



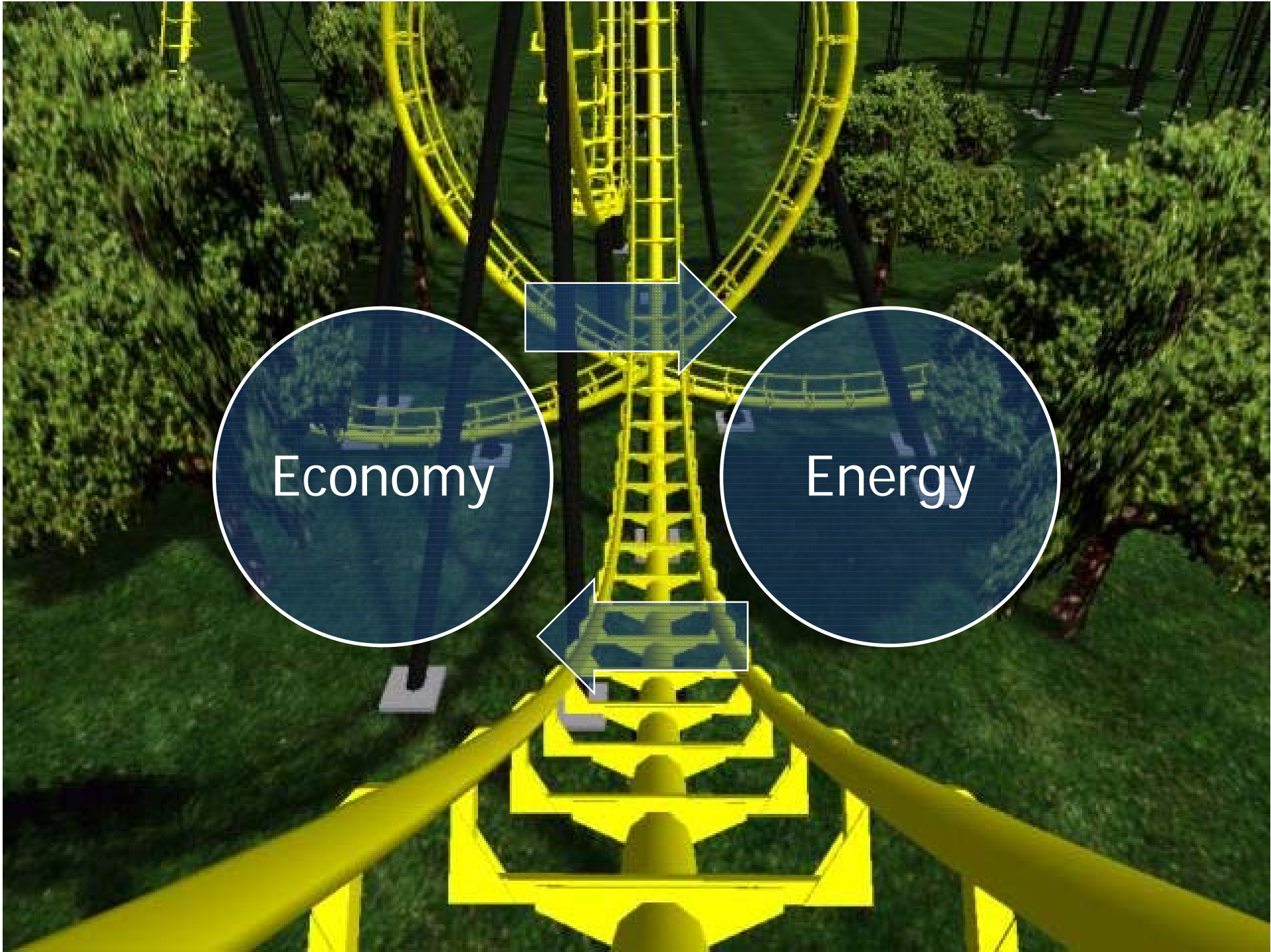
*The Impact of a
Volatile Economy on
Energy Markets*

Robert McCullough, Managing Partner
McCullough Research
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Life on the Roller Coaster

- *I am unclear about the title of this presentation. Should it be:*
 - *The Impact of a Volatile Economy on Energy Markets, or...*
 - *The Impact of Energy Markets on a Volatile Economy*
- *I try to teach my assistants that it is really useful to see how we got here when figuring out where to go next*



Economy

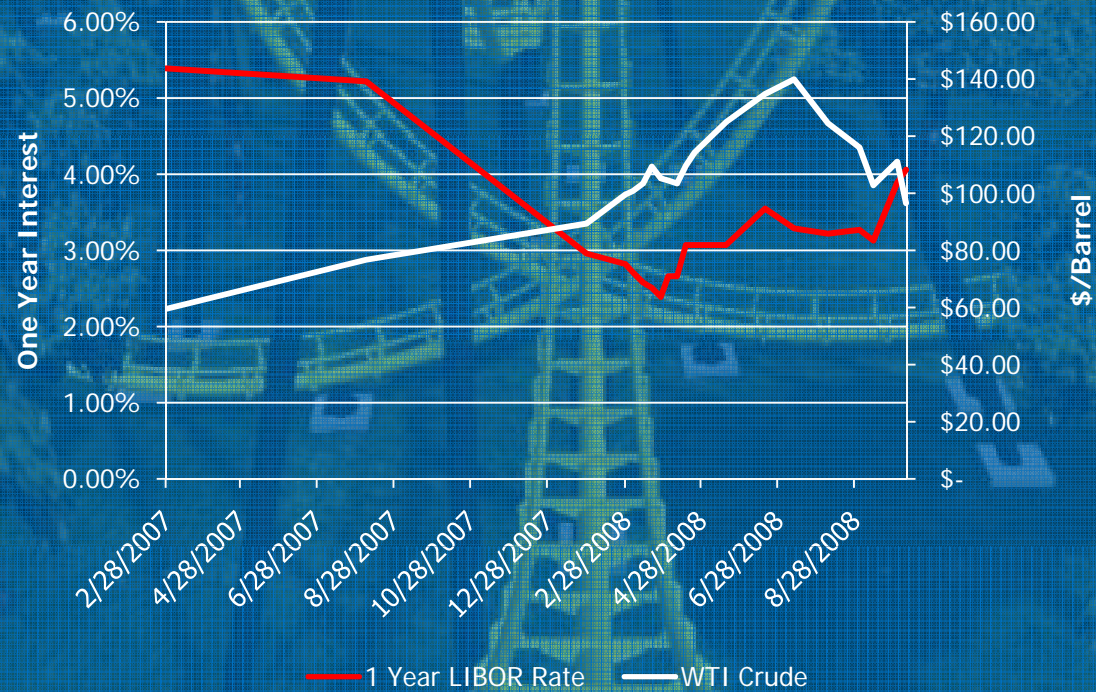
Energy



Volatility is a significant cost to consumers

- *Long lead time projects like nuclear and coal now face many significant risks:*
 - *Massive fuel cost uncertainties*
 - *RTO markets are arbitrary and political*
 - *Interest rates (and real financing costs) are difficult to estimate*
- *Short lead time projects now have a significant advantage*

London Interbank Offer Rate and WTI Crude



An environment not conducive to major energy investments

ABC News – August 3, 2006

- MARK COLVIN: There was a dire warning today from one of the world's leading credit ratings agencies. An oil price shock could cause a major global recession, and financial markets aren't building in enough capacity to absorb risk.*

David Wyss is the chief economist at Standard & Poor's.

He says that if there's a war centering on Iran that cuts off Middle East oil supplies, the price of crude could hit US\$250 a barrel.

Yet after years of economic good times, global banks have been lulled into a false sense of security.



ABC News – August 3, 2006 (continued)

- DAVID WYSS: The problem is financial markets just don't believe that there is that much risk out there, and I think they could wake up to find a bigger hit than they expect and they've priced in. That's going to be very painful for investors.

STEPHEN LONG: We know there's a lot of hedge funds operating. We know that there's a lot of debt and leverage in the world, why do you think they're so sanguine? Why aren't they pricing in the risk?

DAVID WYSS: I'm not sure why they're not pricing in the risk. Partially, it's because the last few years, we're seeing abnormally low default rates.

ABC News – August 3, 2006 (continued)

- Partially because they've sort of required this rather touching faith in the central banks, that the central banks would be able to bail them out of any problem. **But at some point, central banks can't print oil.***

STEPHEN LONG: So the financial markets have been lulled into a false sense of security?

DAVID WYSS: I think there's an under-appreciation of risk out there. People just are a little too sanguine about the economy, about the possible shocks ticket, and I hope it doesn't happen, but they could get a nasty shock.

Slamming the homeowner

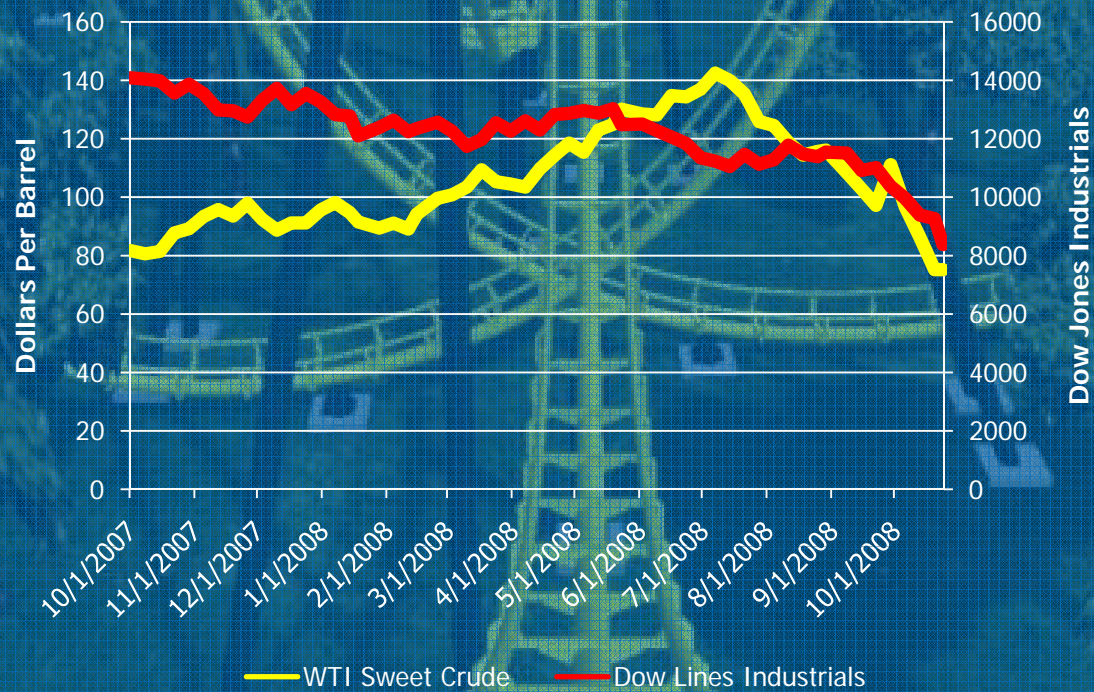
- *As oil and natural gas prices doubled and electricity prices climbed sharply, the pressure on the blue collar budget was a significant, but unappreciated effect*
- *Talking to "Sewage Trap Kevin"*
- *Home heating costs in Wisconsin are a sizeable proportion of rent in winter months*
- *Drawing down savings is only a temporary respite*



Why are energy prices so volatile?

- *Shortage or lack of market surveillance?*
- *Clinton signed into law the second of the Enron loopholes in 2000*
- *Eight years have passed without repeal of either of the Enron loopholes*
- *Despite of many “valuable” insights from the pundits, we have no idea why oil prices spiked on July 3, 2008*
 - *Chinese and Indian demand was as predicted*
 - *Exchange rates had not changed*
 - *Production was higher than predicted*

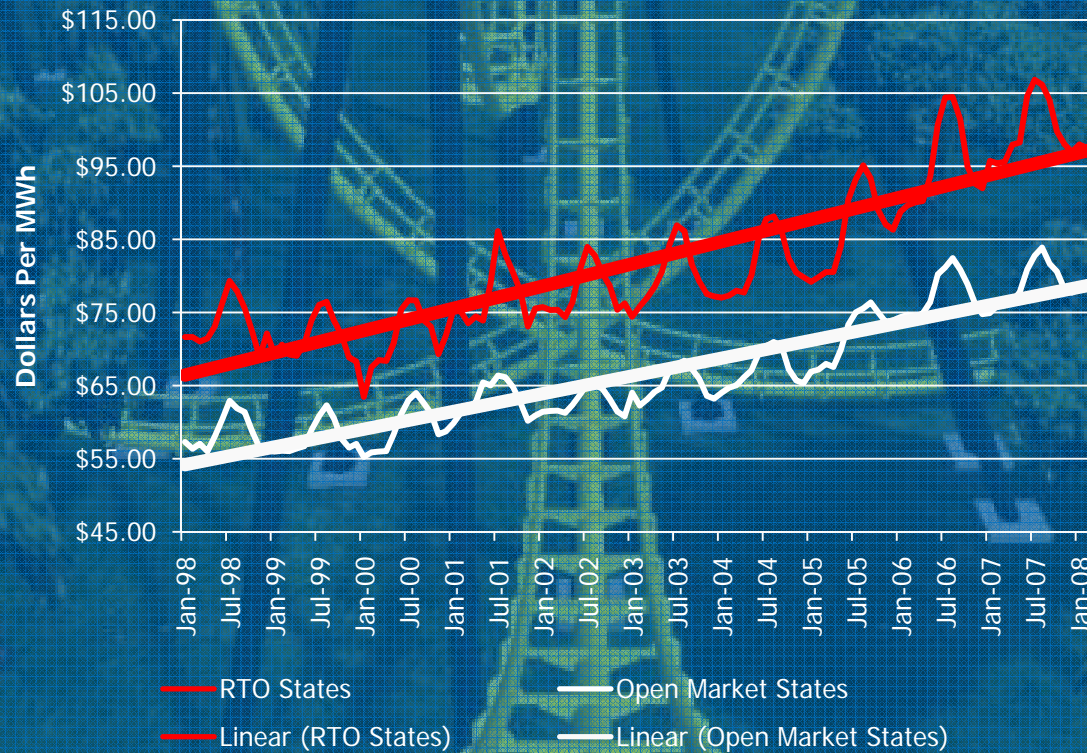
Dow Jones Industrials and WTI Crude



Chicken and the Egg

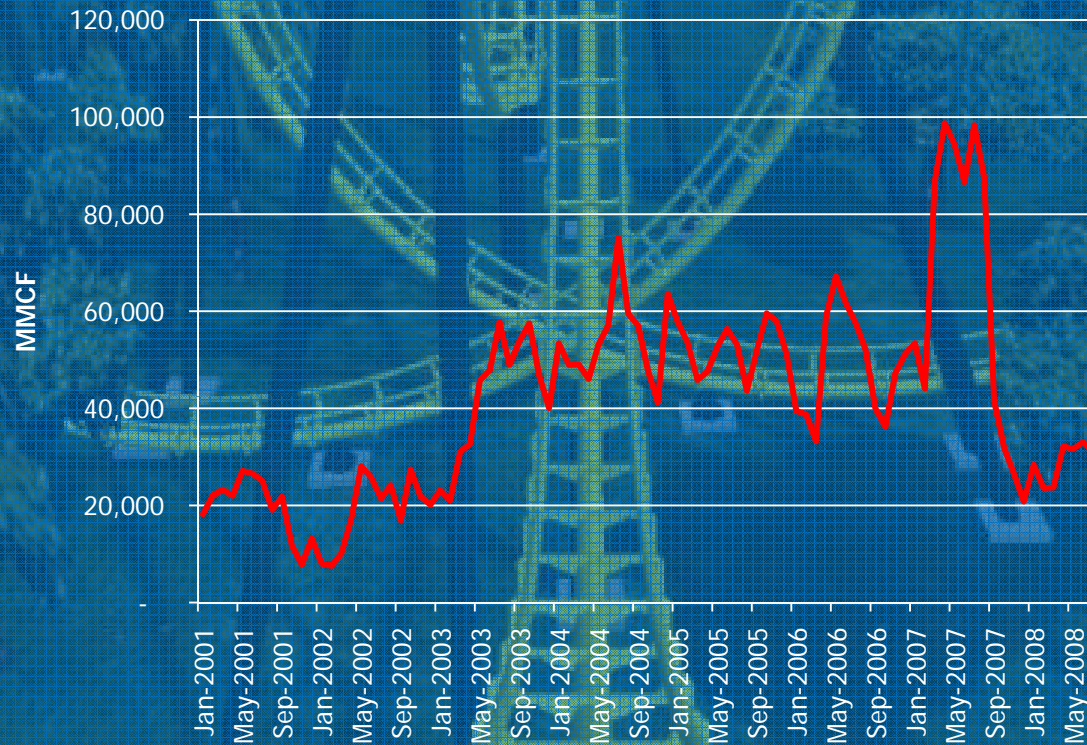
The pundits knew that flight from equity fueled oil prices until July and they now know that recessions lower oil prices

RTO and Non-RTO Electric Prices



Bad news for consumers in RTO states; not all that good for everyone else.

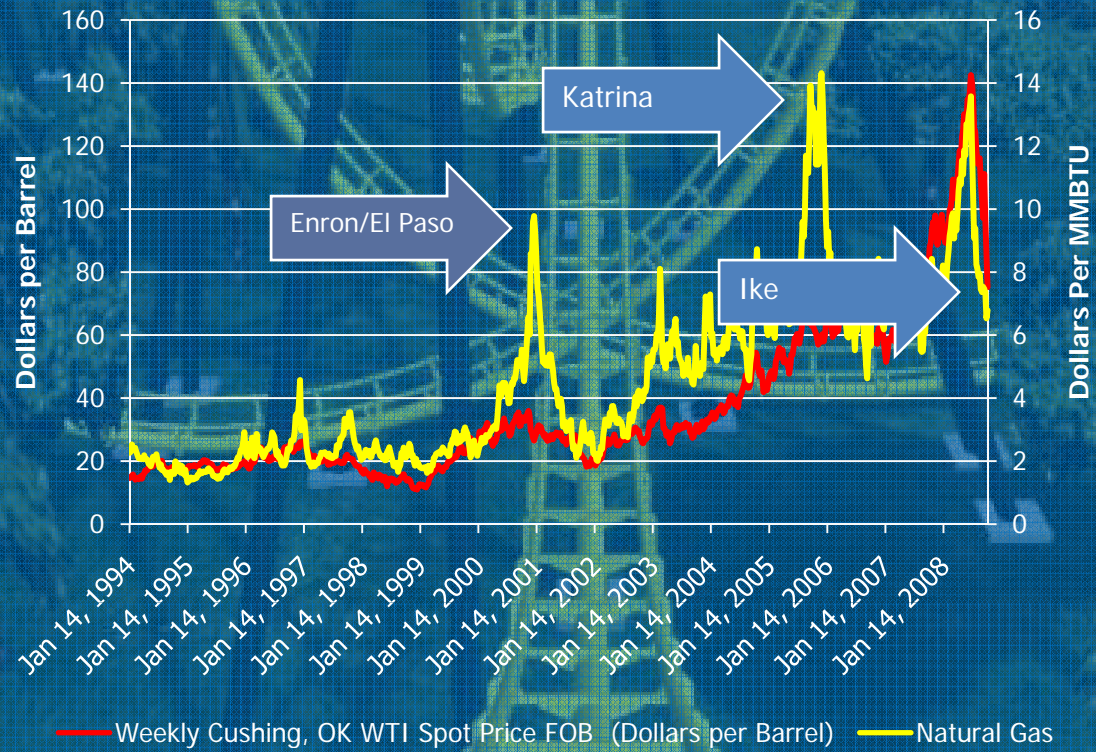
U.S. LNG Imports



Even the simple relationships have become mysterious

LNG imports have dropped steadily – export permits for LNG are increasing.

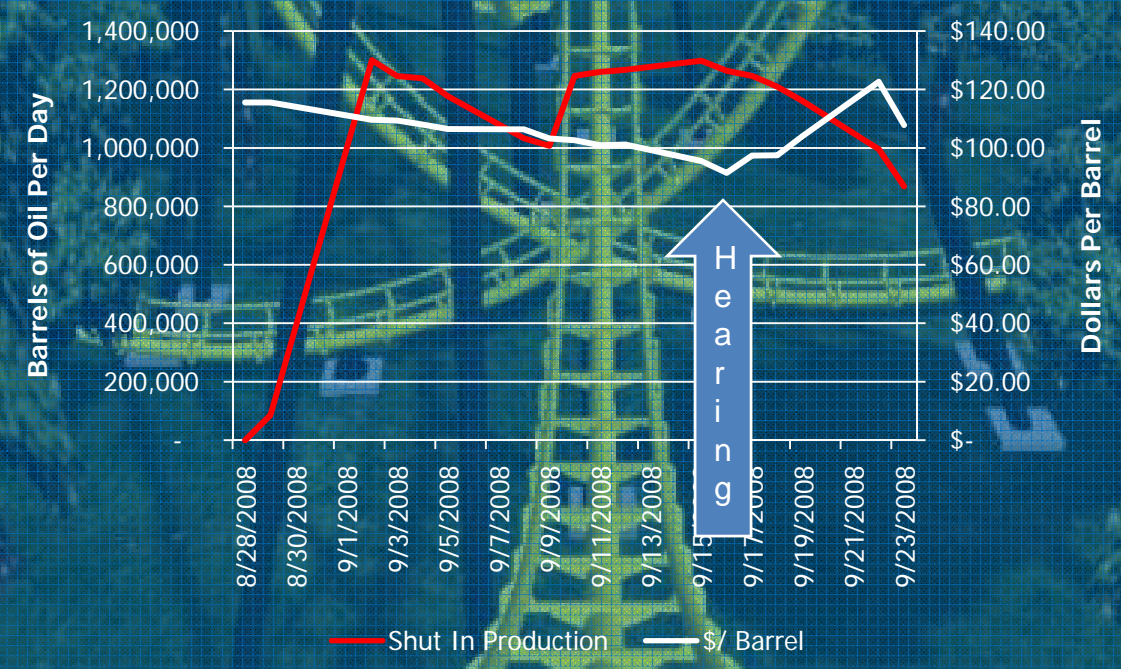
Natural Gas and Crude



Natural gas prices have roughly followed oil this year and now are leading oil downwards

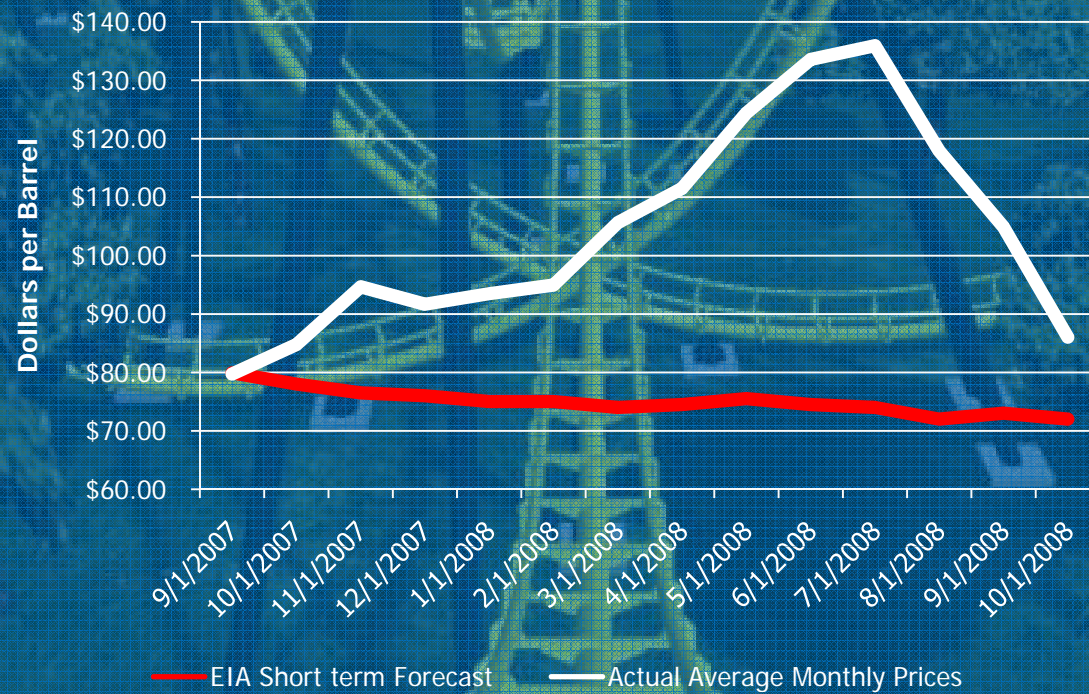
Hurricane Ike -- WTI Spot Prices and Shut in Oil Production

Source: EIA and MMS Daily Updates



Confounding the pundits , hurricanes do seem to lower prices

EIA October 2007 Forecast and Market Actuals




Careful forecasting always guarantees good results



How is this impacting energy companies?

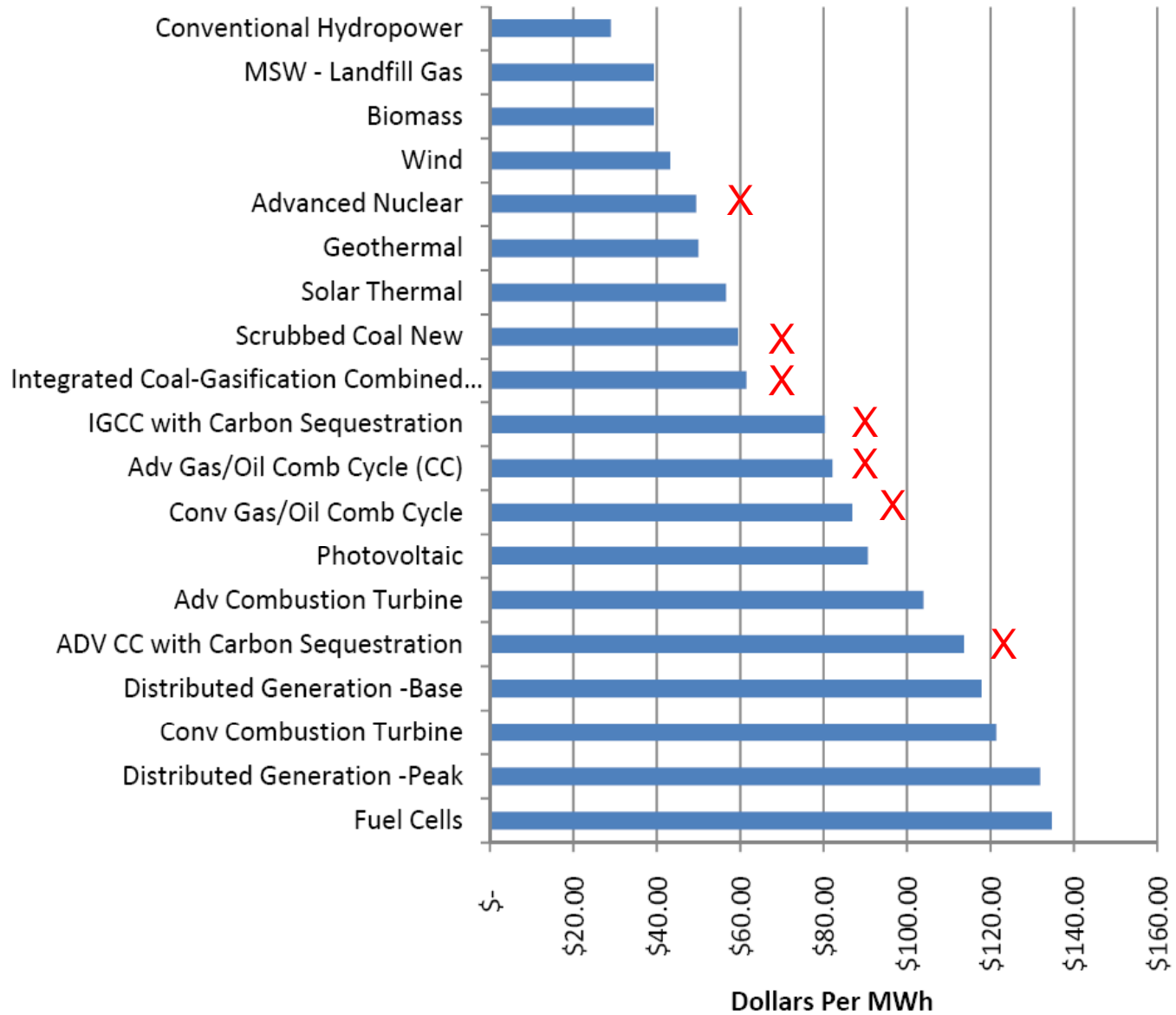
- ***Constellation***
 - *Has announced a “stealth” bankruptcy*
 - *Acquisition by Buffett*
- ***Reliant***
 - *Has put itself up for sale*
 - *Blaming problems on Merrill Lynch*
- ***Risk management is proving far too risky***



How viable are high capital resources in this environment?

- *Financial analysis requires a clear statement of future fuel prices*
- *Interest rates are also volatile*
- *Without rate base treatment or taxing authority, high fixed costs will be impossible to finance in RTO areas*
- *The risk of a high emission allowance cost adds to the risk of traditional coal units*

New Resource Costs





What is left?

- *Renewables*
- *Energy efficiency*
- *Government-backed baseload*



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