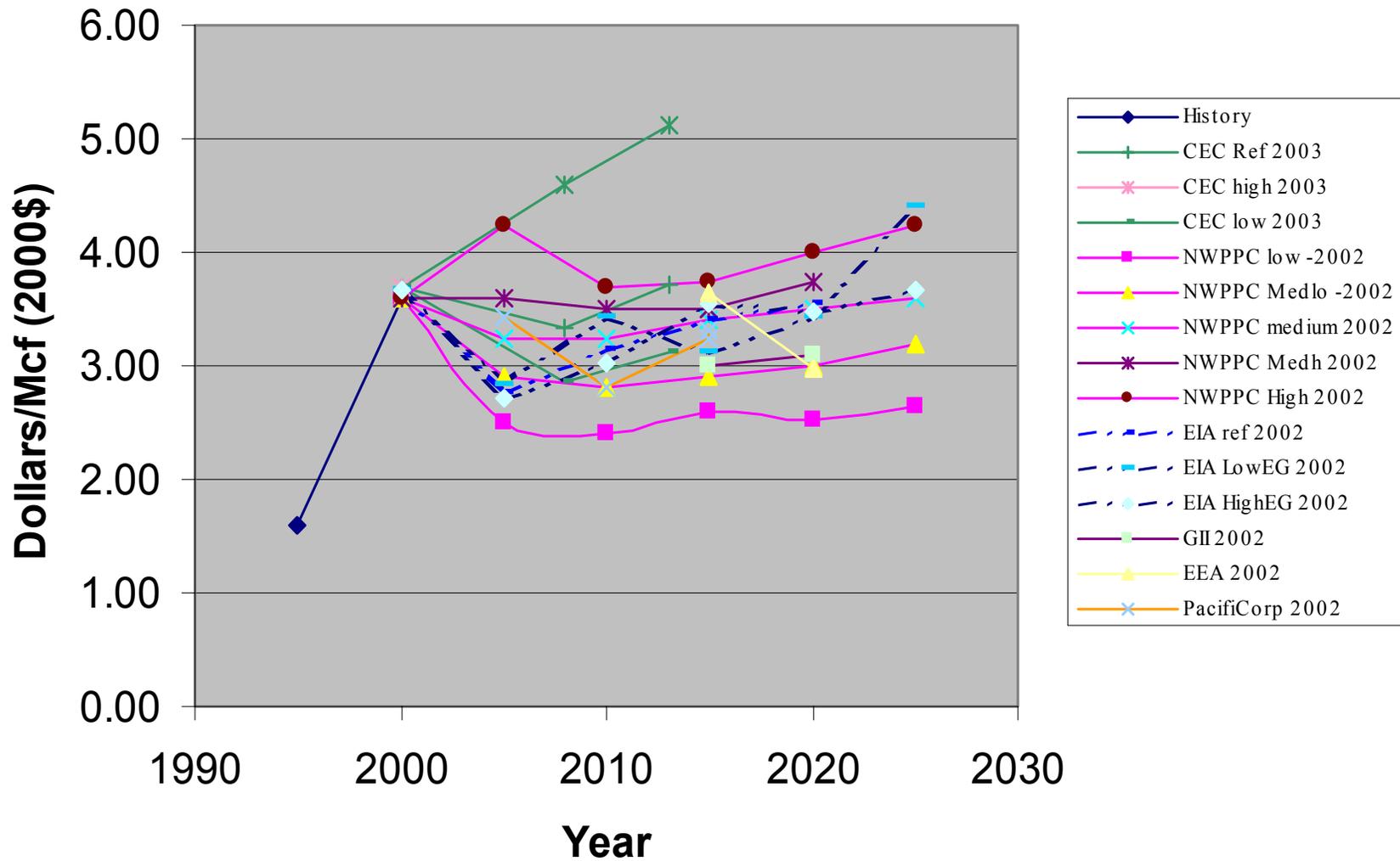
Market's View of Future Gas Prices



Source: Historical data are Nymex settlement prices from GASdat. Futures prices are Nymex settlement prices on May 29, 2003.

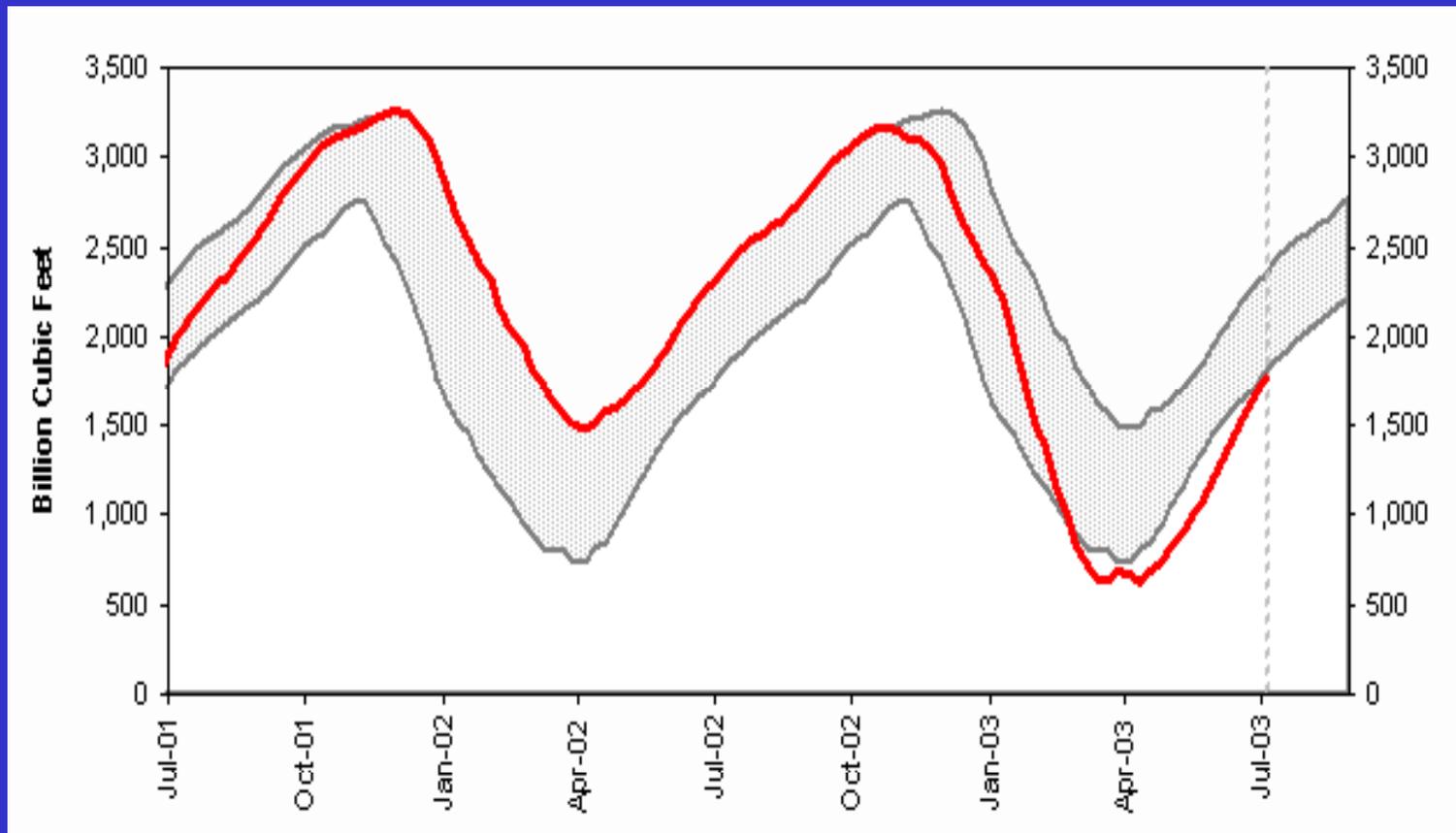
Natural Gas Price Forecasts

(Average U.S. Wellhead Prices)



Natural Gas Storage

Working Gas in Storage Compared with 5-Year Average

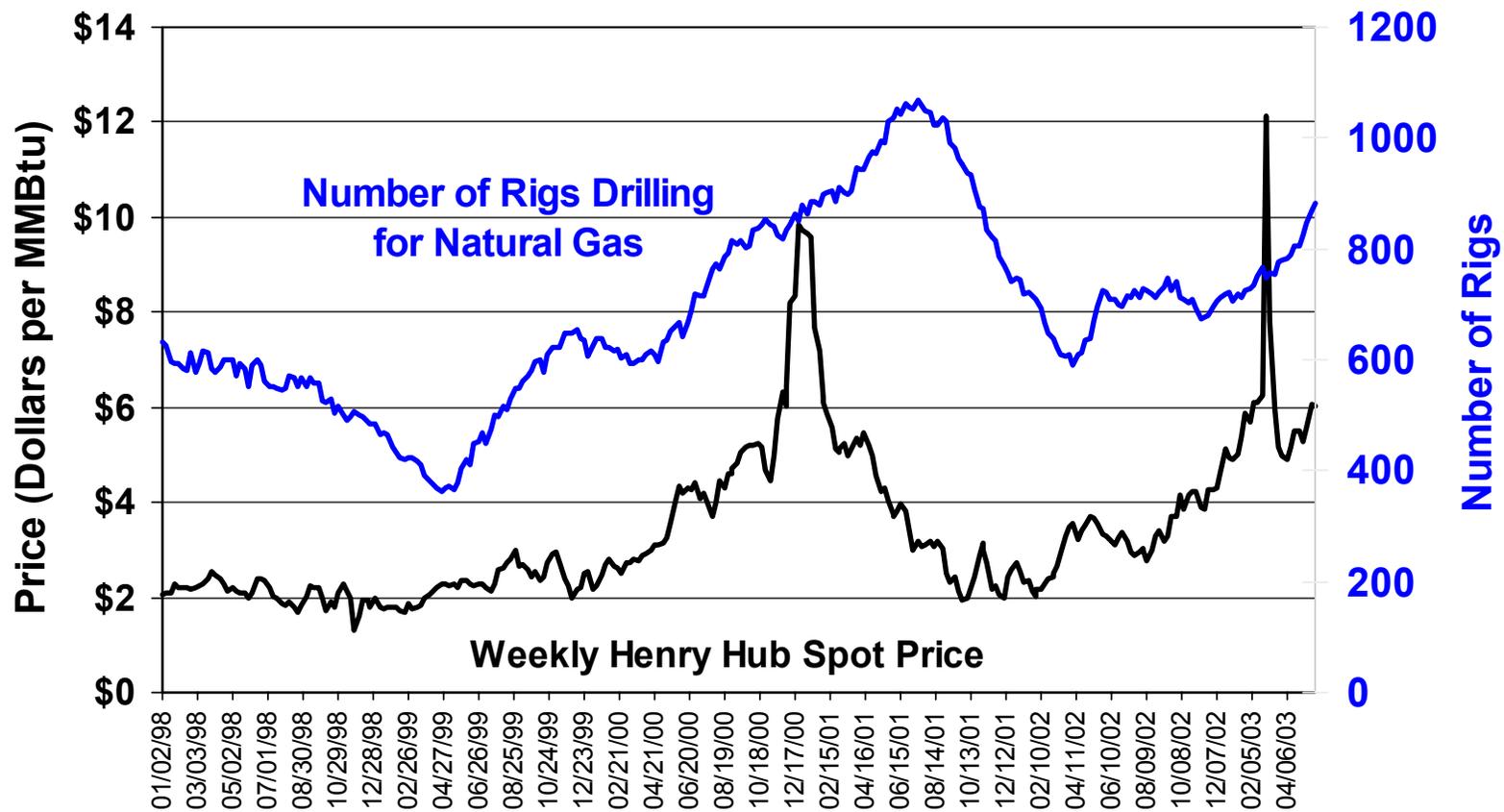


(Source: EIA)

Long-term gas outlook

- Adequacy of resource base
 - North America
 - LNG
- Pipeline adequacy
- Demand response capability

Gas Rigs Tend To Follow Spot Prices With A Lag



Source: Natural Gas Intelligence Weekly Gas Price Index, Baker-Hughes Weekly US Rig Report.

Natural Gas Supply, Consumption, and Imports Expand Through 2025

(Trillions of Cubic Feet)

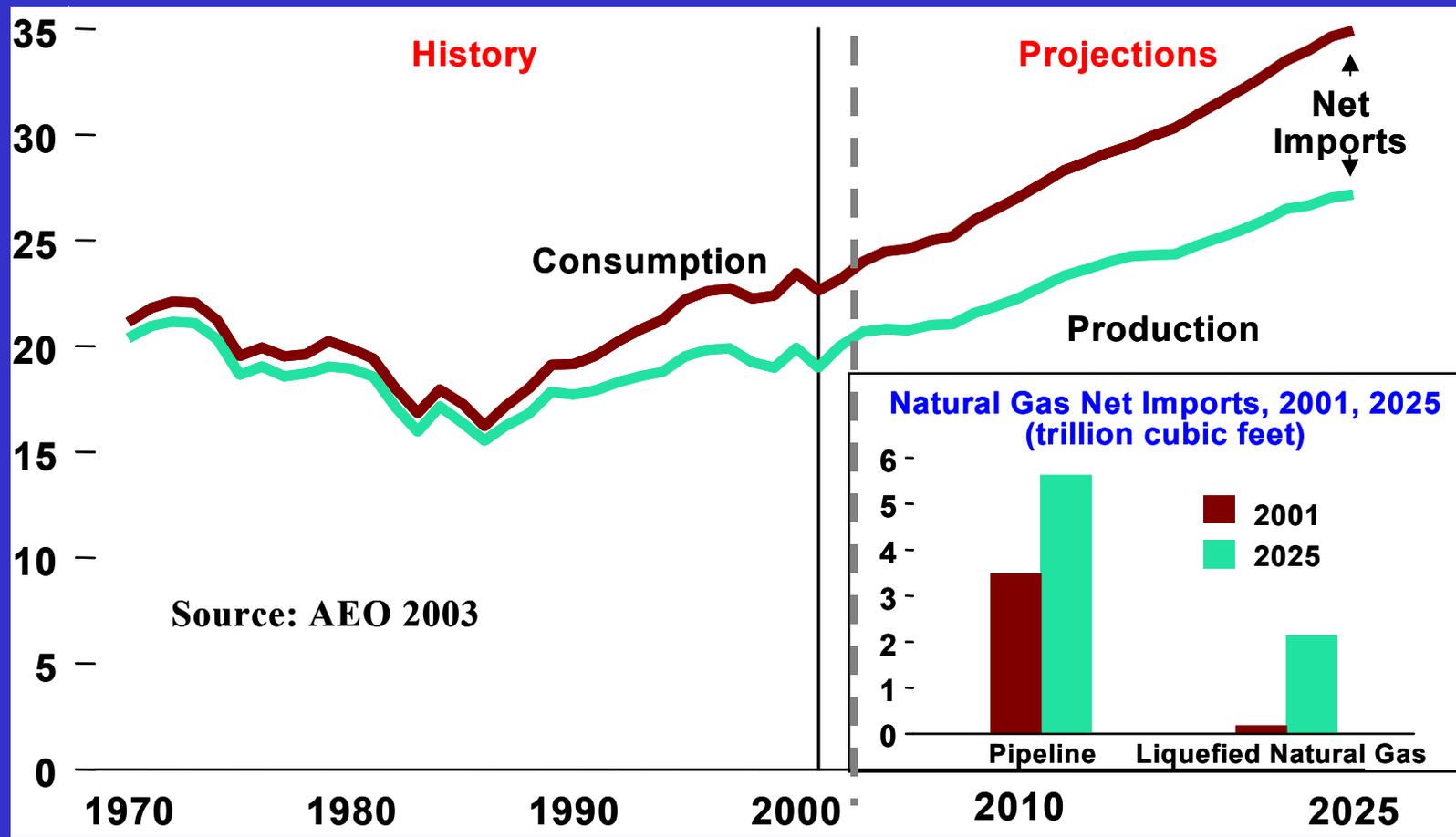
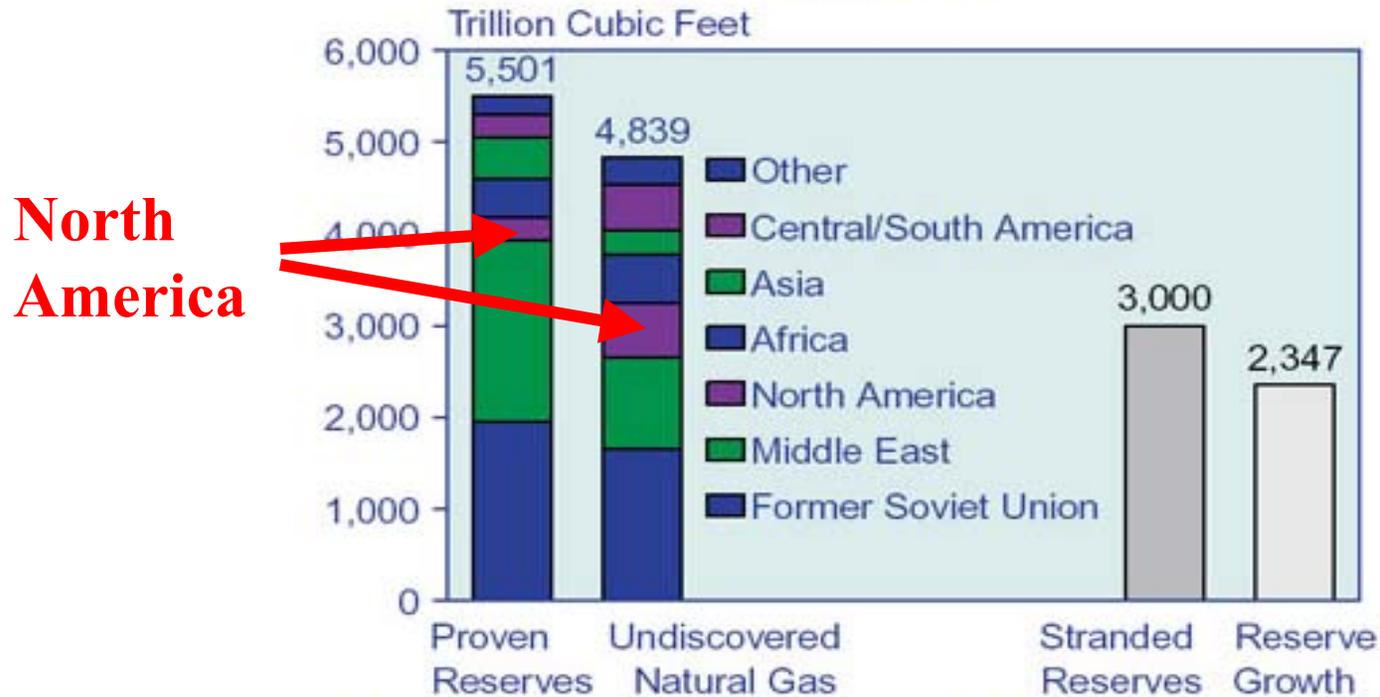


Figure 45. World Natural Gas Resources by Region as of January 1, 2003



**North
America**

Source: U.S. Geological Survey, *World Petroleum Assessment 2000*, web site <http://greenwood.cr.usgs.gov/energy/WorldEnergy/DDS-60>; "Worldwide Look at Reserves and Production," *Oil & Gas Journal*, Vol. 100, No. 52 (December 23, 2002), pp. 114-115.

Observations for Utah

- **Utah has low cost electricity**
 - Utah has room to add gas without facing the high degree of gas dependence of economic competitors
- **Utah near lowest fuel cost resource options in the West (wind, coal, solar)**
- **Utah has a great efficiency potential**
- **Utah gas producers will benefit from higher prices (Utah gas consumers won't)**