

Forward Curve vs. Price Forecast

"Prediction is very difficult, especially if it's about the future."

--Nils Bohr, Nobel laureate in Physics



presented by
Daniel L. Vaughn
Director Coal Services,
ICAP United, Inc.

What's Covered

- Timeline of Coal Trading – Then and Now
- Key Components to Trading
- Which Coal Products Trade
- The Forward Price Curve – Fact or Fiction
- Curve Validation
- Misconceptions
- Closing Comments

The United Companies est. 1980

acquired by ICAP North America in Oct. 2005



ICAP United's Coal Team

Dan Vaughn, Ian Tapsall and Manzar Iqbal

The ICAP United Companies

- United Fuels
 - Gasoline, Heating Oil, Weather
- United Crude
 - Natural Gas, Crude
- United Energy
 - Nymex Floor, Advisory Service
- United Power
 - Coal, Emissions

What We Do



At ICAP United, we keep in close contact with all of our clients.

ICAP United, Inc.

Coal Division provides physical and financial brokering services in Eastern and Western U.S. barge and rail coal markets.

Emissions Division provides brokering services in SO₂, NO_x, Reclaim and Emission Reduction Credits.

Coal Trading *a brief timeline*

- 1600s – First Coal Trade: Enrock & Plymouth
- Oct '96 Vitol announces first coal tolling trade
- Feb '98 LGE Energy recognized as an industry leader in coal trading (Aquila, Enron, Dynegy)
- Aug '98 LGE Energy exits trading, takes multi-million dollar write-off
- Nov '98 Dan Vaughn joins Vitol (Avista Energy)
- Nov '99 Avista Energy exits trading – Ouch!

Timeline – 2000 - 2002

- Jan '00 Nymex look-alike (LAL) trades \$20.50
- Nov '00 Dan Vaughn joins United Power
- Dec '00 The Great Coal Price Wave begins
- Aug '01 Nymex LAL trades \$46.50
- Dec '01 The Enron bubble bursts
- Jan '02 Record activity with over 300 trades
- Mar '02 Nymex LAL falls to \$24.50
- Jul '02 Monthly activity falls below 100 trades

Timeline – 2003 to 2005

- 2003 Revolving Door of trade desks
 - Out: Allegheny, Aquila, Duke, Dynegy, El Paso, PG&E, Williams
 - In: DTE, Constellation, Koch, with many more to come
- Sept '03 Nymex LAL trades \$37.50
- Mar '04 Nymex LAL hits \$50.00
- Jul '04 Nymex LAL tops \$65.00
- Jun '05 Nymex LAL falls to \$50.50
- Oct '05 Nymex LAL climbs back to \$59.00
- Apr '06 Nymex LAL trading \$52.50

Timeline - 2006 to present

- Apr '06 Nymex LAL trading \$52.50
- Oct '06 Nymex LAL trading \$46.50
- Jan '07 Nymex LAL trades 39.75

2006 trading volume tops record level

- “Reported” volume 137.1 M Tons, up from 125.0 M Tons in 2005 (actual Volume most likely closer to 200 M Tons)
- Number of trades were up by 43% over the prior year (translates to more trades but less volume per trades)

Number of Active Market Participants

Around 32 regular players – Wow!



- Daily Players: 14 to 18
 - Bi-Weekly: 8 to 10
 - Monthly: 8 to 10
 - Quarterly: 12 to 15
-
- Fishermen (3x/yr): 18 to 20
 - Blue Mooners: 12 to 15
 - Frost Bit: < 10

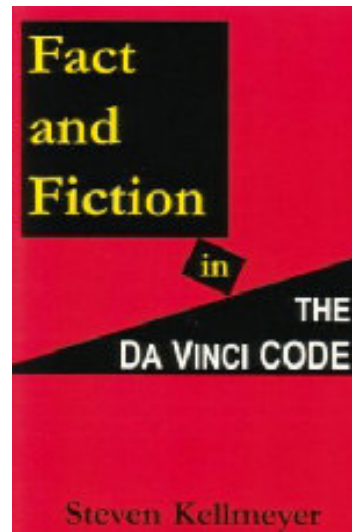
Key Components to Trading

- Credit Worthy Counterparties
 - Very important
- Liquidity
 - Need market participants
 - Standardized contracts
 - Standardized coal products
- Pricing Volatility
 - Forward Price Curve
 - Basis differentials

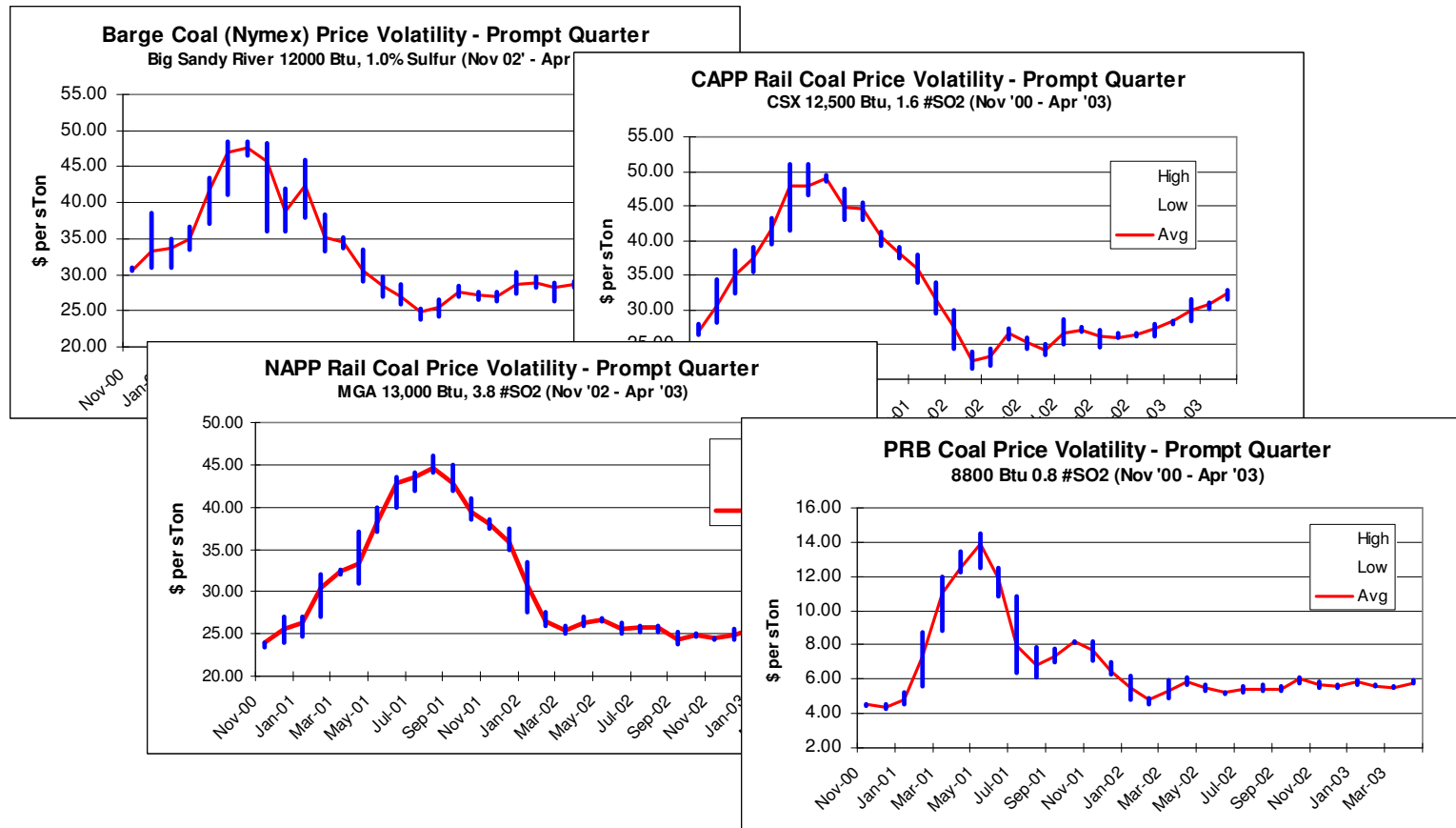
Coals Most Commonly Traded

- Nymex look-alike Barge Coal
 - 12000 Btu 1.0% Sulfur, 12.0% Ash delivered off the Ohio/Big Sandy River
- CSX Rail Coal – Big Sandy / Kanawha
 - 12500 Btu, 1.0% Sulfur, 12.0% Ash
- PRB Coal – dual access to UP and BNSF
 - 8800 and 8400 Btu, 0.8# SO₂ coals
- Along with NS Rail Coals, NAPP, ILB, coals to be named later, and future draft picks

Forward Price Curve – Fact or Fiction



Without Volatility, Who Needs Trading?



Price Volatility = Risk Management

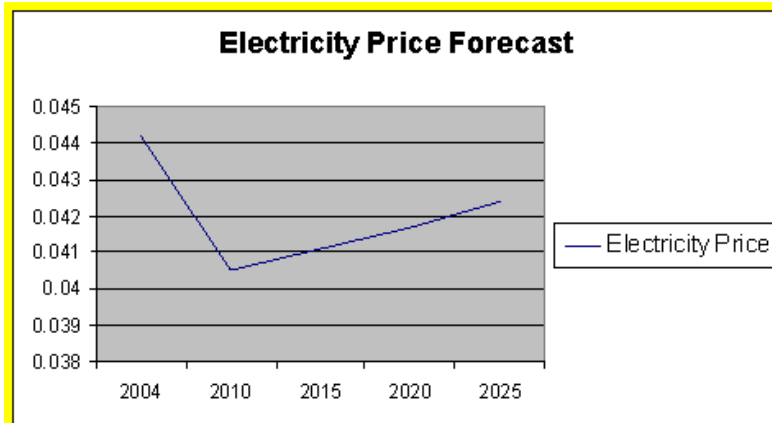
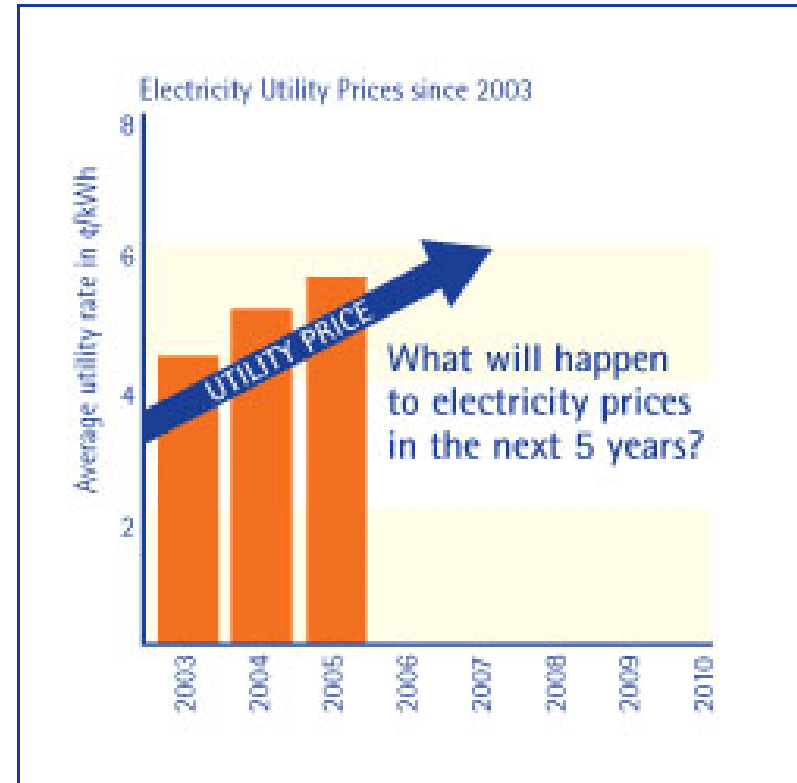
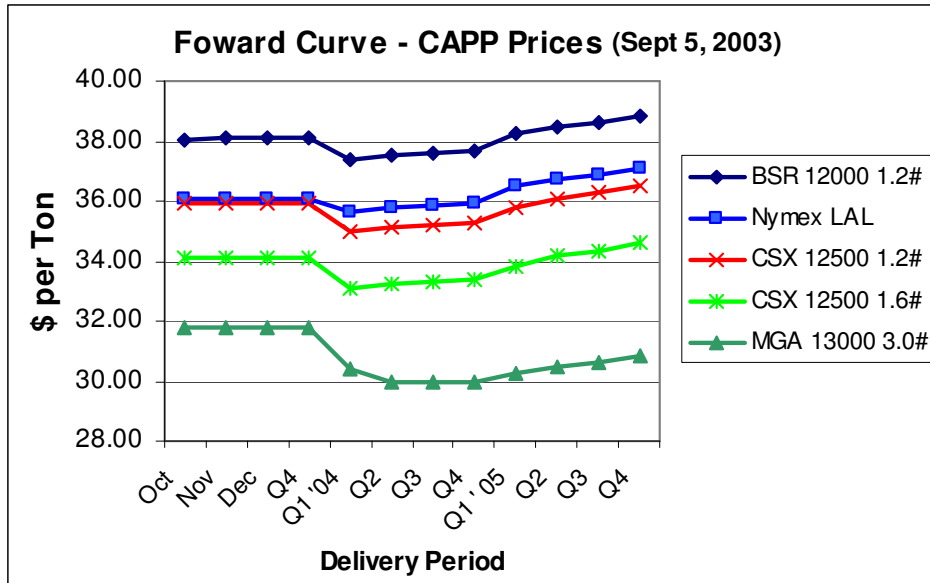
- New & Existing Coal Fire Generation
 - Demand Projections
 - Environmental Regulations
- Transportation (Rail – East & West; trucking)
- Coal Imports and Exports
- Capital Investment & Long-term Coal Pricing / Contracts
- Procurement Strategies

The OTC Hedges Market Volatility

Brought about by:

- Supply Disruptions
 - Transportation, Labor, Environmental, Mother Nature
- Regional Demand
 - Outages, Weather, Economy
- Power Prices
- Natural Gas Prices
- Crude Prices (Refinery Capacity, Diesel, etc.)
- Disagreements (legal matters)

Forward Curve vs. Price Forecast



Forward Curve – Definition / Composition

- The compilation of prices of actual transactions for forward (future) delivery periods that are executed today
- For markets where limited transactions are reported, an assessment of the bid/ask spread is applied
 - a conservative approach is to use the bid side in bearish market (when long) and the ask side in a bullish market (when short)

Forecast – Definition / Composition

- Based on econometric modeling that incorporates supply and demand market conditions, fundamental cost structures, and return on capital.
 - Can be right, but usually wrong, because the forecast cannot be measured until it reaches the actual point of time at which point market conditions and cost structures have most likely changed

The difference between the two

Forward Curves

- Changes hour by hour, day by day
- Always right
- Used for marked to market accounting
- Useless for planning purposes
- Time horizon depends on market liquidity

Price Forecasts

- Future prediction
- Changes quarterly or annually
- Cannot be used for market to market accounting
- Useful for planning
- Projections up to 20 years are common

Illustration from *The Coal Trading Handbook*
Hill & Associates, Doyle Trading Consultants

Forward Curve Vernacular

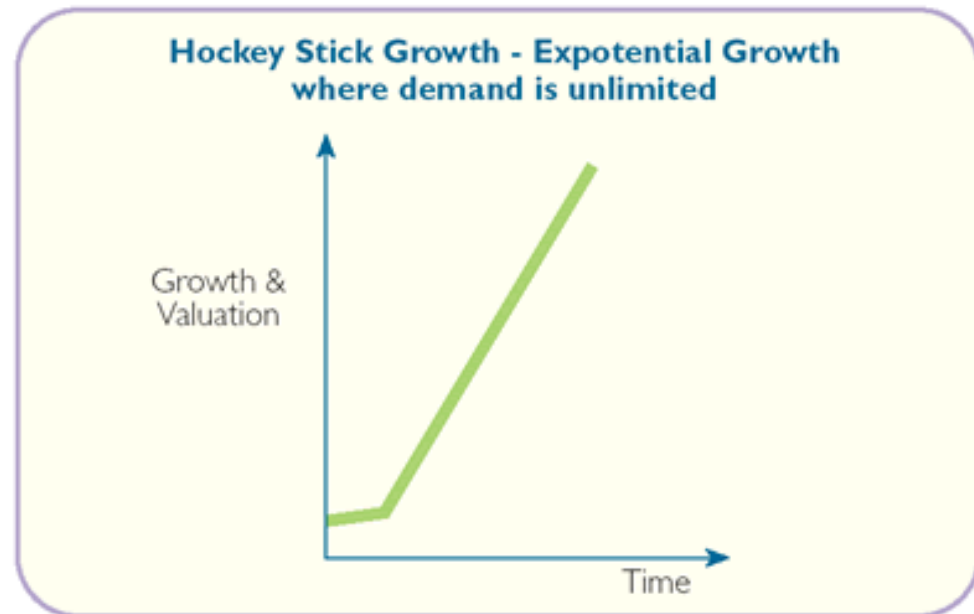
- Contango - the future delivered price is higher than the preceding period
 - The price is increasing over time
 - It has a carry
- Backwardated - the future delivered price is lower than the preceding period
 - The price is declining over time
 - It is losing value

In Theory, Curves Should Be Contango

- Spot (current) market price
- Plus
 - Cost of storage
 - Real costs increases
 - Inflation
 - Time value of money

However, near term supply constraints will cause curve to invert until demand pressures eases

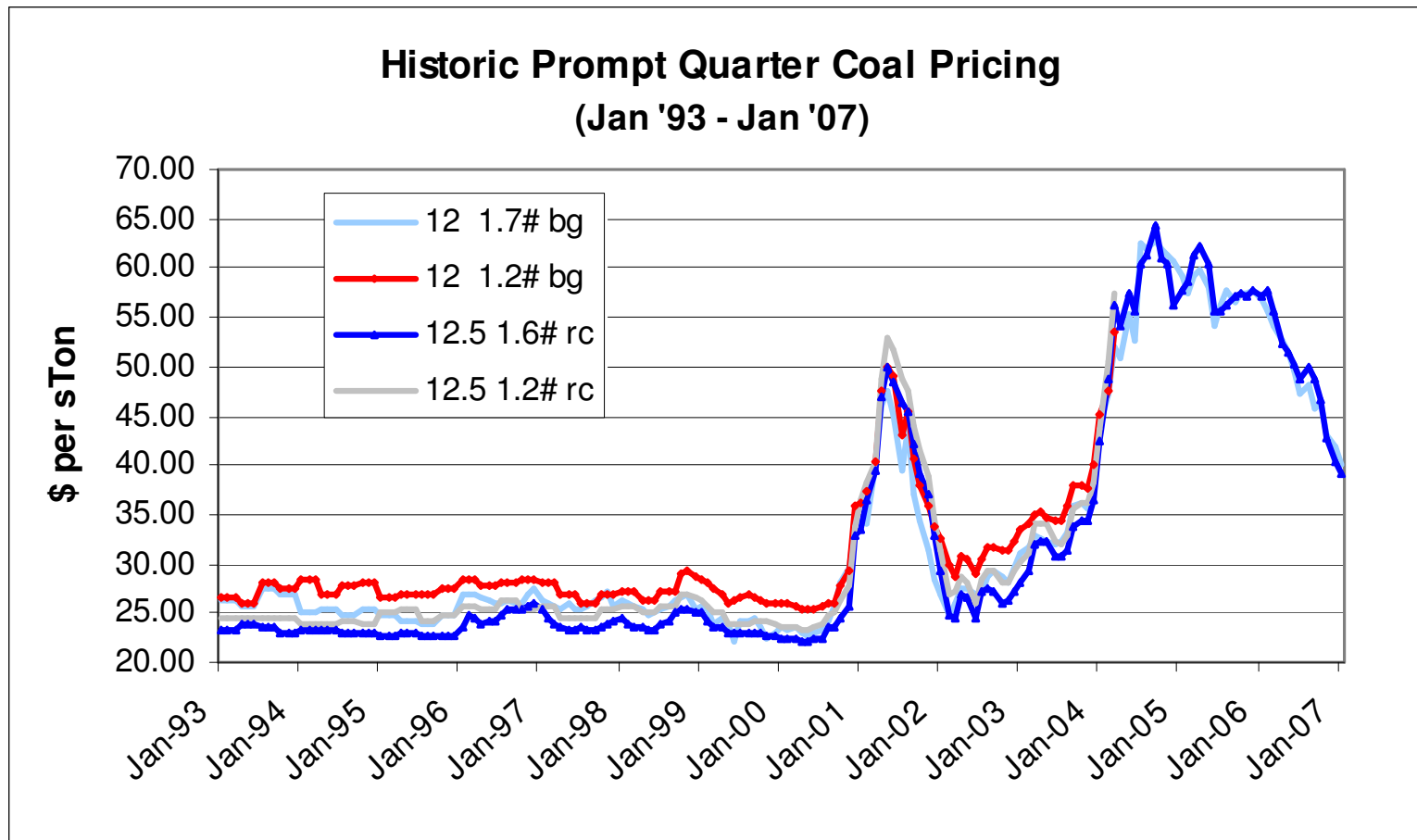
Price Forecast Vernacular



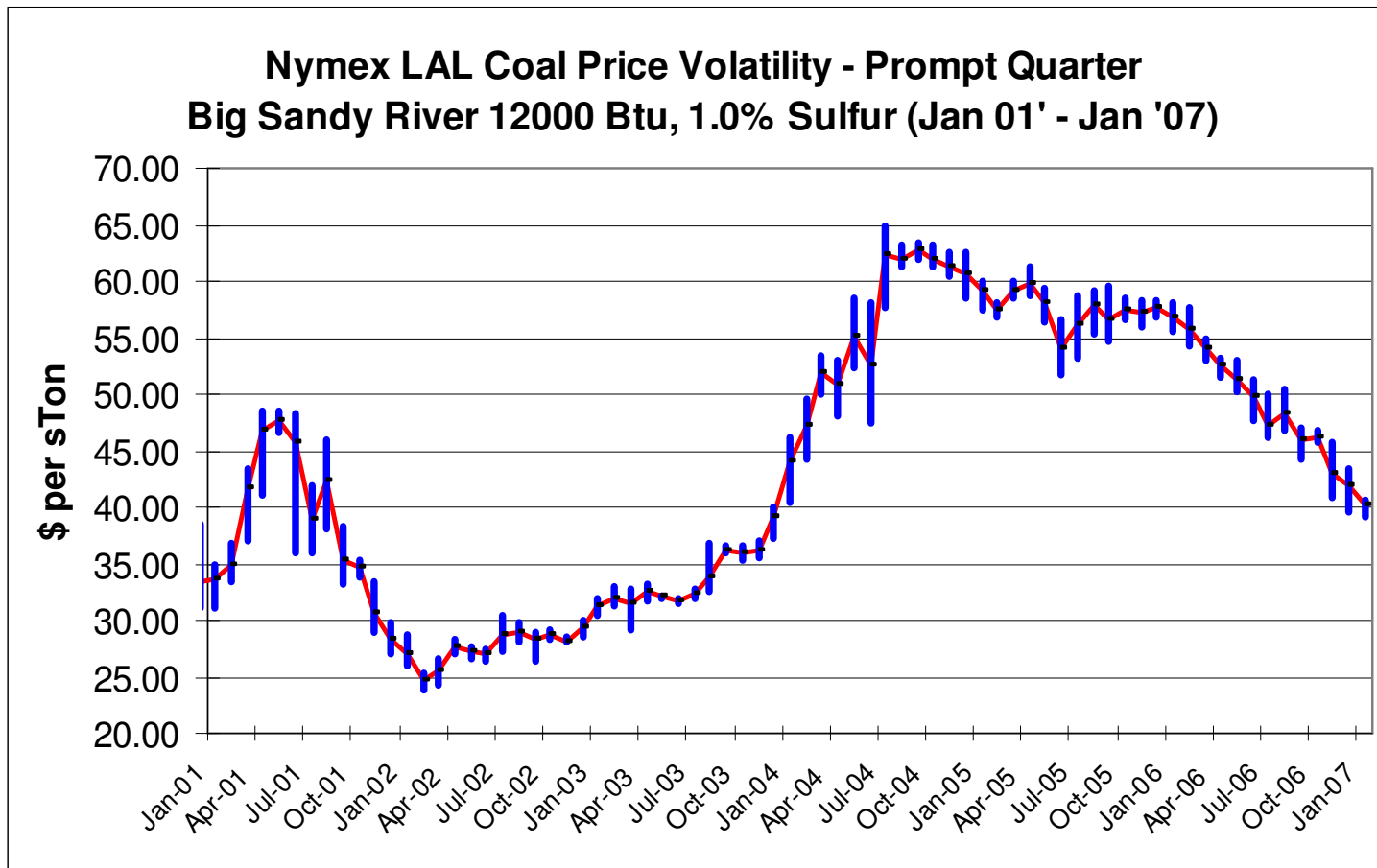
....taking a look at the Curves



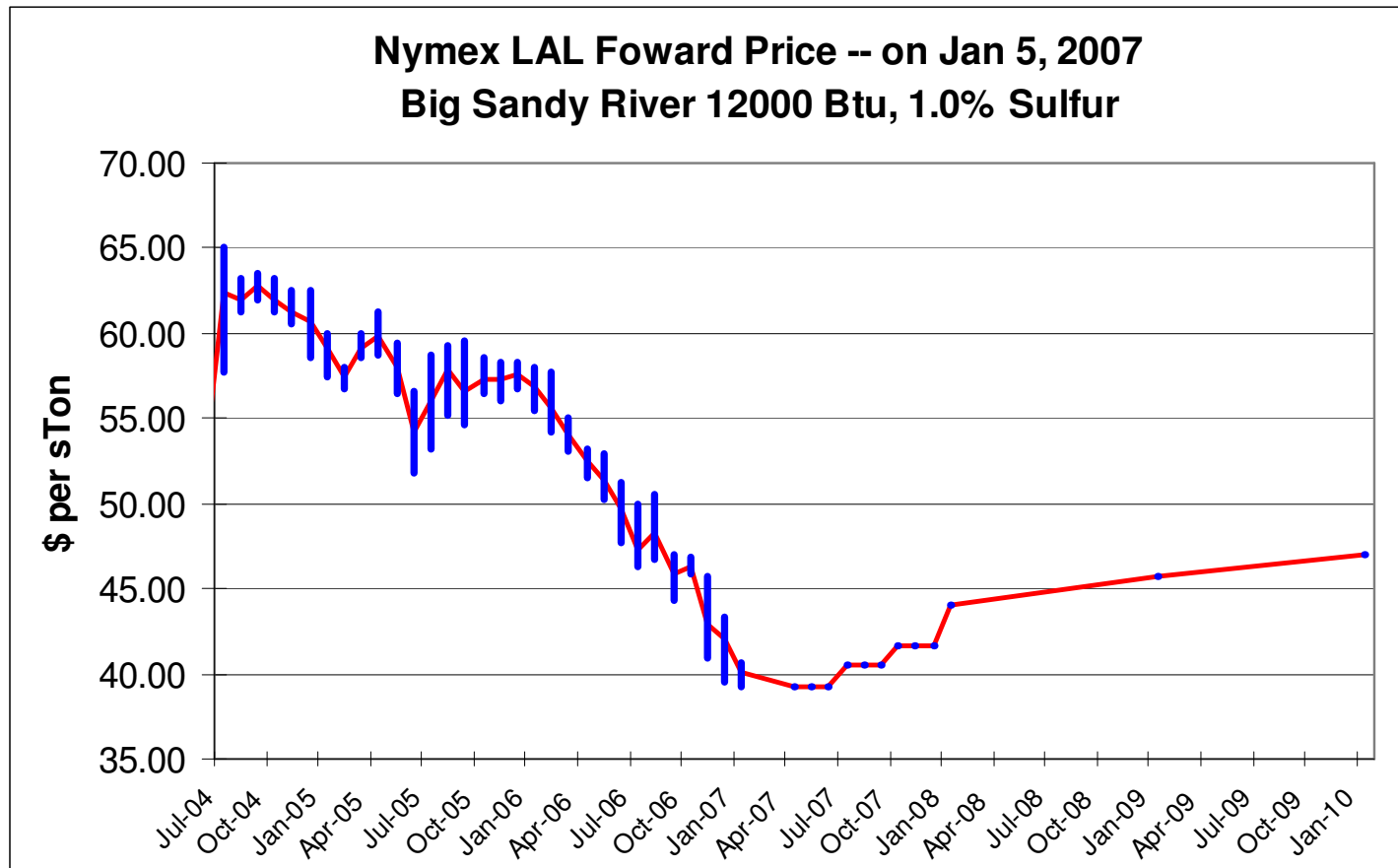
Historic Price Curve – CAPP Coals



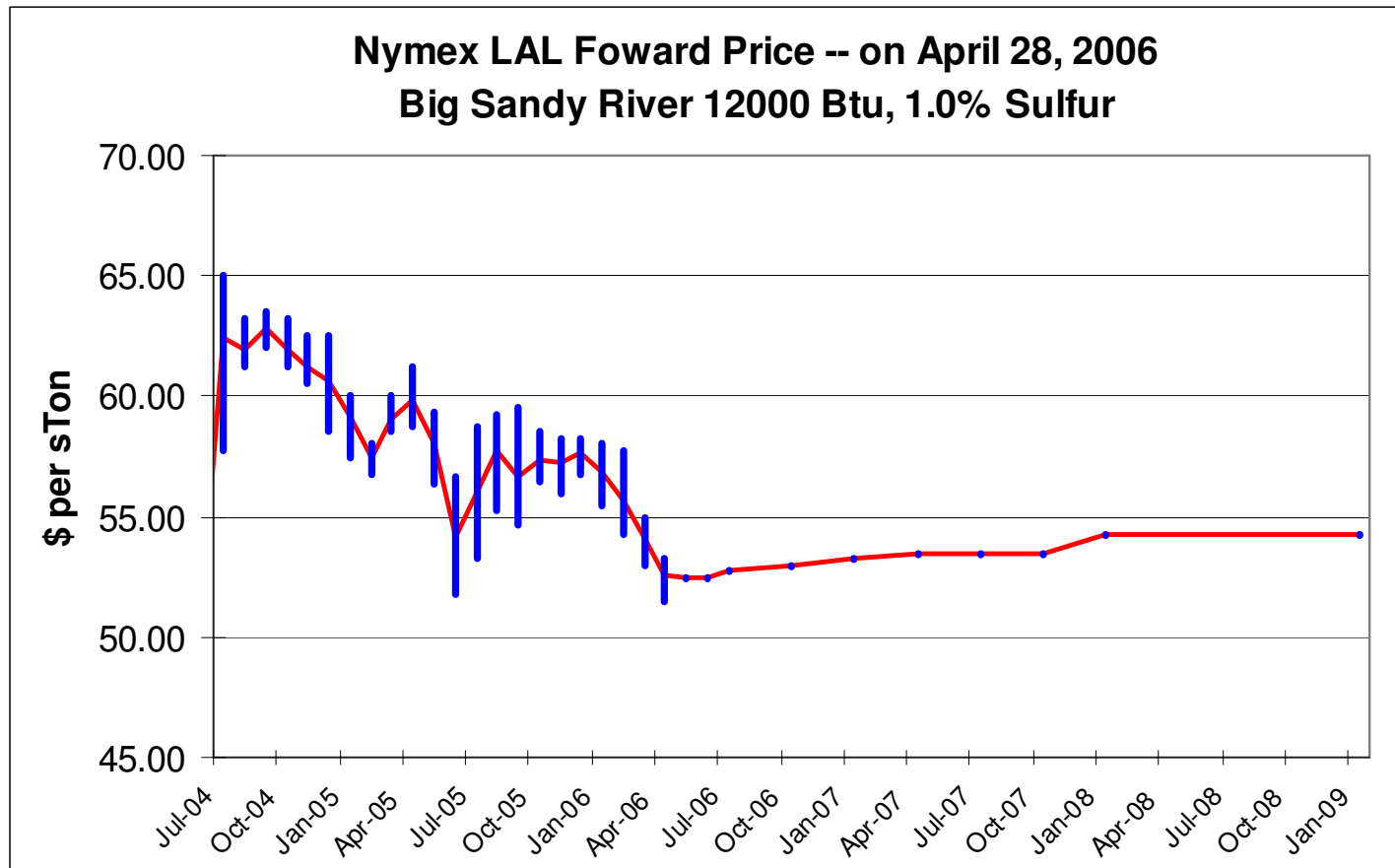
Price Volatility – CAPP Barge Market



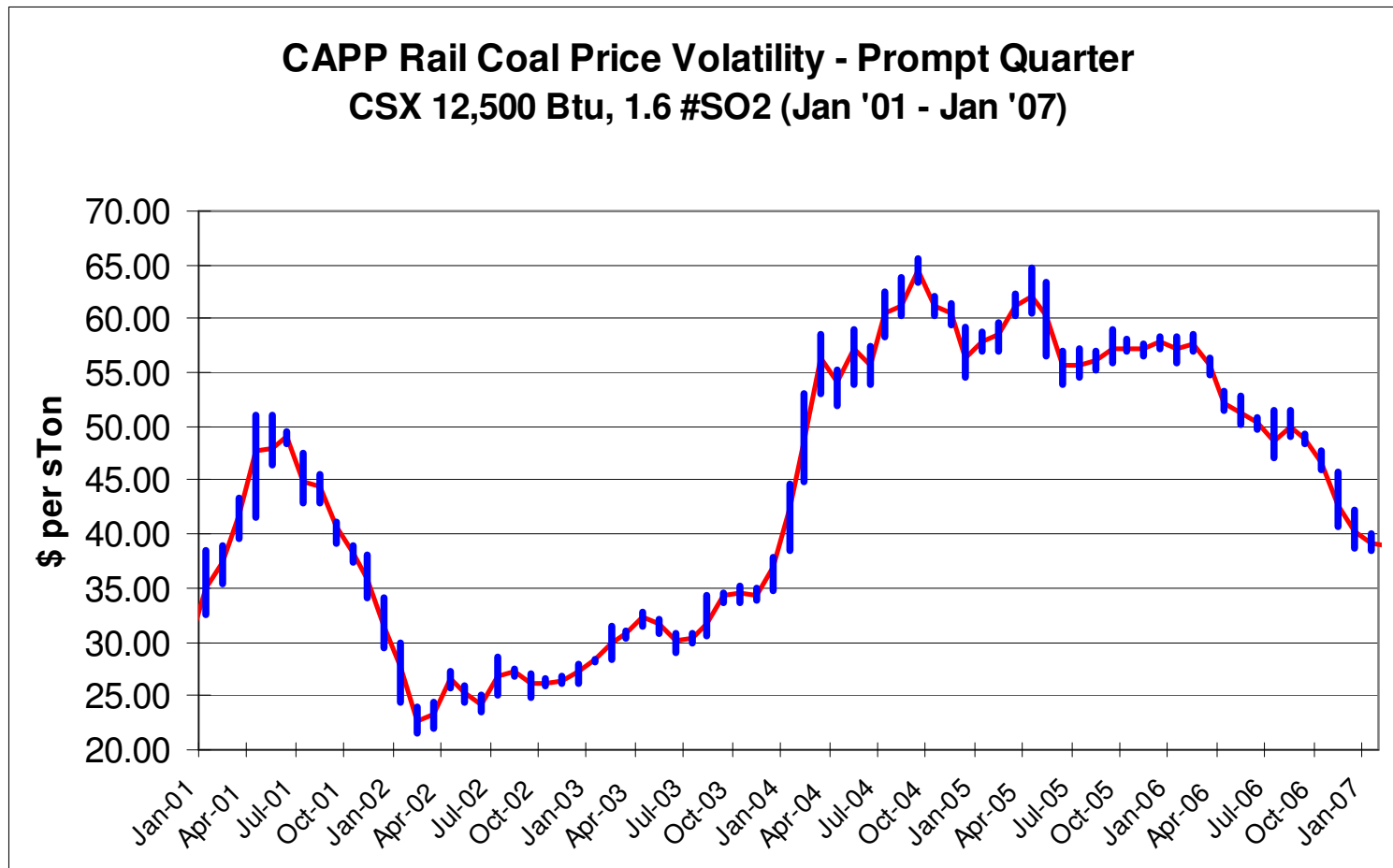
CAPP Barge Forward Curve



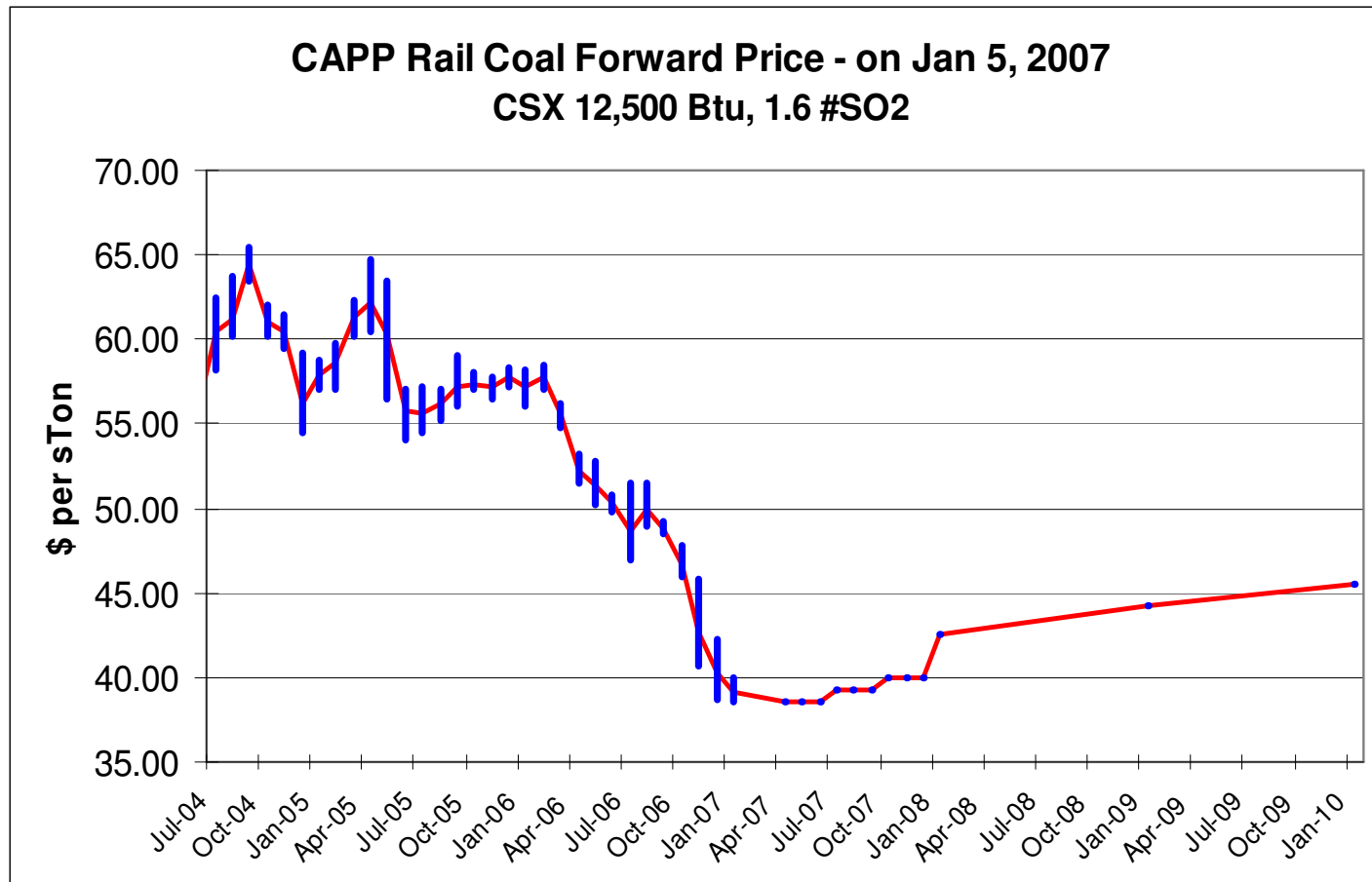
CAPP Barge Forward Curve



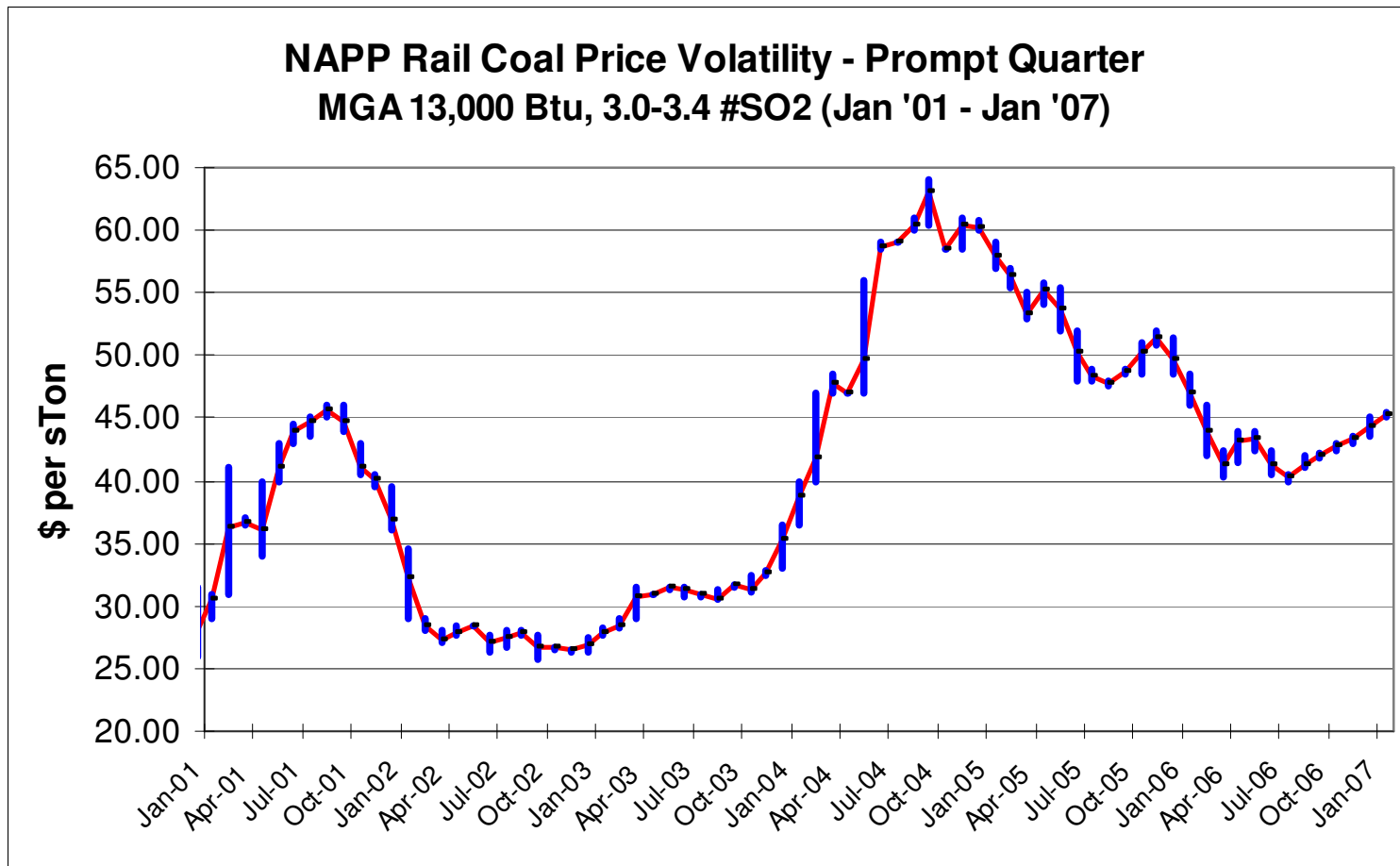
Price Volatility – CAPP Rail Market



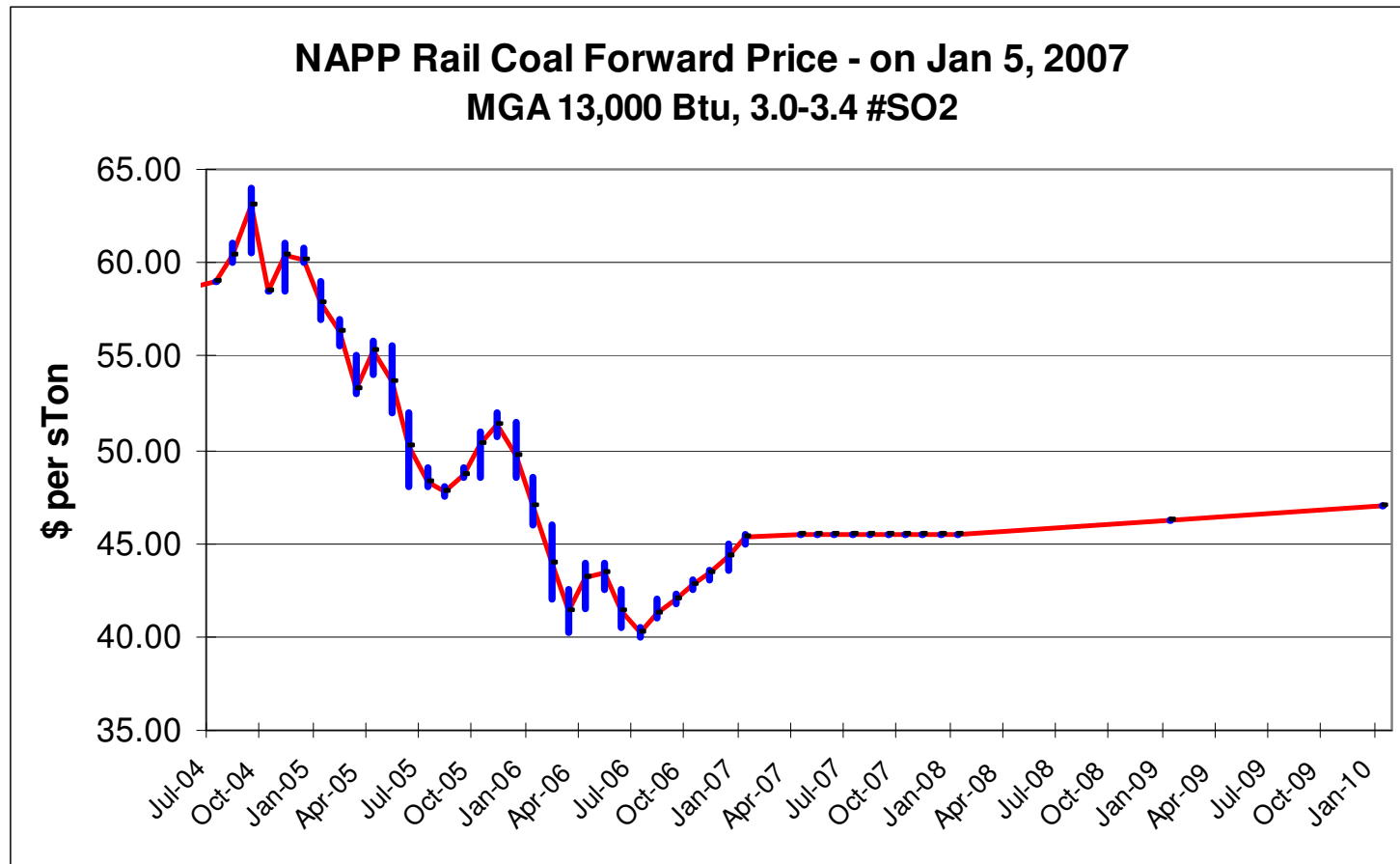
CAPP Rail Forward Curve



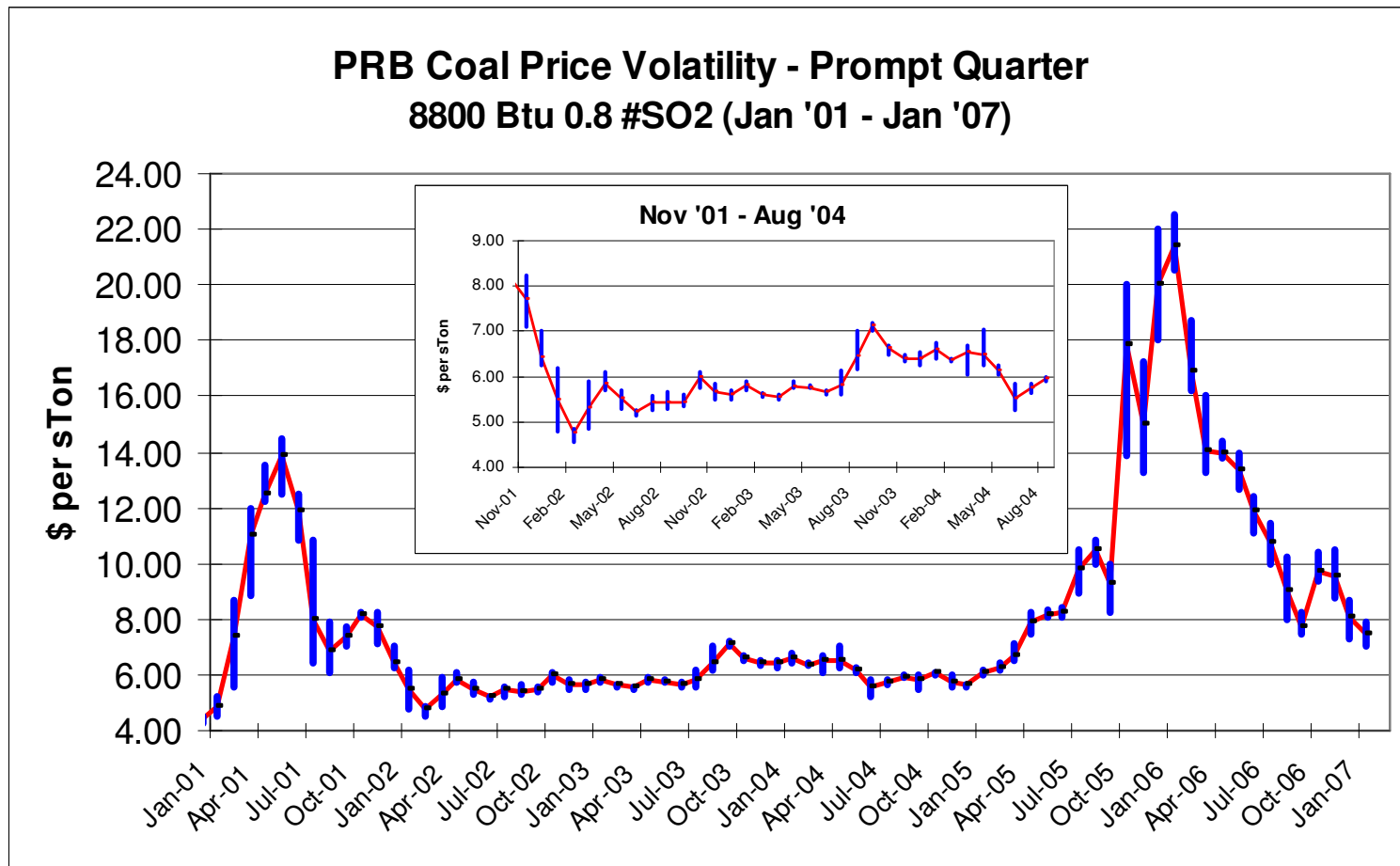
Price Volatility – NAPP Rail Market



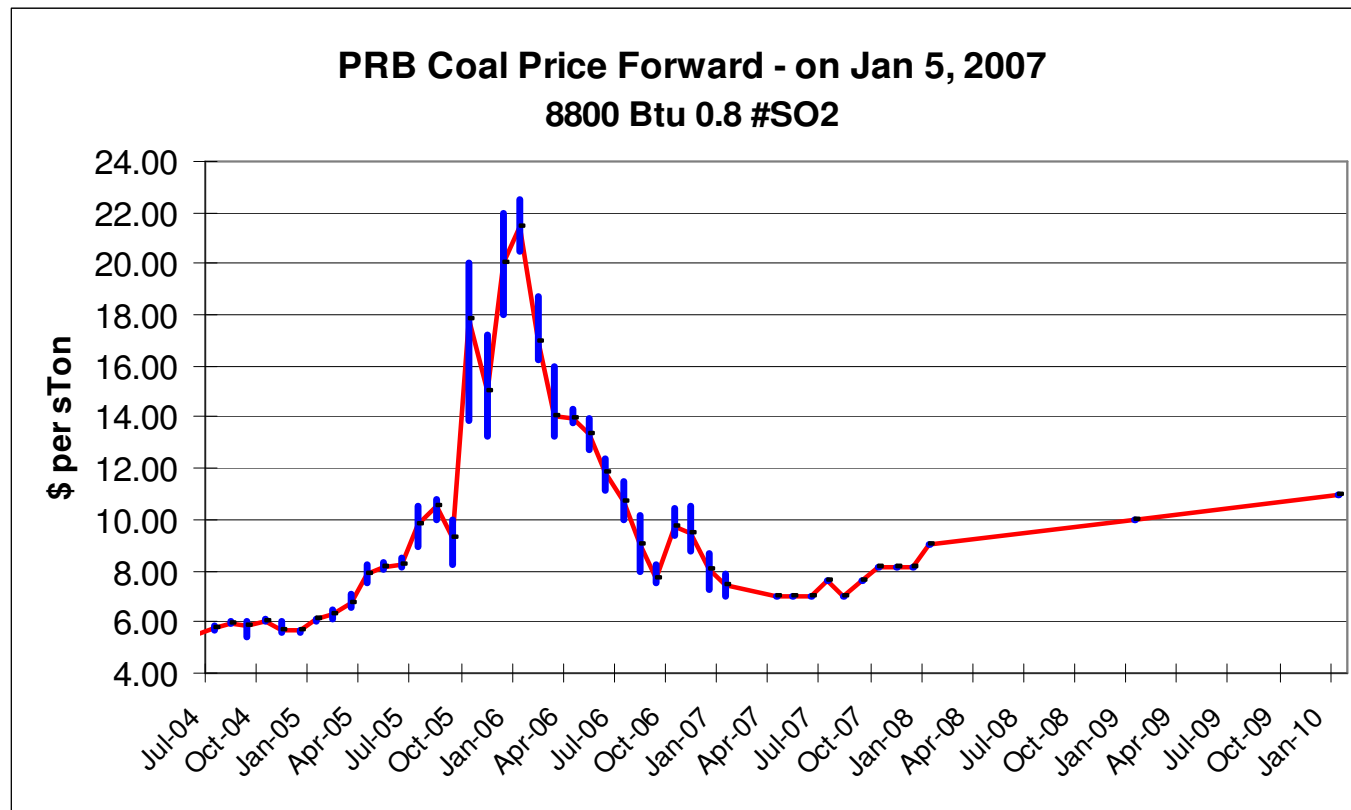
NAPP Rail Forward Curve



Price Volatility – PRB Market

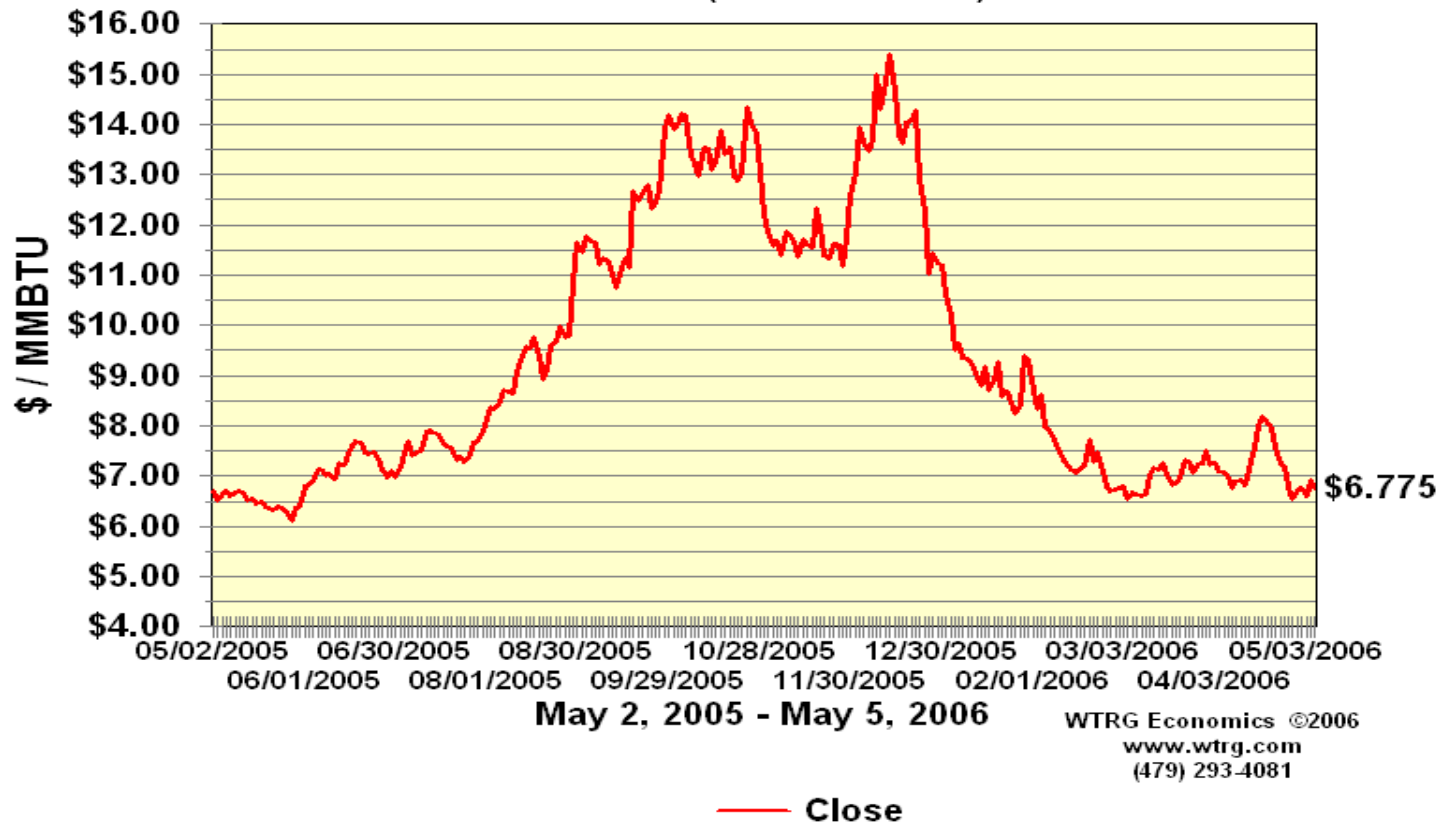


PRB Forward Curve



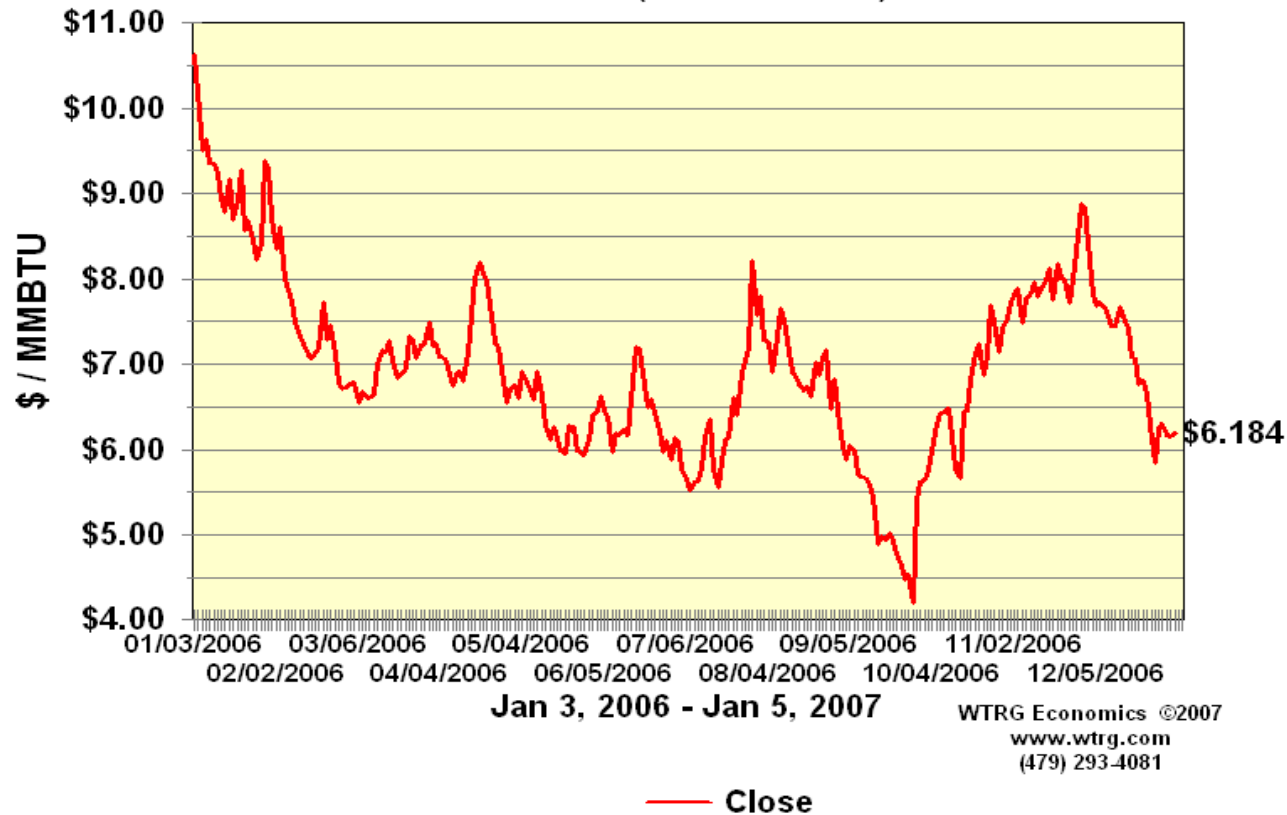
Natural Gas – recent history

**NYMEX Natural Gas Futures
Close (Front Month)**

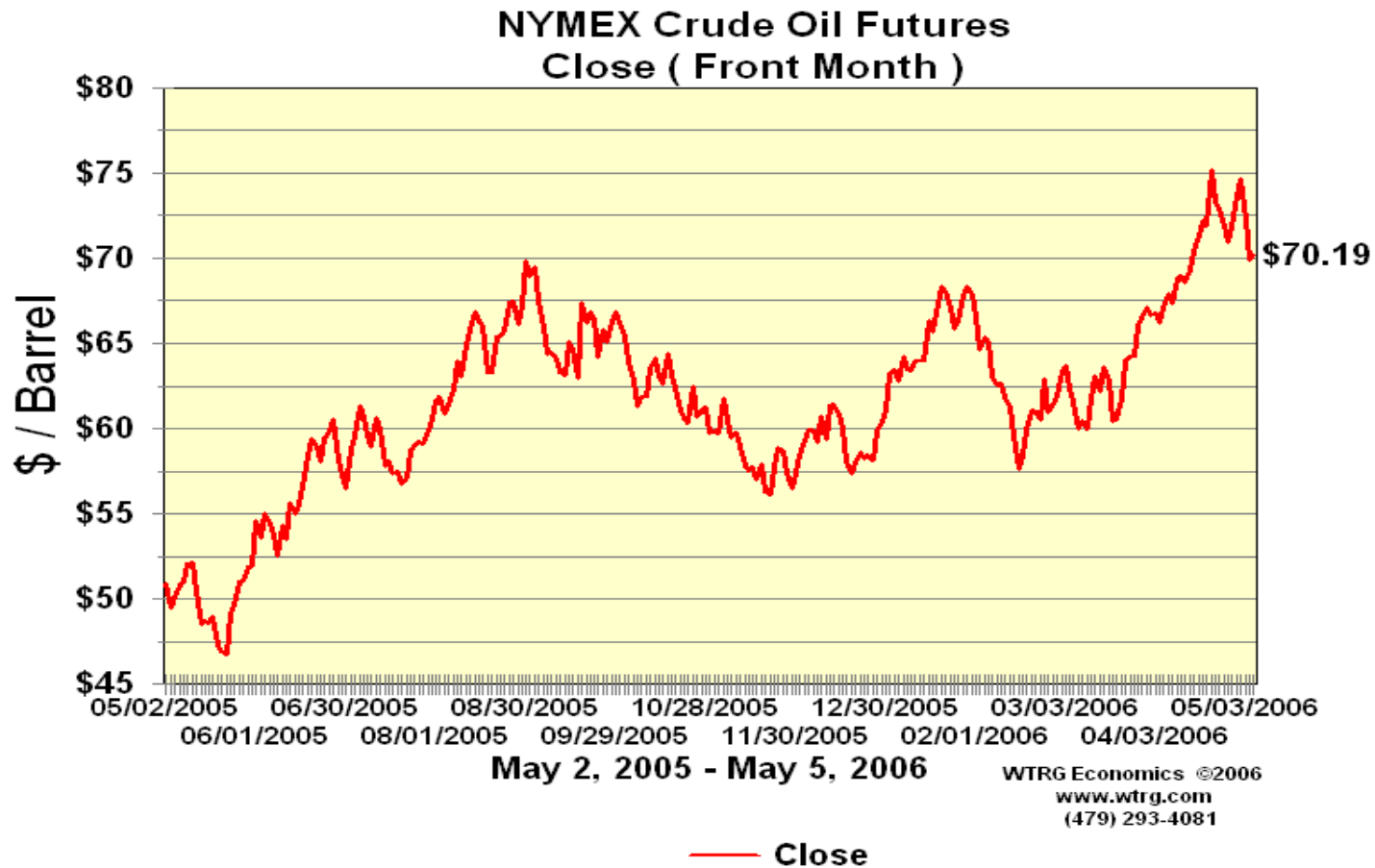


Natural Gas – As of Jan 5, 2007

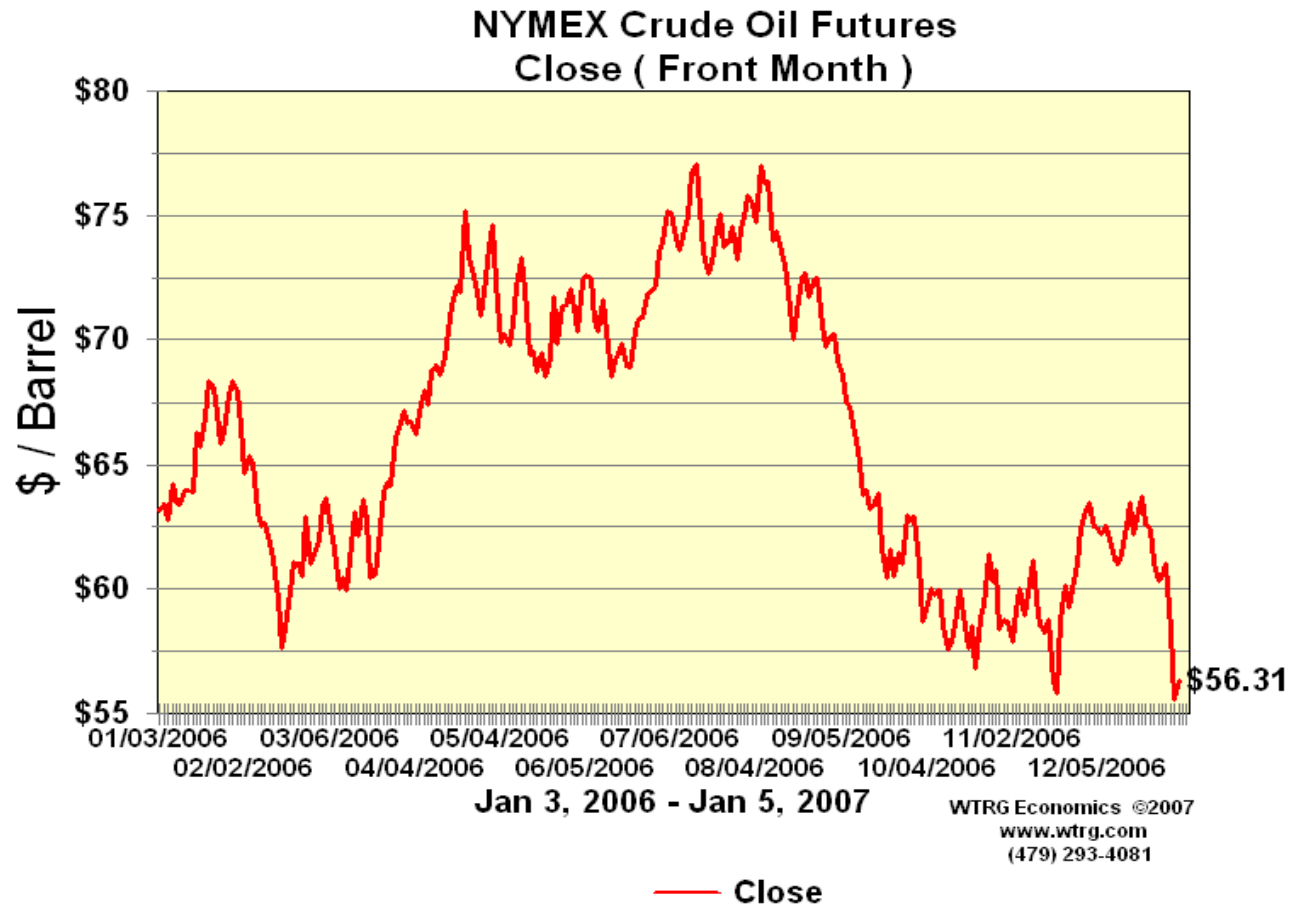
**NYMEX Natural Gas Futures
Close (Front Month)**



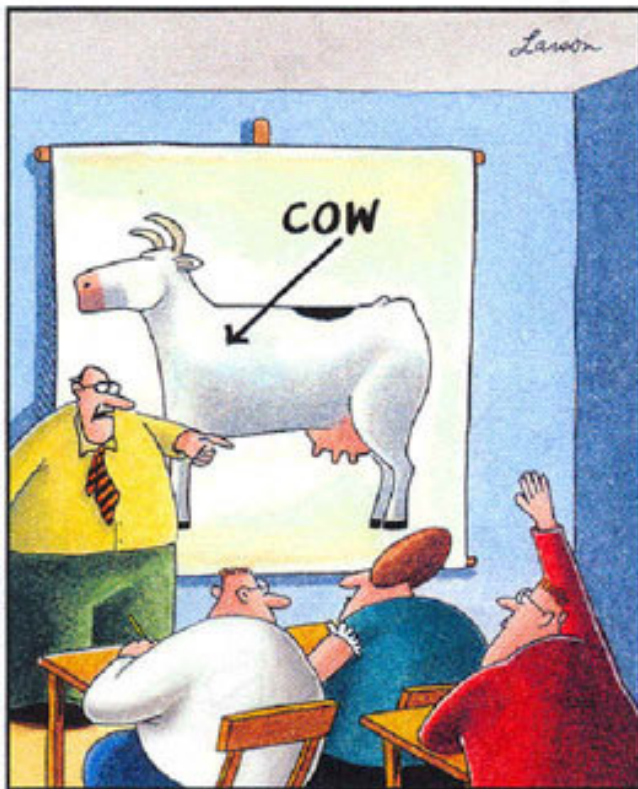
Crude Oil - recent history



Crude Oil – As of Jan 5, 2007



Curve Validation



"Yes ... I believe there's a question in the back."

- Bid / Ask Markets
- Reported OTC Trades
- In-house Non-reported Trades
- One-off Market Brokered Deals
- RFP Offers and Bid Results
- Accurate Market Intelligence
- Measured Consistency

Lieutenant Dan's Rules to Successful Trading

more like guidelines

- Have Good Market Intelligence/Knowledge
 - Keep on top of information, talk to Dan and others, etc.
- Trust in Your Market View
 - Don't let one day's market volatility distort your view
- Hedge Your View
 - Believe in it but recognize that sometimes you're wrong
- Minimize Trading Prompt Month, Prompt Quarter
 - More like avoid if you can't handle the volatility

So You Want to Trade? *Words of Wisdom*

**It does not matter how slowly you go, so long as you do not stop.
- Confucius**

**The only difference between a diamond and a lump of coal is that the
diamond had a little more pressure put on it. - Anonymous**

Adversity brings knowledge, and knowledge wisdom - Proverb

**I know God will not give me anything I can't handle. I just
wish that He didn't trust me so much. – Mother Teresa**

**Life is not a matter of having good cards, but of playing a poor
hand well. - Robert Louis Stevenson**