- As a long-term fundamentals approach, using a linear programming model of the gas market, the forecasts incorporates "perfect foresight" and thus tends to smooth out the volatility that characterizes gas markets.

- Current NYMEX prices at Henry Hub represent this volatility in the markets and today are higher than prices in the model.

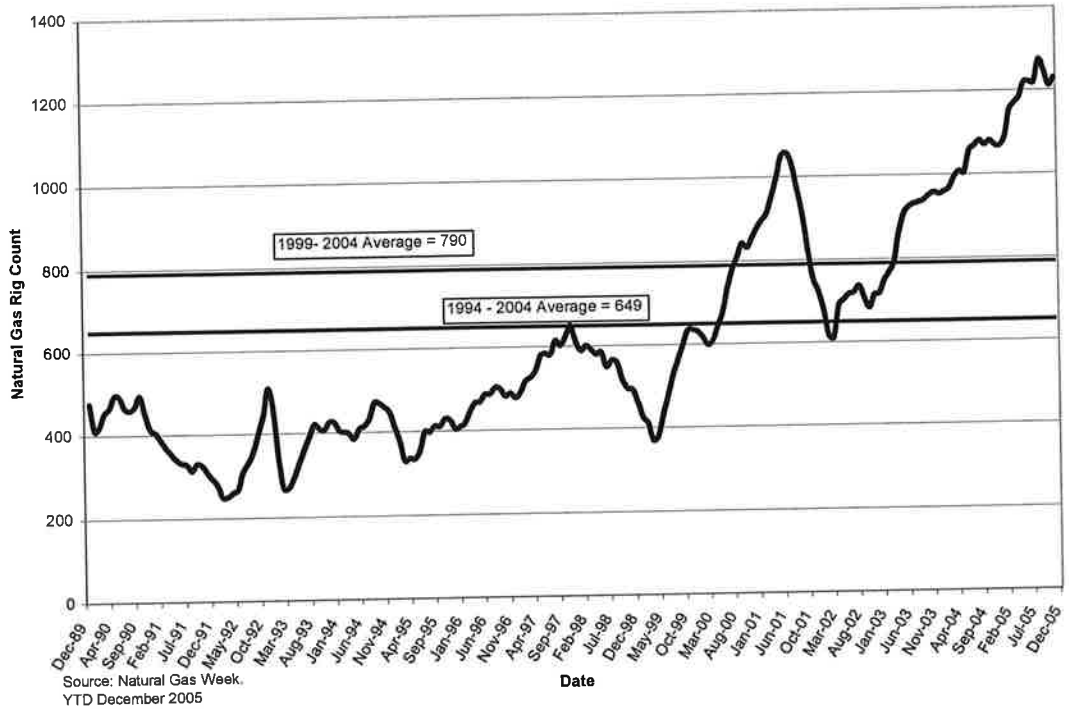
    - Futures prices are a poor predictor of long term gas price trends.

    - Except for the near-by strike months, futures contracts are thinly traded, and tend to fluctuate in response to current market conditions

DISCUSSION OF BASE CASE GAS PRICE FORECAST

The Base Case shows a natural gas price decline in 2017 as Alaskan volumes (4 Bcf/d) enter the market.

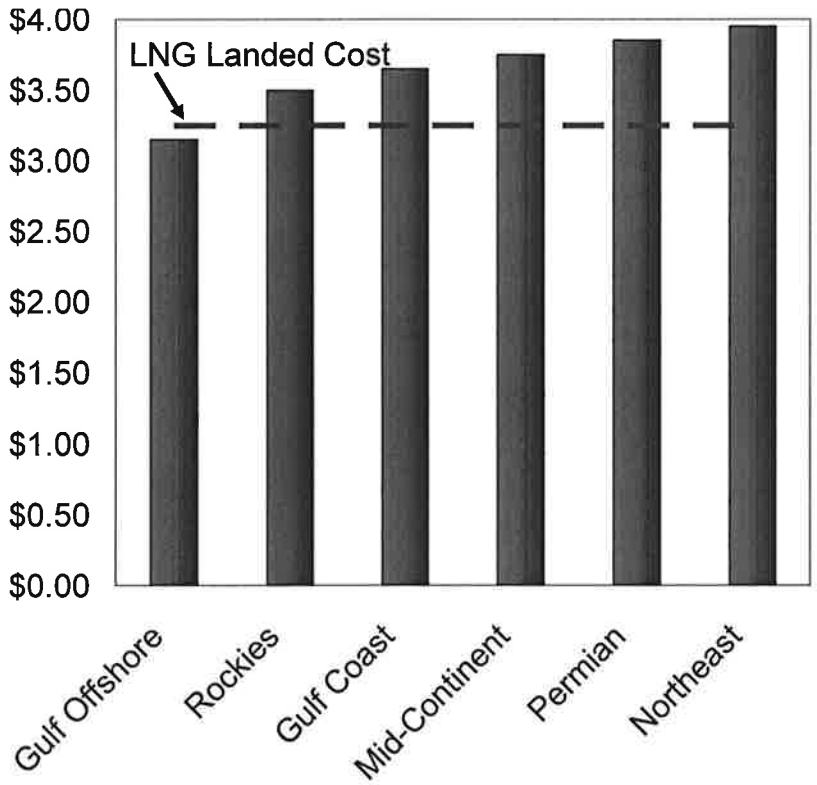
Figure 5-32
Natural Gas Rig Count



Source: Natural Gas Week.
YTD December 2005

- Natural Gas Prices
  - In the 1990s, natural gas prices were low. The average Henry Hub price in the 1989 to 2000 period was $2.51/MMBtu (in 2003$).
  - Since 2000, both natural gas prices and volatility have significantly increased.
- Natural Gas Supply
  - After rising by nearly 70 percent from 1999 to 2001, the U.S. rig count fell dramatically in 2002 due to the Enron collapse, low gas prices in 2002 and financial problems in the energy industry.
  - Rig counts have been climbing steadily since 2002, but activity has not yielded large increases in short-term production levels.
  - While the drilling and supply response in the U.S. and Canada will impact prices, LNG will be the key incremental supply.

Figure 5-33
LNG Could be Landed in the US at Low Cost

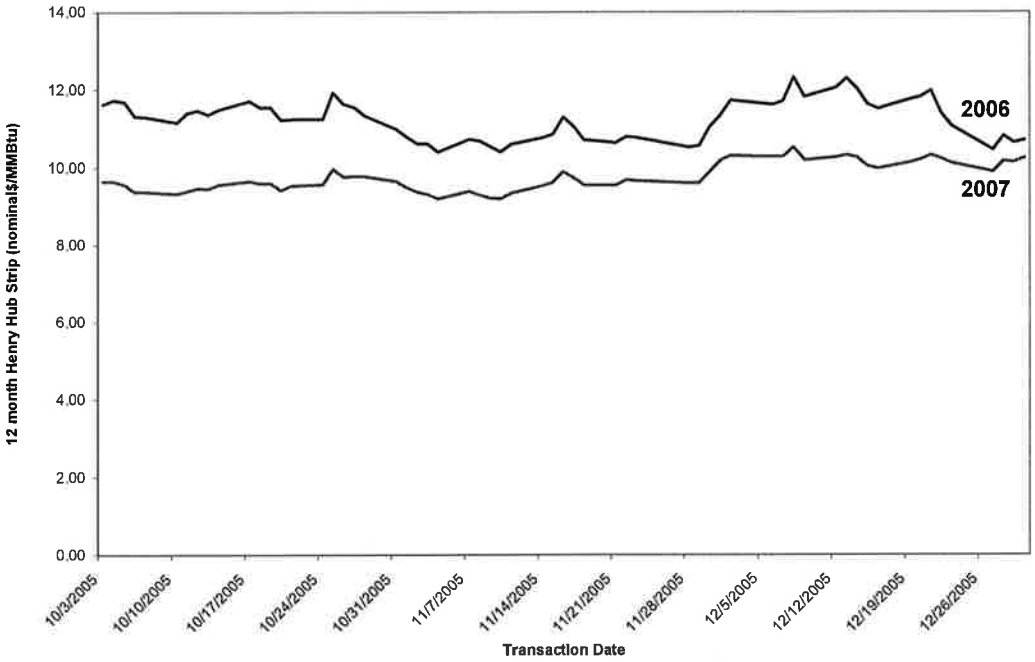


- ICF forecasts large increases in LNG and offshore Gulf supply. While expensive, these supplies are not as costly as current prices indicate. The high prices are related to a tight demand and supply balance in energy markets generally, and in the oil market particularly.
- As international supply and demand for LNG grows, and as alternative markets for the natural gas develop, e.g. gas-to-liquids plants, LNG will likely be priced into the US based on international supply and demand conditions.
- In a U.S. market with an average demand of 60 Bcf per day, LNG terminal capacity is poised to significantly increase.
- With the recent passage of the Energy Policy Act, Congress intends to remove barriers to adding new LNG capacity by strengthening FERC jurisdiction over siting of new LNG terminals.
- Not all of the proposed projects will be built, but the critical issue is expected to be the clearing price of LNG, not import capacity.

Long-Term Market Dynamics Support a Decline in Current Prices by 2010

- Supply
  - Increasing LNG imports, reaching over 4 Tcf by 2012 .
  - Modest supply response in lower 48 as unconventional production kicks in and higher production from Gulf of Mexico offshore.
  - Alaskan gas by 2016; Mackenzie Delta volumes by 2010.
  - Energy Policy Act promotes gas production, LNG imports, pipeline facilities expansions.
- Demand
  - At the current high price of natural gas, the demand for natural gas may be temporarily weakened.

Figure 5-34
NYMEX Gas Futures (Nominal $/MMBtu)



Source: Bloomberg (NYMEX) natural gas futures prices for 2005 and 2007 from transactions dated 10/3/2005-12/30/2005

Recent Historical Crude Oil Prices

- Crude oil prices have been rising since early 1999, exceeding the 1990s average by 2000. The primary drivers for higher crude prices have been higher global oil demand and low excess, or spare crude oil production capacity
- This increase has accelerated over the last two years. Current high oil prices have not been seen since the early 1980s, after correcting for inflation.
- Oil prices affect most fuel markets. This is due to fuel-on-fuel competition and the correlation of demand and economic factors.
- Although low excess capacity has driven up prices, these may not be sustainable, and will trigger supply and demand reactions such as:
  - Oil supply response
  - LNG development
  - Coal development
  - Non-fossil energy development
  - Slower economic growth

- Energy efficiency

- The exact pace of these changes is difficult to predict because they involve large capital investments and intersect with government policy.

Figure 5-35
Low Excess Capacity and Low Days of Supply Are Fundamentals Supporting High Crude Prices

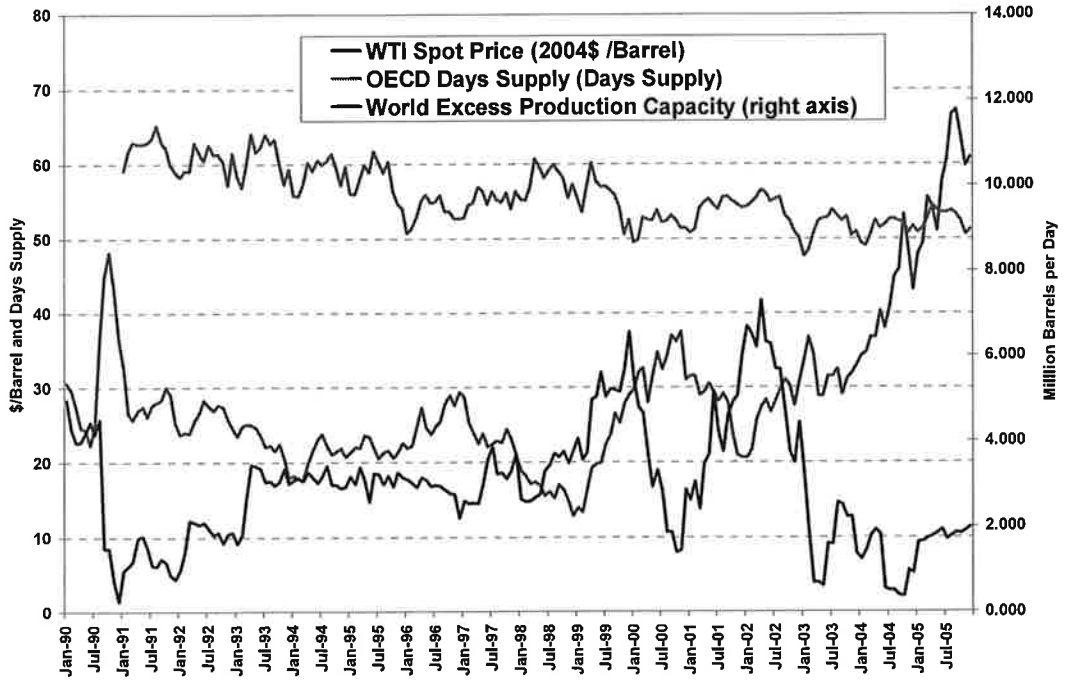
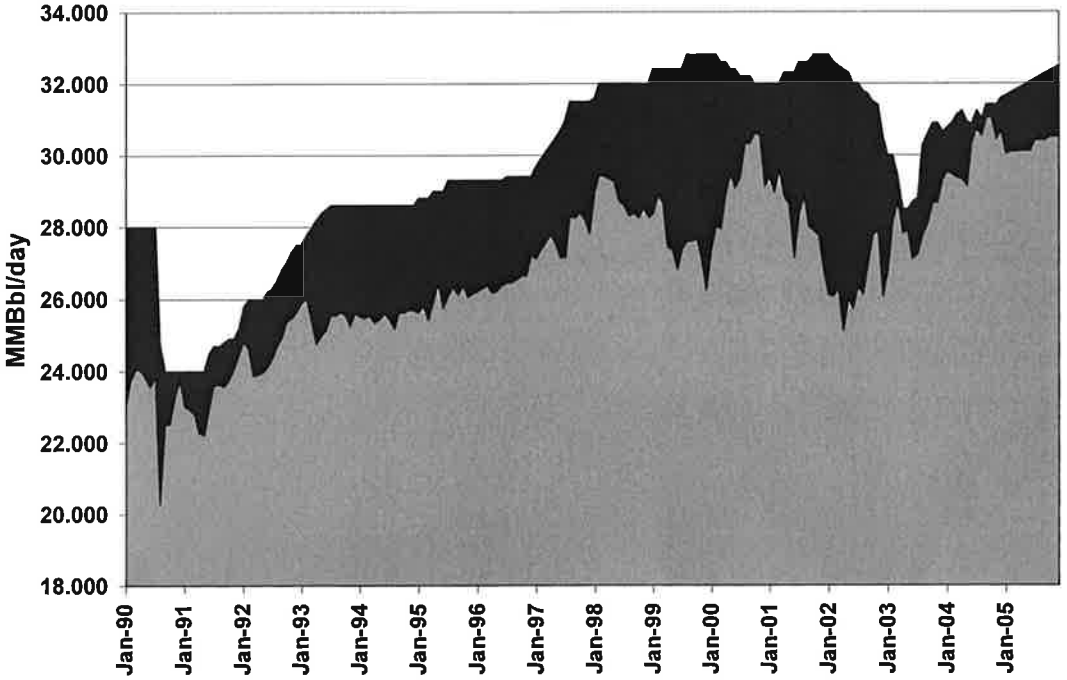


Figure 5-36
OPEC Spare Capacity is Extremely Tight Right Now



World Crude Oil Production Has Been Unable to Keep Up With Demand

- Oil production has risen by more than 10 percent since 1999 and is at the highest level since at least 1994. Russia and OPEC production have grown the most. However, oil supply growth has been eclipsed by stronger demand growth.

- As oil demand stretches supply, prices are, in part, set by inter-fuel competition. Thus, oil price effects will be moderated as other energy sectors respond along with responses within the oil sector.

- The reduction in spare global refining capacity is creating higher price levels for refined products which is additive to the fundamentals supporting crude prices. We anticipate this tightness to be sustained through the balance of the decade unless global demands moderate

Fundamental Market Factors Outlook

- Rapid increase in global product demands will continue, with some moderation

- Tight spare global crude production capacity in short term, with investment impact emerging
- Continued reduction trends in product sulfur levels across the world
- Tight refining capacity, with new investments impacting in the 2009 plus timeframe

Results in an environment of:

Overall Outlook for Oil Markets

- Continued high prices for crude and products versus history, barring sustained demand abatement
- Price volatility across all products based on real and perceived supply/demand disruptions
- Strong premiums for crudes and products which have low sulfur versus higher sulfur grades
- Premiums will drive investments in refining capacity, alternative clean fuels (GTL, etc)
- Oil prices – For 2006, we project a price of approximately $53/bbl in real 2003$. Beyond 2006, our outlook for crude oil prices is for equilibrium prices in the $45 to $55/bbl range (2003$)
- In 2006, ICF expects short term moderation in price from 2005 levels due to price impact on demand. Current price run up is due to Iranian and Nigerian political unrest, and potential threat to spare capacity
- From 2006 onwards, ICF price forecast takes into account the current market situation, market fundamentals and the changes expected to occur in th e market
- From 2006 to 2012, increase in production investment will offset continued demand increase in developing countries
- Saudi production growth in 2012 to 2015 will further moderate price
- Beyond 2015, steady demand growth and high cost of more unconventional crude sources cause a steady rise in price

Distillate Fuel Assumptions

- The high margins between distillate fuels and crude (No.2 & LSD spread vs WTI) since mid 2004 will be sustained due to continued tight global refinery capacity, increased global dieselization, and continued lower global sulfur limits in fuel.

- The forecast incorporates a significantly higher distillate margin through 1Q 2006 due to short term tightness stemming from the hurricane impacts on refining capacity, but also includes some peak periods in 2006 and 2010 as ULSD, and off-road diesel sulfur requirements are implemented.

- Premiums for ULSD vs LSD will be high (10 cpg average) for a number of years, and then moderate as refiners and the distribution system are essentially all handling ULSD quality product.

Residual Fuel Assumptions

- The residual fuel market is typically driven by demand pulls from utilities and for ship bunkering needs. U.S. demands are met by a mix of refinery production (55%) and imports (45%), with about 30% of U.S. refinery production exported.

- The market for residual products is not driven by crude prices as much as by alternative fuel prices for utilities, primarily gas. The rise in crude prices since 2004 have resulted in a much wider spread between crude price (WTI) and residual fuels.

- The residual market for utility grade (1%) was tight in 4Q 2005 due to supply disruptions impacting refiners and blenders, and high gas prices driving utilities to oil.

- Utilities and Industrials who burn residual are limited by sulfur emissions on the maximum allowable that can be burned. This limitation on demand, coupled with more global heavy crude production, will tend to sustain the wider spreads between WTI and residual fuel in the future.

- The market has currently shifted back as gas prices have rapidly fallen. ICF expects low Sulfur residual fuel prices to track gas prices.

Outlook for Low Sulfur, High Sulfur, and 1% Residual Oil Specifications

- On road Ultra-Low Sulfur Diesel (15 ppm sulfur) phases in June 1, 2006 with an 80% compliance factor. The full phase-in will begin in 2010.

- The recently proposed off-road rule will require non-road diesel to be under 500 ppm (except for heating oil use). This same rule will phase out all 15-500 ppm diesel oil except locomotive and marine diesel use in 2012. Heating oil use may still exceed the 500 ppm threshold after 2012 according to this proposed rule.

- There are no foreseen changes for residual oil (less than 1%) regulations at this time in the U.S. However, sulfur restrictions beginning in 2006 for bunker fuels in the Baltic, and 2007 in the North Sea will impact global low sulfur supply balances.

Distillate Price Projection

- High demand growth on a global basis for diesel fuel and tighter sulfur specifications will sustain distillate margins at well above historical levels.

- Distillate (No 2) premiums vs WTI have risen from $2-3/bbl in the 1990's/early 2000's to $4 in 2004, $11 in 2005. We anticipate some moderation, but only after ULSD is implemented in 2006.

- Distillate margins should moderate based on refinery capacity and sulfur handling growth, but will likely remain in the $8/bbl range over the period.

- The 2010/2011 period should see a higher premium as ULSD is introduced for off-road use.

Residual Price Projection

- As Crude and Product prices have escalated from 2003, residual price has lagged

- Historical discounts vs. WTI have widened from $3-4/bbl for 1% sulfur residual fuel to $13-16 in 2004 and 2005

- Impact of the hurricanes on residual production, especially low sulfur, created a short term reduction in the discount, however, wider spreads are being restored as gas prices have fallen.

- Assuming historic residual fuel demand levels for power generation in the US, longer term discounts vs WTI should be in the $13-16/bbl range

- The variability in residual fuel prices versus WTI is a reflection of the stronger relationship between gas prices and residual fuel in recent years.

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Figure 5-37
Oil Product Price Forecast ($/MMBtu)

Oil Product (Commodity)	ICF Forecast (2003 $)	ICF Forecast (Nominal $)
0.05% Sulphur Distillate (Gulf Coast)		
2006	11.40	11.81
2010	10.48	11.71
2015	9.52	11.74
2020	10.15	13.80
2025	10.78	16.18
1% Sulphur Residual (Gulf Coast)		
2006	6.04	6.45
2010	5.54	6.77
2015	5.18	7.39
2020	5.37	9.01
2025	5.60	11.00
1.5% Sulphur Residual (Gulf Coast)		
2006	5.80	6.21
2010	5.29	6.52
2015	4.91	7.13
2020	5.13	8.77
2025	5.39	10.79
3% Sulphur Residual (Gulf Coast)		
2006	5.08	5.49
2010	4.54	5.78
2015	4.12	6.33
2020	4.40	8.04
2025	4.74	10.14

Note: Spreads between commodity price and WTI Spot price are not subject to dollar inflation rates. Therefore, Nominal Commodity Price = (Real WTI Spot Price + Real Transportation Cost) / Dollar Inflation Factor ± WTI-Commodity Price Spread

Figure 5-38
ICF Fuel Oil Forecast Trends – 2003 $/MMBtu

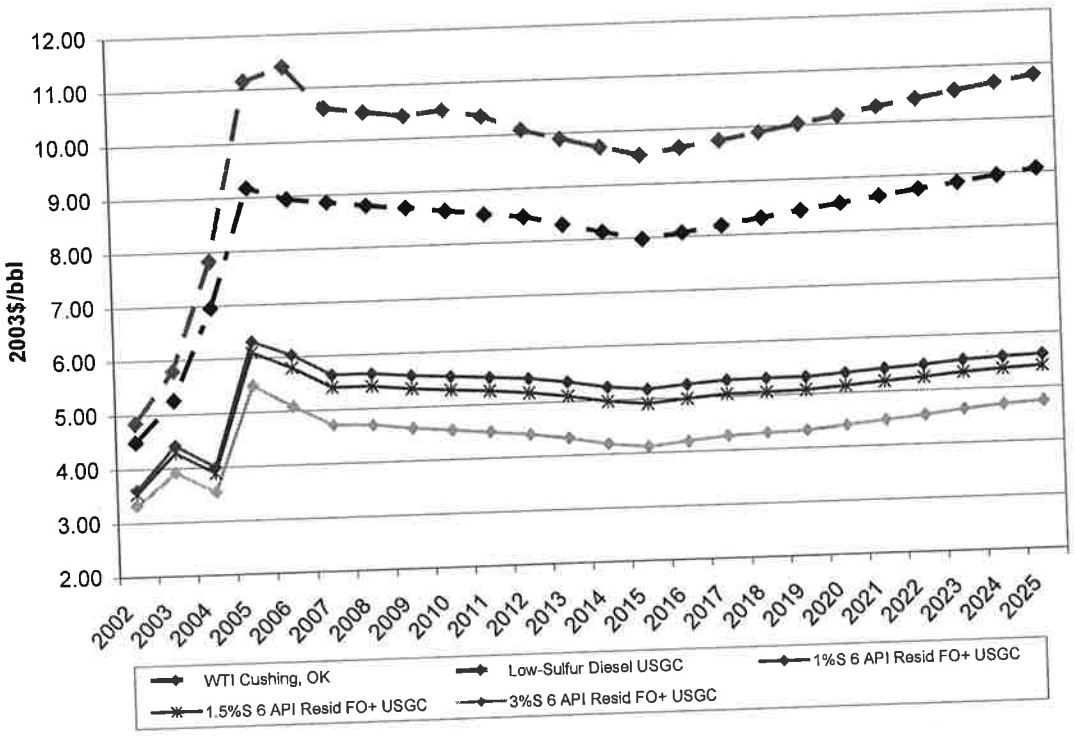
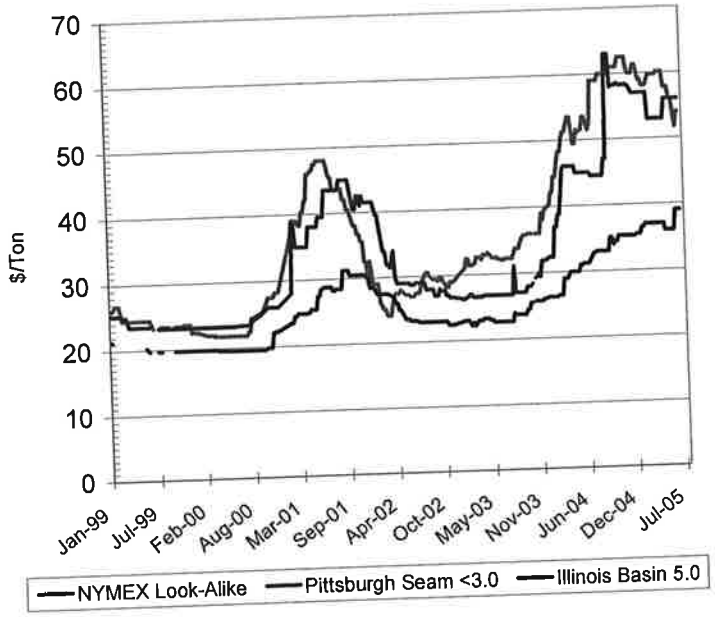


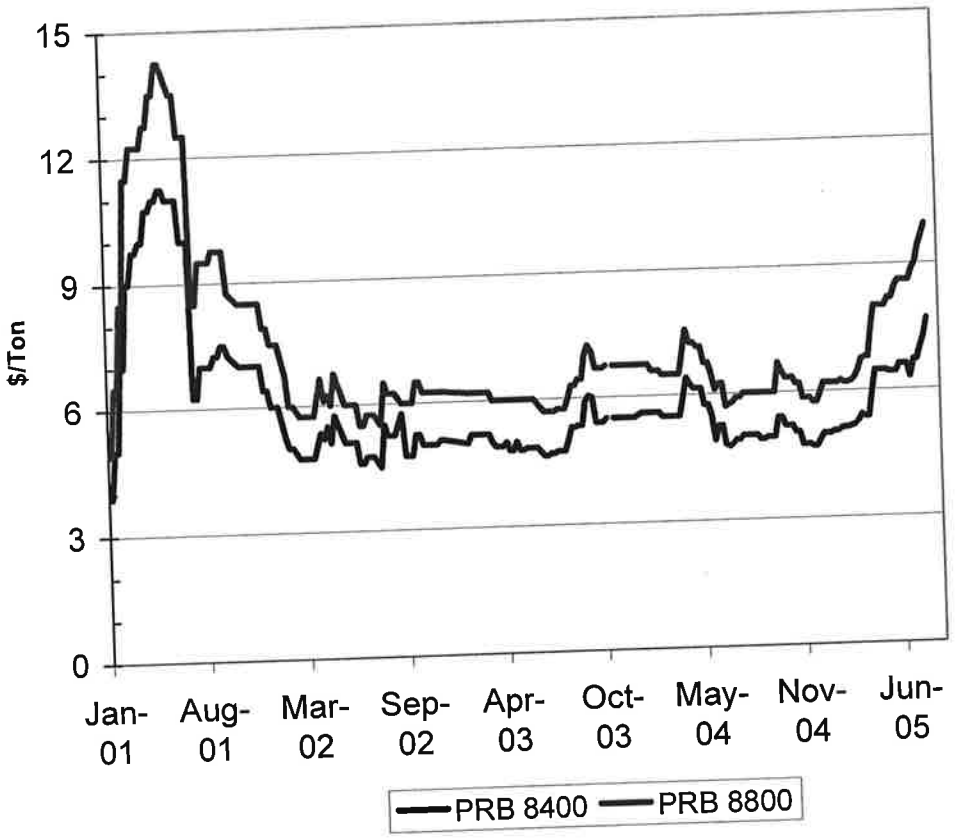
Figure 5-39
Eastern Coal Prices Remain High and Volatile



- Prices for eastern coals reached record levels in the summer of 2004, but softened in the second half of 2004 and early months of 2005.

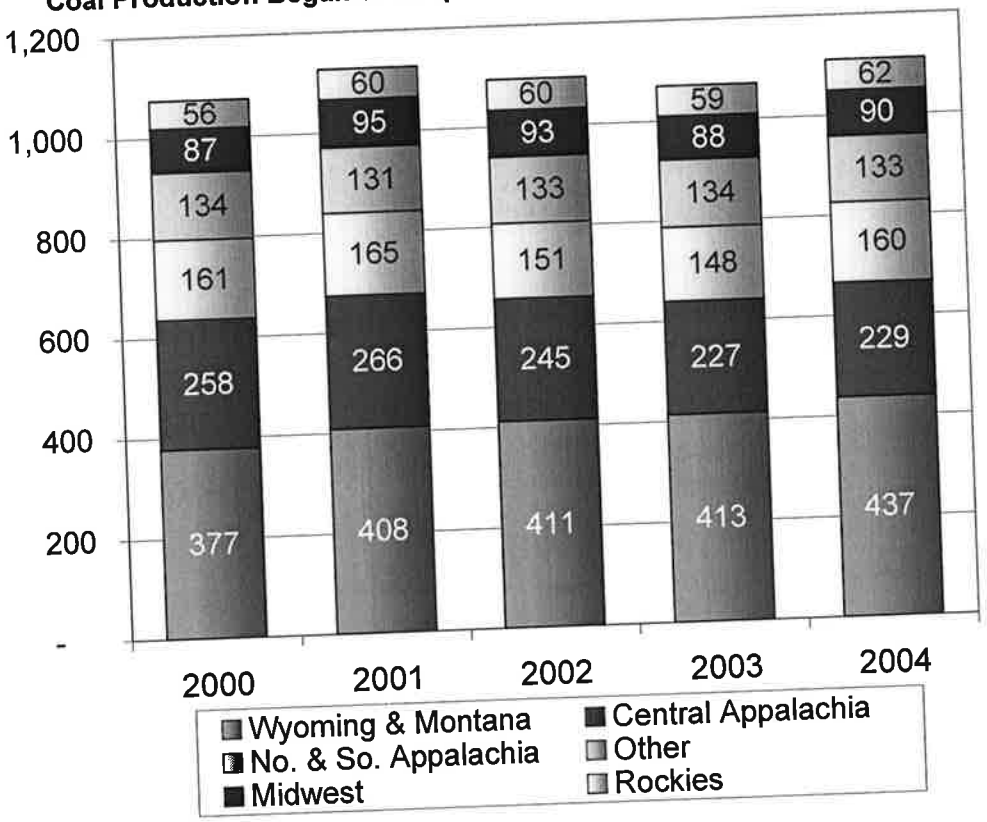
- Eastern prices began to move up again with the announcement of the extensive rail maintenance plan that will reduce delivery capacity for PRB coal through the end of 2005.

Figure 5-40
PRB Coal Prices Have Finally Begun to Move Up



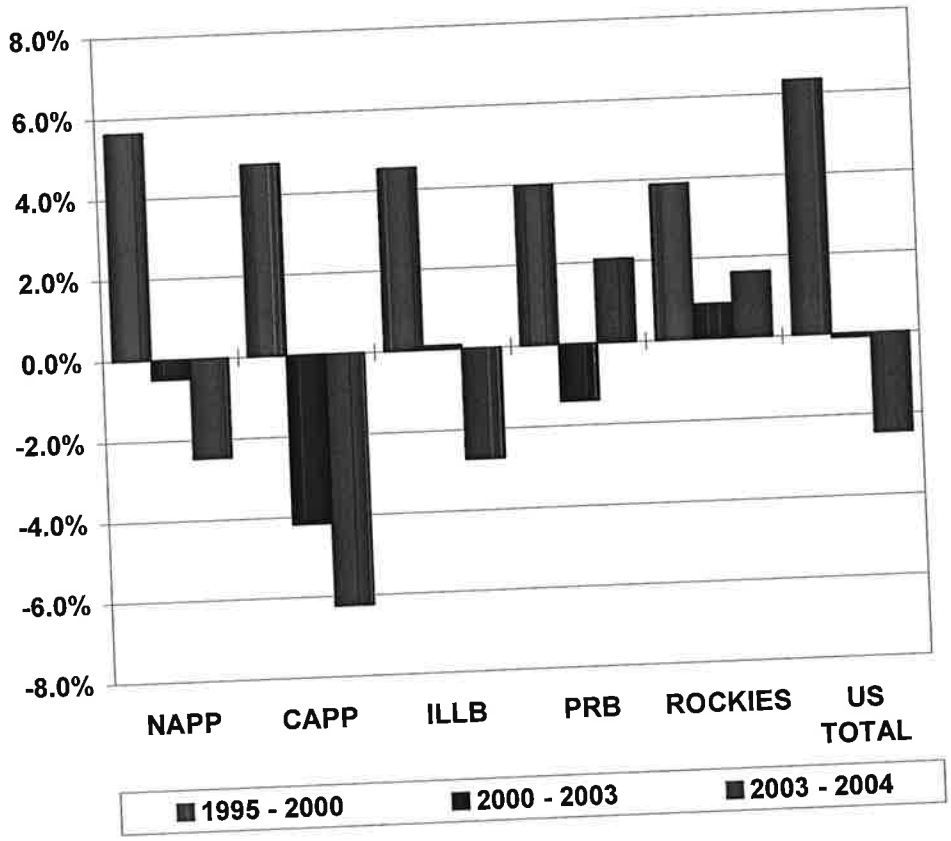
- Though PRB prices were flat throughout 2003 and 2004, prices began moving upwards in May 2005 on the heels of two train derailments and the resultant extensive rail maintenance plan.

Figure 5-41
Coal Production Began to Respond to Record High Prices in 2004



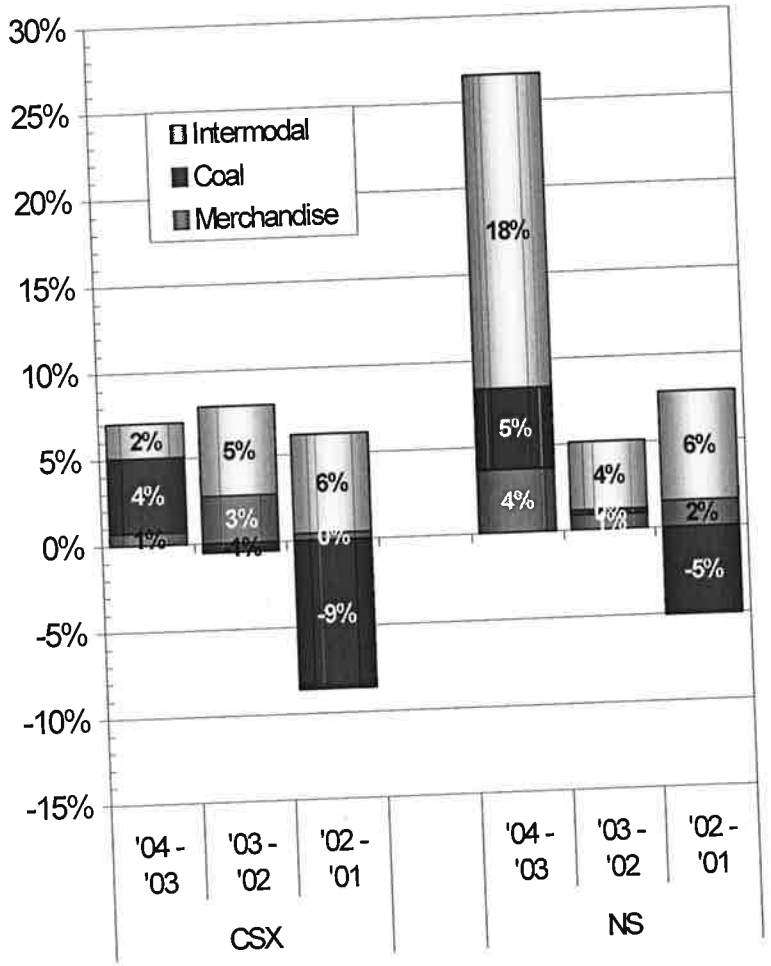
- Total coal production increased by 42 million tons, reaching its highest level since 2001.
- Central Appalachian coal production showed a slight increase in 2004, but still remained 14 percent below 2001 levels.
- Northern Appalachia production increased by over 8 percent in 2004, approaching the levels achieved in 2001.
- The PRB continued to offset production lost from Central Appalachia, adding 24 million more tons in 2004.

Figure 5-42
Eastern Coal Mine Productivity Continues to Decline



- At the aggregate national level, coal mine productivity has reversed a long term positive trend, flattening over the period 2000 to 2003, and then falling by over 2 percent in 2004.
- The drop in productivity was principally due to performance in the Appalachia regions and the Illinois Basin. In 2004, coal mine productivity declined at an even faster rate in these eastern regions.
- In the west, productivity growth began recovering in 2003 and posted gains by 2004.
- A major issue for coal markets continues to be whether the recent decline in productivity is a temporary aberration, or the new reality.

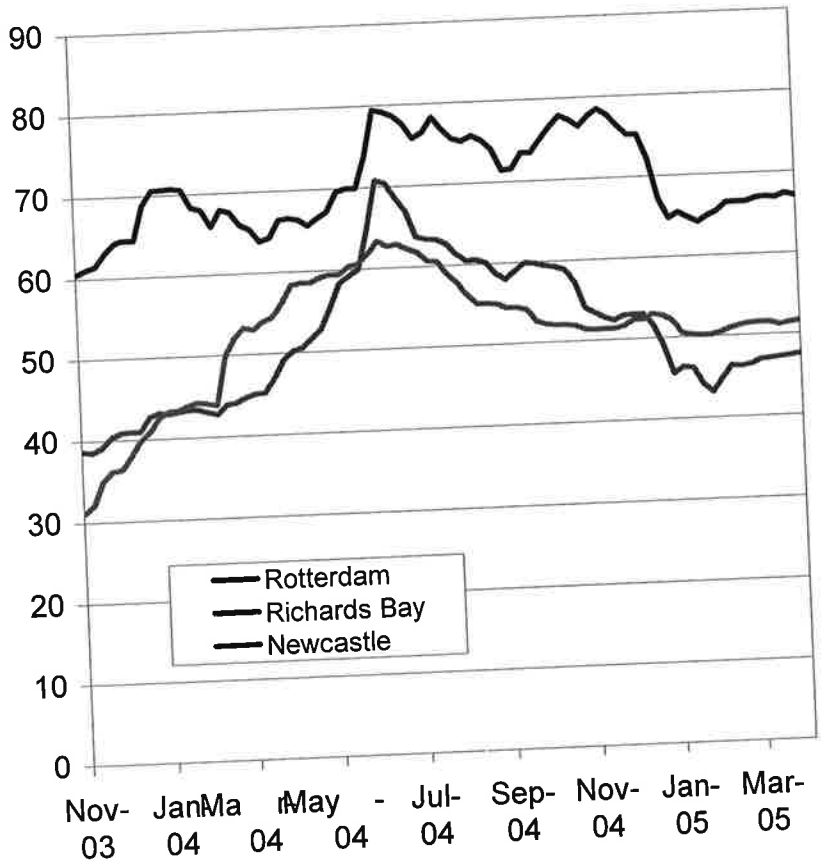
Figure 5-43
Eastern Railroads May Not be Able to Meet the Shift in Demand Resulting from PRB Rail Woes



- Despite concerns about eastern rail performance in 2004, car loadings increased for both NS and CSX.
- Eastern rail performance still has ground to make up, as higher car loadings led to lower train speeds in the first half of the year, as compared to 2004.
- The Eastern coal delivery load will be stressed further by customers attempting to replace their lost PRB supply.

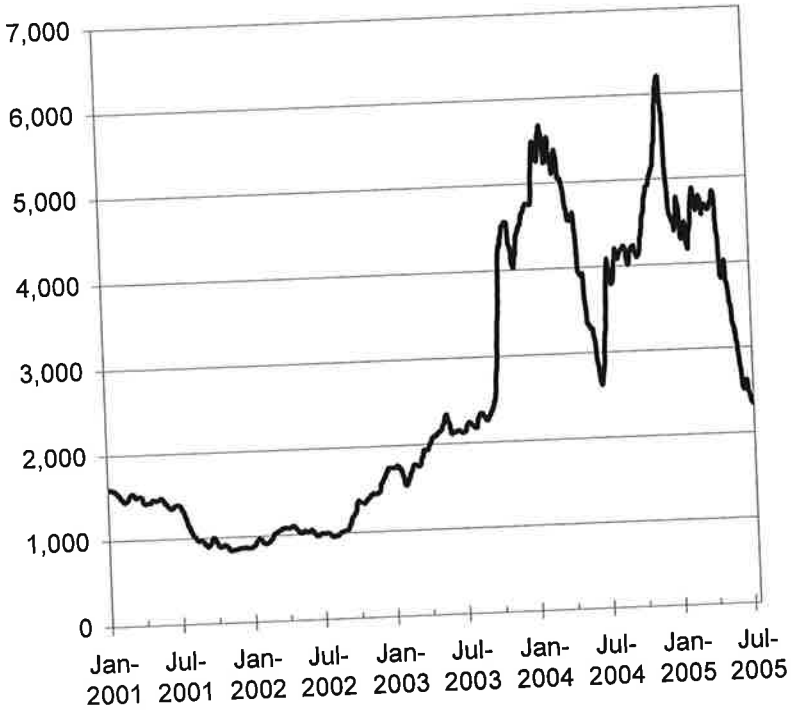
- CSX has announced a rail expansion plan to increase carload and train capacity out of the Illinois basin by about 5%. The plan will cost approximately $800,000 over two years
- Utility coal stocks continued to decline reaching new lows in 2005, even before the PRB rail problems began.
- Major coal producers and utilities began repositioning themselves after the full impact of the PRB track problems crystallized.
- Power producers in the southeast have begun turning to Colombian coal to rebuild their coal stocks.
    - The combined high mine mouth prices and rail capacity problems for domestic coal have made the high delivered cost of import coal economic.
    - No other economic alternatives are available until at least 2006.

Figure 5-44
International Coal Markets Softened in 2005



- International coal prices peaked in mid-2004 both at origination and delivery ports.
- While origination prices for international coal have softened through much of the remainder of 2004 and 2005, destination prices were held high through the remainder of 2004.
- However, as discussed on the following slide, international freight rates have fallen in 2005, leading to a decline in coal prices at the destination port as well.

Figure 5-45
International Freight Rates Have Returned to pre-2004 Levels



- A key measure of seaborne freight rates is the Baltic Dry Index (BDI). The BDI stayed under 2,500 over the entire period from 2000 through 2003.
- Dramatic increases occurred in 2004 principally in response to growth in China and India. By mid-2005, however, the BDI fell back into the 2,500 range.
- The return to pre-2004 levels is due in part to a reduction in the demand for international transport.

- Reduced Chinese imports, particularly iron ore
- A slowing of US economic growth
- Growth of world trade in general has slowed

- In addition, shipping capacity has begun to respond to record high prices. The typical lead time for new shipping capacity is 18 months to 2 years. It has now been 2 years since the initial run-up in the BDI. Ship makers are now filling orders that resulted from earlier peaks in shipping prices.

Coal Prices are Projected to Decline as Producers Respond to Record High Prices

- The elevated price of natural gas and oil, low coal stockpiles at utilities, and, production and transportation problems have created a volatile market situation in which coal prices have risen well above production costs for existing as well as new mines in many regions.

- However, producers have already begun to respond to these record price levels. As new coal mines come on line and supply increases, coal prices will fall back towards production costs.

- In the Expected Case, coal prices are projected to decline in the mid-term. In the long-term, Expected Case eastern low sulfur coal prices are projected to begin increasing as depletion becomes an issue and new mines are brought online with thinner seams and higher overburden ratios.

EPA's New Air Pollution Regulations Shift Coal Production Away From PRB and Central Appalachia

- PRB coal production in 2008 is projected to be 50 million tons higher than 2004 in the 4P Expected Case. However, production subsequently declines as power companies install SO2 scrubbers to comply with CAIR and CAMR and switch to medium and high sulfur.

- By 2025, coal production in the PRB is projected to decline by approximately 75 million tons below 2004 levels.

- Central Appalachian coal production, which is the source of most eastern low sulfur compliance coal, continues to slowly decline until 2008, when production begins to decline more rapidly as plants scrub and switch away from low sulfur coals. Reserve exhaustion also plays a significant role in Central Appalachia, as many of the low cost reserves have been mined.

- In contrast, medium and high sulfur coal producers, particularly those in the Illinois Basin and Northern Appalachia, are projected to increase output substantially after 2008

- The Rockies encounter a small interruption in its rising coal production in 2008 and 2009, but returns to a rising trajectory once the compliance transition to scrubbing is complete. This is due to the reserves in the Rockies including both low and high sulfur coal types.

The Presence of a Carbon Policy Has the Single Largest Affect on Coal Production

- The Expected Case, which includes a moderate carbon dioxide policy, produces approximately 1.15 billion tons of coal in 2016 and just over 1.2 billion tons of coal in 2025. The virtually flat coal trajectory is due to the high CO2 emissions of coal relative to other fuel types. CO2 prices in the 4P Expected Case are projected to rise from $7.70 per ton in 2016 to $21.7 per ton in 2025 in 2003 dollars.

- In contrast, coal production increases by 300 million tons by 2025 in the absence of a carbon policy in the 3P scenario.

  - Coal production in the Midwest region, which produces primarily high sulfur coal burned in scrubbed plants, increases by 125 million tons between 2016 and 2025 in the 3P case, while production in the expected case is virtually flat. This reflects the increased coal generation and a corresponding increase in scrubbing needed to comply with EPA's CAIR and CAMR regulations. High sulfur Northern Appalachian coal prices are somewhat higher in the 3P case due to higher demand, but prices are moderated by the greater supply of competing high sulfur coal from new Midwestern mines.

  - PRB coal production increases by 75 million tons between 2016 and 2025 in the 3P case, as the low cost production there allows it to dominate coal supply to unscrubbed units and new coal plants in western states.

  - Central Appalachian coal follows a similar production and price trajectory in both cases due to reserve exhaustion and the impact of coal-switching.

Figure 5-46
4P Minemouth Coal Price Forecast

Minemouth Coal Type	ICF Forecast (2003$/ton)	ICF Forecast (Nominal$/ton)
Central Appalachia Low Sulfur (1.0%+ Sulfur, 12,500 Btu/lb)		
2011	40.73	48.84
2015	44.35	58.14
2020	49.75	72.89
Powder River Basin (0.4% Sulfur, 8,800 Btu/lb)		
2011	7.39	8.87
2015	7.26	9.52
2020	6.86	10.06
Illinois River Basin (3.0% Sulfur, 11,000 Btu/lb)		
2011	25.46	30.26
2015	24.18	32.52
2020	23.68	36.03
Northern Appalachia (3.0%+ Sulfur, 13,000 Btu/lb)		
2011	29.67	35.27
2015	27.72	37.28
2020	28.35	43.14
Venezuelan Coal (0.6% Sulfur,12,200 Btu/lb)		
2011	33.49	40.17
2015	33.00	43.26
2020	34.24	50.17
Petroleum Coke (6.0% Sulfur,14,000 Btu/lb)		
2011	22.79	22.79
2015	22.79	22.79
2020	22.79	22.79

Appendix Figure 6-1
Detailed Quantitative Emissions Estimates for $PM_{2.5}$ Impact Assessment

Emitted Pollutant	Source/ Location	Estimated Annual Emissions (tons/yr) [a]					
		Existing GRU Plants (for context)		Future Power Options (base/base/base/base case, 2015)			
		Pre-DH2 Retrofit	Post-DH2 Retrofit	CFB	IGCC	DSM plus Biomass	DSM plus Purchase
SO_2	Deerhaven site-new unit (stack)	n/a	n/a	708 ICF 1163 BVa 1367 BVp	641 ICF	15 ICF	0
	GRU-all other units (stack)	6934 ICF 8354 BVa 27690 BVp	859 2313 BVa 17266 BVp	859 ICF 2313 BVa 17266 BVp	859 ICF	865 ICF	874 ICF
	Other-regional (stack)	n/a	n/a	n/a	n/a	__ [b] (at purchase sites)	__ [b] (at purchase sites)
NO_x	Deerhaven site-new unit (stack)	n/a	n/a	515 ICF 621 BVa 731 BVp	142 ICF	75 ICF	0
	GRU-all other units (stack)	3989 ICF 3992 BVa 14213 BVp	1080 ICF 971 BVa 7617 BVp	1080 ICF 971 BVa 7617 BVp	1080 ICF	1092 ICF	1110 ICF
	Other-regional (stack)	n/a	n/a	n/a	n/a	__ [b] (at purchase sites)	__ [b] (at purchase sites)
PM	Deerhaven site-new unit (stack)	n/a	n/a	117 BVa 136 BVp	not estimated	not estimated	Not estimated
	GRU-all other units (stack)	237 BVa 1840 BVp	179 BVa 934 BVp	179 BVa 934 BVp	not estimated	not estimated	Not estimated
	Other-regional (stack)	n/a	n/a	n/a	n/a	not estimated	Not estimated

[a] Data sources: ICF = IPM modeling assumptions and outputs for this study, BVa = actual emissions used in air modeling by Black & Veatch (2004b), BVp = potential emissions used in air modeling by Black & Veatch (2004a). IPM modeling of CFB and IGCC units assume 30MW biomass co-firing.
[b] Results to be added for final report.