



EIA Coal Supply Forecasts During Changing Coal Markets, Demand, and Supply Chain Options

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Presented at EUCI's Conference, Getting Enough Coal
Fort Lauderdale, Florida ⌚ November 2, 2006





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For discussion today:

- **2006 Annual Energy Outlook (to 2030, modeled in Nov 2005)**
- **Coal market and demand factors have changed since Nov 2005**
- **Other changes have occurred in supply chain variables (mine to consumer)**
- **Other variables, externalities, and anticipated changes affecting the 2007 projections, and going forward**



EIA Coal Supply Products

- Annual Coal Report (mines, prices, coal ranks and origins)
- U.S. Coal Distribution (by mode, by origin-destination, by consuming sector)
- Annual Energy Outlook
- Coal Transportation Rate Database



About the Annual Energy Outlook 2006

- AEO2006 based on current rules and regulations as of October 2005
- All cases should be taken into account
- Because energy markets are uncertain, all forecasts are wrong! At least no one set of forecasts is entirely right.



About the Annual Energy Outlook 2006 (Continued)

- AEO2006 - over 35 cases, including:
 - Three alternative economic growth cases
 - Three alternative oil/gas price cases
 - Three coal price cases
 - Dozens of alternative technology cases. . .
 - Across several cases:
 - 2030 world oil price ranged from \$28 to \$90 per barrel
 - 2030 wellhead natural gas price ranges \$4.97 to \$7.71 per thousand cubic feet

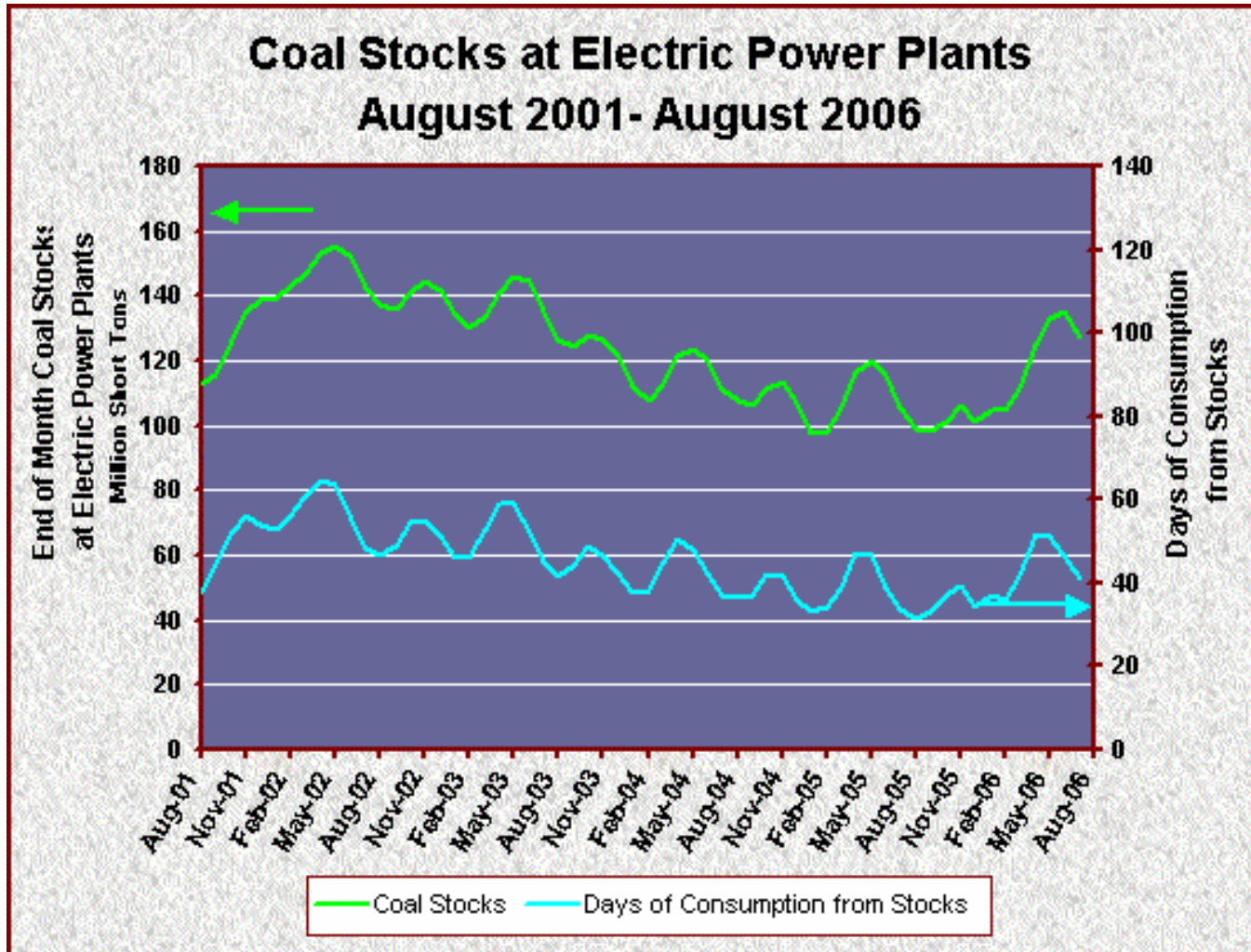


Coal market and demand factors

- Average coal stocks in the electric power sector have rebuilt to 40-50 days' supplies; 39 days' in 08/06 vs 32 days' in 08/05
- August '06 ending stocks were up 24.5% over August '05
- 3Q06 coal producer earnings were down widely, due to flatter prices and demand; some marginal mines being shuttered



Coal Stockpiles in the Electric Power Sector



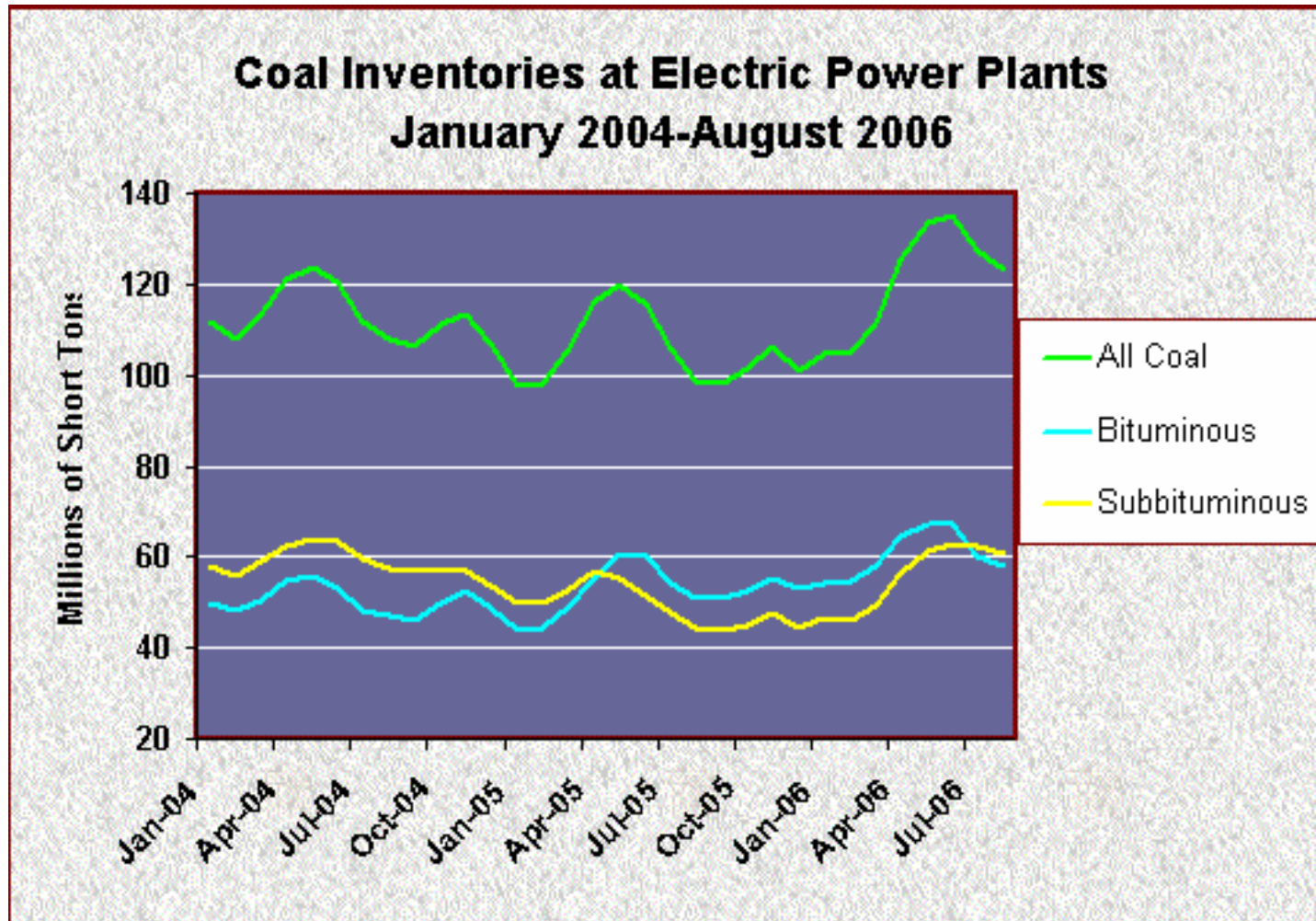


Coal market and demand factors

- Subbituminous coal stocks in the electric power sector declined rapidly following the May '05 SPRB rail disruptions
- Bituminous coal stocks (almost entirely eastern coal) actually rose, above levels of previous 2 years
- Unlike summer 2005, natural gas prices are lower and inventories relatively high



Coal Stockpiles in the Electric Power Sector



NOTE: Three to five percent of "All Coal" inventories are lignite and anthracite.



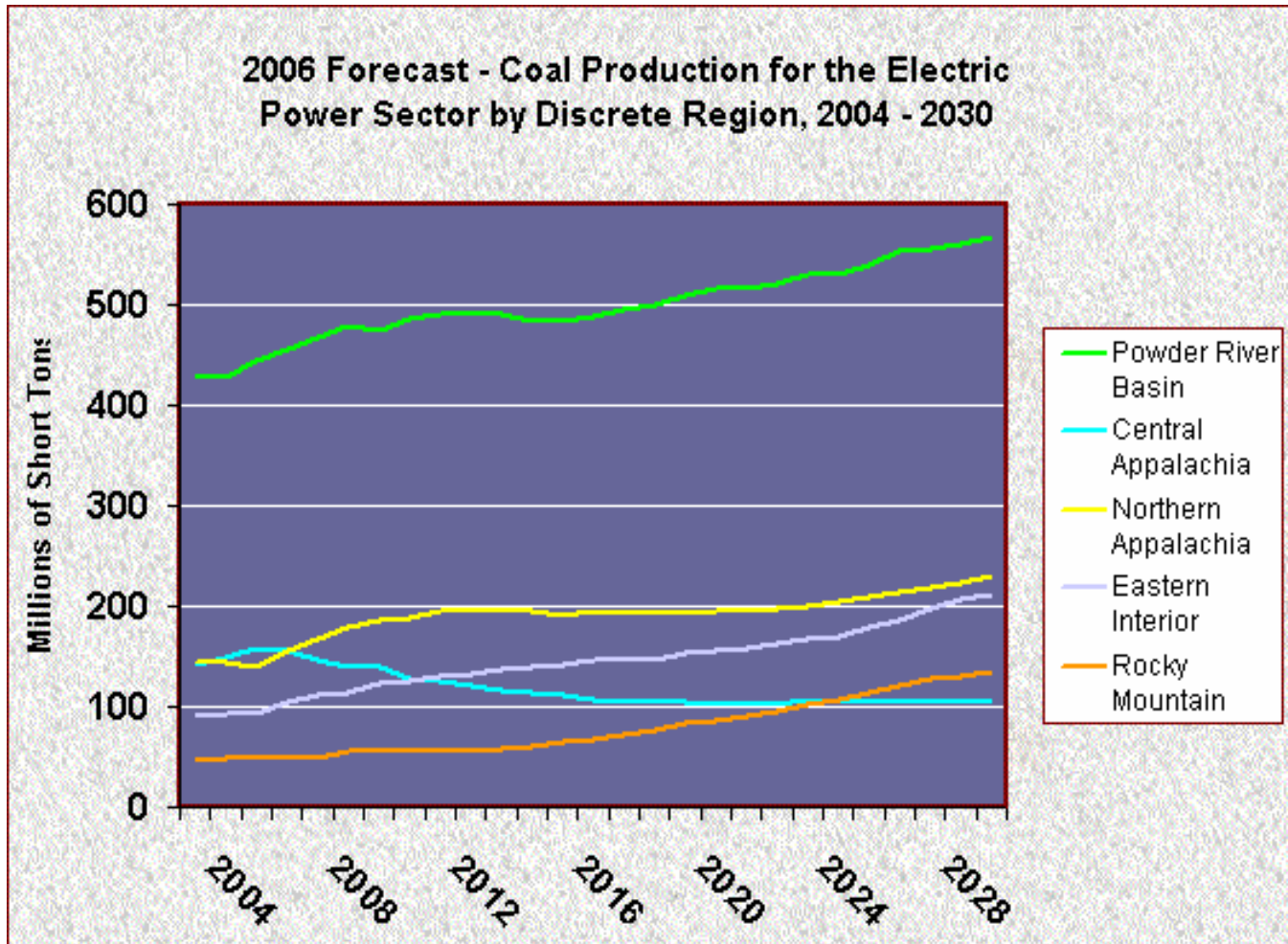


About the Annual Energy Outlook 2006 (Continued)

- Projected 400MMst of demand-driven growth in PRB coal production
- Significant growth in N. Appalachia and Illinois Basin; C. Appalachia on a long slow glidepath
- Projected major growth in coal demand for electric power and industrial applications related to coal gasification and CTL

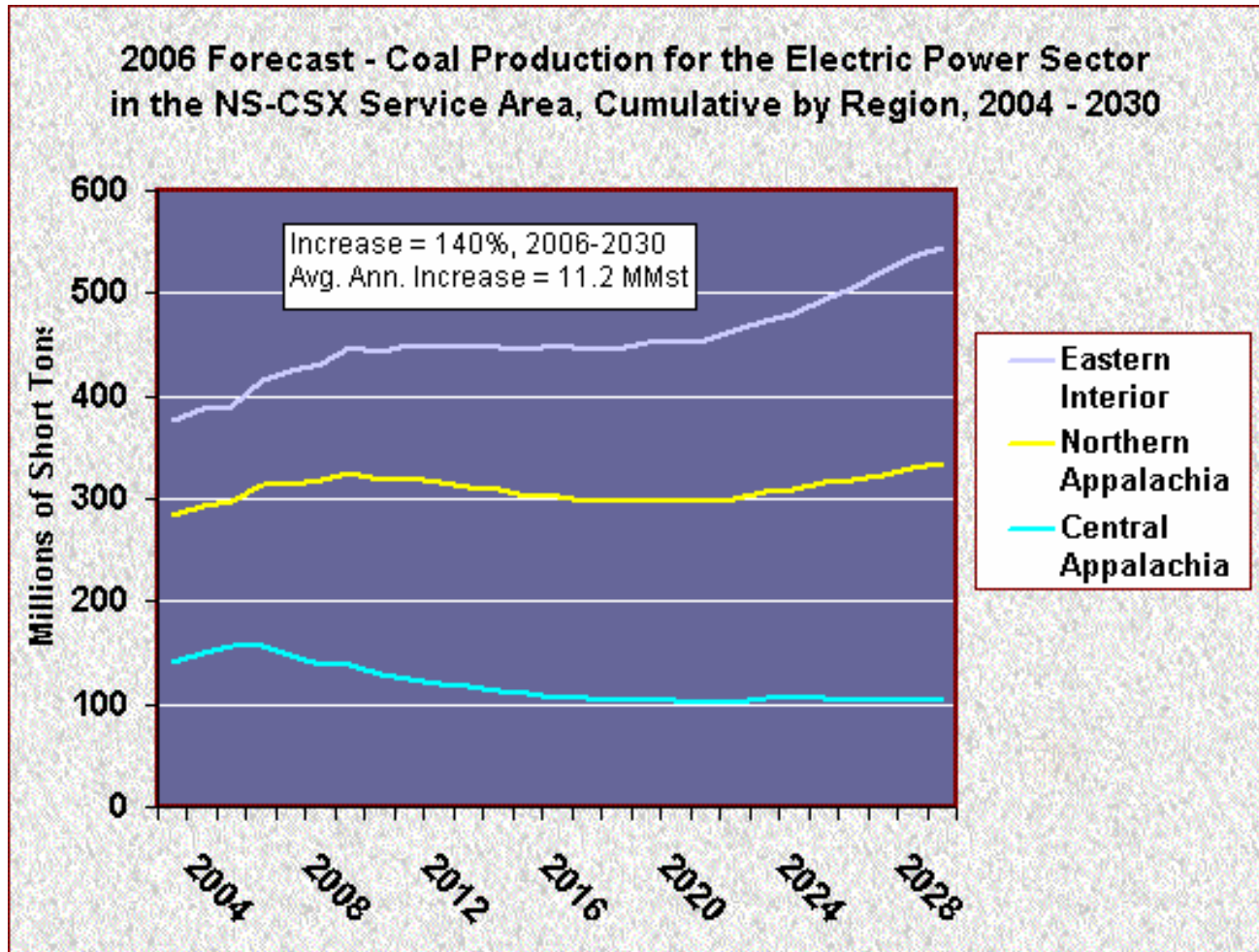


Annual Energy Outlook 2006



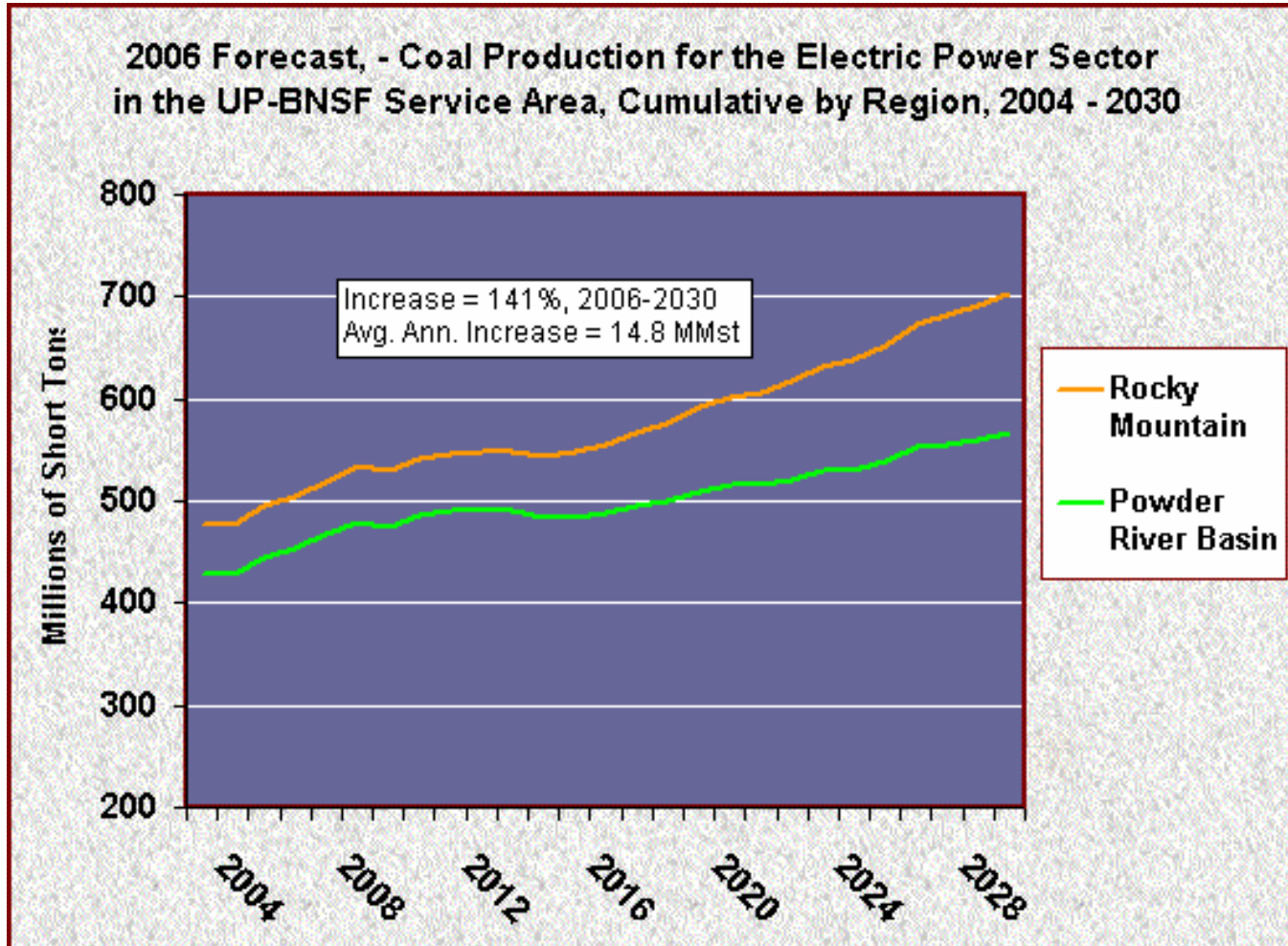


Annual Energy Outlook 2006





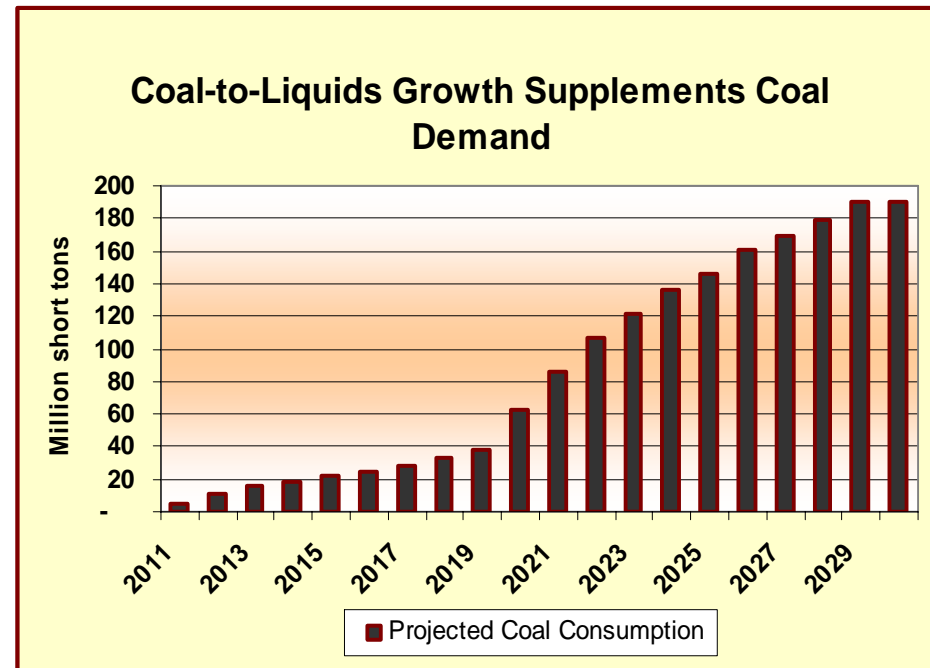
Annual Energy Outlook 2006





Coal-to-Liquids was Forecast to be Only Growth Coal Market Besides Electric Power

- CTL demand starts in 2011 with 5 MMst
- Grows to 62 MMst by 2020 and 190 MMst by 2030
- Supply areas initially PRB and Dakota lignite; the Illinois Basin (near high liquid fuel demand) is a logical development





Coal market and demand factors

- Starting in 2001-2003, railroads began imposing higher coal transport rates
- Effects have been gradual on average shipping costs as new rail shipping contracts phase in over 6-8 years
- Although average rate increases are gradual, contrasts between prior and new rates are dramatic, fueling shipper anxiety



Coal market and demand factors

- Coal prices at mines have risen as well
- The China factor and international pricing, unreliable suppliers, bankruptcies of over-leveraged coal producers, and interplay of coal and SO₂ markets have made spot coal less predictable.
- Buyers accept higher coal prices if they ensure reliable supplies.

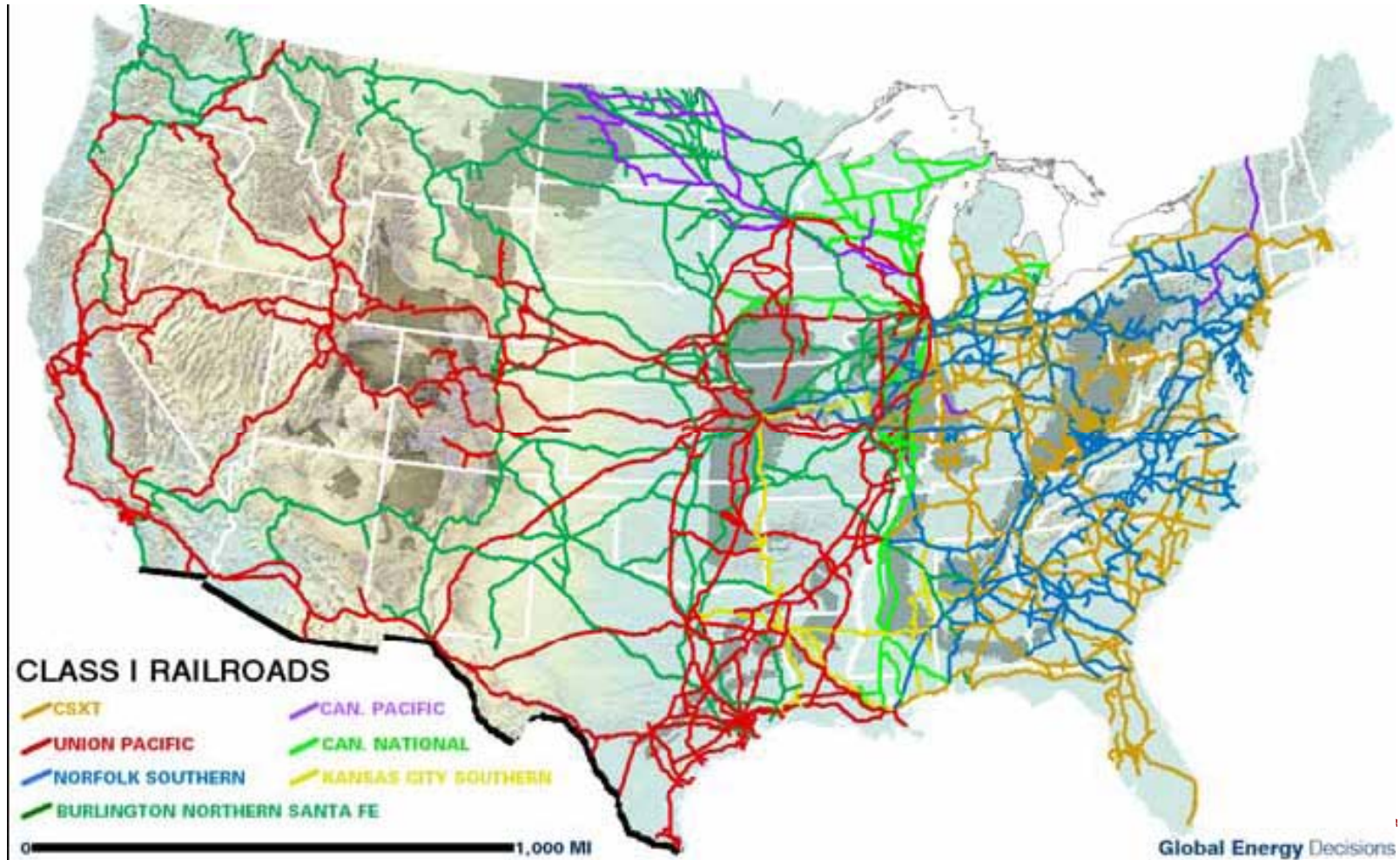


Coal market and demand factors

- Fuel surcharges had a notable impact on delivered coal prices in 2005-2006
- Use of fuel surcharges was unusual but they have now been re-codified in expectation of recurring oil price spikes
- Movement toward distance-based surcharges would affect western coals more severely



Class I Railroad Network





Changes in Supply Chain Variables

- Customers concerned over getting coal, due to several years of overall rail freight growth and undercapacity to meet the higher demand
- Railroads expanding in other areas, such as long-haul intermodal container freight
- Some shippers feel that long-term business relationships with railroads have been devalued.



Changes in Supply Chain Variables

- Shippers must also evaluate costs of updating or expanding fleet and unloading facilities to win railroad service
- Power plants need 7-10 years to plan and build even conventional coal plants; railroads plan capacity improvements 3-5 years ahead, and periodically revisit – adding unfamiliar fuel uncertainty for electric power planners



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Other Variables and Externalities

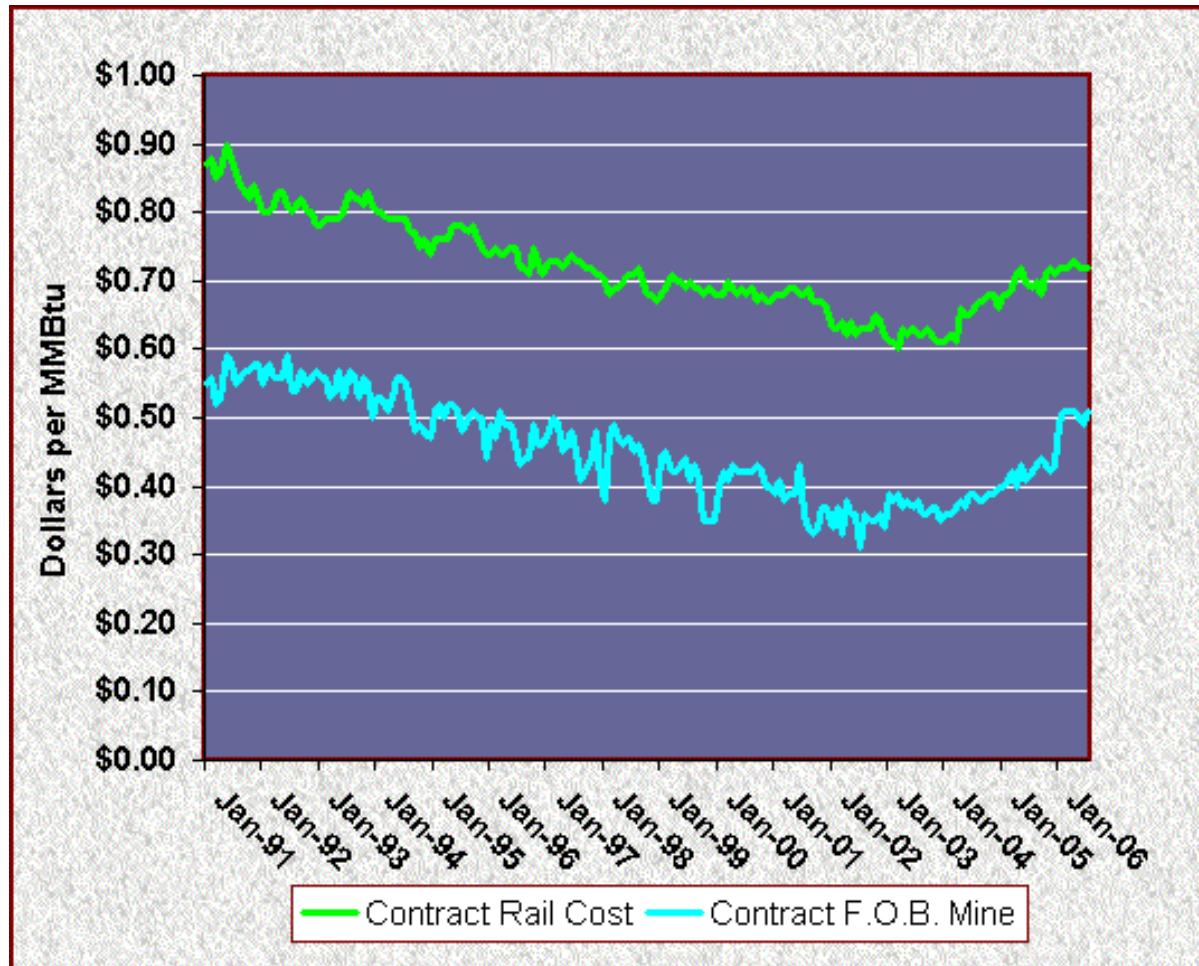
- In late October 2006 the GAO released its Freight Railroads report; it concluded:
 - The financial health of the rail industry is substantially improved since 1980 (Staggers Act)
 - Concerns remain over captive shippers and competition as industry has consolidated
 - Uncertain that railroads can meet projected freight traffic increases of next 10-15 years: benefits are National but investments are private

Source: Government Accountability Office,
Freight Railroads, GAO-007-94, October 2006





Powder River Basin Average Contract Coal Costs at the Mine and for Rail Transport, January 1991 – July 2006 by Month

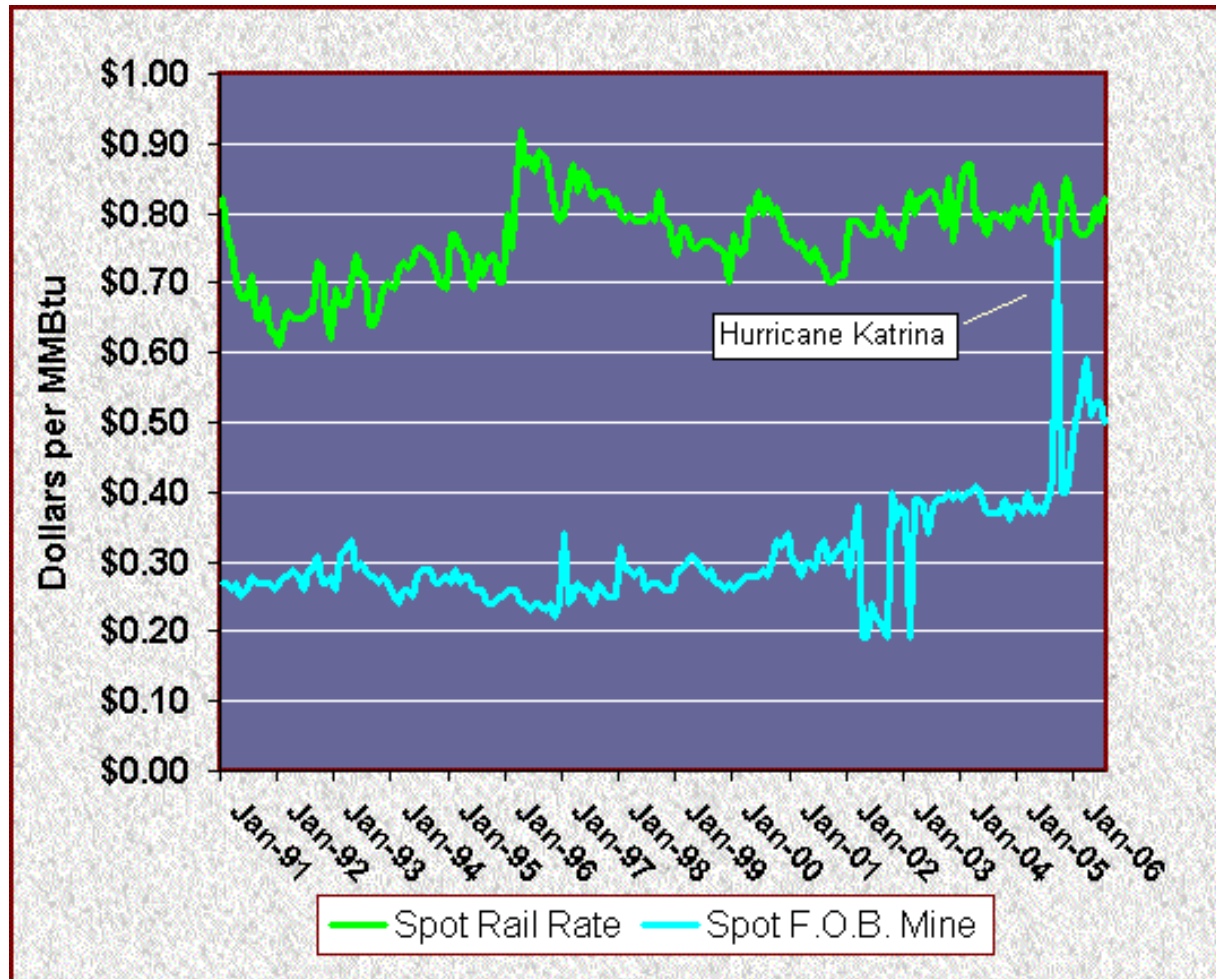


Source: Platts COALdat database





Powder River Basin Average Spot Coal Costs at the Mine and for Rail Transport, January 1991 – July 2006 by Month



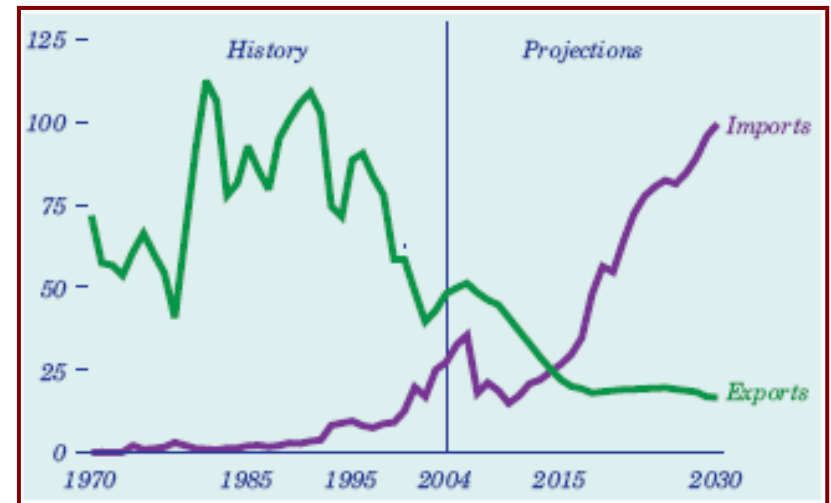
Source: Platts COALdat database





AEO 2006, Coal Imports Growing How Soon, How Fast?

- EIA projected declines to 18 and 21 MMst in 2007 and 2008 while capacity is projected at 56 and 63 MMst
- After 2013, EIA projected rapid growth in imports, reaching 55 MMst by 2020 and 99 MMst by 2030
- Also projected: that U.S. will be a net importer of coal by 2015



Source: EIA, Annual Energy Outlook 2006





Significant factors included in AEO2007

- Changes in oil and natural gas markets in past 12 months will cause only minor changes in 2006 long-term forecast
- The rate of growth in electricity demand was slowing in AEO2006; the bases for electricity growth rates are about the same
- The total capacity of announced and planned new coal plants has declined since last year, which is not unusual



Coal-specific factors included in AEO2007

- Model improved to include more accurate distance-based coal fuel-surcharge data
- AEO2007 will start with higher base year coal prices and transportation costs
- Coal supplies baseline includes shorter supply and shipping contracts and higher direct and indirect customer costs
- Improvements in modeling of lignite fuel use for electric power plants



Coal-specific factors included in AEO2007 (continued)

- Projections of coal-to-liquids build decisions incorporating both coal supply details from coal model and petroleum product data from the petroleum model
- Better input file for coal imports and better modeling of delivered cost at the plant
- Review and update coal mining and transportation equipment cost increases and mining productivity trends



Coal Import Capacity for Growing Demand

Terminal	State	Import Capacity			
		2005 Cap MMst	2007 Cap MMst	2008 Cap MMst	Change MMst
ASD McDuffie Terminals	AL	12.0	18.0	18.0	6.0
Gulf/Lower Mississippi (non-KM)	LA/MS	9.0	9.0	9.0	0.0
Gulf/Lower Mississippi (KM)	LA	3.0	3.0	3.0	0.0
KM Charleston, Shipyard River	SC	2.0	6.5	10.0	8.0
Jacksonville, JAXPORT	FL	0.0	3.0	-	3.0
KM Tampa, TAMPAPLEX	FL	1.0	2.5	2.5	1.5
KM Fairless Hills	PA	0.0	2.0	2.0	2.0
KM Chesapeake Bay Stevedores	MD	2.0	3.5	3.5	1.5
Dominion Terminal Associates - DTA	VA	0.0	3.0	7.0	7.0
KM Newport News Pier IX - PIX	VA	0.0	0.0	6.0	6.0
NS Philadelphia	PA	1.0	1.0	-	0.0
Consol Baltimore - CNX	MD	0.0	2.0	2.0	2.0
Gateway Terminal	CT	1.0	1.0	-	0.0
Providence - PROVPORT	RI	1.0	1.0	-	0.0
Savannah River Wharf	GA	0.5	0.5	-	0.0
TOTAL		32.5	56.0	63.0	37.0

Sources: Hill& Associates 2005; KinderMorgan, Feb 1, 2006; Coal & Energy Price Report





Conclusions

- Improved stockpiles in coal consuming sector and flat prices in late 2006 provide temporary relief to buyers but have little effect of coal and shipping cost forecasts
- Forces that drove AEO2006 are still in place with some issues moderating and some growing, but effects on overall projections over 20-25 years are small



Conclusions (continued)

- Some issues may have significant impacts (e.g., CTL build decisions) but based on current conditions, EIA forecasts must be tempered (several bills to promote CTL are pending, and several studies near completion to assess coal reserve availability and technology capabilities)
- Weight of GAO report, FERC hearings last summer, consultant studies, and shipper group lobbying seem to guarantee continuing reform efforts and rail-shipper sparring.



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