

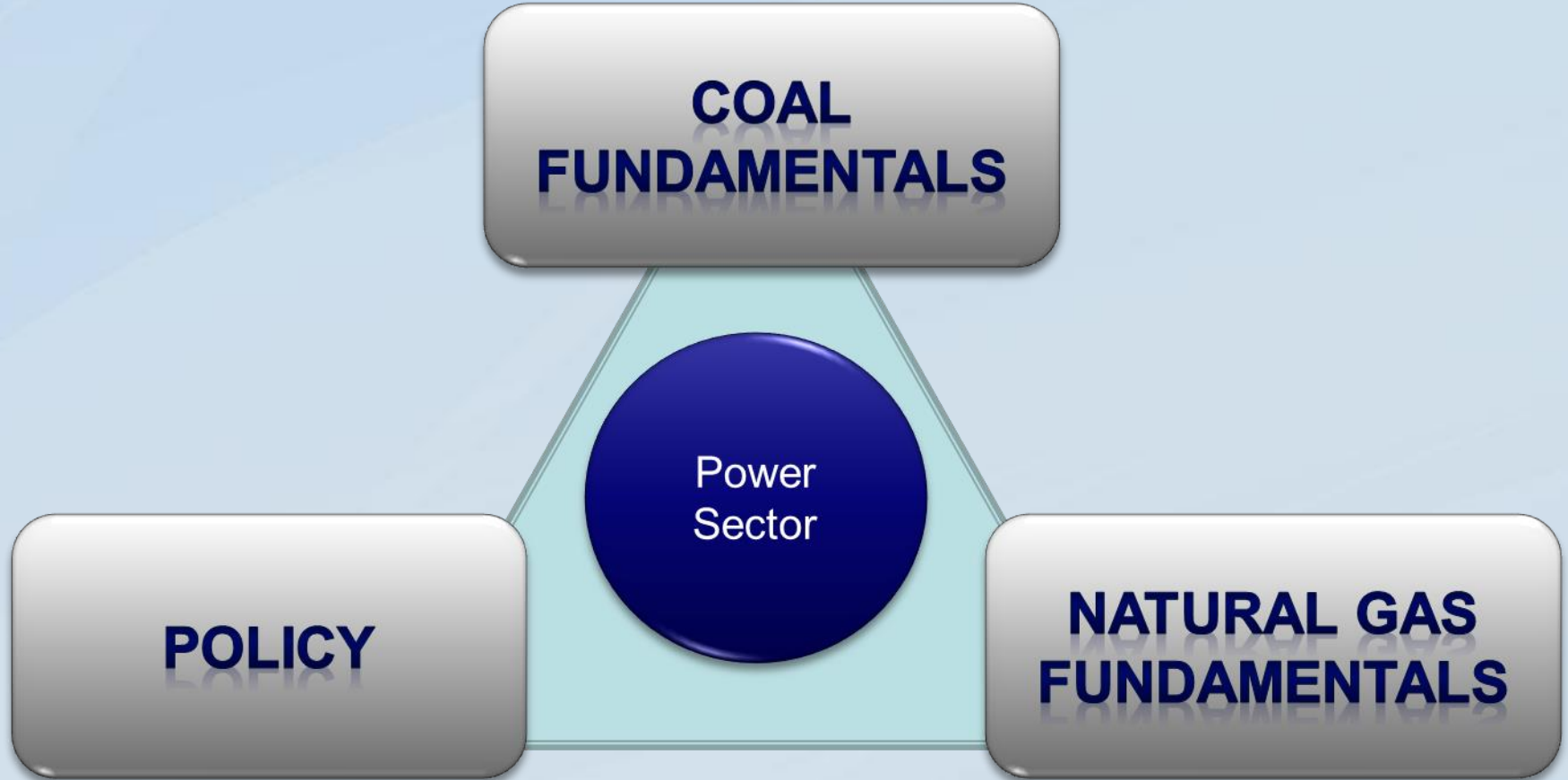
Identifying and Planning for Risk in Today's Coal Markets

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**19th Annual Platt's Coal Properties & Investment Export Growth,
New International Markets, and Regulatory Challenges**

March 16th 2011

Risk/Potential Facing the Coal Industry



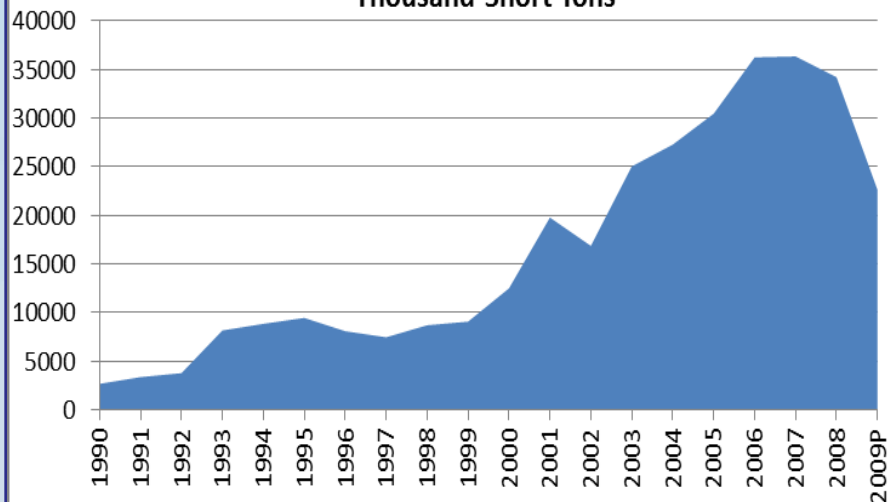
“Plans are worthless — but planning is everything.”
Dwight D. Eisenhower, 17 Nov. '57

Coal Market Issues

Imports & Exports

US Coal Imports

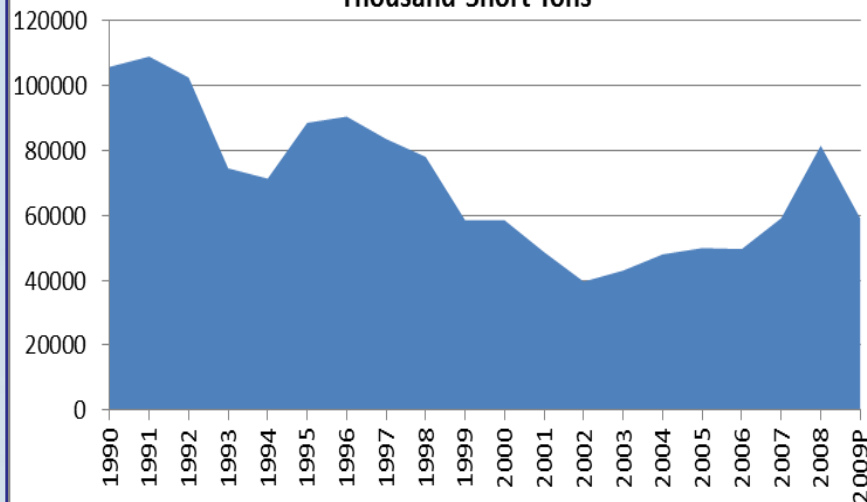
Thousand Short Tons



Source: EIA

US Coal Exports

Thousand Short Tons



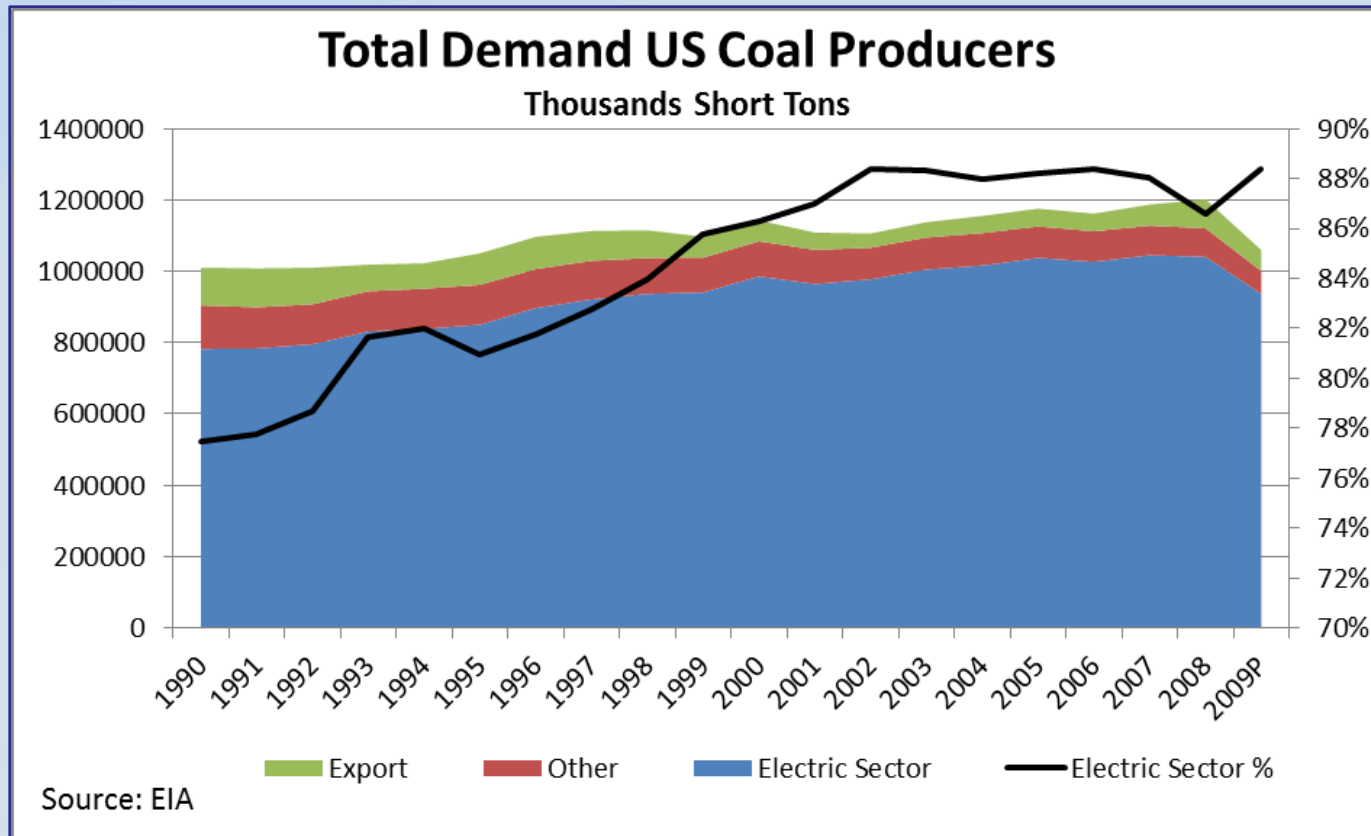
Source: EIA

❑ 20 years ago over 100 million tons of export

- 2008 @ 82 million tons
- 1981 highest @ 112 million tons

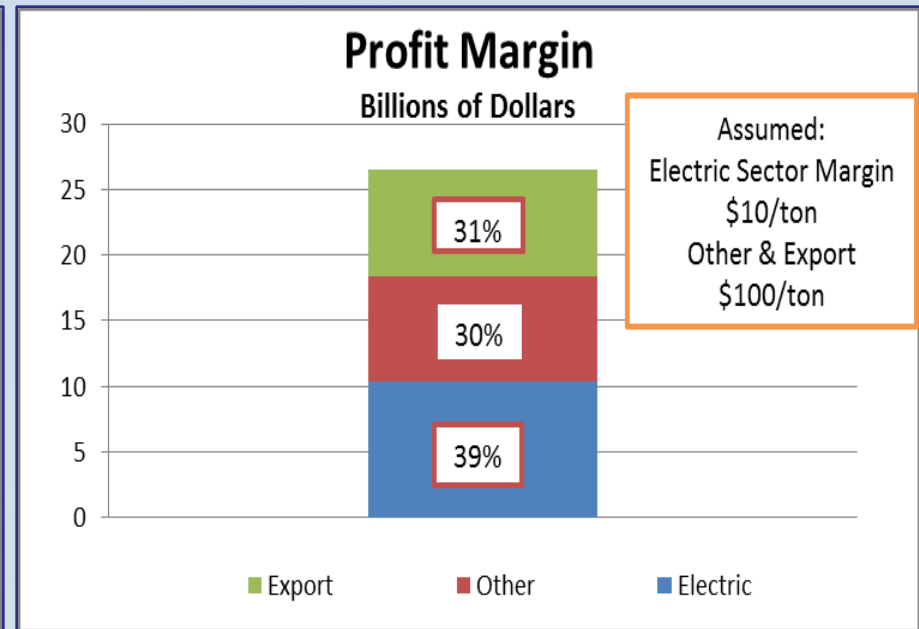
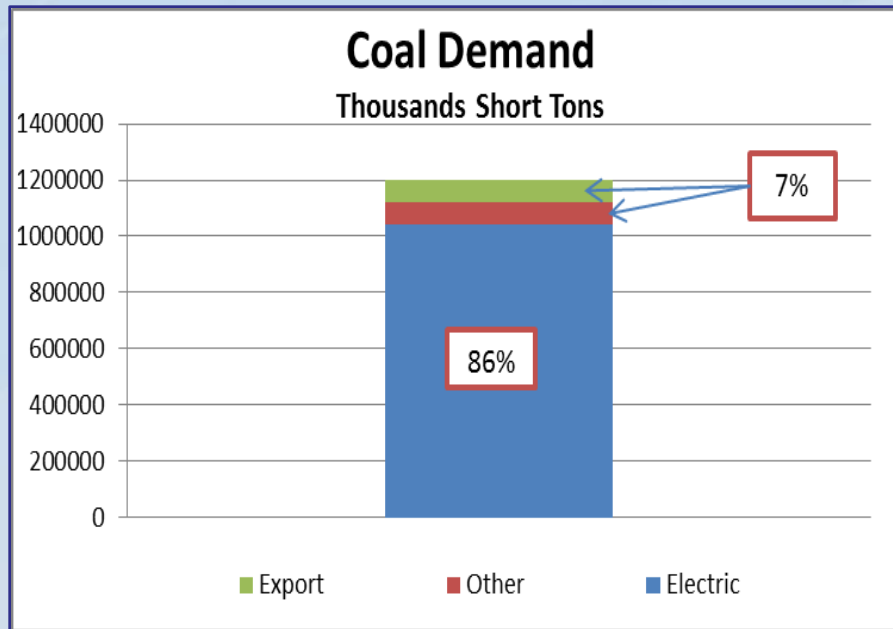
❑ Over the last 20 years, coal imports have steadily climbed.

U.S. Producer Demand



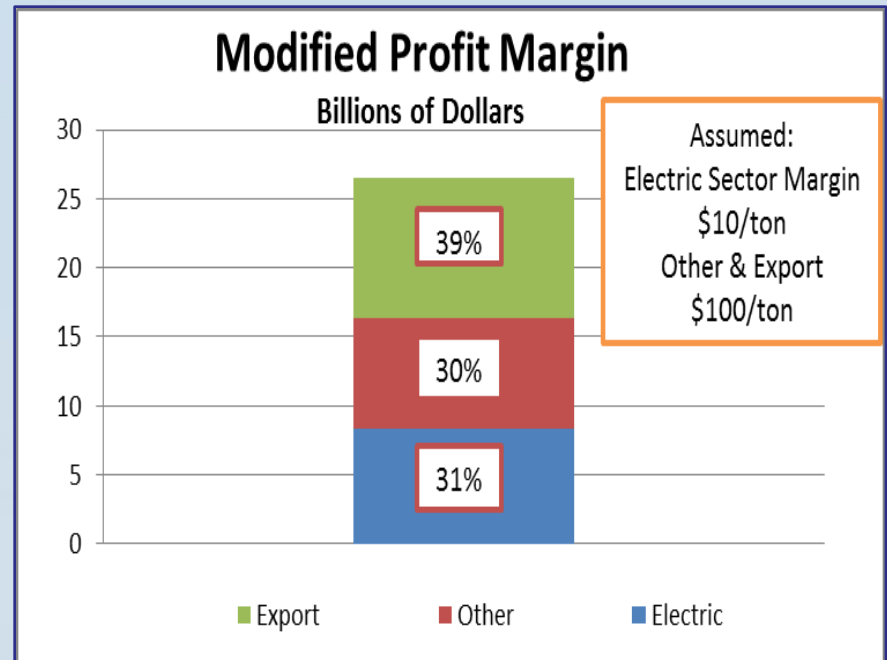
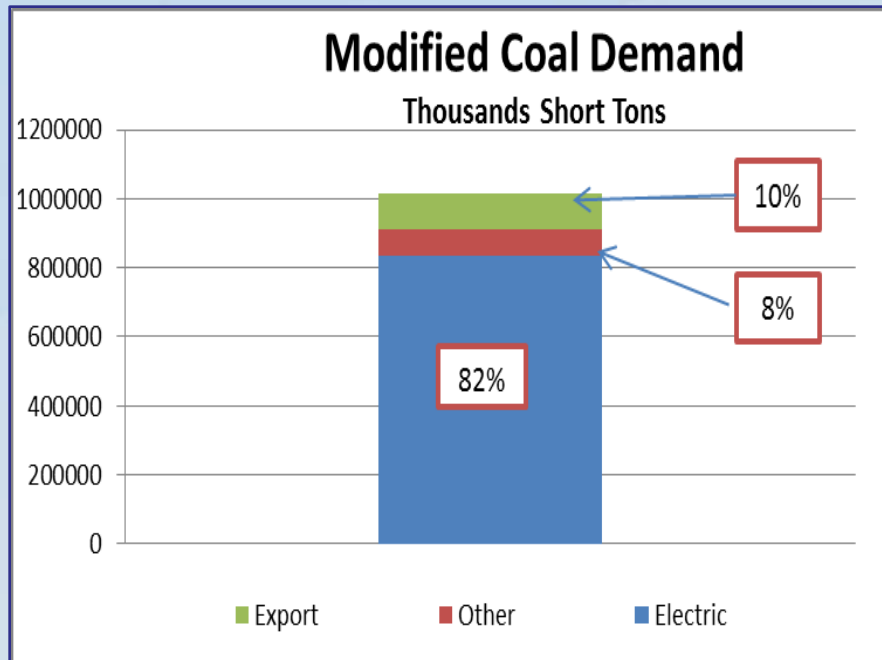
❑ Electric sector still the largest volume of demand.

2008 Coal



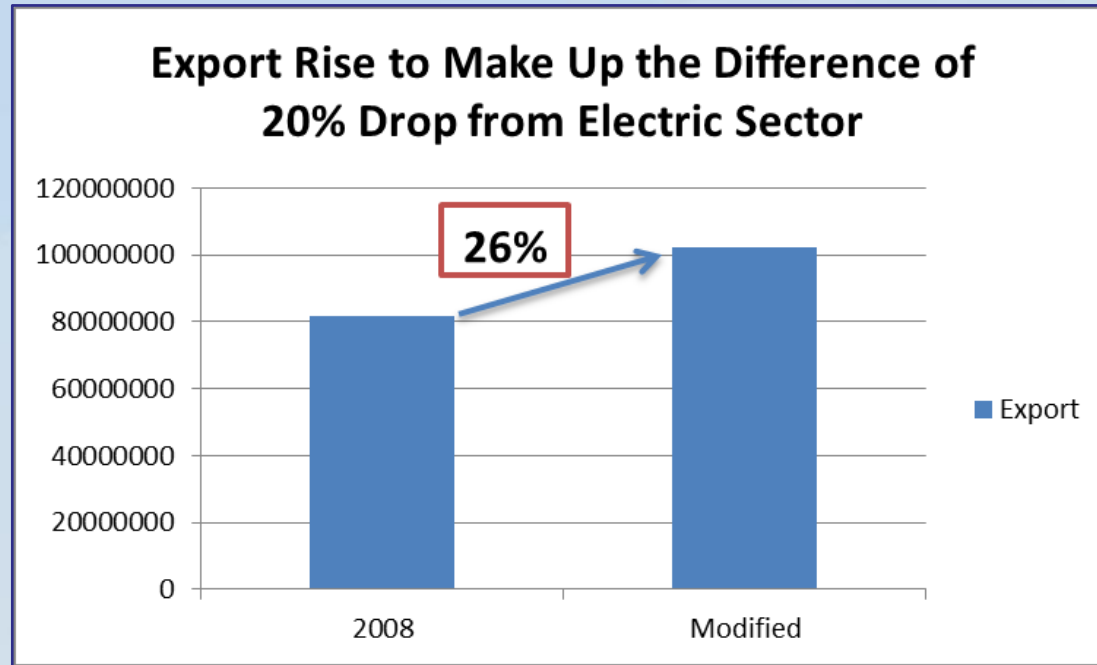
- ❑ 2008 had the largest export of late, also lowest electric sector percentage.
- ❑ Assuming large spread in margins between electric sector and all others, the electric sector will still dominate in terms of percentage contribution to profits.

Demand Drop – Profit Stays the Same



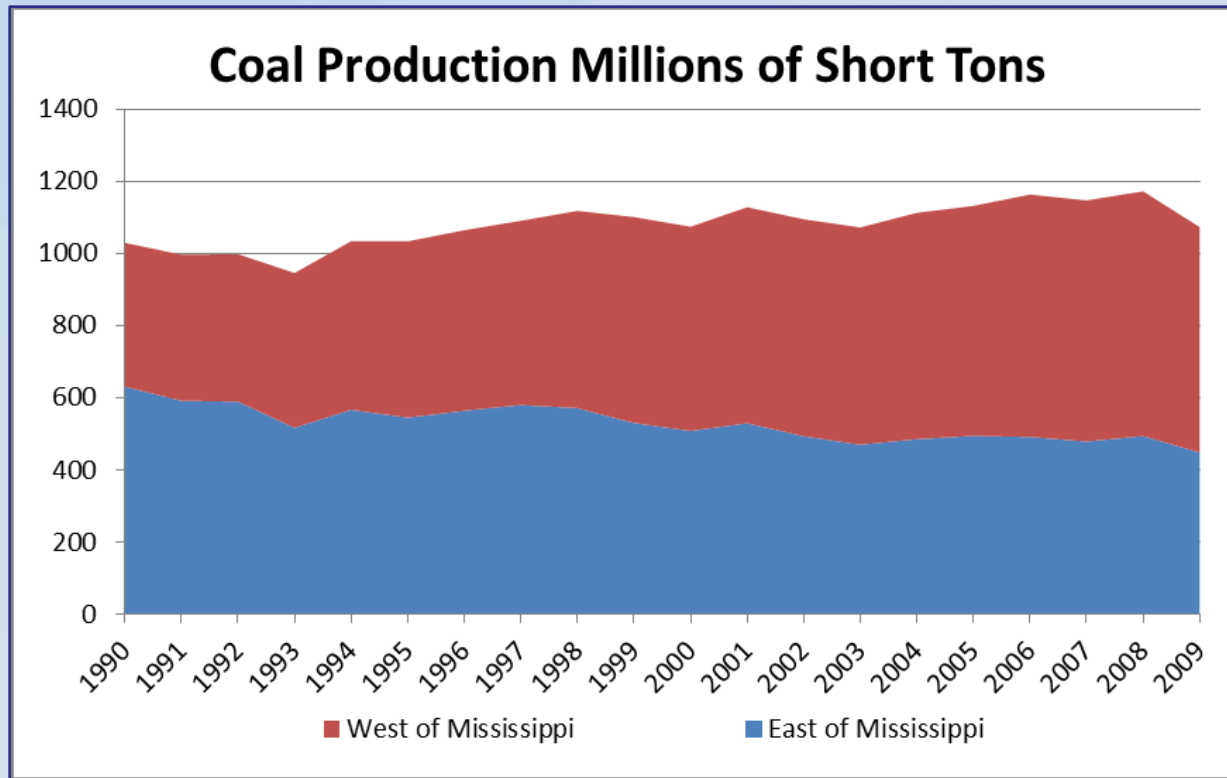
- ❑ A drop in demand from the electric sector of 20% results in a need for export volumes to increase to maintain profit.

Exports Growth Needed



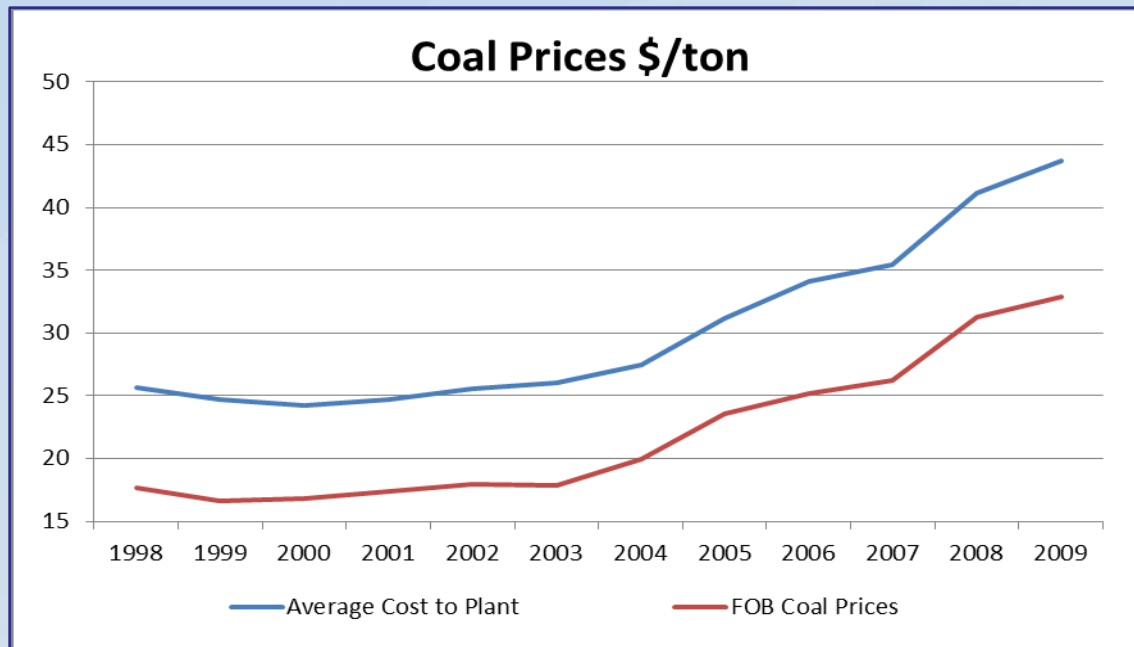
- ❑ Exports need to rise greater in percentage terms in order to keep up with the large volume drop of the electric sector.
- ❑ Good news: ~100 million tons of exports achieved in the 90's.
- ❑ Bad news: If the electric sector level falls earnings will remain flat.

US Coal Supply Migrating West



- ❑ There has been no major builds or retirement of coal plants.
 - Coal capacity has essentially been ~300GW since 1989.
- ❑ The source of coal has steadily moved to the western part of the country.

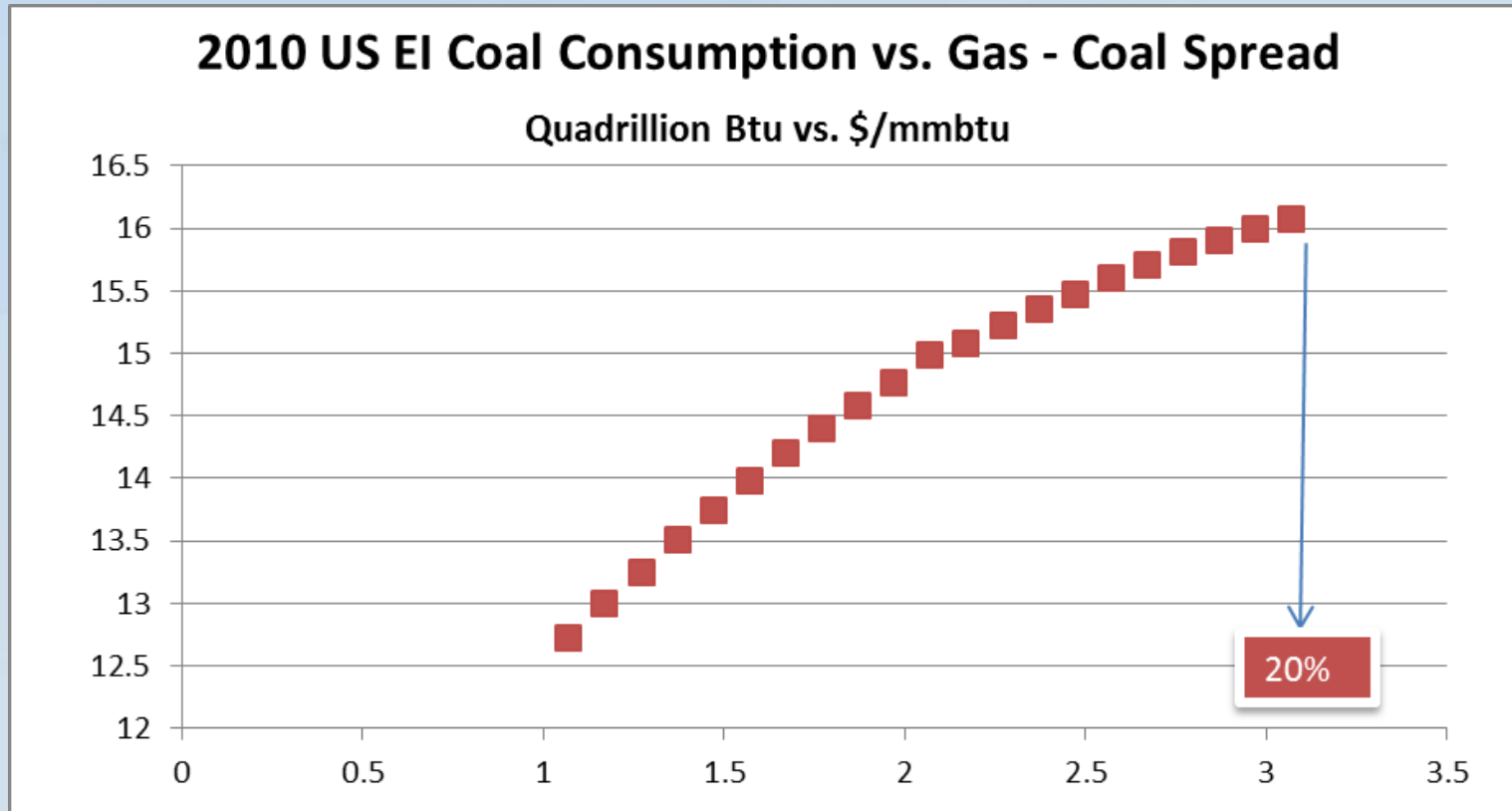
When will Transporters Join the Party?



- ☐ **Average coal prices paid by coal plants has steadily increased over the last 11 years.**
 - But still less than the average spot prices by nearly 1% annum.
- ☐ **Transportation companies will likely regain the difference and then some.**
- ☐ **Can the cost of fuel and transportation increase in face of competing alternative fuel – natural gas?**

Natural Gas Issues

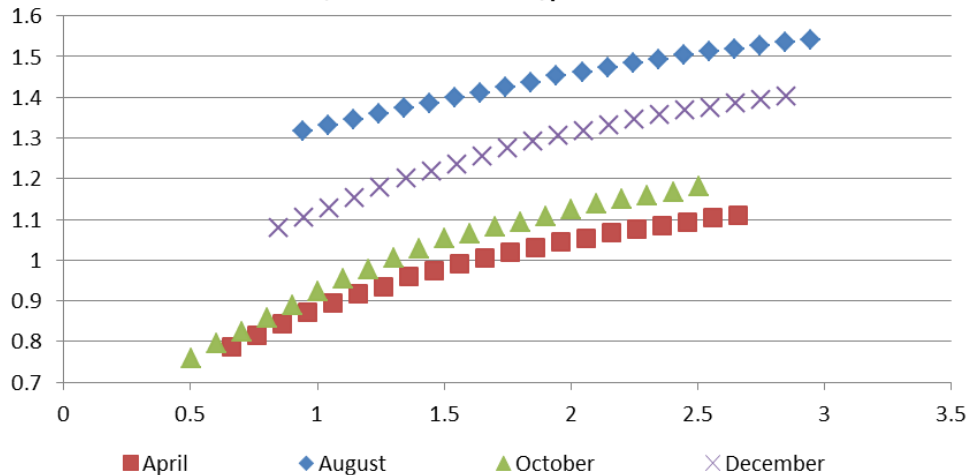
Coal to Gas Generation Yearly View



- ❑ Coal to gas competition is non-linear.
- ❑ A change in price of \$2/mmbtu can result in a change of demand by 20% in a year.

Coal to Gas Generation Monthly View

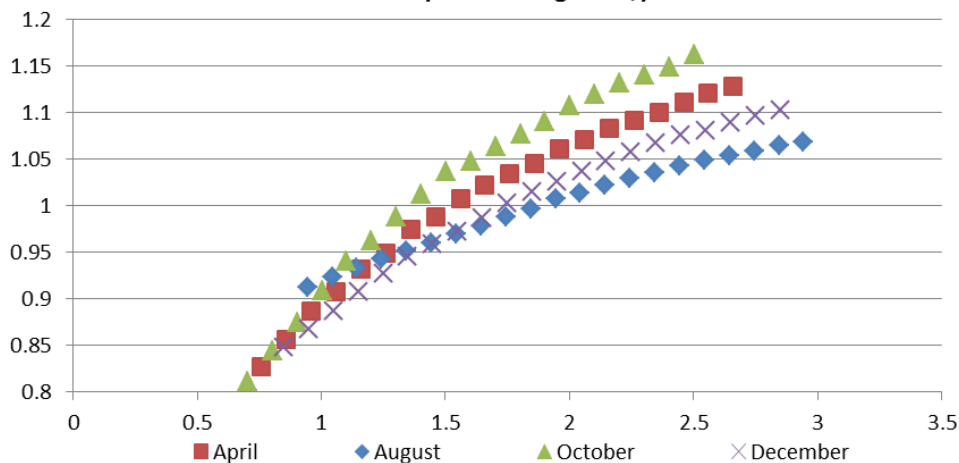
2010 US EI Coal Consumption vs. Gas - Coal Spread
Quadrillion Btu vs. \$/mmbtu



□ Some months are more sensitive than others.

□ As expected, shoulder months with less demand are more price sensitive.

2010 US EI Coal Consumption vs. Gas - Coal Spread
Btu Consumed/Btu Average vs. \$/mmbtu



Design Gas Contracts like Coal Contracts?

- ☐ Of recent much has been discussed about long-term gas contracts with utilities similar to coal contracts.
- ☐ However there are so many differences from coal that to have gas contracts designed like coal contracts would produce a potentially significant disadvantage to either the buyer or seller.
- ☐ Coal is a non-fungible product. The demand for coal can be very precise from ash fusion temperature to the amount of heat content.
- ☐ Natural Gas is a fungible product. Natural gas from one pipeline to another is almost identical.

Gas has an active forward market

- ☐ There is an active and very liquid forward market for natural gas.
- ☐ The forward market for coal is a mere percentage of the real markets.
- ☐ A producer of natural gas wants to get more than the forward curve.
- ☐ A buyer of natural gas wants to get less than the forward curve.
- ☐ Each will have to answer to shareholders, owners, commissions on why they transacted differently from the forward curve.

Policy Issues

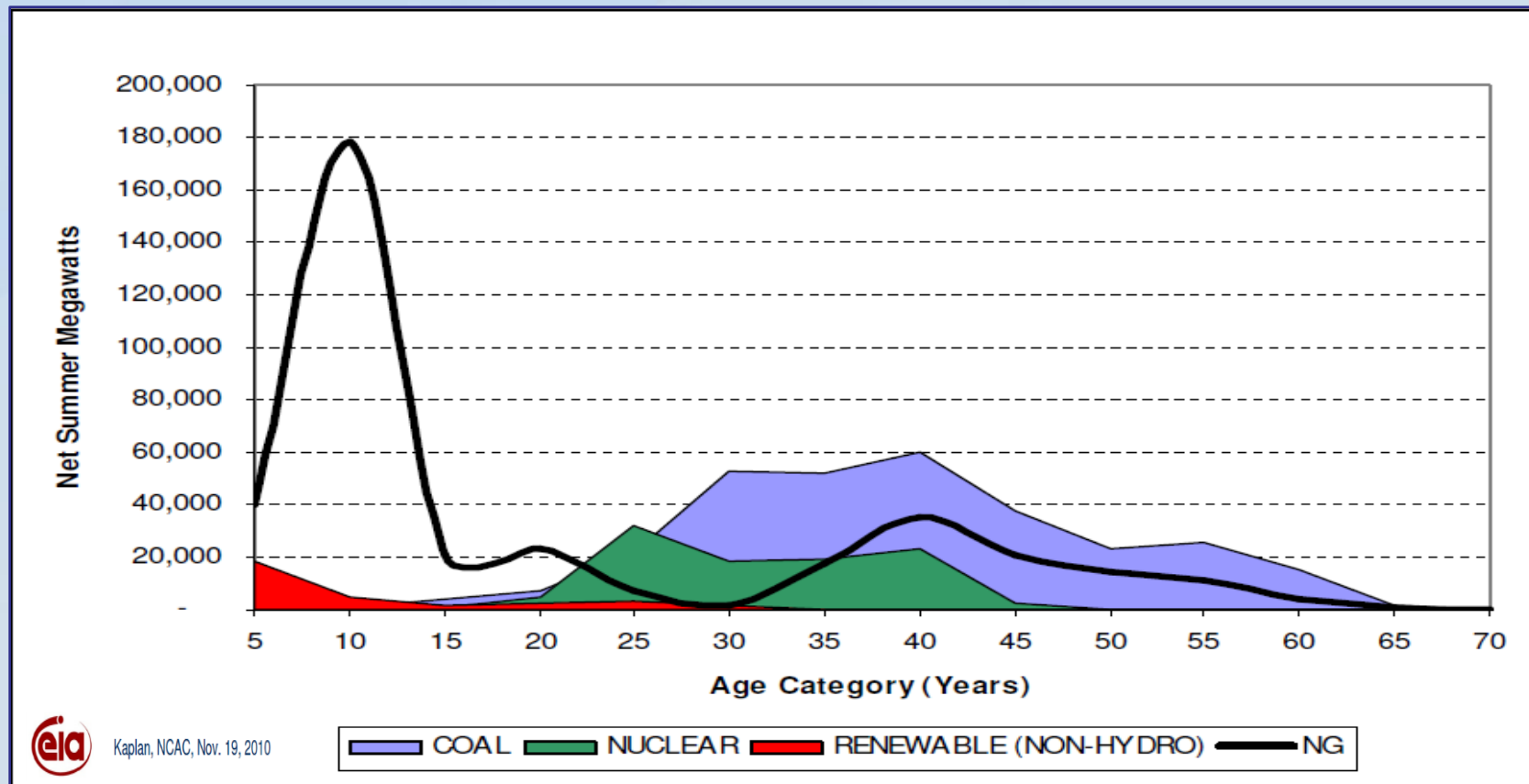
EEI Train Wreck



-- adapted from Wegman (EPA 2003)

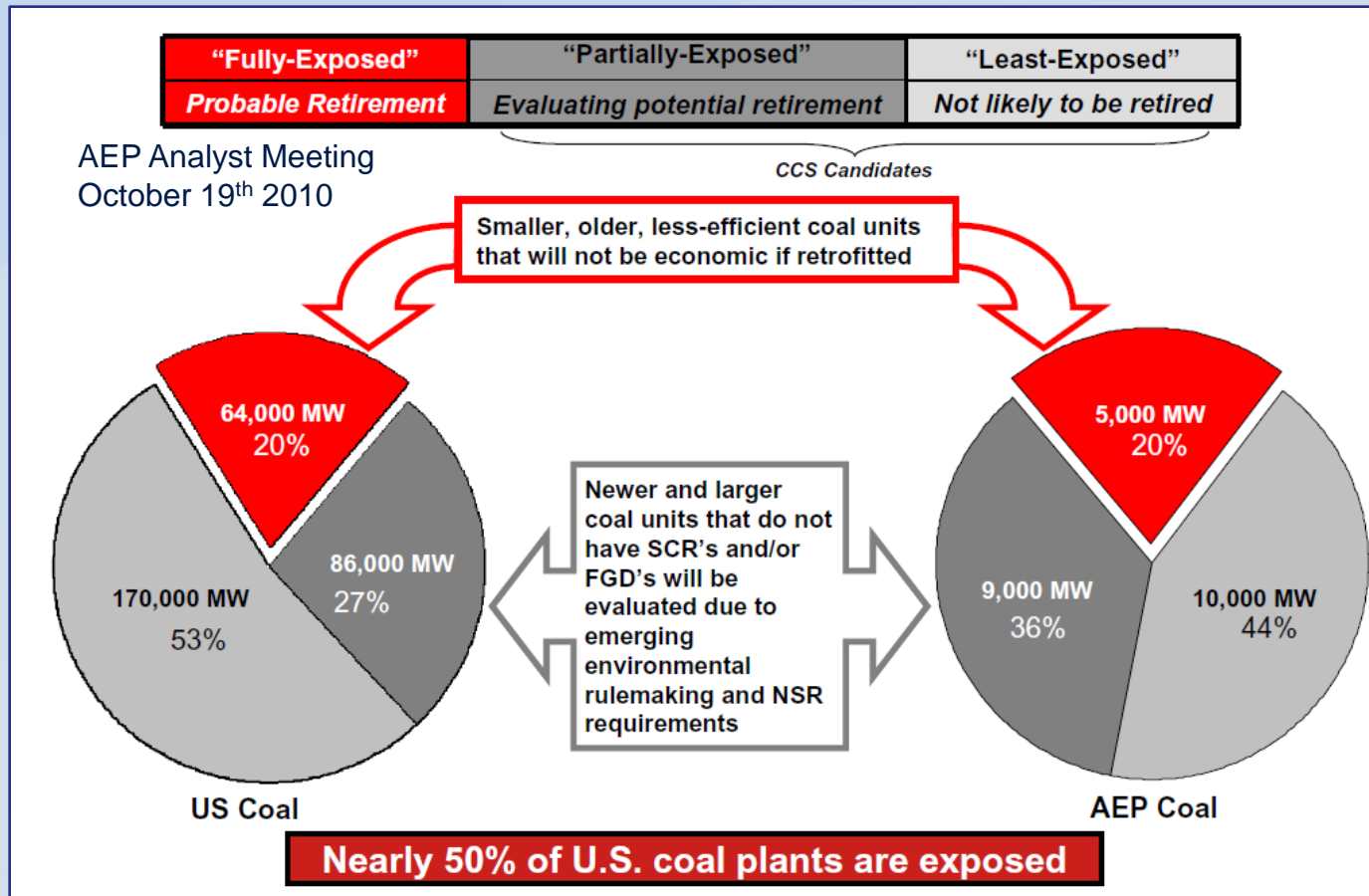
- ❑ Generally speaking its all against coal.
- ❑ Coal units will need significant investments to comply.

To Invest or Not to Invest



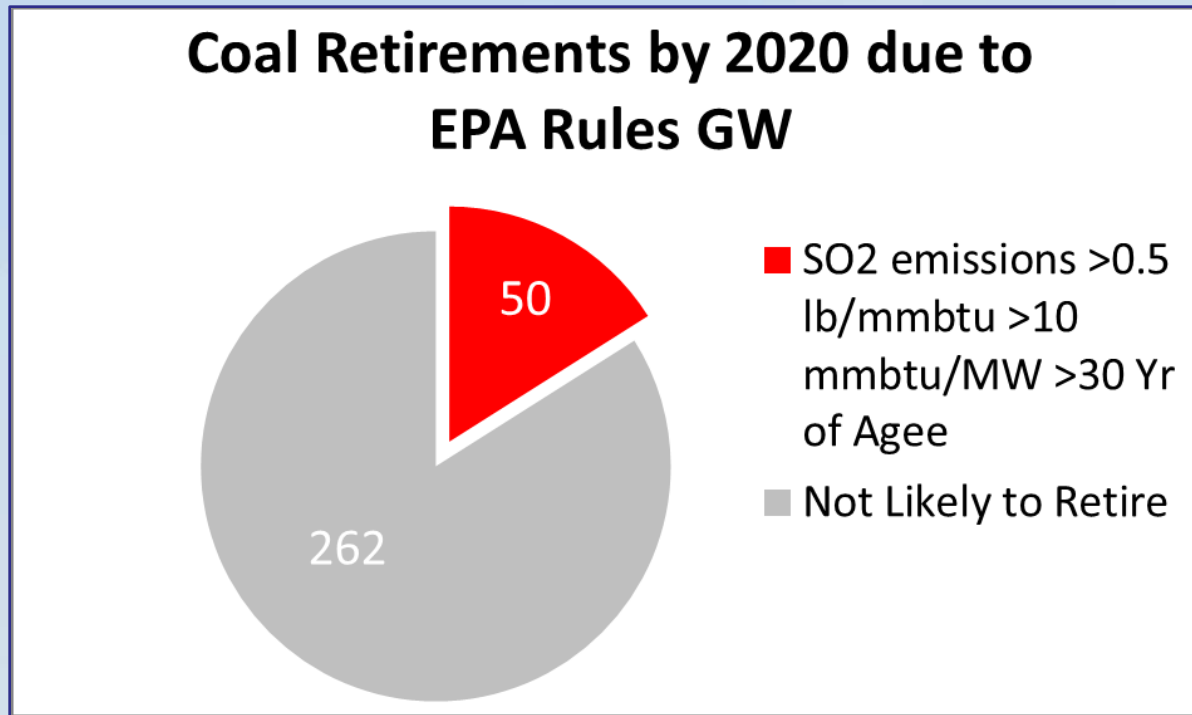
- ☐ Coal asset life coming into the twilight years.
- ☐ Do you invest in a facility that will not last many more years?

Who will retire?



- ❑ 50% has the potential to retire, but more likely to see much smaller numbers.
- ❑ Not an economic calculation, but a matter of data mining.

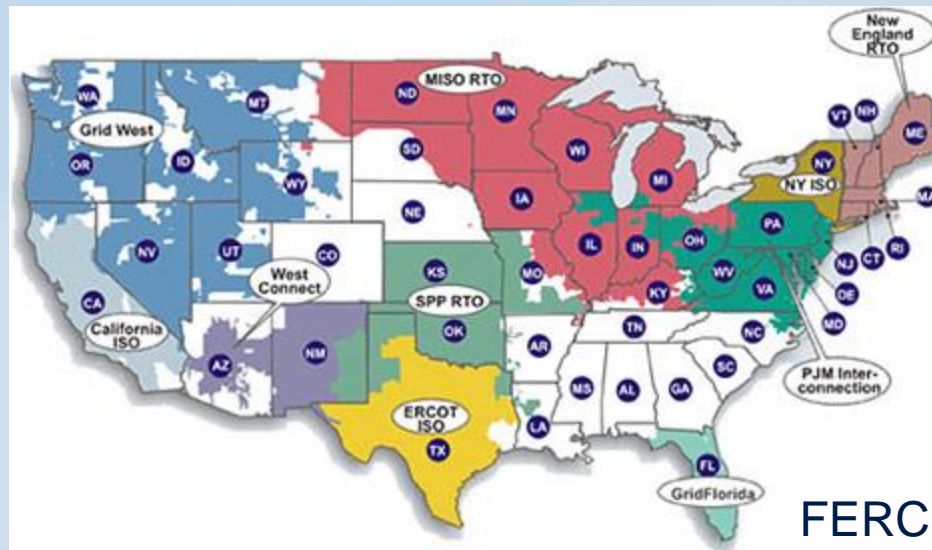
Coal Retirement Picture



- ❑ About 30% of the coal fleet is at risk of retirement.
- ❑ Data based on SO2 >0.5 lb/mmbtu, heat rates > 10 mmbtu/MW, and age >30 years, produces ~50GW ~17% of the coal fleet.
- ❑ In terms of actual energy produced retiring units dispatched less than the average by ~14%.

Power Market Issues

Market Changes



☐ Federal Energy Regulatory Commission (FERC) Order 888 April 24th 1996

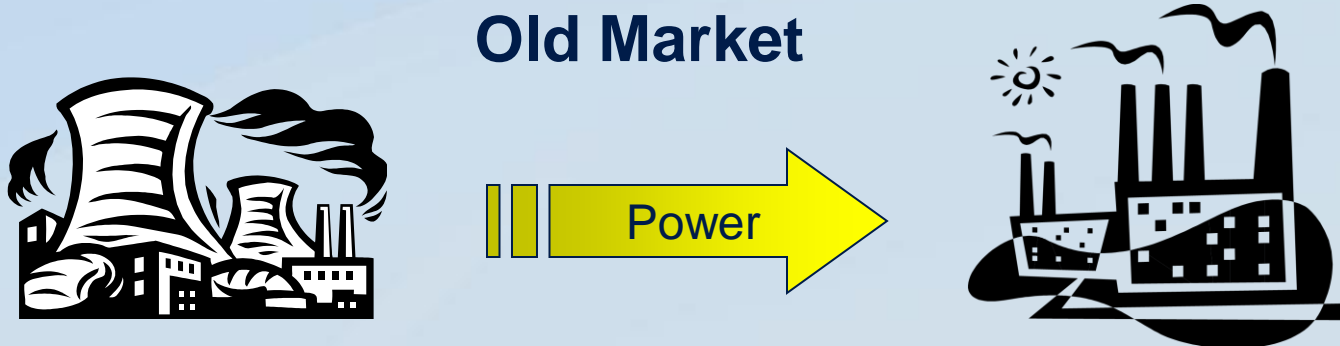
- Unbundling of service and separation of marketing functions.

☐ FERC issued Order 2000 December 20th 1999

- Encouraged the voluntary formation of Regional Transmission Organizations (RTO) to administer the transmission grid on a regional basis throughout North America.

☐ RTO now controls the dispatching of facilities.

Market Evolution



- ☐ Customers are no longer tied or connected to a physical power plant.

Going Against the Market

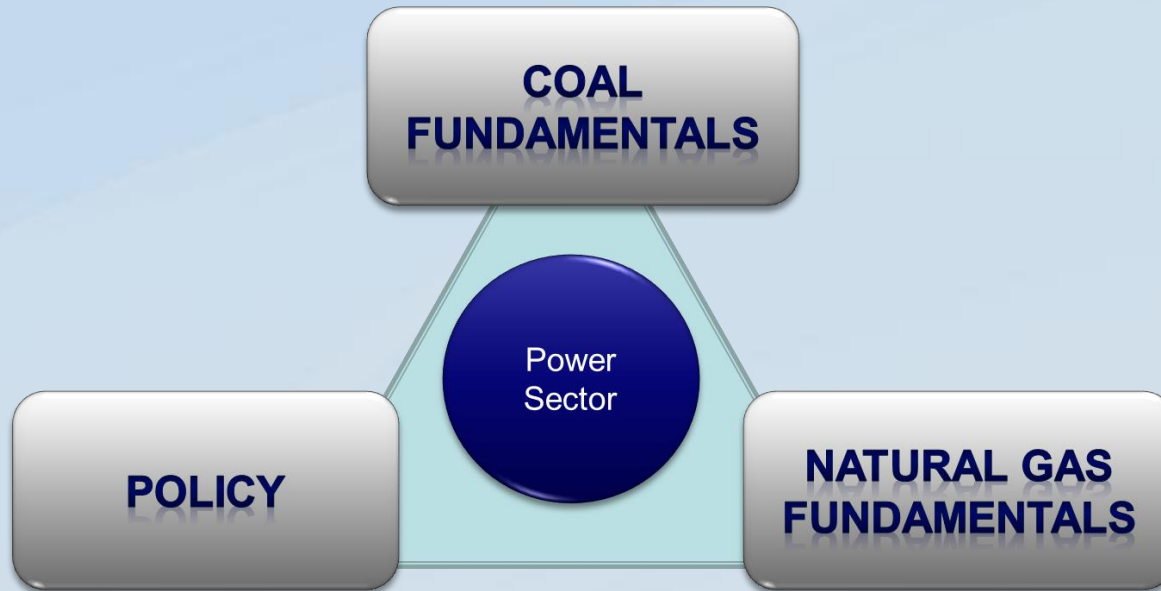
- ☐ Regulated utilities have a hard time adapting to changes.
- ☐ The change in power market structure did not require a change in coal markets because coal units were typically the lowest cost units in the system.
- ☐ Utilities have the ability to continue to generate regardless of market signals.
- ☐ At some point the public utility commission, consumer, and/or industrial groups may question cost when wholesale markets are continually lower.

Planning

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Active Planning is the Key



- ❑ **Co-dependent markets require multiple iterative approach to produce a coherent and logical picture.**
 - A change in coal fundamental could cause too much gas consumption relative to gas price
- ❑ **So many variables so much can change.**
- ❑ **Scenario planning is essential to understanding risk and potential rewards.**

Speed vs. Accuracy

- ❑ A planning and/or modeling team should be able to deliver results to you within a week of a major change.
 - Such as new policy proposal for climate change
- ❑ You shouldn't wait when the world is moving.
- ❑ Pinpoint accuracy is not possible when you don't know everything.
 - Avoid paralysis from analysis
 - Focus on direction then magnitude
- ❑ AURORAxmp provides both a comprehensive feature and speed, so you can deliver meaningful results in a timely manner.

Market Insights with AURORAxmp

☐ Fundamentals

- ☐ Coal
- ☐ Gas
- ☐ Power

☐ Policy

- ☐ Help understand impacts
- ☐ Guide your lobbyist and politician
- ☐ Prepare your company strategy

☐ Market Opportunity

- ☐ Asset Evaluation
- ☐ Identify Trading Arbitrages

AURORAxmp
North American Database
Updated Twice A Year

Includes:

- 114 Market Areas
- ~ 14,000 Generating Units
- Over 90 attributes including Emissions Rate, Heat Rates, Historical Fuel Price, Date of construction, EIA forecast, etc...

Contact Information

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