



U.S. Coal – An Industry in Transition



Richard Winschel

International Pittsburgh Coal
Conference, Pittsburgh, PA, October 6,
2015

- **About CONSOL Energy**
- Forces impacting the U.S. coal industry; impacts on markets and prices
- Transitions and changes occurring in the U.S. coal industry
- Future additional downside risk factors
- Reasons to maintain optimism
- Takeaway messages

About CONSOL Energy



The Leading Diversified Fuel Producer in the Eastern United States



- Ticker: CNX
- Headquartered in Pittsburgh, Pennsylvania
- Approx. 3,800 employees
- 2014 Revenue - \$3.5 Billion
- 2014 Coal Production - 32.2 Million tons
- 2014 Gas Production - 235.7 net billion cubic feet
- 3.3 Billion tons of coal reserves
- 6.8 Trillion cubic feet of gas reserves
- Safety is 2 times better than the industry average



Coal Division

High Quality, Low Cost Assets with Long Mine Life



Pennsylvania ("PA") Operations

Virginia ("VA") Operations

Other

Type of Coal	Primarily Thermal	Primarily Met	Primarily Thermal
Method	5 Longwalls and Continuous Mining Machines	1 Longwall System and Continuous Mining Machines	Stripping Shovels and Front-end Loaders
Seam	Pittsburgh	Pocahontas 3	Upper Dorothy (Coalburg), Kittanning, Freeport, Coalburg Rider, Stockton and 5 Block
Reserves⁽¹⁾	785 MT	92 MT	115 MT
Mine Life	25+ years	20+ years	20+ years
Production Capacity	28 MMT	5.2 MMT	4 MMT
Railroad	NS and CSX	NS	NS

Type of Coal	Primarily Thermal	Primarily Met	Primarily Thermal
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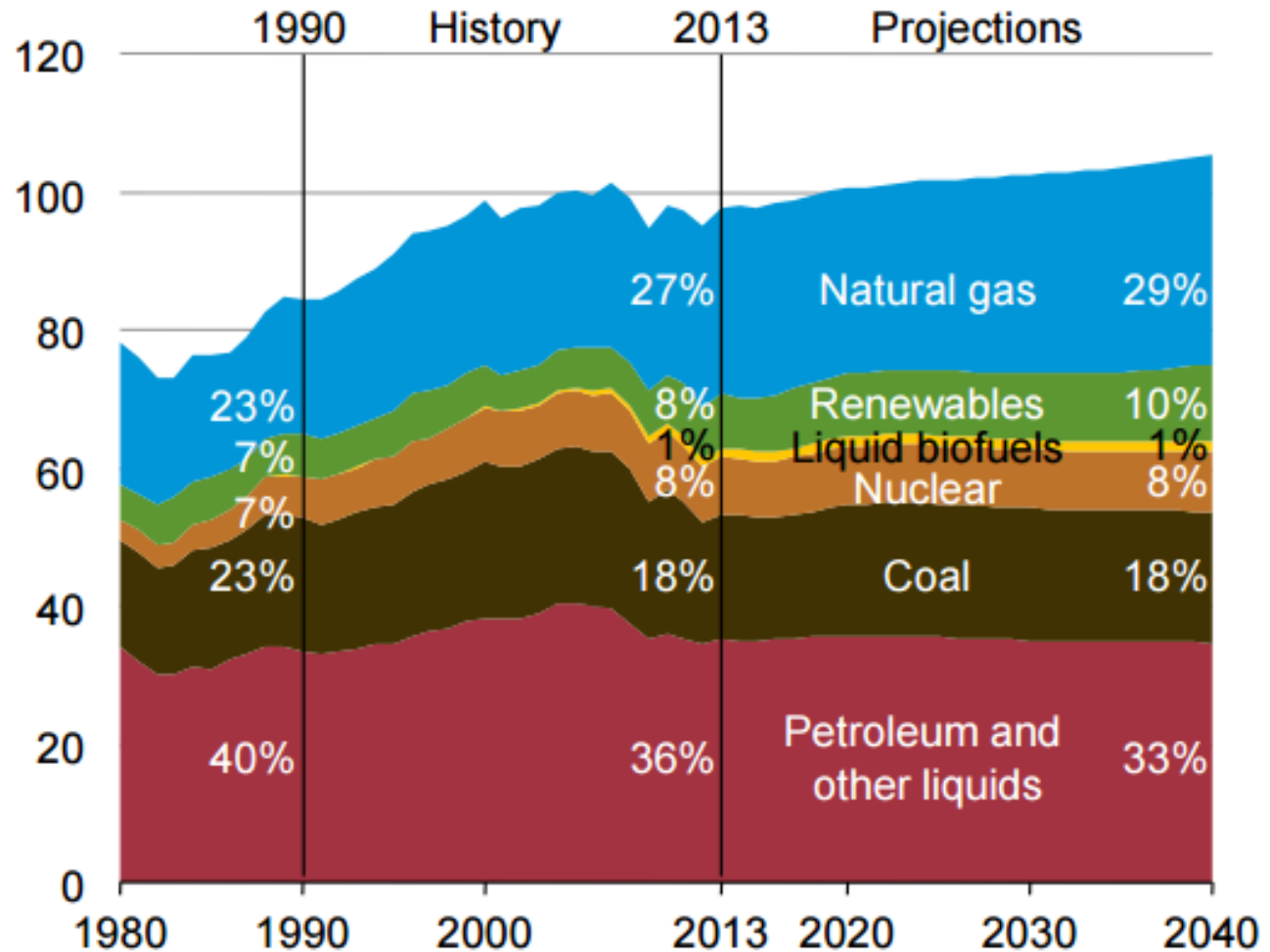
(1) Based on end of year 2014 reserve estimate.

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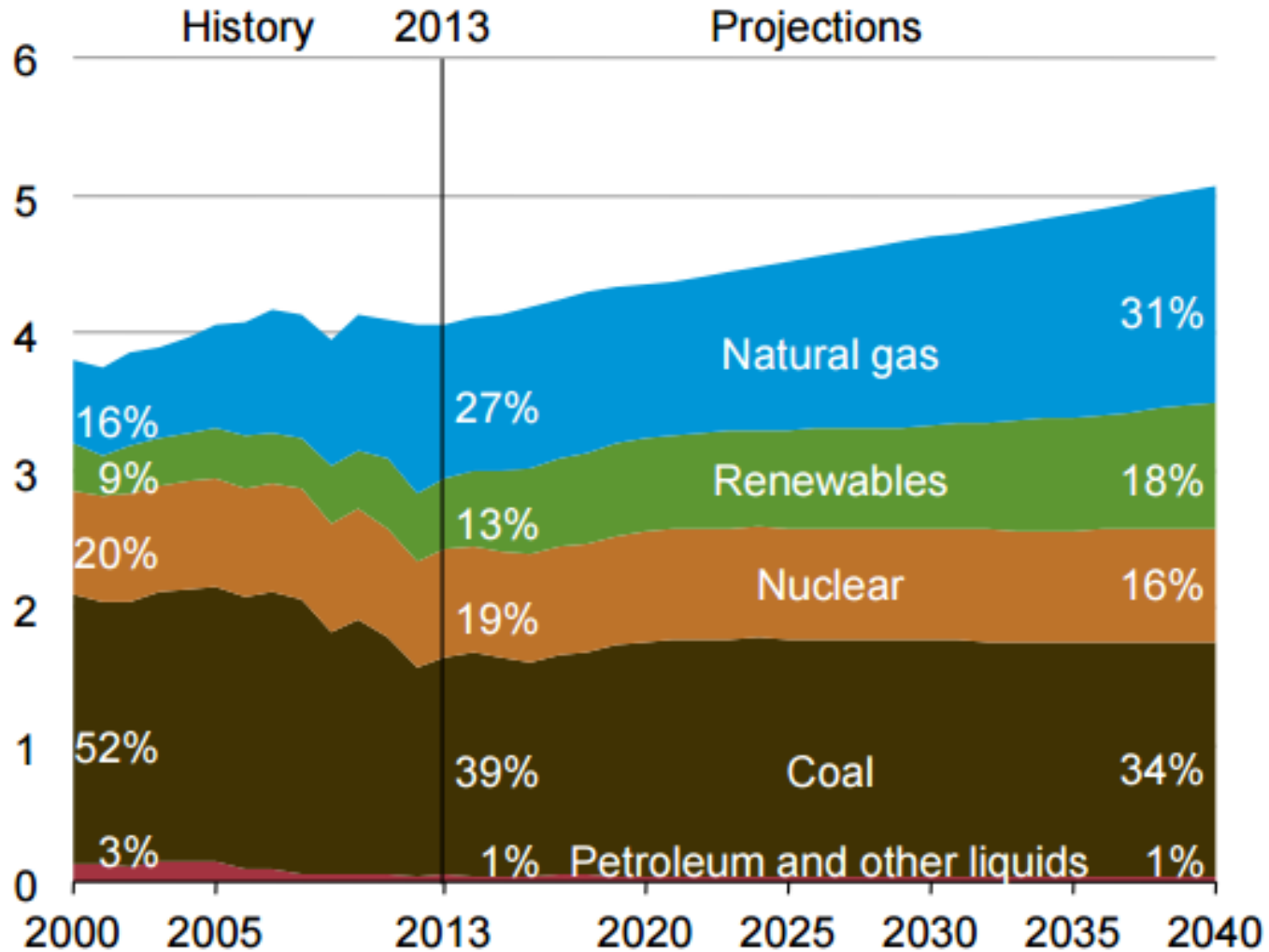
- ✘ Long string of EPA regulations on the domestic electric generating industry
 - CAIR, CAMR, CSAPR, Cooling Water Intake Structures, O₃, SO₂, NO_x, and PM NAAQS, NSPS, effluent limitation guidelines, coal combustion residuals, MATS, Clean Power Plan, Carbon Pollution Standard for New Power Plants
- ✘ Increasingly inexpensive and secure supply of domestic natural gas
- ✘ Flat domestic electricity demand since the Great Recession
- ✘ Renewable portfolio standards and other renewable subsidies and mandates
- ✘ U.S. steel production down since Great Recession; global production flat
- ✘ Strong and strengthening U.S. dollar – hinders exports
- ✘ Excessive inventories of mined coal, and stored natural gas

U.S. Primary Energy Consumption by Fuel

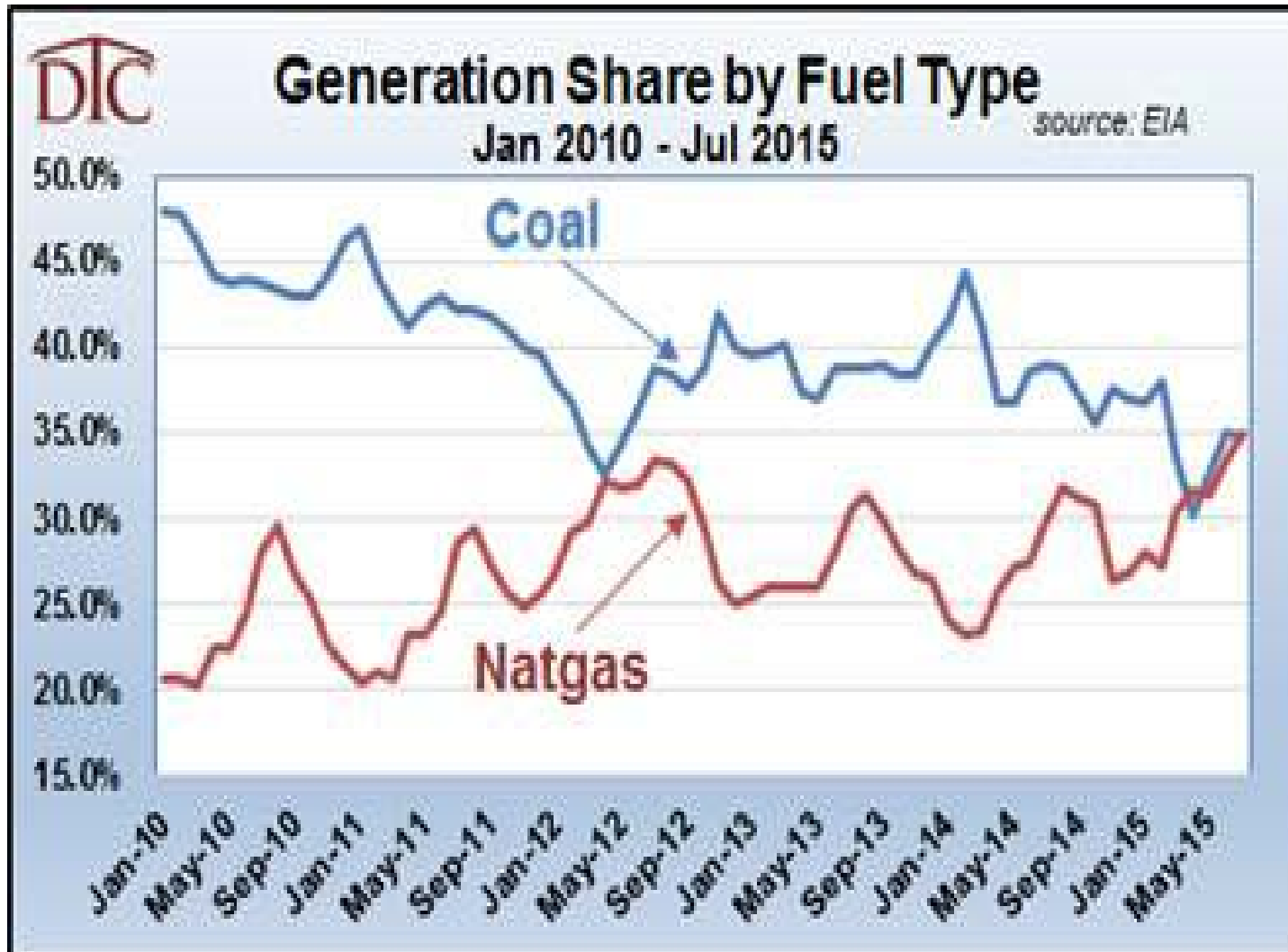
Reference case, 1980-2040 (quadrillion Btu)



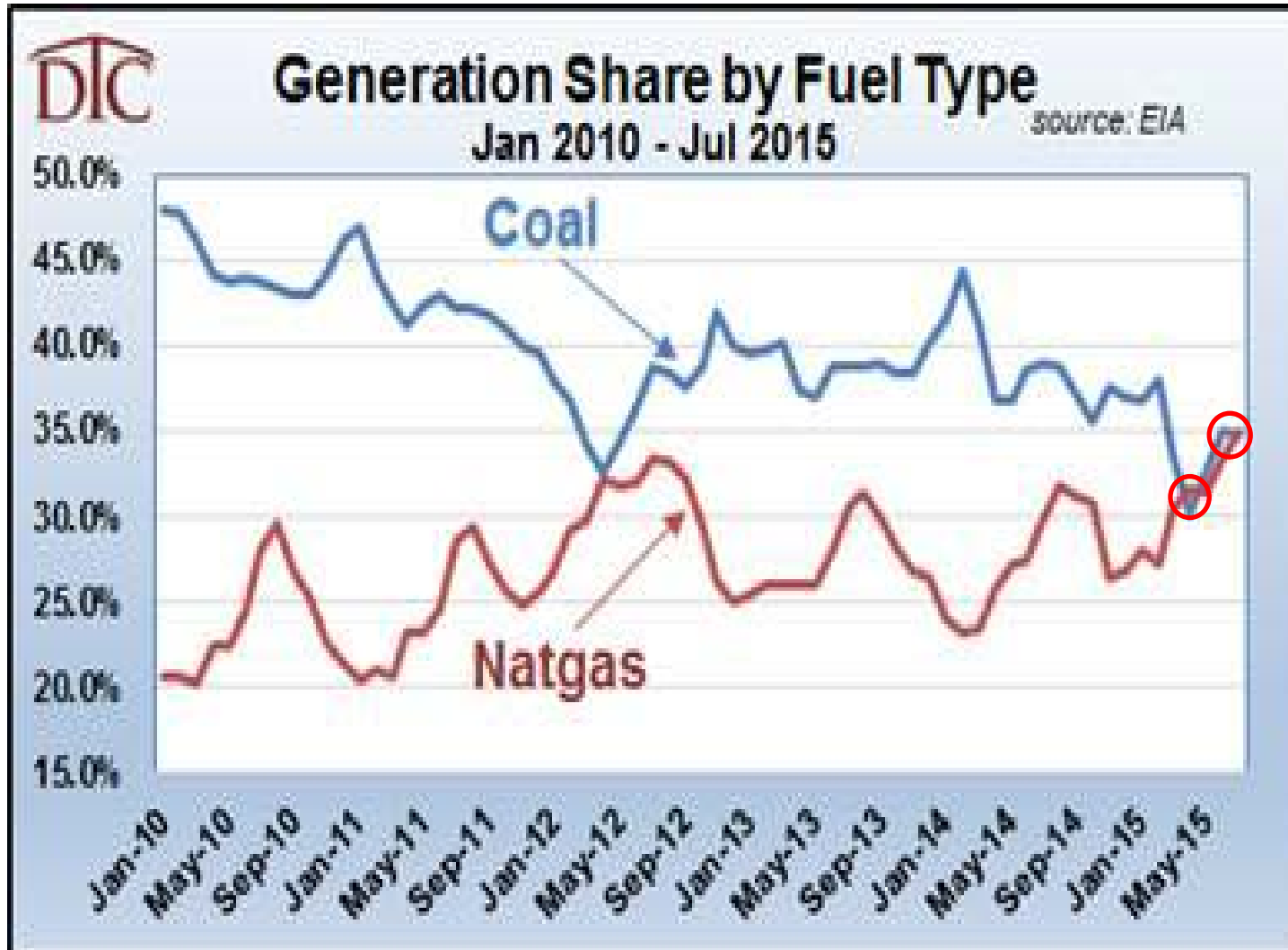
Reference case, 2000-2040 (trillion kilowatthours)



Source: EIA AEO 2015



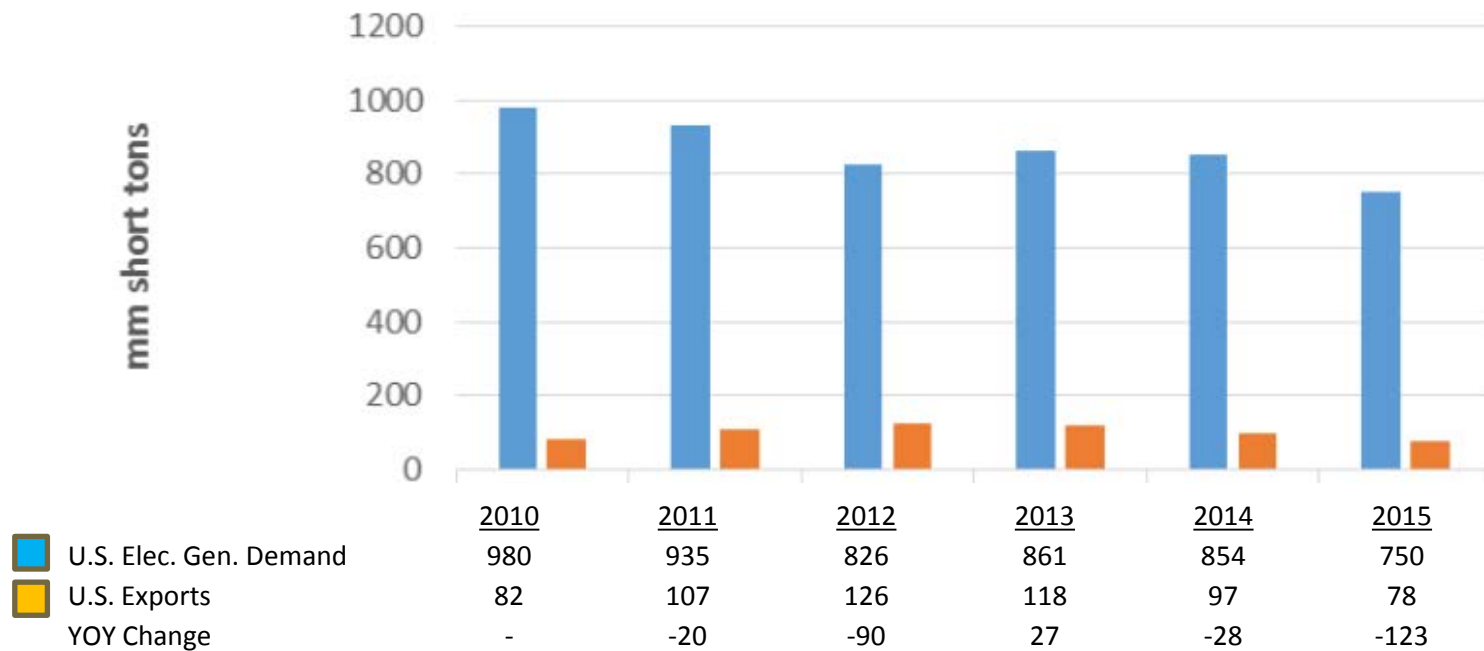
Natural gas generation exceeded coal generation for the first time ever in April 2015, and for the second time in July 2015



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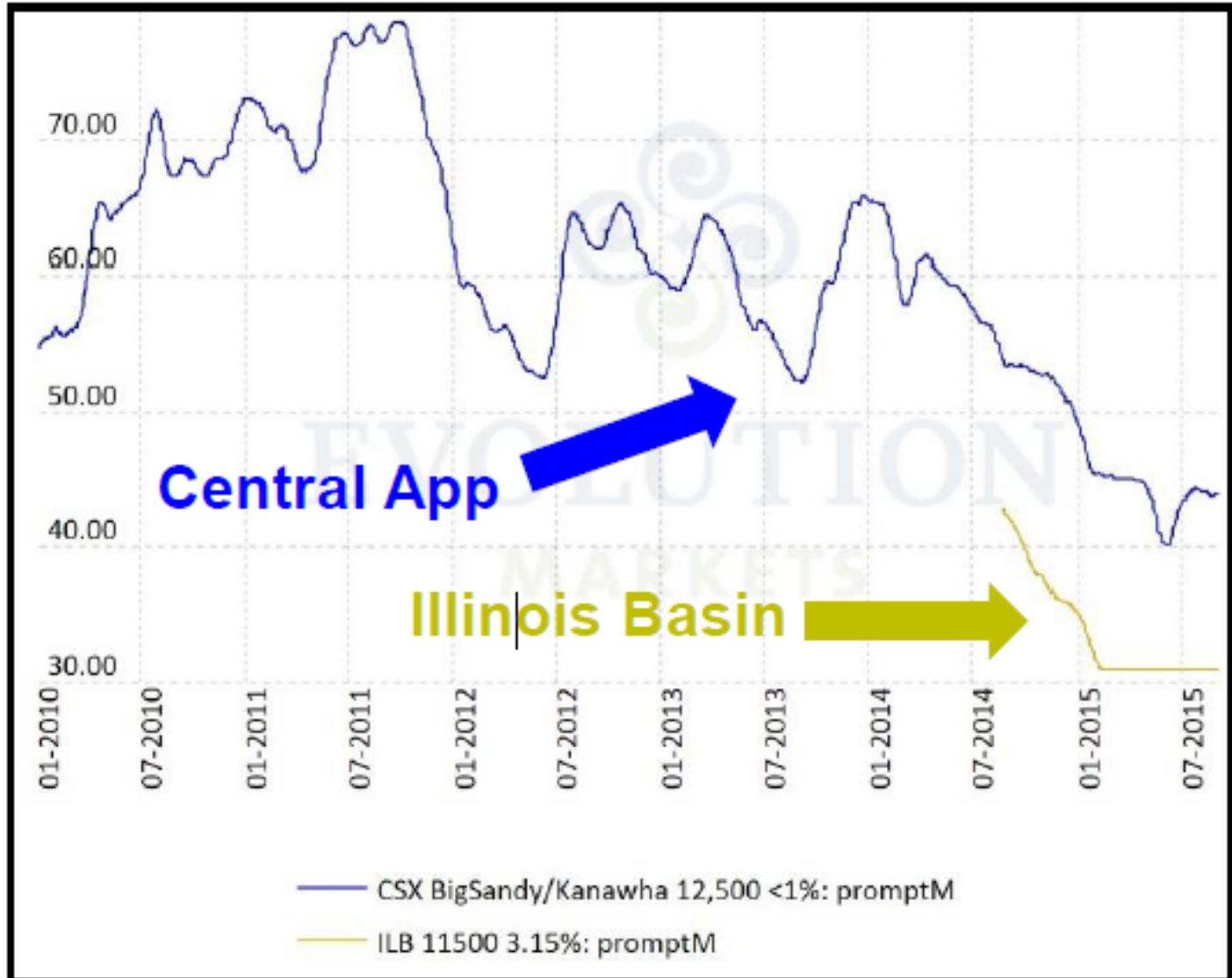
Two Main Markets in Decline

US Utility Demand & Coal Exports 2010 - 2015

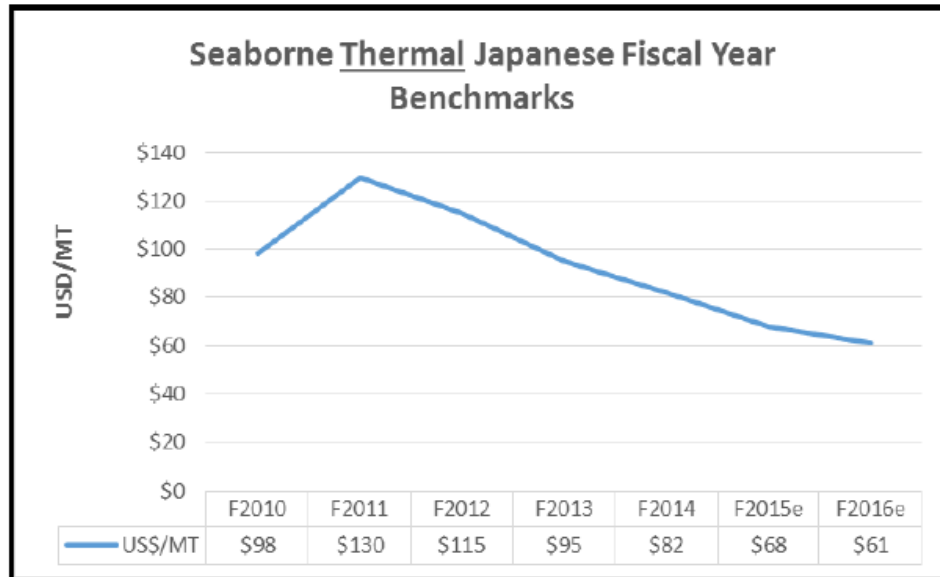
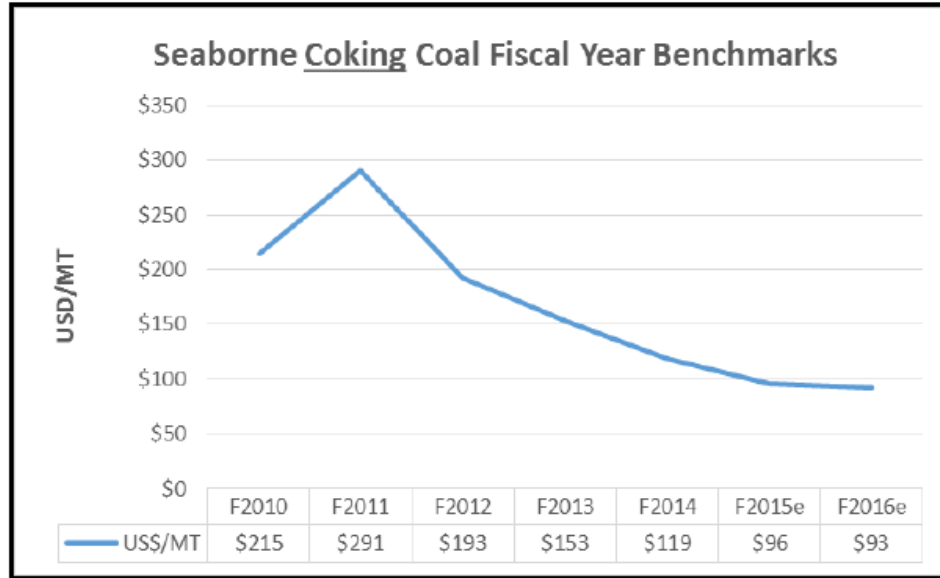


Source: Doyle Trading Consultants, EIA

Impact on Prices - Domestic

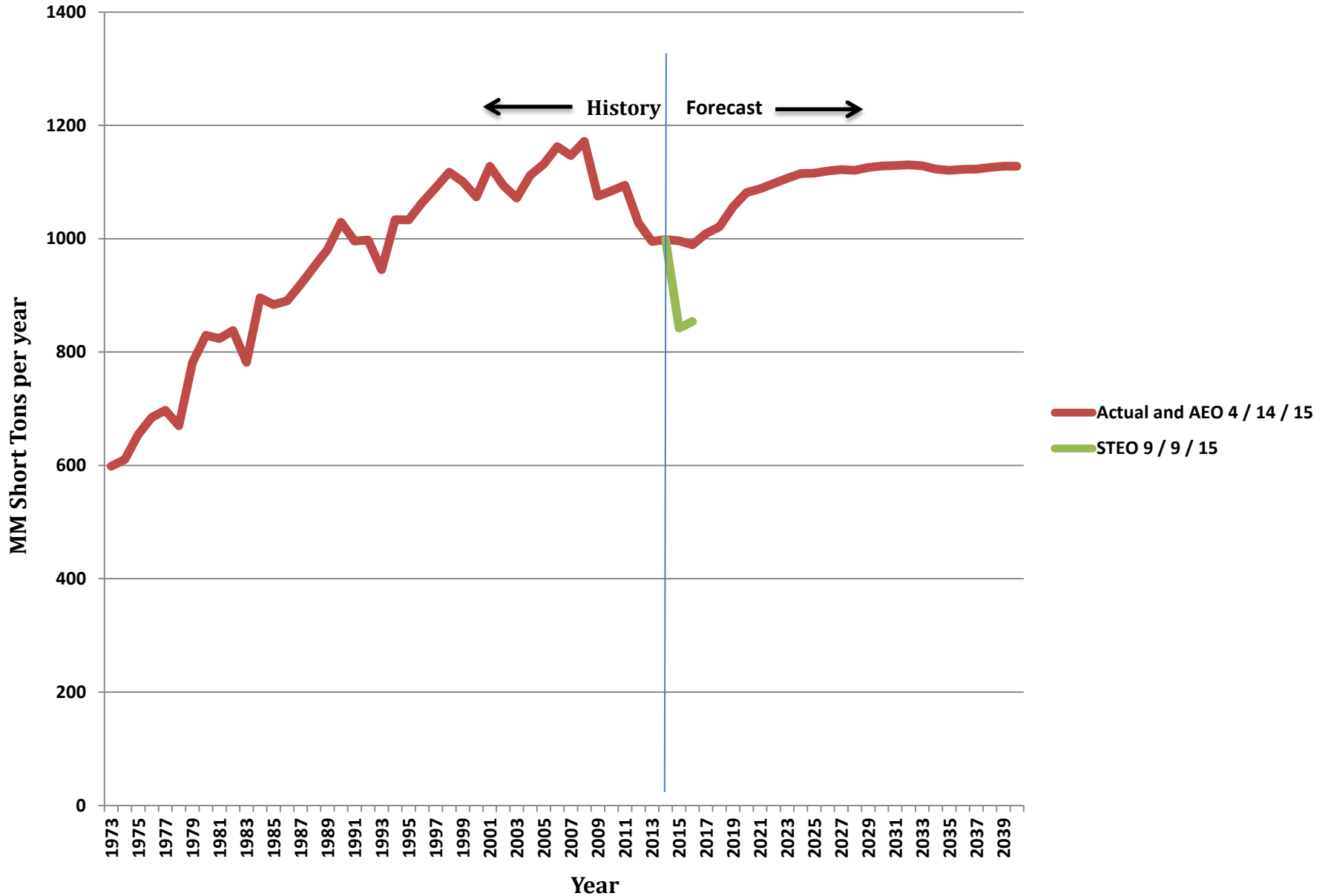


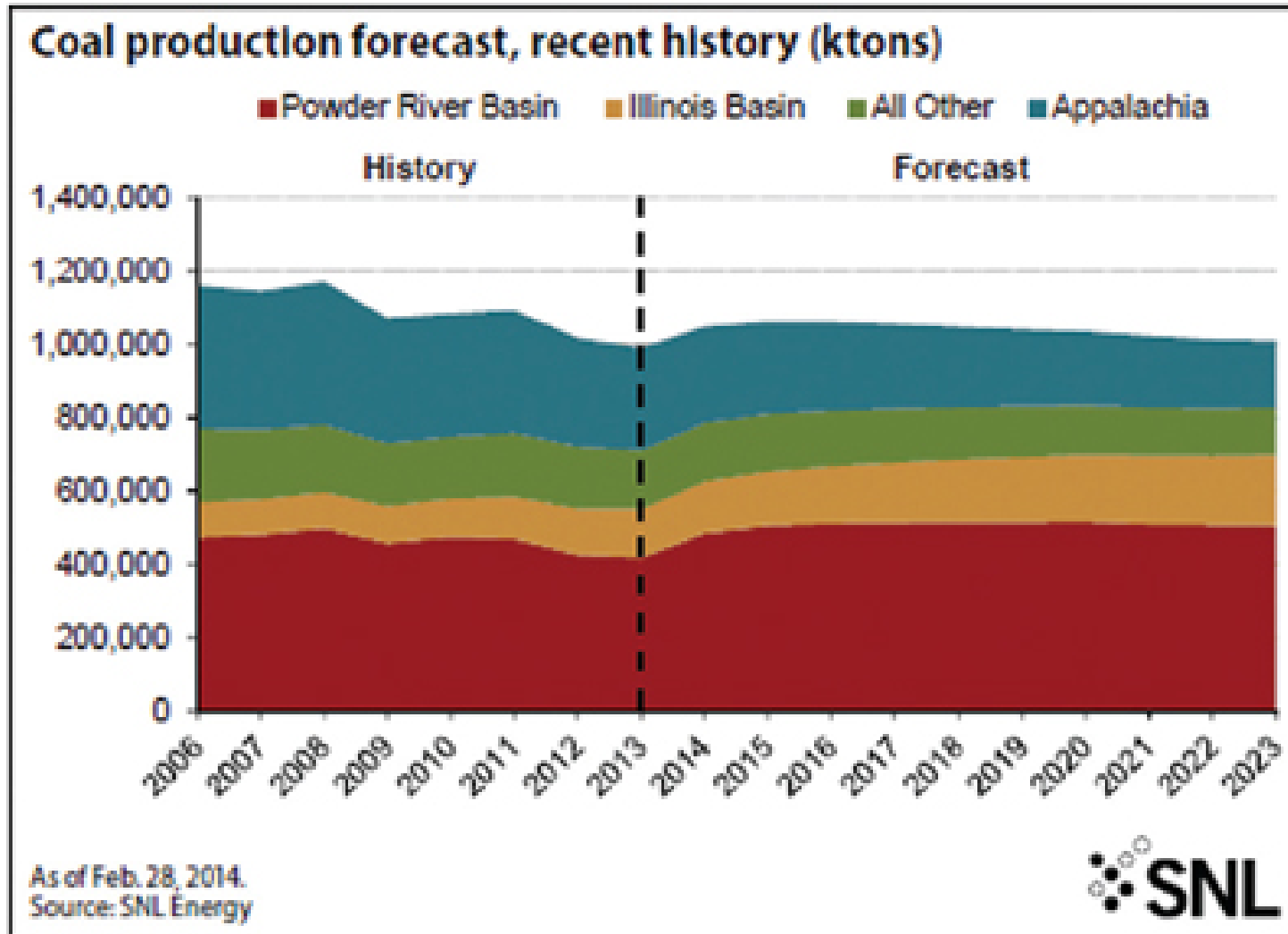
Source: Evomarkets.com via Doyle Trading



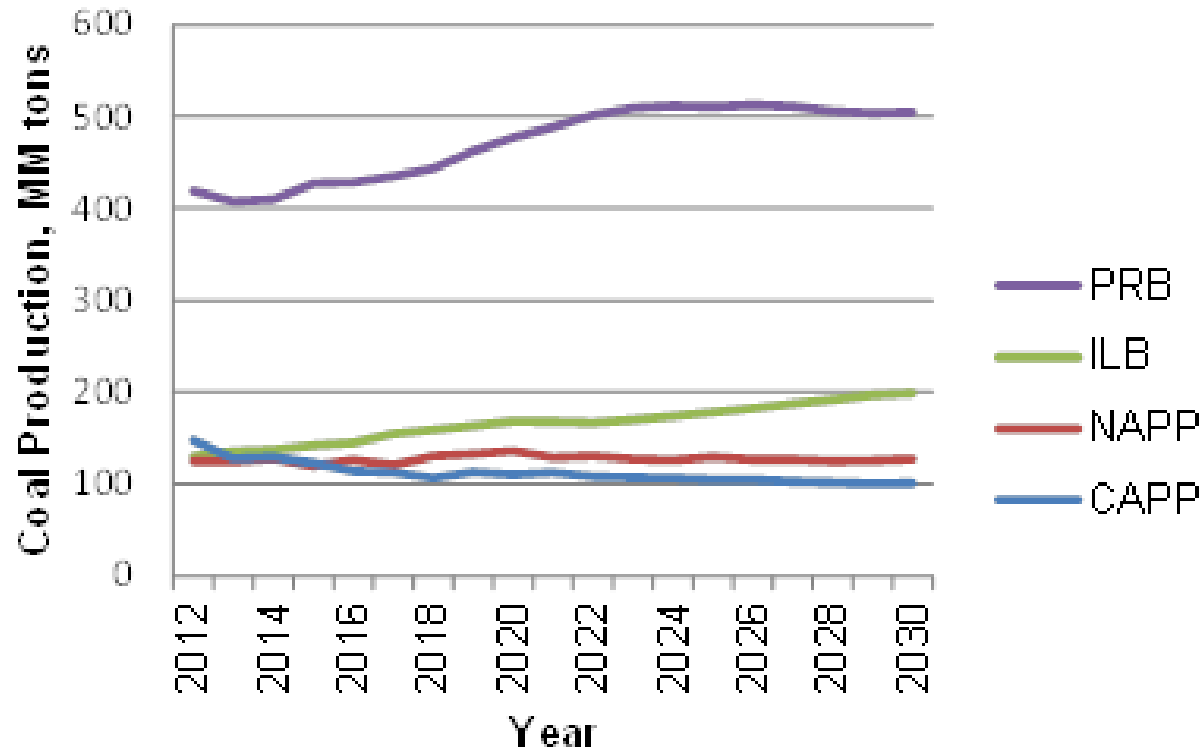
Source: Doyle Trading Consultants LLC

U.S. Coal Production – History and Forecast





Forecast: Coal Production by Basin



Source: EIA

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Shutting Mines

The U.S. has lost almost half of its coal mines in the past 10 years.

■ Total U.S. Coal Mines



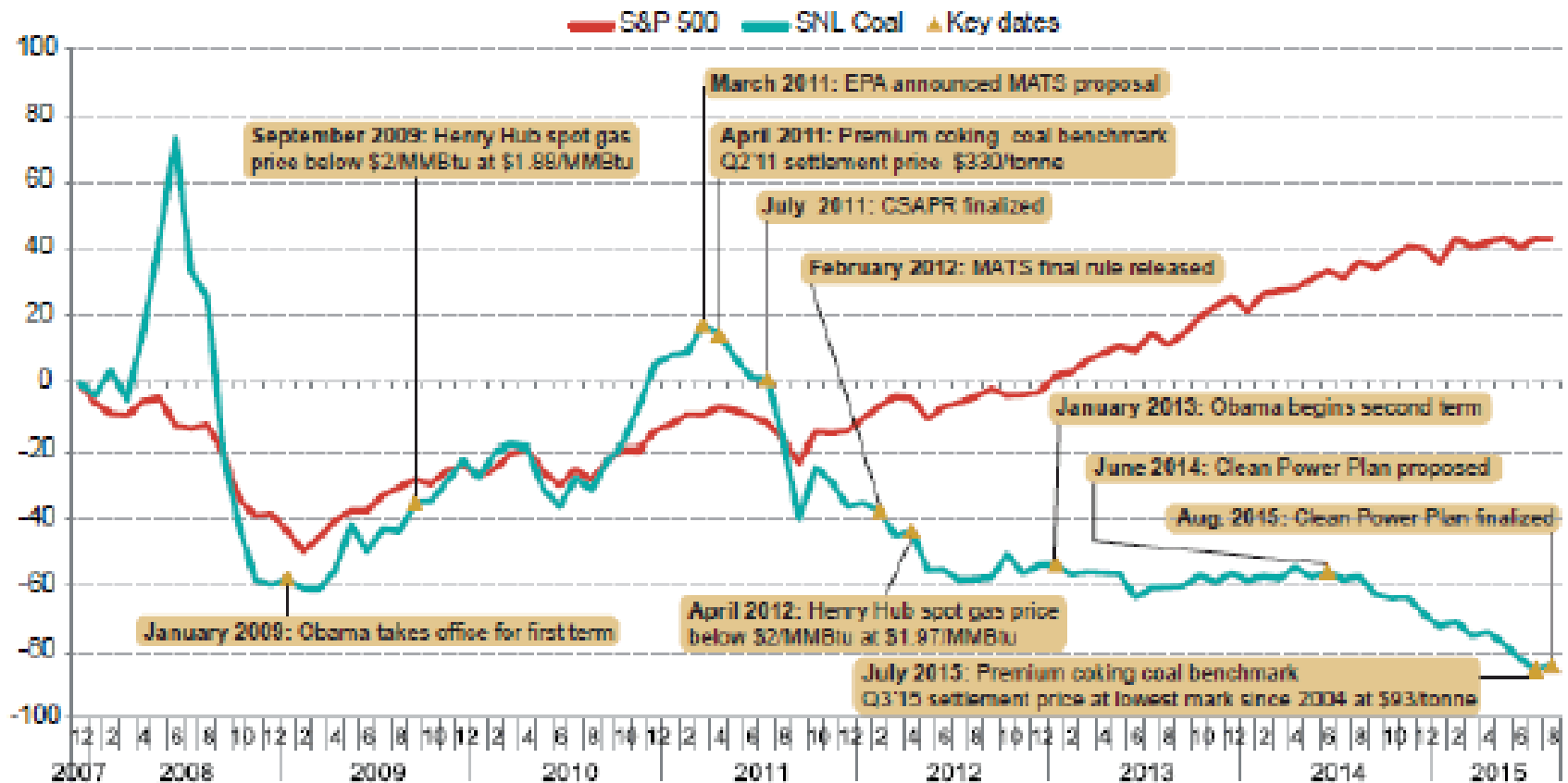
Source: Bloomberg Intelligence analyst William Folles

Note: Figures include coal mines that produced more than 10,000 tons in quarter.

Bloomberg 

Most Coal Equities Are Down...

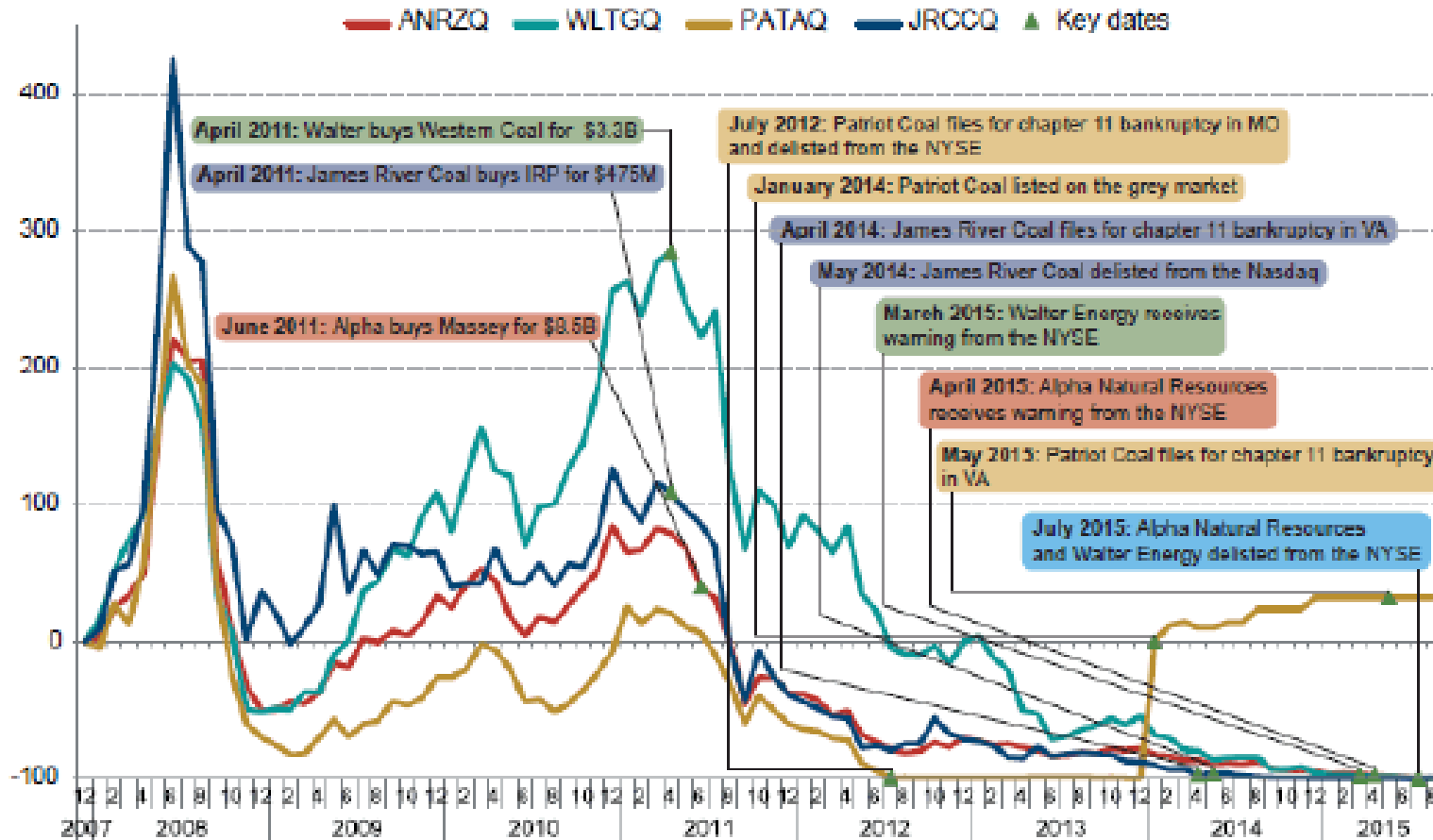
SNL Coal vs. S&P 500 Index price monthly change (%)



Source: SNL Energy, 9/2/15

...Some Coal Equities Are “Out”

Delisted coal company stock price monthly change (%)



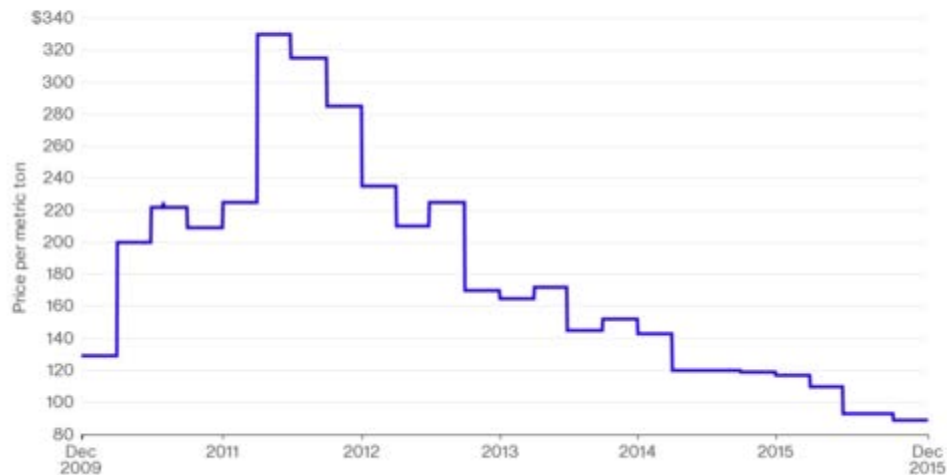
Source: SNL Energy, 9/2/15

- **“Mines in America's Coal Country Just Sold for a Total of Nothing”**
 - For a reality check on America's coal industry, consider how much a collection of Appalachian pits just sold for: nothing. That's what Booth Energy Group's Cambrian Coal Corp. paid up front for a Teco Energy Inc. unit that controls a collection of surface and underground mines
 - In February, West Virginia businessman Jim Justice paid Russia's OAO Mechel \$5 million and assumed some debt to buy back operations that he had sold to the company in 2009 for \$568 million.

Coal's Collapse

The coal market has collapsed amid a worldwide glut, cheap gas and mounting regulations.

■ Seaborne Hard Coking Coal Contract



Bloomberg

- The price of coal on the international export market slid to \$93 a ton during this quarter and is predicted to land even lower, possibly as low as \$85 per ton, during the fourth quarter
- U.S. coal producers such as Virginia-based Alpha Natural Resources and Alabama-based Walter Energy Inc. lose \$37 per ton and \$26 per ton at that level; both are in bankruptcy
- CONSOL was the only U.S. company whose costs were below the price it received for its met coal
- CONSOL spent \$46 to produce a ton of met coal at its Buchanan Mine in the third quarter of 2014 and later cut that down to \$36 during the same three months this year
- What it received for those tons of coal also dropped, from about \$61 to \$48, but still left the company's profit margin nearly unchanged at around \$9 per ton

Source: Andrew Cosgrove, Bloomberg Analyst, as reported by A. Litvak in Pittsburgh Post-Gazette, September 13, 2015

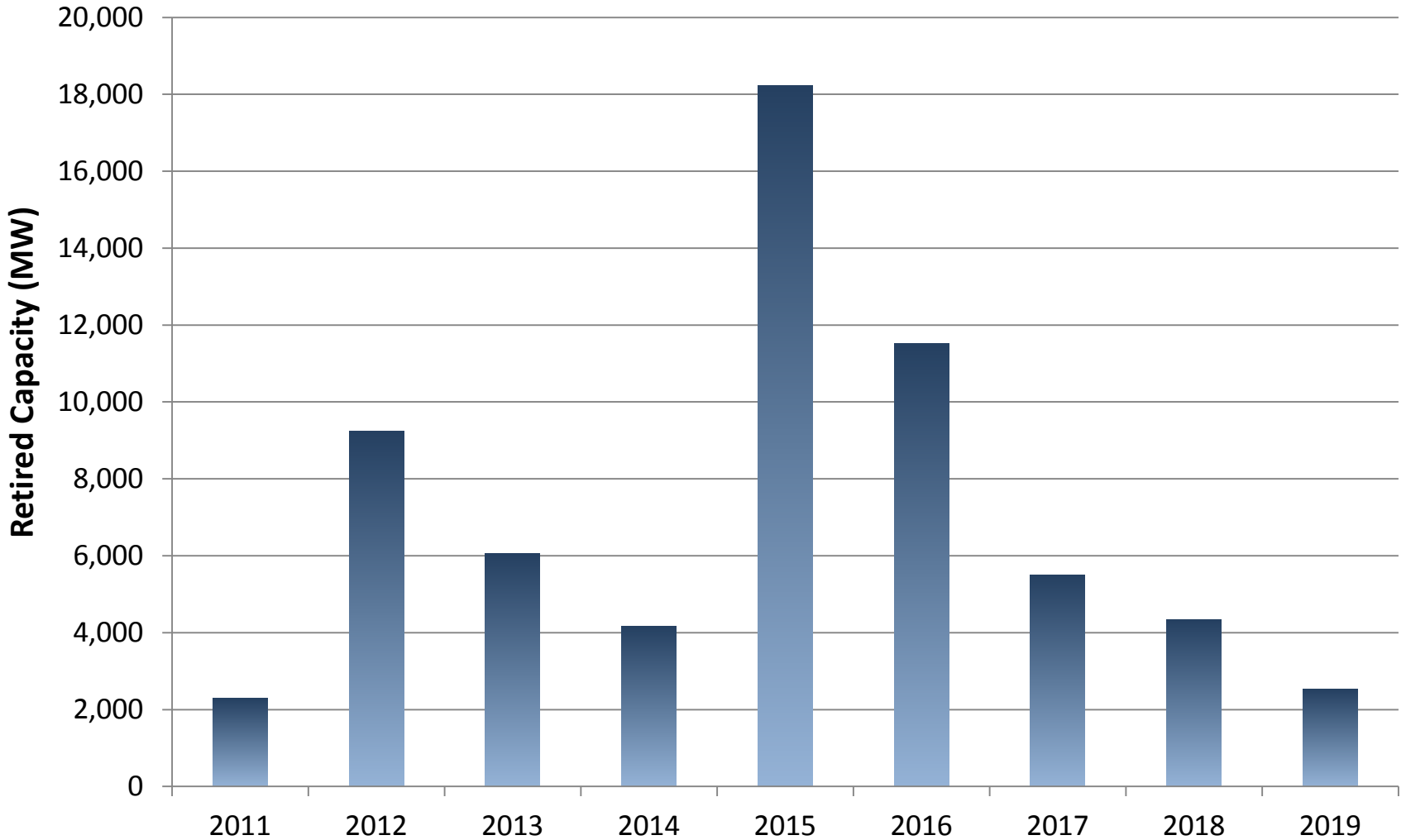
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 - **Clean Power Plan and Carbon Pollution Standard for New Power Plants**
 - **Stream Protection Rule**
- Reasons to maintain optimism
- Takeaway messages

- Both rules enacted in August 2015
- **Carbon Pollution Standard** mandates partial capture of CO₂; thus, very few new U.S. coal-fired power plants will be built for the next 5 - 10 years
- **Clean Power Plan**, although allowing numerous options to the states, essentially mandates substantial reduction in coal burn from 2022 to 2030. State plans must be submitted September 2016 (two-year extension possible)
- These regulations will be aggressively litigated, and may be modified by Congress or the next Administration

- Proposed by OSMRE July 15, 2015.
- Prohibits mining within 100 feet of intermittent streams (stringent exceptions)
- Requires restoration of both the hydrologic form and ecologic function of intermittent and perennial streams and the restoration of the hydrologic form of ephemeral streams.
- Prohibits material damage to the hydrologic balance, defined as any adverse impact on the quality or quantity of surface water or groundwater or on the biological condition of intermittent and perennial streams that would preclude attainment or continuance of any designated surface water use..... or any existing or reasonably foreseeable use of surface water or groundwater outside the permit area.
- National Mining Association analysis shows that, as proposed, the rule could “sterilize” vast quantity of coal reserves

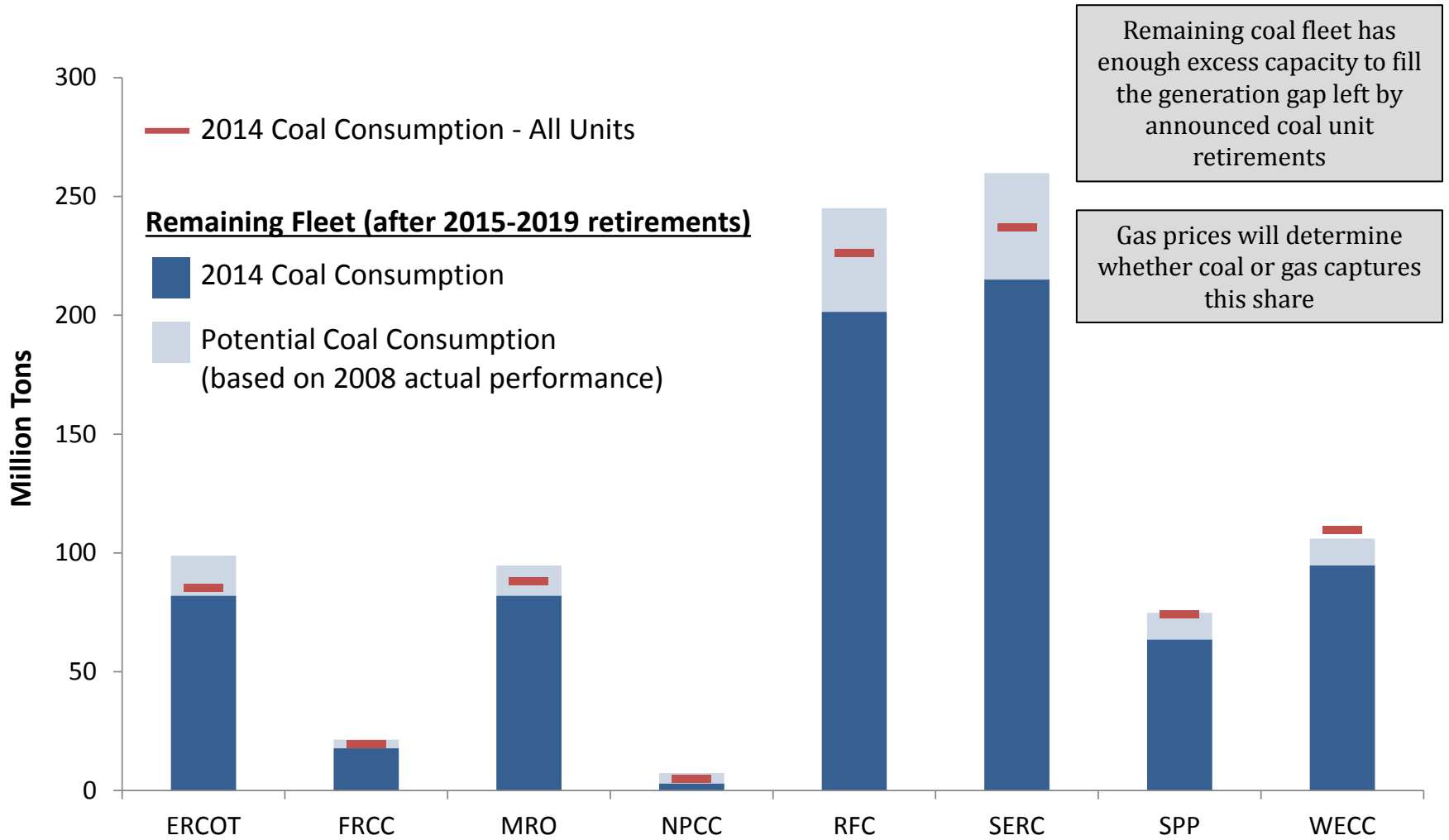
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Coal Unit Retirements Expected to Peak in 2015...



* Includes actual and announced retirements, as well as units converted to natural gas, biomass, or another non-coal fuel.

...But Remaining Fleet Capable of Filling the Void



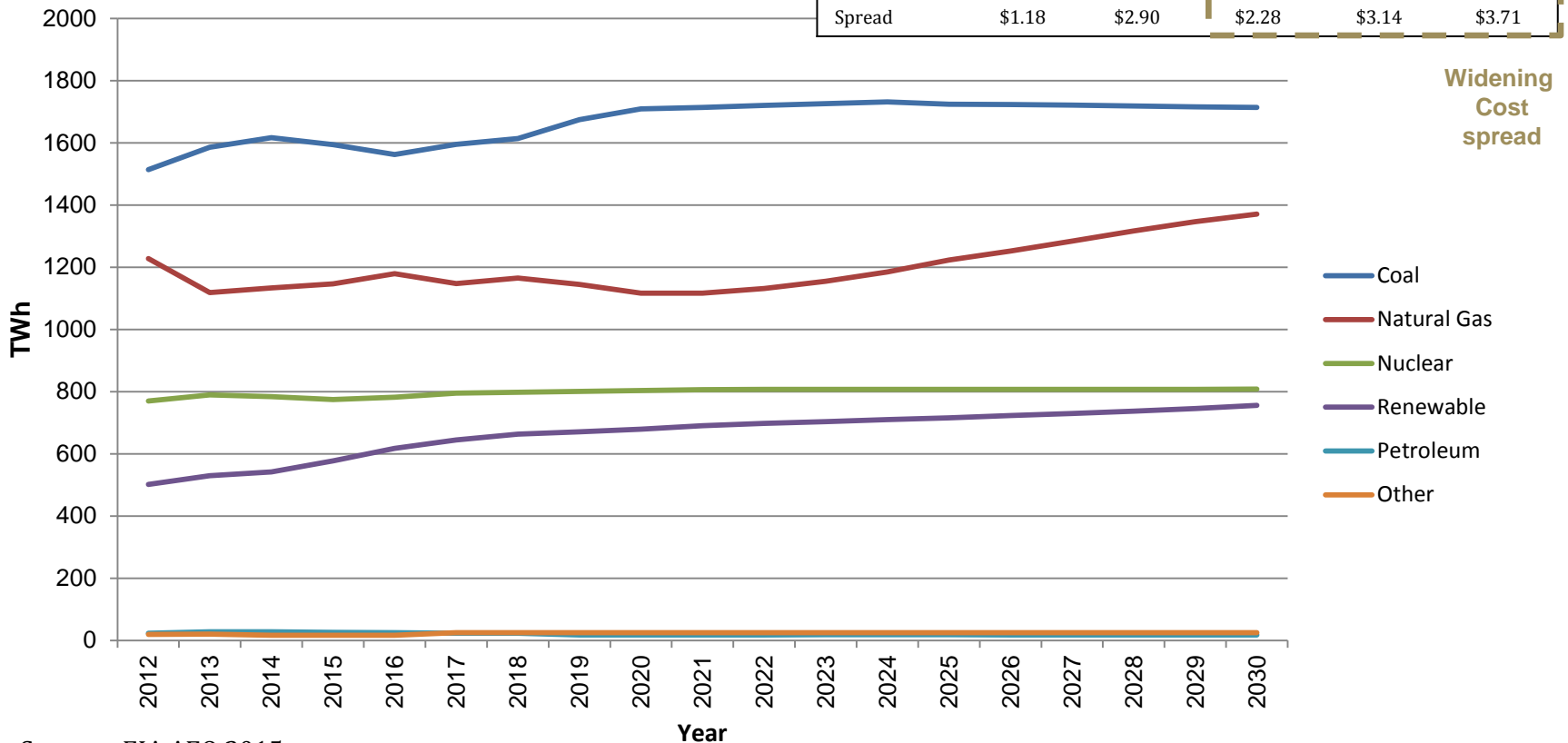
Coal Remains the Low-Cost Fuel for Electricity Generation

- U.S. power generation will remain highly dependent on thermal coal for the foreseeable future
- Coal generation maintains a market share of 37-39% through 2030
- Coal increases its advantage over natural gas on a delivered price basis, assuring that coal will be “in the money”

Delivered Cost of Fuel to U.S. Electric Power Sector, \$/mmBtu (EIA Data)

	2012	2014	2016	2020	2030
Natural Gas	\$3.59	\$5.17	\$4.53	\$5.52	\$6.38
Coal	\$2.41	\$2.27	\$2.25	\$2.38	\$2.67
Spread	\$1.18	\$2.90	\$2.28	\$3.14	\$3.71

U.S. Electricity Generation by Fuel



Source: EIA AEO 2015

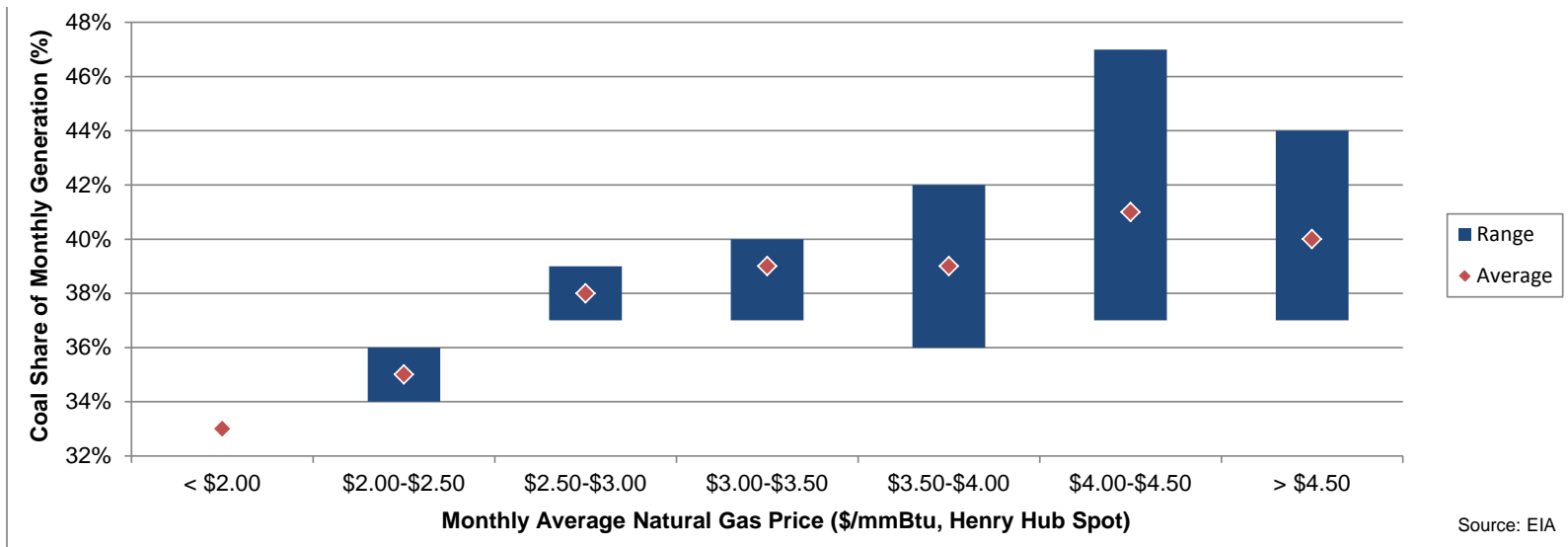
Coal Prices vs. Natural Gas Prices

Natural gas prices are more volatile than coal prices, and coal compares favorably on a Btu-equivalent basis:

Natural Gas Price (\$/mmBtu)	\$1.50	\$2.00	\$2.50	\$3.00	\$3.50	\$4.00	\$4.50
Equivalent Coal Price* (\$/ton)	\$38.85	\$51.80	\$64.75	\$77.70	\$90.65	\$103.60	\$116.55

* Assumes 12,950 Btu/lb coal

Coal Share of U.S. Generation vs. Natural Gas Price Ranges (January 2011 – February 2015)



- A 1% increase in coal’s share of generation equates to a 20-25 million ton / year increase in U.S. electric power sector coal demand
- Coal supply is falling and cannot rebound quickly due to permitting and mine construction time (4-7 years)

Natural gas prices are suppressing coal prices, but that dynamic can change quickly

- Carbon capture and use (CO₂-enhanced oil recovery) is being practiced commercially on a large scale right now in the U.S. and Canada
- The U.S., EU, Canada, and China have invested and continue to invest in carbon capture and storage RD&D; cost reductions will develop
- We should expect that improvements will reduce the cost enough to deploy partial-capture on new coal-fueled power plants, presuming natural gas prices do not remain depressed forever

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- U.S. coal industry is in the midst of down-sizing and restructuring
 - Operations with low costs, high-quality product, and favorable location will survive the downturn, and will be well-positioned to thrive when the market re-balances. High-cost operations will end up on the bone pile
 - Central Appalachia region has been and will continue to be the hardest hit
- Coal is down but by no means out: EIA forecasts that coal will continue to supply >30% of U.S. electricity
- Even with the spate of coal-fired power plant retirements in 2015 – 2019, the surviving fleet has sufficient demonstrated capacity to increase coal burn over 2014 levels
- A modest increase in natural gas prices will result in increased coal burn
- Reductions in the cost of carbon capture and storage or use, will allow new coal plants to be built with partial capture
- The abundance, low cost, and accessibility of the enormous quantity of energy contained in our demonstrated reserve base of about 250 billion tons of U.S. coal will drive the use of that resource; technological developments will allow this to be done in an environmentally and socially acceptable manner

Thank you!
