



July 14, 2014

Changes Underway in the Central Appalachian Coal Industry

# *Changes Underway in the Central Appalachian Coal Industry*

*...but first some background on the political drivers of this change*

Some have expressed reasoned concern that our President may be recklessly naïve on reducing global carbon emissions

SUMMER 2014  
TRIBUNE CONTENT AGENCY

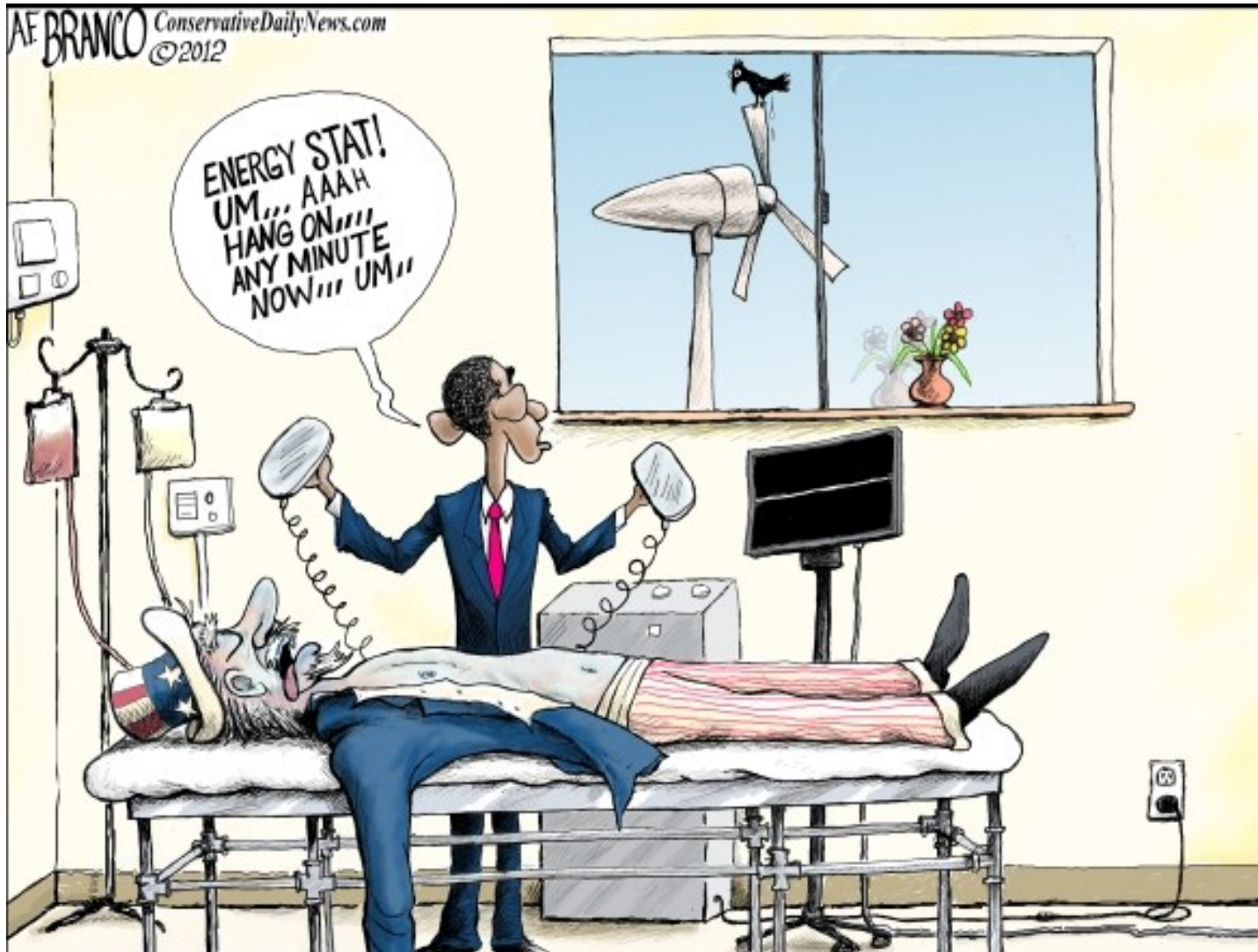
WE MUST LEAD  
BY EXAMPLE  
IN THE FIGHT  
FOR CLEAN ENERGY.



Fortunately, we know from prior experience that his assurance of no adverse impact can be relied upon without question



And we can all rest easy knowing this President has a failsafe plan that will keep our country strong and healthy!



# Transformational Changes Are Underway in CAPP

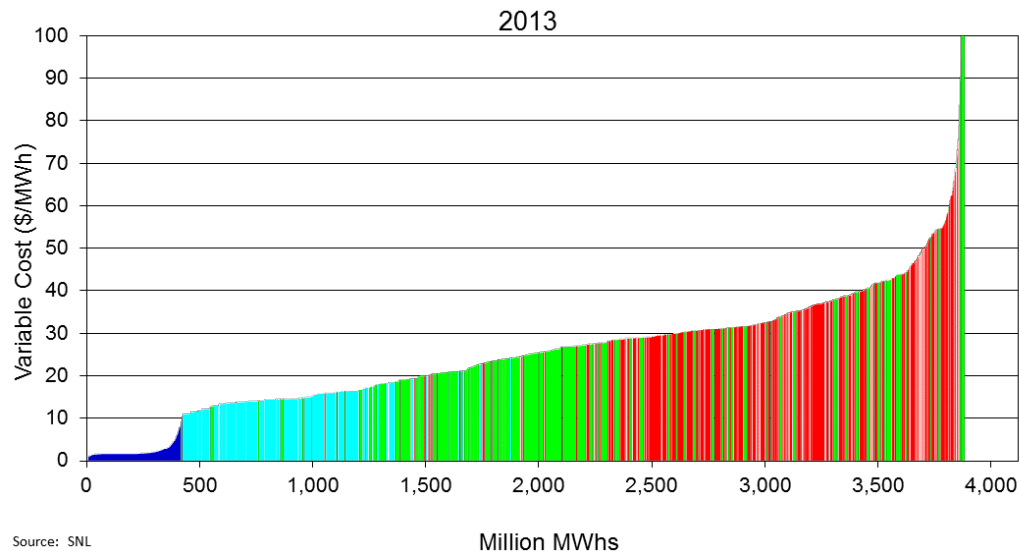
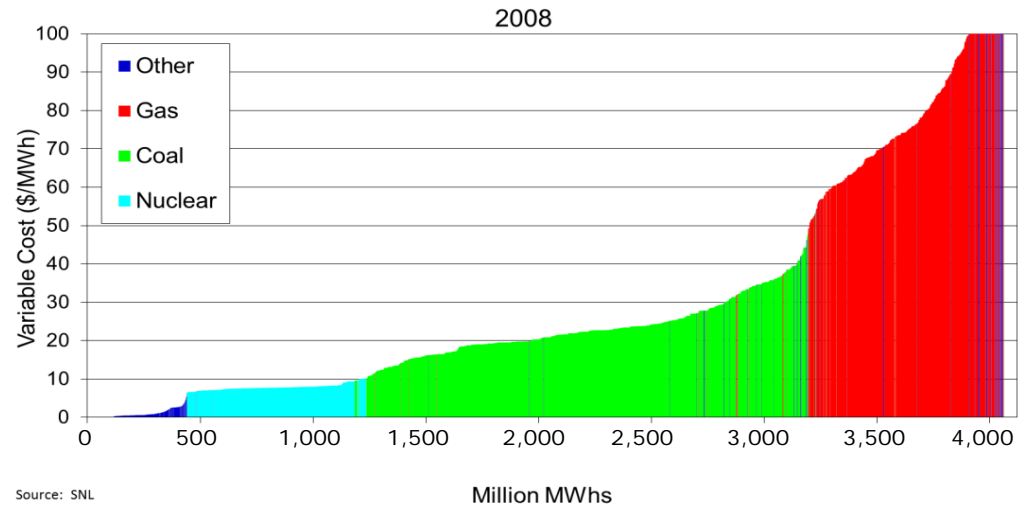


- The Central Appalachian coal industry is being downsized at an unprecedented pace, with coal production having dropped by 106 million tons, or 45%, from 2008 to 2013
  - 2013 CAPP production was down 19.4 million tons from 2012
- The energy markets are experiencing profound change
  - New emission regulations are causing some coal-fired plants to prematurely close – those that remain are principally scrubbed and are moving from low sulfur coal to cheaper high sulfur coal
  - Growth of low cost natural gas has reshaped the dispatch order of electrical generation
  - Thermal coal exports, a growth market for 7 years, are now dropping sharply
  - Mining regulations have significantly increased the cost of CAPP coal production
- Coal production expansion in Australia and Indonesia has pushed metallurgical and thermal coal prices well below cost for many CAPP and global producers
- The market will ultimately find a balance of supply and demand in CAPP that will generate reasonable returns for a smaller number of producers; but survival requires change
- Many of the changes Patriot Coal was forced to make by financial distress are representative of what other coal producers may need to do

# Fuel Competition Is Reshaping Generation Dispatch Order



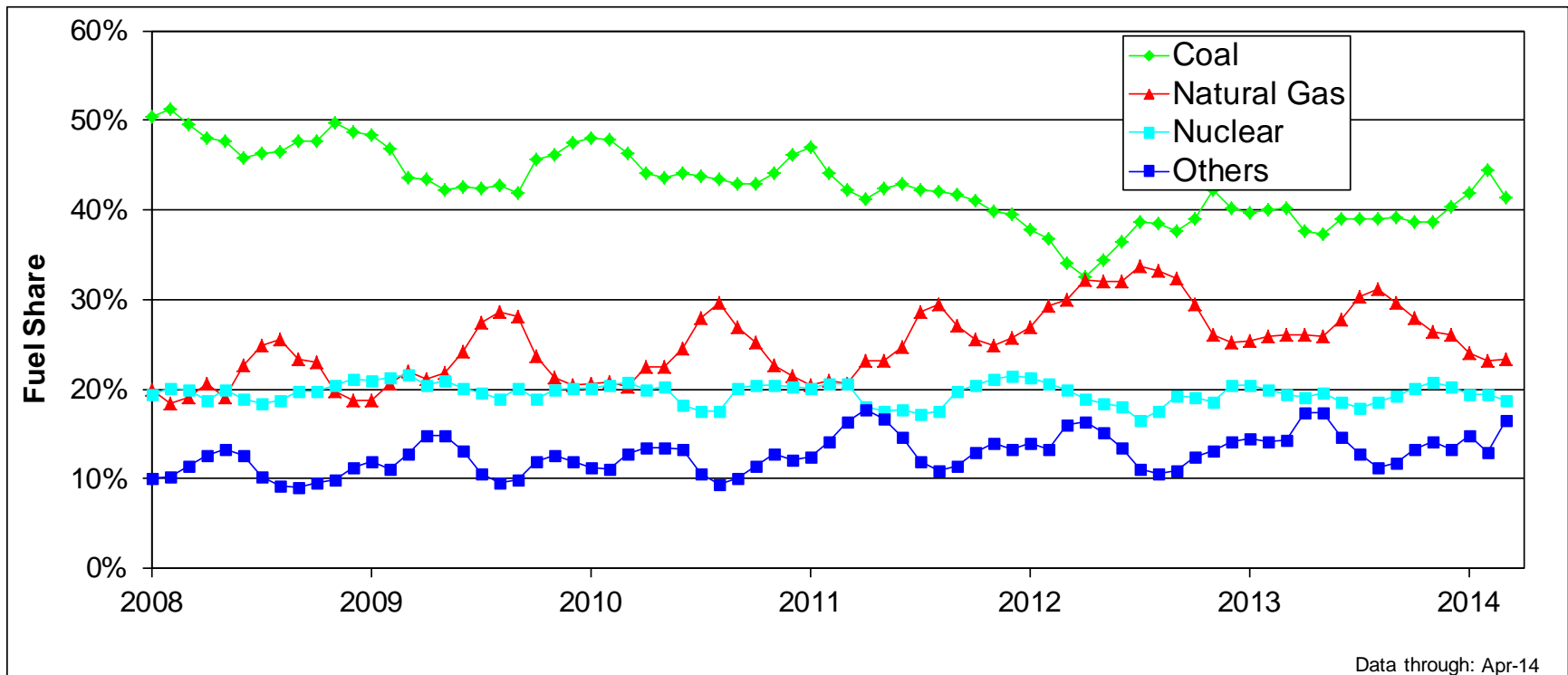
- In 2008 (and prior years), the historical generation dispatch order in the U.S. was hydro, nuclear, coal and natural gas
- As natural gas became cheaper, gas-fired generation started to be dispatched ahead of coal
- By 2013, the cost competitiveness of coal was clearly gone
- The trends are well defined between 2008 and 2013
  - Total generation decreased 1.5%
  - Coal generation decreased 20%
  - Gas generation **increased** 27%
  - Renewable generation **increased** 84%



# Coal's Market Share of Generation Has Fallen Sharply



- Coal's share of U.S. electricity generation has been decreasing over the past 25 years
- As natural gas prices bottomed in the Spring of 2012, coal's market share dropped from the 50% range to under 35% — and the gas market share climbed to about 32%
- The extreme winter weather of 2014 caused natural gas prices to increase, which allowed coal generation to return to a baseload status in Q1 2014
- Forward prices indicate natural gas will return to baseload status by Q2 2015

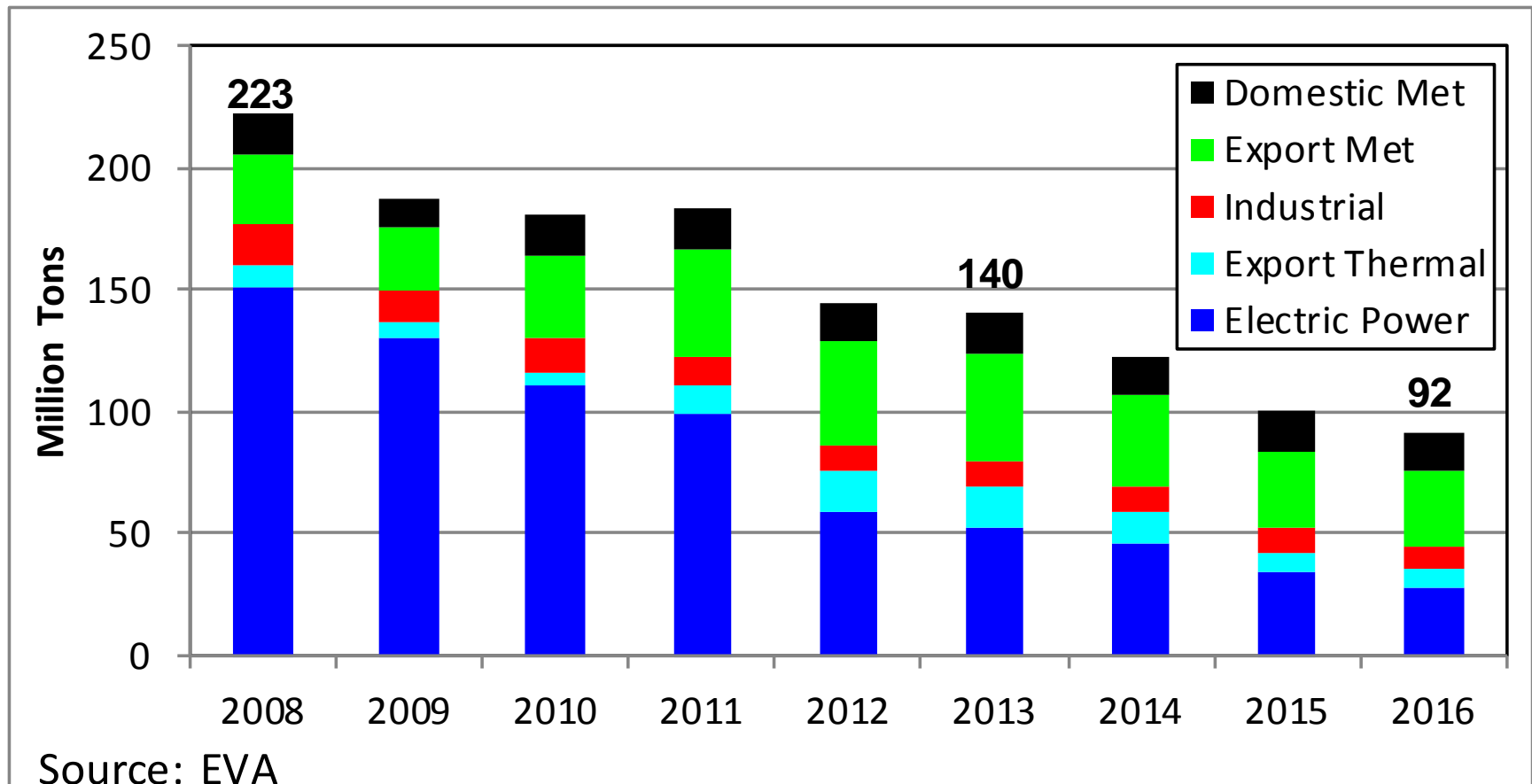




# Decreasing Demand for CAPP Thermal Expected to Continue



- From 2008 to 2013, CAPP demand decreased from 223M tons to 140M tons (down 37%)
- From 2013 to 2016, EVA predicts a decrease to only 92M tons, a further loss of 35%
  - This entire demand loss is essentially Central Appalachian thermal
  - Metallurgical CAPP coal demand is forecast to increase modestly to 48M tons, +4%

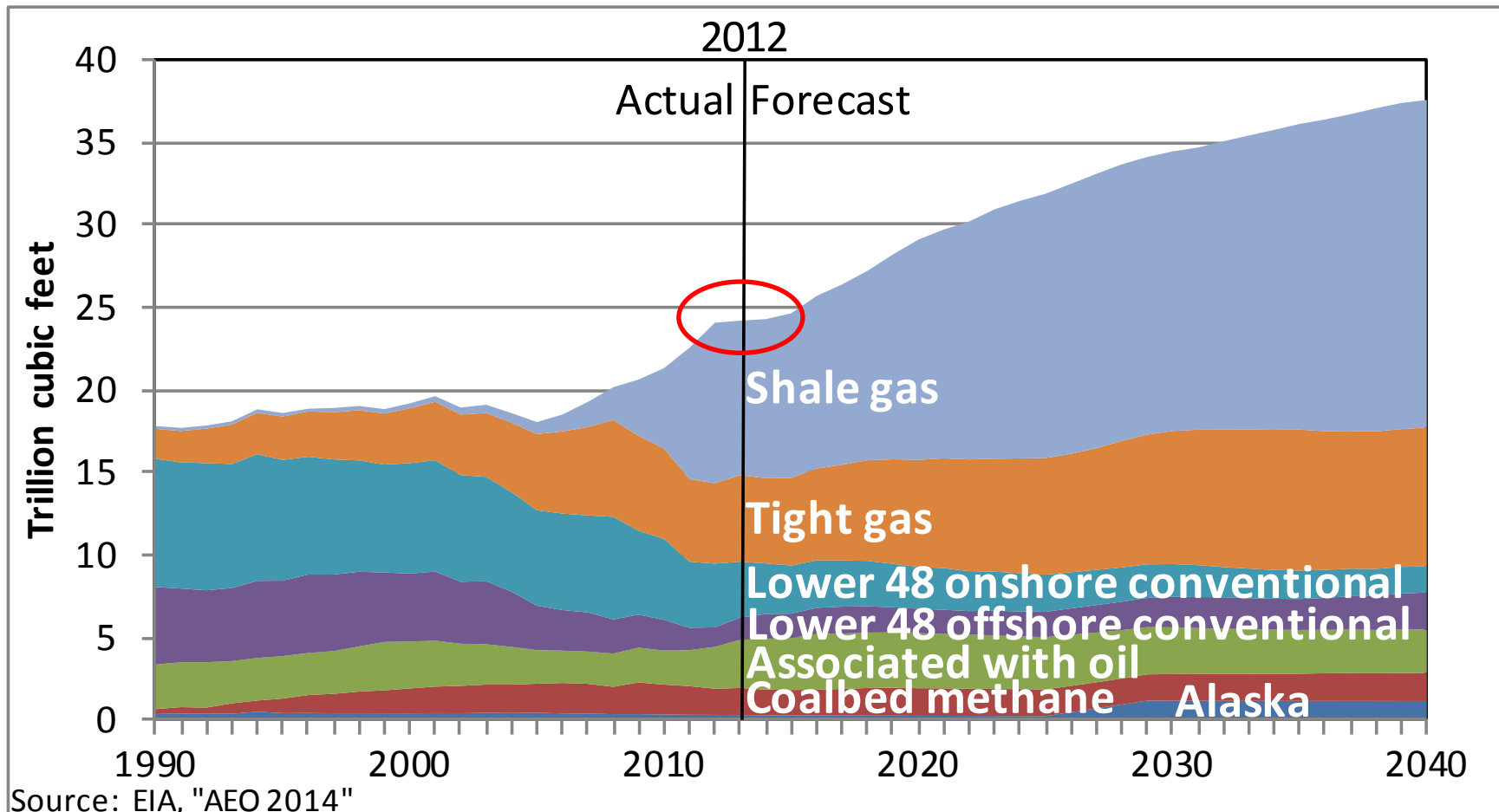


## *Forces of Change: Natural Gas*

# Growth of Shale Gas – The Game Changer



- After experiencing twelve years of minimal growth, natural gas production growth has been strong since 2007 due to the development of shale gas
  - Rate of production growth has slowed as drill rigs are redeployed to higher return wet gas and oil
- Shale gas accounted for 40% of total gas production in 2012

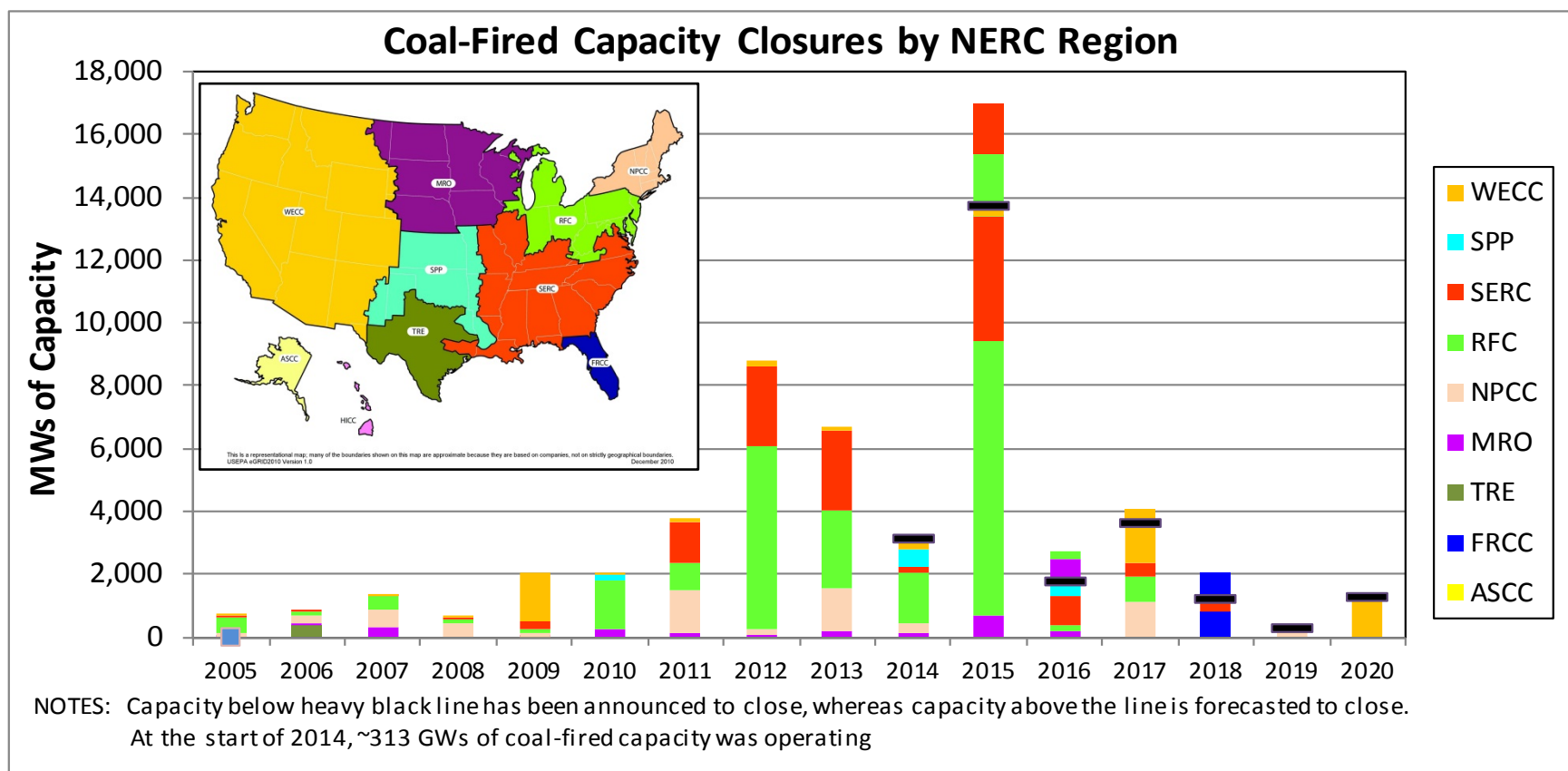


## *Forces of Change: Emission Regulations*

# Mounting Coal-Fired Plant Closures Directly Impact CAPP



- Plant closures announced or predicted for the next 7 years represent ~10% of U.S. coal-fired capacity
  - Many of the plants scheduled to close were needed this winter to maintain grid reliability
- 68% of the closures are in RFC and SERC regions – *the primary markets for CAPP coal*
  - The 2014-2015 closures are being driven by implementation of MATS in April 2015

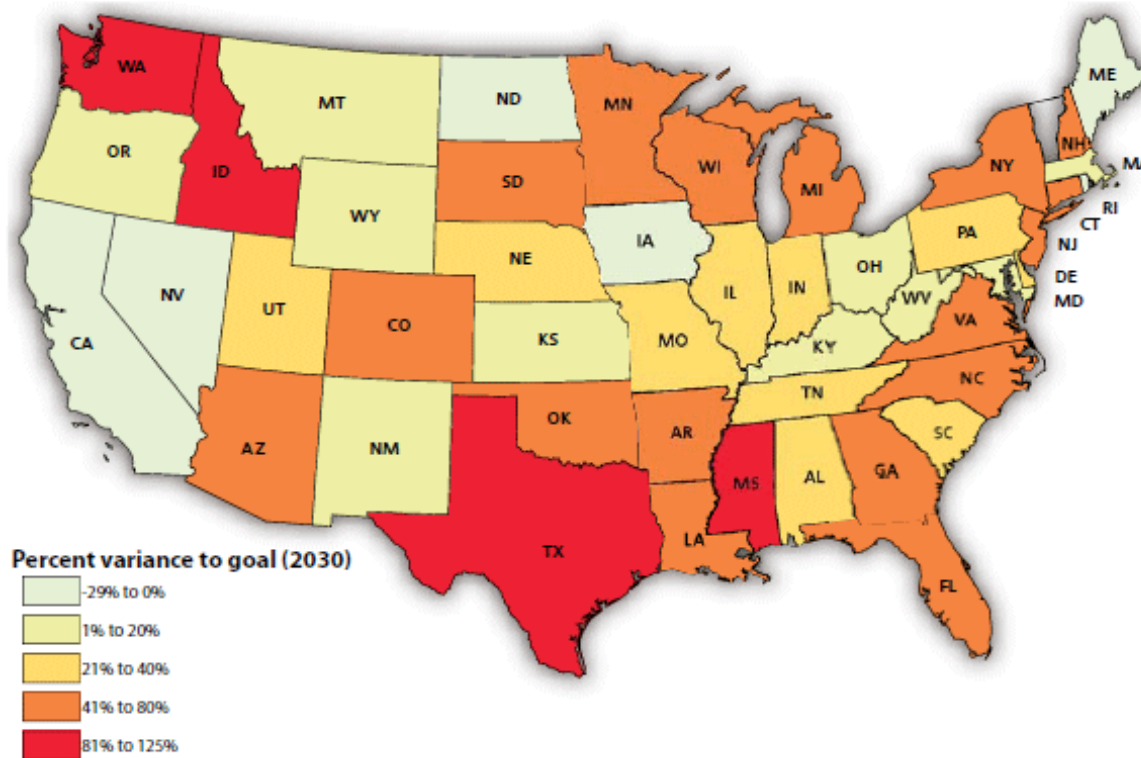


# New CO2 Emission Regulations Will be Detrimental to Coal



- Long-term coal consumption was projected to increase as natural gas prices rise, but these regulations will force replacement of coal generation even when gas is less economical
- SNL projects that only six states would see their CO2 emissions rates fall below the EPA's proposed requirements. Further CO2 emission reductions would likely come from reduced coal-fired generation and energy efficiency

SNL Energy projected carbon emissions rates (lbs/MWh) vs. final 2030 EPA goal

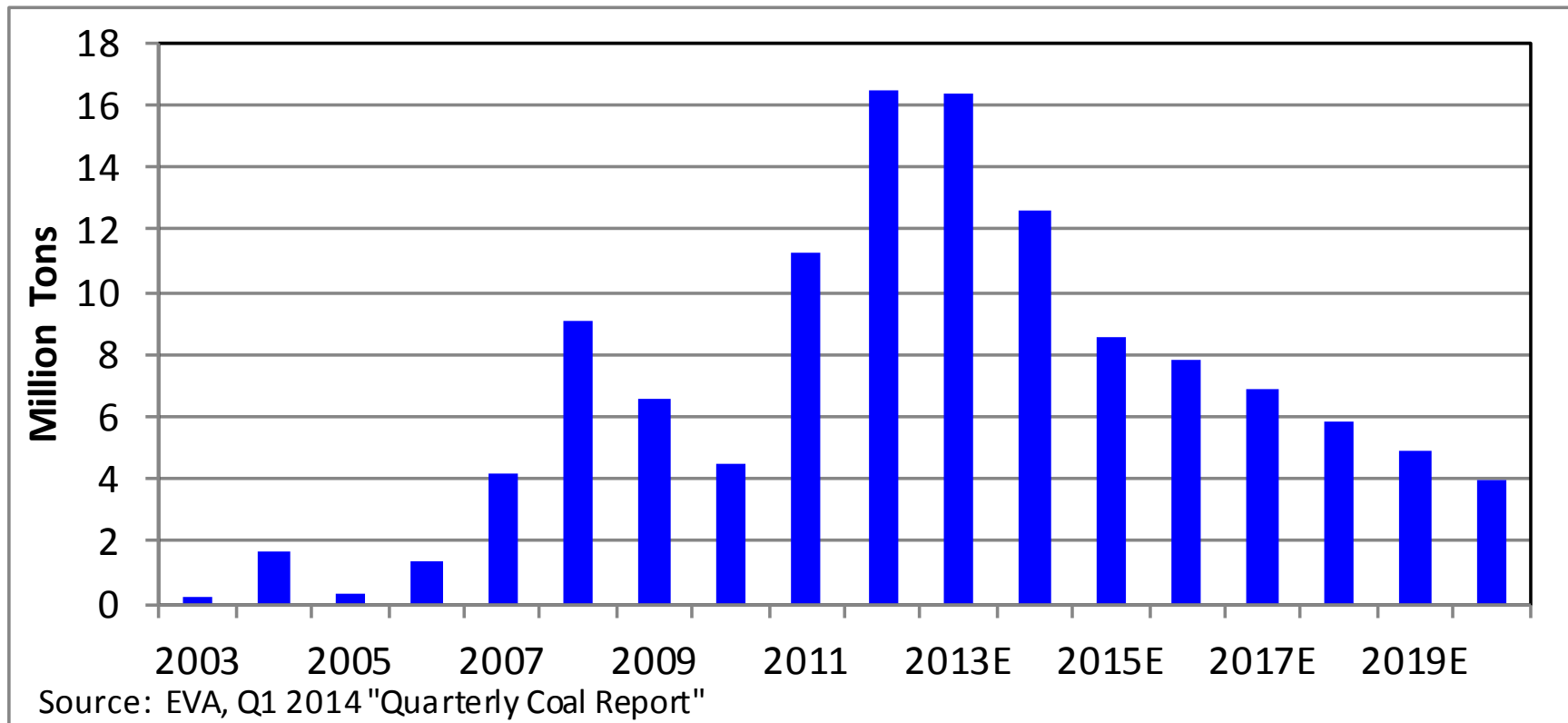


*Forces of Change:  
Thermal Export Market Weakness*

# CAPP Thermal Exports Are Dropping Sharply



- Thermal exports have played a growing role in the CAPP region, expanding from near zero in 2005 to ~16.4M tons in 2013. This growth partially offset domestic losses
- As China increased its imports of thermal coal, the global price increased, allowing U.S. suppliers to be competitive into the seaborne market
- As global demand growth has slowed and supply increased, prices have decreased; CAPP thermal exports have fallen dramatically and are projected to continue dropping

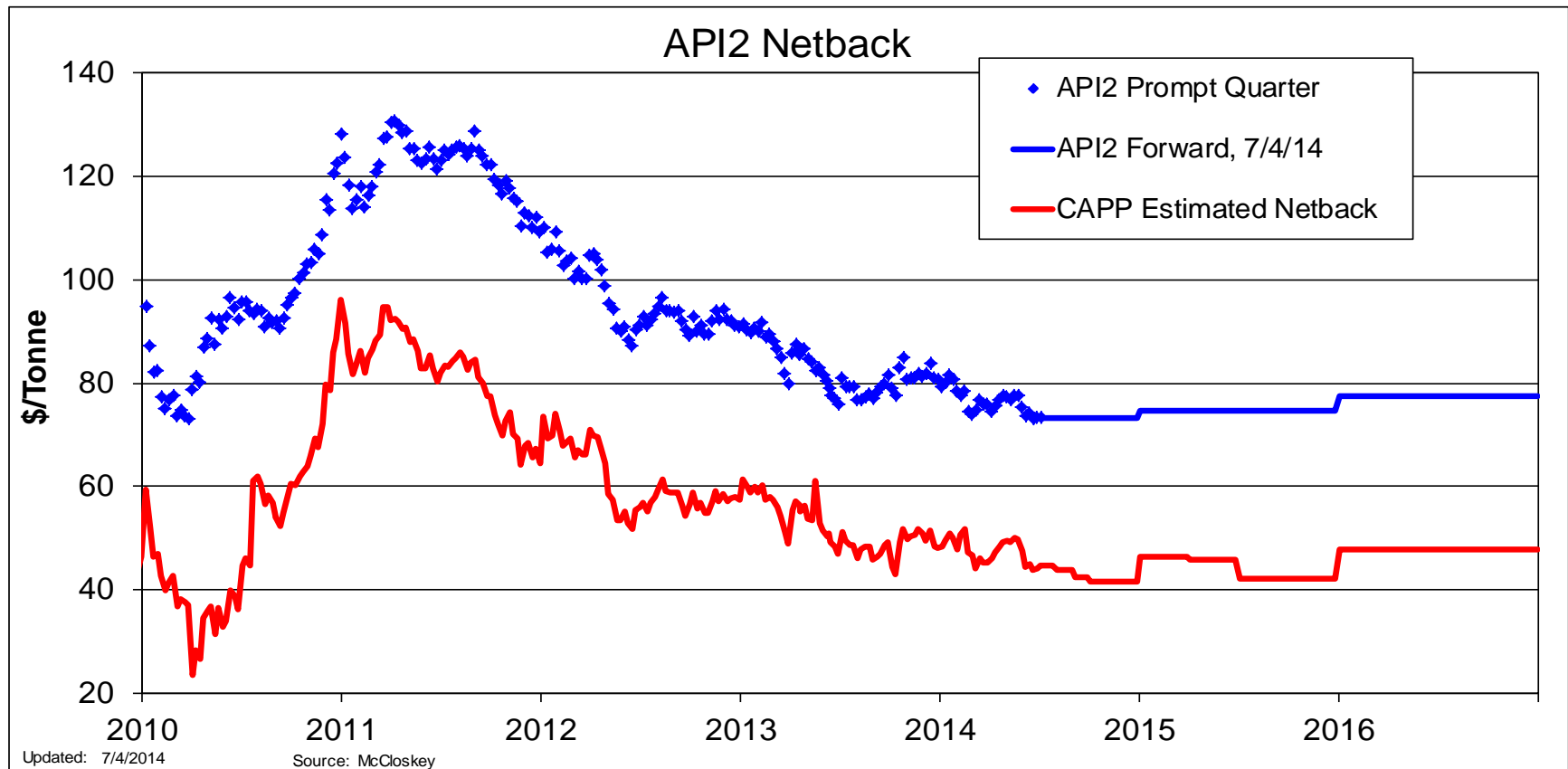




# Decreasing Prices on Thermal Exports to Europe



- Since the most recent peak in August 2011, prompt API2 prices have dropped \$53 per tonne (42%)
- Netback prices for 2014 and 2015 delivery are below CAPP production costs – and export volumes have already begun to decline
- No meaningful price recovery is forecast before 2017

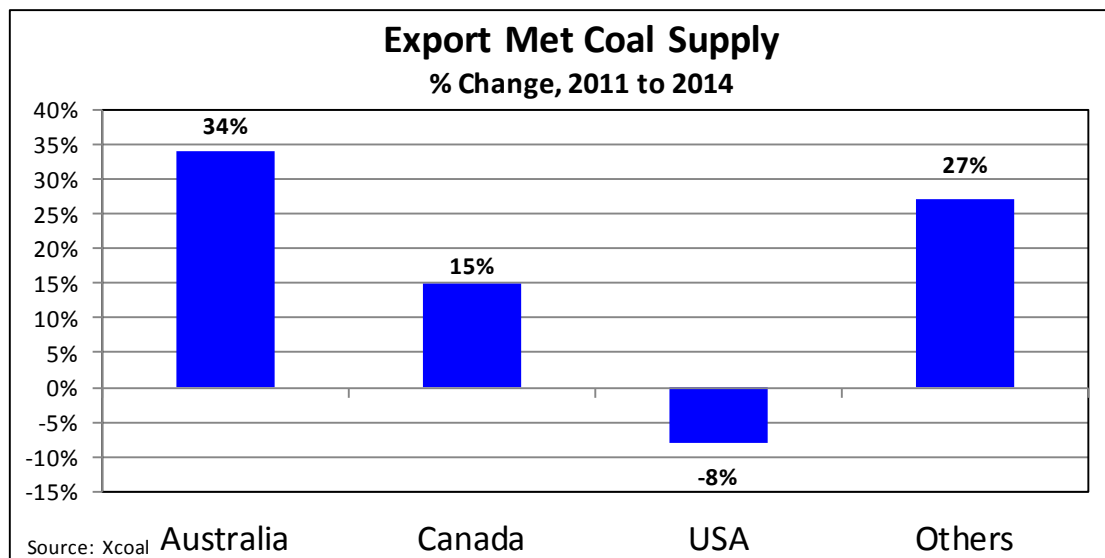
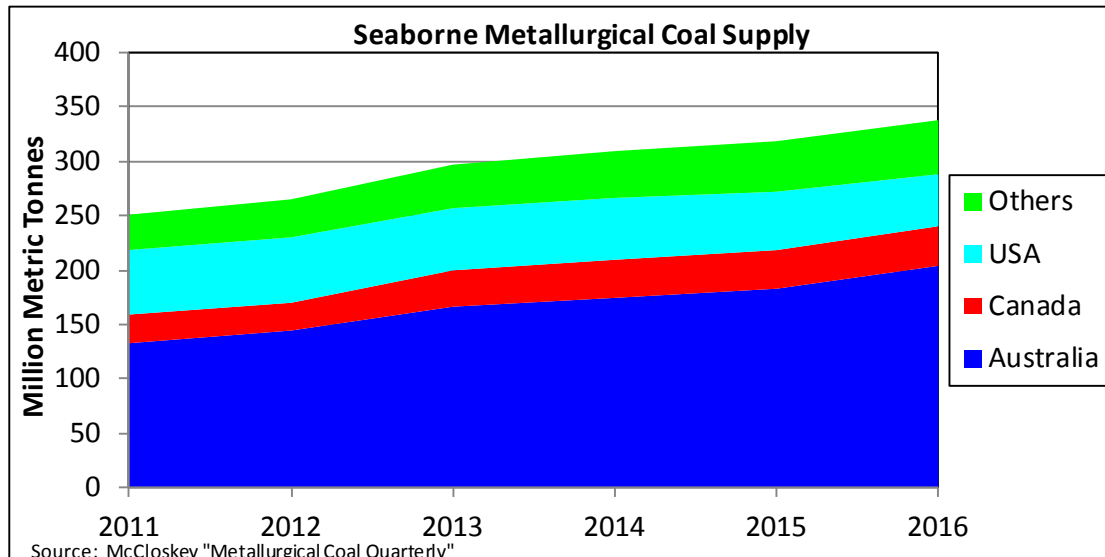


*Forces of Change:  
Metallurgical Export Market Weakness*

# International Demand has Weakened and Supply Increased



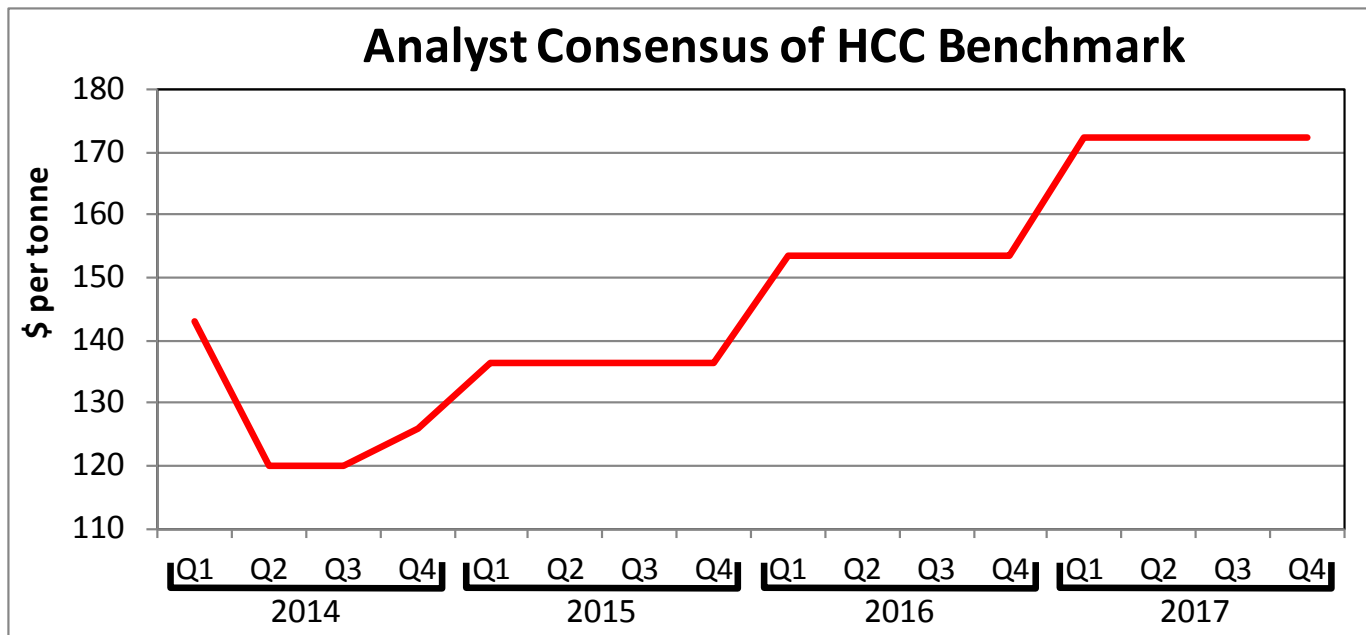
- Seaborne met coal supply is forecasted to increase 23% from 2011 through 2014
- European and Chinese HRC steel prices are down \$36 and \$28 per tonne during 2014
- Chinese met coal net imports for YTD May 2014 are down 16.8% from 2013



# Metallurgical Market Recovery



- Current met coal prices are unsustainable
  - Cash losses are pushing high-cost operations out of the market
  - More mine closures are generally expected to rebalance the market
- Attaining reasonable returns will extend past 2014
  - The oversupplied domestic Chinese met coal market will mute potential seaborne price increases
  - Slashes in projected capital investments are a positive sign of rebalance, but results will take time

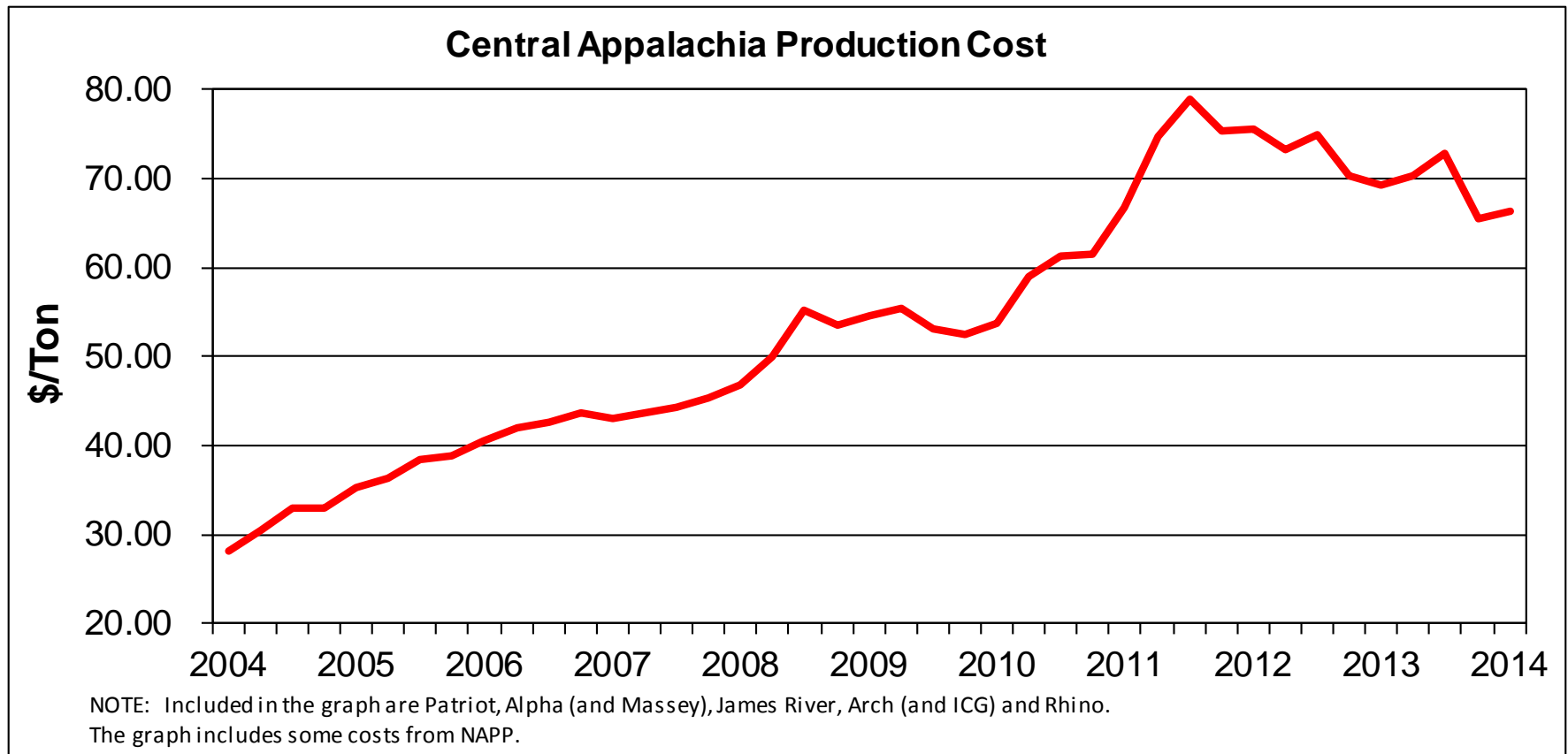


*Forces of Change:  
Cost Increases Across the CAPP Sector*

# CAPP Costs Have Increased Markedly Over the Past Decade



- Since 2004, CAPP production costs have increased by approximately \$40 per ton, with the rate of cost escalation increasing sharply after 2010
- Costs have only recently begun to drop as higher cost mines are closed and the remaining producers react with cost-reduction initiatives



# Factors Driving Up Central Appalachian Production Costs



- Depleting resource base is decreasing regional productivity
  - *We mined the best reserves first!*
  
- Higher labor cost due to (a) wage and benefit inflation during the labor shortages of 2010-2011 and (b) lower productivity
  
- Heightened MSHA enforcement actions following the 2010 UBB mine disaster
  - Also led to unprecedented delays in MSHA approval of productivity-enhancing extended cut plans
  
- Surface mine costs climbing due to EPA-driven delays and rejections of new mine permits
  - Forced to haul overburden further and mine higher ratio areas
  - De facto prohibition of valley fills essentially eliminates ability to start up or replace large scale surface mines operating with draglines and shovels
  
- Water treatment costs have skyrocketed due to EPA mandates and environmental activist litigation

## *Keys to Surviving in CAPP*



- CAPP producers must promptly rationalize unprofitable production; lower cost producers will not only survive, many will prosper
  - There is a strong core of CAPP production that is still competitive in the current market, but we have to be selective; put our best equipment and crews in position to win
  - Stop holding out for a market rescue; cut production at higher cost units and run the low cost mines at full capacity
  - CAPP mines have historically been highly capital intensive; that paradigm must change with more effective utilization of multi-section operations, rotating crews on a 7-day schedule, and stretching equipment life cycles
  
- Producers will need volume flexibility in order to respond to changing markets
  - CAPP coal-fired plants now operate as load-following plants with coal demand changing with the seasons and short-term weather patterns
  - The U.S. is a swing player in the seaborne thermal market, and is currently out of the market, but as international demand changes opportunities will develop for CAPP producers that are fleet of foot
  - CAPP coal producers will need to consider flexible operating structures – including 7-day rotating mine and plant schedules

- **Metallurgical:** Good opportunities for lowest cost CAPP producers as global supply and demand come into balance
  - Globally, the supply is plentiful, but CAPP coal can remain a significant supplier into the seaborne met coal market if costs can be reduced to match global competition
  - Improving standards of living in developing countries fuel the ever increasing global production of steel, which drives global demand for metallurgical coal
  - Domestic steel demand is generally expected to remain constant
  
- **Domestic thermal markets:** CAPP demand will be downsized but meaningful
  - Coal will continue to be a key component of U.S. electrical generation — generally servicing about 38-40% of U.S. demand; CAPP must compete on a delivered BTU cost basis
  - CAPP coal does have transportation advantages into some power plants and, as generators become more reliant on ILB coal, transporters will begin to trim the ILB cost advantage
  - Not all plants can simply switch to alternative coal supplies due to chlorine, fusion and heat rate sensitivities
  
- **Thermal export markets:** Limited opportunities near term, but world events could cause that situation to change quickly
  - CAPP coal offers a combination of high BTU and low sulfur content that is not found in other global sources. Consumers in Europe will favor CAPP coal to the extent it can be price-justified
  - In the foreseeable future, unless a significant global supply reduction occurs, thermal coal export opportunities will be priced below cost for most CAPP producers

- The Central Appalachian region is experiencing a sea change in market demand and pricing – not a short term lag
- CAPP producers should take action promptly to right-size production with market opportunities
- Ability to manage costs effectively will separate the winners from the losers
- There are still prosperous opportunities in CAPP for those that recognize the nature of our challenges and act quickly

*Thank you!*