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America's Bright Future: Cleaner Air and Affordable, Reliable Electricity

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May 23, 2012

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On May 18th PJM, the operator of the nation's largest electric grid spanning 13 states and the District of Columbia, announced that its region will have ample supply to reliably meet customers' power needs in 2015/2016.[1] (Figure 1.)

This is a critical period as it follows compliance deadlines for EPA's Mercury and Air Toxics Standard ("MATS"), designed to reduce emissions of hazardous air pollution from power plants. Much of the Nation's coal-fired generating fleet covered by the MATS rule is located in PJM.

PJM's announcement follows completion of its annual auction to competitively procure resources needed to guarantee reliability three years into the future. Despite significant planned coal plant retirements, PJM's auction produced a reserve margin of over 20 percent compared to a target of 15 percent.

These results clearly refute some earlier dire predictions that Americans have to choose between healthier air quality and reliable and affordable electricity, and recent suggestions that Americans face a "dim" future to keep the lights on.

PJM's recent results fit within a larger context of record-low natural gas prices, and a longer-term outlook of continued low prices from vast domestic supplies of natural gas. (Figures 2 and 3.) In the past two years, well before the implementation of the EPA MATS rule, much more of the nation's electricity is being fueled by these sustained low natural gas prices. Producing power using natural gas has become less expensive than producing electricity at some of the nation's older, inefficient coal-fired plants. This trend has been occurring not just in PJM but in most parts of the U.S., independent of EPA's new air regulations.

As natural gas prices – and the gas price outlook – have dropped, so have wholesale electricity prices in PJM and elsewhere. Since 2009, average U.S. electricity prices have declined in real terms. (Figure 4, showing retail prices to residential consumers.) In PJM, from 2008 to 2011, power prices dropped 27 percent. (Figure 5.)

Looking ahead and based on actual forward contract prices that could be purchased today for delivery of energy supply into PJM's western hub region, wholesale energy prices in 2015 would drop by over 10 percent on an inflation-adjusted basis compared to the average PJM

[1] PJM press release, May 18, 2012.

energy price level in 2011.[2] These prices are well below those experienced several years ago. Moreover, because capacity prices (such as those just procured in the recent PJM auction) are only a small share of the total wholesale price in PJM's region, their effect on total costs is also relatively small. (Figure 5.)

These facts conflict sharply with statements by some MATS opponents that the latest PJM auction results show that EPA's new air regulations will mean higher electricity prices for consumers.

Moreover, opponents err in suggesting that EPA's air regulations are the key driver for all coal plant retirements and that these regulations are killing use of coal to produce power in the U.S. The reality is that given current and expected continued low natural gas prices,[3] many of the nation's older, inefficient coal plants have become uneconomic and are not operating enough to justify remaining open.

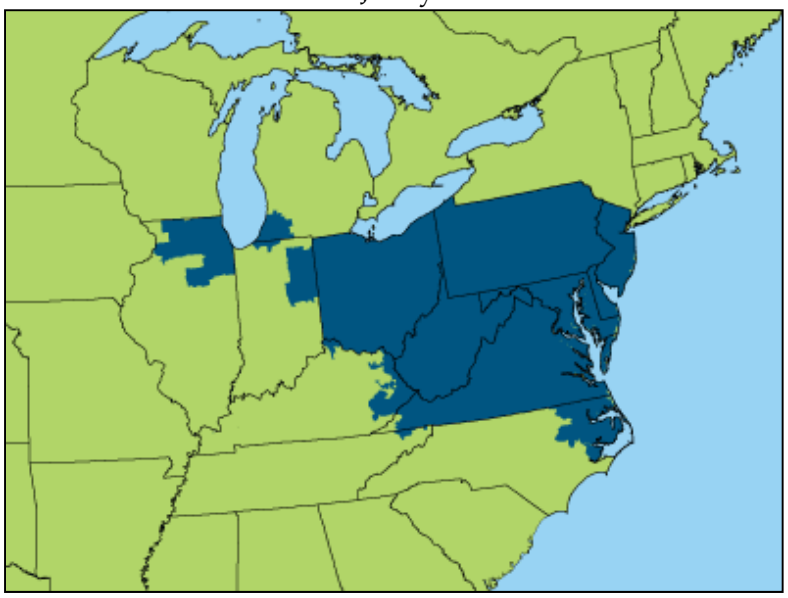
The nation's electricity system is undergoing a transition to a cleaner, modern and more efficient fleet, with retirements of many 50+-year-old coal-fired plants that have not been upgraded with modern pollution control equipment. These changes will expand usage of low-priced, domestically produced natural gas and reduce amounts of hazardous air pollution coming from power plant stacks. The changes are occurring in tandem with continued power production from the many relatively efficient coal-fired power plants which have already had (or will have) investments to clean up their pollution. Taken together, those latter two categories reflect the lion's share of the nation's coal fleet. In fact, even as more power is produced at natural gas plants, coal is still expected to supply the majority of U.S. electricity production, according to the U.S. Energy Information Administration. (Figure 6.)

All of this means affordable electricity bills – a bright sign for consumer budgets. The fact is that Americans have a bright future in which they do not have to trade-off healthier air for other important goals, including reliance on domestic energy sources, affordable electricity bills, and reliable electricity supplies.

[2] Based on comparing PJM's nominal energy price in 2011 ($45.94/MWh), as reported in the PJM 2011 State of the Market Report (Table 8), and current NYMEX forward electric energy price curve for 2015 for PJM's western hub of approximately $41.25 (SNL Financial, forward NYMEX price curve, dated 5-21-2012), and adjusting for inflation using the consumer price index.

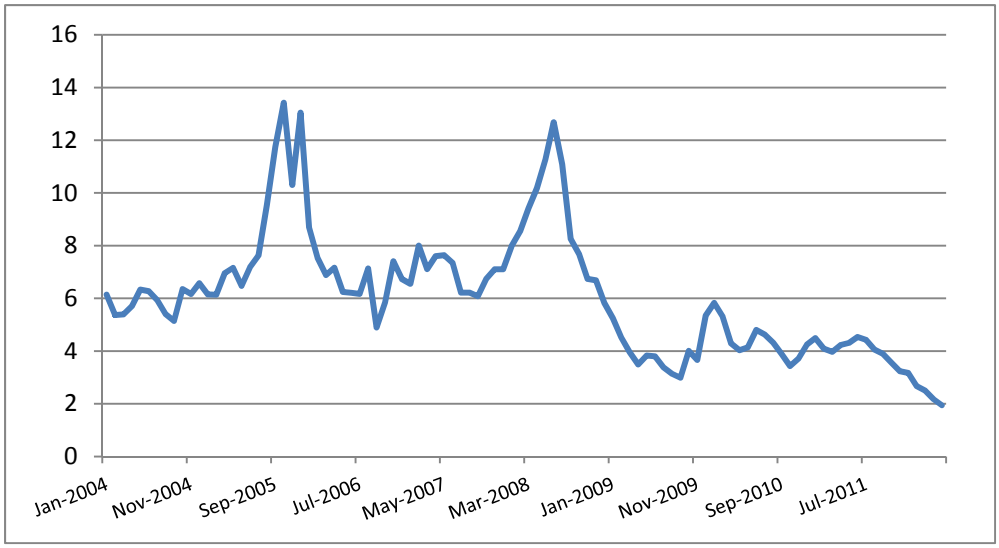
[3] See Susan Tierney, "Why Coal Plants Retire: Power Market Fundamentals as of 2012," February 16, 2012; James Bradbury, "Fact Sheet: U.S. Electricity Markets Increasingly Favor Alternatives to Coal," World Resources Institute, April 2012.

Figure 1
The PJM System



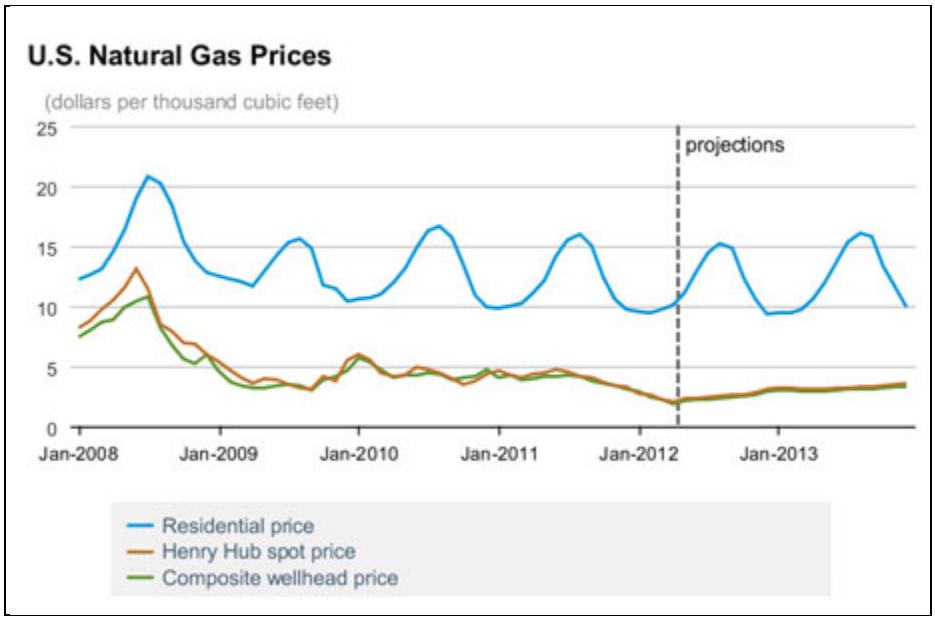
Source: PJM

Figure 2
Natural Gas Prices – 2004 through April 2012
(Henry Hub Spot Prices - $/MMBtu (nominal$))



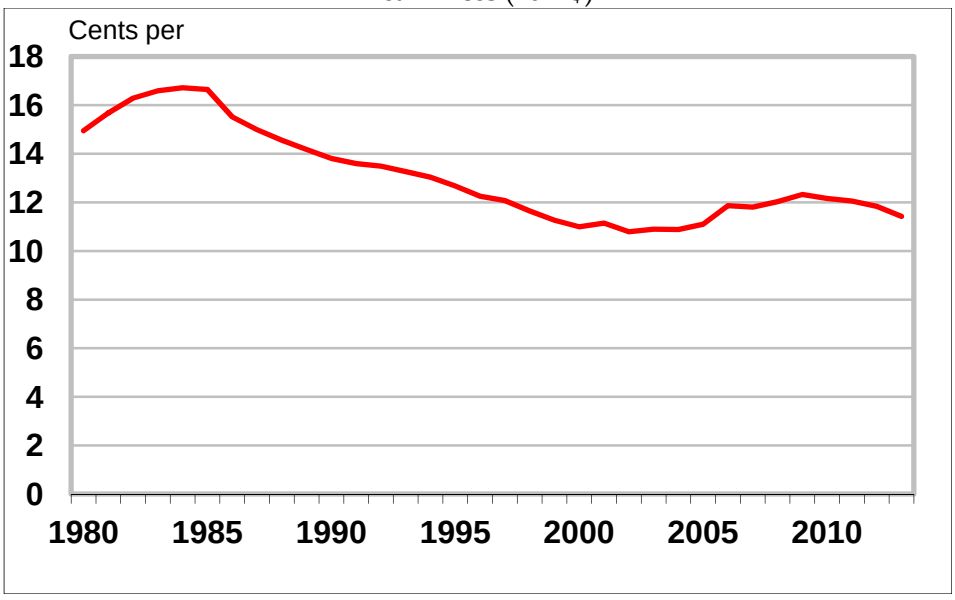
Source: Energy Information Administration

Figure 3
U.S. Natural Gas Prices - Outlook



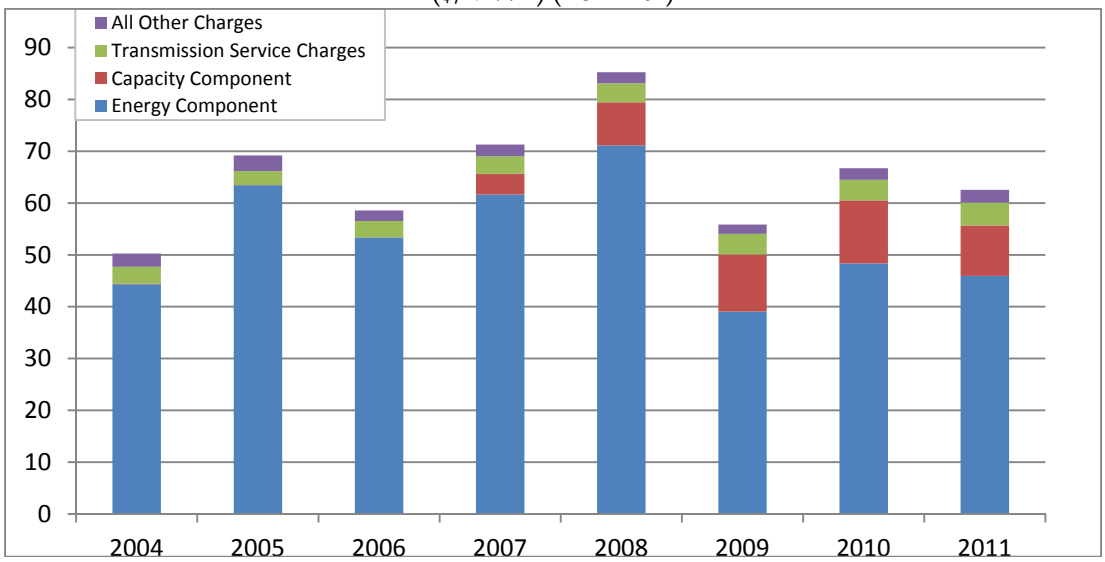
Source: EIA, Short-Term Energy Outlook, May 2012

Figure 4
Annual Residential Retail Electricity Price – U.S.
Real Prices (2012$)



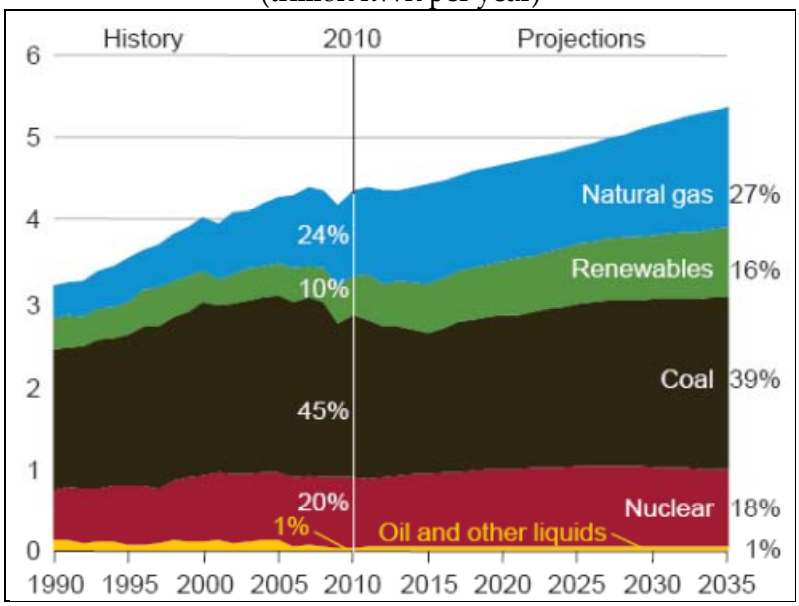
Source: EIA, Short-Term Energy Outlook, May 2012. Actual prices through 2011, forecast prices for 2012 and 2013.

Figure 5
PJM Wholesale Electricity Price – 2004 through 2011
($/MWh) (nominal)



Source: Monitoring Analytics (PJM Market Monitor), PJM State of the Market Report 2011

Figure 6
Electricity Generation by Fuel
(1990-present (actual), 2010-2035 (projected)
(trillion kWh per year)



Source: EIA, Annual Energy Outlook 2012, Early Release Overview.