

**UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY**

***Standards of Performance for Greenhouse Gas Emissions for
New Stationary Sources: Electric Utility Generating Units***

77 Fed. Reg. 22,392 (Apr. 13, 2012)

Docket ID No. EPA-HQ-OAR-2011-0660

COMMENTS OF PEABODY ENERGY COMPANY

June 25, 2012

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Re: *Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units*, 77 Fed. Reg. 22,392 (Apr. 13, 2012), Docket ID No. EPA-HQ-OAR-2011-0660

COMMENTS OF PEABODY ENERGY COMPANY

I. **Introduction**

Peabody Energy Company urges EPA to withdraw its proposal to promulgate New Source Performance Standards (NSPS) for new coal-fueled electric generating units (EGUs). The Proposed NSPS would require new coal-fueled EGUs to meet a CO₂ performance standard of 1,000 lbs. CO₂/MWh, which EPA established based on the CO₂ performance of a new natural gas combined cycle (NGCC) unit. EPA recognizes that new coal-fueled EGUs cannot meet the 1,000 lb. CO₂ standard without using carbon capture and storage (CCS) technology. As other commenters will demonstrate to EPA, CCS technology is not commercially available both because of its high costs and because legal, permitting and regulatory structures necessary to make CCS a commercial reality are not in place. As a result, EPA's 1,000 lb CO₂ standard represents an outright ban on the construction of new coal-fueled EGUs.

EPA proposes this ban on new coal-fueled EGUs at the same time that its other power sector rules are forcing the permanent retirement of tens of gigawatts (GWs) of existing coal-fueled electric generation. EPA claims that its Cross-State Air Pollution Rule and its Mercury and Air Toxics rule together will cause only about 10 GW of retirements, but the National Mining Association (NMA) tracks announcements of retirements and more than 25 GW of coal-fueled capacity has already announced retirements specifically because of EPA's regulations. Investment firms believe that the total could reach 50 GW and even 80 GW. EPA is wrong to think these retirements are driven by low natural gas prices. The utility industry understands that

natural gas prices have historically been extremely volatile and that the large increase in demand for natural gas driven by EPA's regulations will eventually cause natural gas prices to rise. Thus, whereas low natural gas prices might cause existing coal-fueled EGUs to run less temporarily, utilities would not retire these units absent EPA forcing billions of dollars of control costs on them.

EPA thus is unilaterally changing American energy policy to force coal out of the nation's resource mix and to make the nation dependent on natural gas as the dominant fuel for electric generation. Congress, however, did not give EPA authority over energy policy. EPA has, without a basis in law, taken this authority for itself.

There are a host of reasons why EPA's anti-coal policy is wrong both as a matter of policy and a matter of law that are discussed in detail in NMA's comments. Peabody's comments are directed at one particular failing of the Proposed NSPS, and that is EPA's failure to establish a proper basis to regulate in this proceeding. Specifically, EPA claims that it can regulate CO₂ emissions from new coal-fueled EGUs without finding that such emissions pose a danger to the public health or welfare. EPA also claims in the alternative that, if its Proposed NSPS must be supported by some finding of endangerment, then EPA may rely either on its previous 2009 endangerment finding in connection with its motor vehicle greenhouse gas (GHG) rules or on such finding combined with two more recent reports of the National Research Council (NRC).

EPA, however, is wrong in all respects. EPA's claim that it can prohibit the construction of new-coal fueled EGUs based on asserted climate concerns without finding that CO₂ emissions from such EGUs endanger public health or welfare is plain error and contradicts section 111 of the Clean Air Act (CAA), the basic purpose and structure of the CAA, and common sense. The

CAA does not give EPA a roving commission to regulate emissions without the Agency first finding that such emissions pose a danger to health or welfare. And EPA's claim that it can ban new coal-fueled EGUs based on its previous motor vehicle endangerment finding and two NRC reports, without providing a new analysis of climate science and giving the public a full opportunity to comment on such science, violates fundamental rulemaking requirements for notice and comment. If EPA wishes to force society to conform to EPA mandates restricting coal usage, EPA must ground those mandates in the language of the CAA, and it must provide an explanation of the public health and welfare danger its regulation will avoid and any public health and welfare disbenefits such regulation will create – and it must give the public an opportunity to comment. EPA fails to do so.¹

To emphasize the need for EPA to fully consider the benefits and disbenefits of regulation, Peabody supplies the analysis that EPA failed to provide. In Part II below, and in significant attached material, Peabody discusses why EPA must make an endangerment finding *in this proceeding* and briefly summarizes important aspects of climate science since the 2009 motor vehicle endangerment finding (which was largely based on the work of the Intergovernmental Panel on Climate Change (IPCC) and therefore on pre-2006 science). Part II is supported by two significant attached reports, one discussing more recent climate science in more detail and one discussing new evidence, in the form of the so-called “climategate 2.0” emails, that shows the flawed process underlying the IPCC reports on which EPA relied so heavily in its 2009 endangerment finding. In Part III below, Peabody provides an analysis showing that the use of coal for electricity improves rather than impairs public health and

¹ Peabody does not discuss here the most obvious reason why the Proposed Rule cannot be justified by any supposed endangerment. As discussed in NMA's comments, the endangerment on which EPA bases this rulemaking are the CO₂ emissions of *existing* coal-fueled EGUs, whereas EPA is only proposing to regulate CO₂ emissions of *new* coal-fueled EGUs. Since EPA asserts that few, if any, new coal-fueled EGUs will be built, EPA itself projects that the rule will not avoid any meaningful CO₂ emissions.

welfare. As shown in this discussion, EPA's policies proceed from the false assumption that the country can dramatically reduce the use of coal for electric generation without causing increased electric prices and restrictions on the availability of electricity. But EPA is mistaken. Prices will rise, electricity usage will be restricted, and the public health and welfare will be harmed rather than helped.

In sum, EPA cannot proceed with the momentous policy of banning the construction of new coal-fueled electric generation without showing that it has authority to do so and without justifying the need to do so with substantial record evidence. EPA's proposal fails on both scores and, for that reason, should be withdrawn.

II. EPA Cannot Regulate CO₂ Emissions from New Coal-Fueled EGUs Without Finding that Such Emissions Endanger Public Health or Welfare

A. EPA's Primary Rationale for Its Refusal to Make an Endangerment Finding Contravenes Section 111

Before establishing an NSPS for a source category of air pollutants under section 111, the Administrator must first make a finding under section 111(b)(1)(A) that such "category of sources ... in his judgment ... causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." The Proposed Rule, however, fails to propose to make this finding. EPA primary rationale for its refusal to do so is that EPA has already listed coal-fueled EGUs as a source category in its NSPS regulations and that, by making this listing, it has already made the necessary endangerment finding for this source category. EPA recognizes that it made this finding in the context of other pollutants and not for CO₂. EPA asserts, however, that once it has listed a source category based on a finding that a pollutant emitted by sources within that category endanger public health or welfare, it is free to

establish NSPS for any other pollutant emitted by sources within that category without making such finding for the new pollutant to be regulated.

As discussed in more detail in NMA's comments, this rationale contradicts both section 111 and the CAA itself. Under EPA's view of section 111, EPA could issue regulations for regulation's sake unmoored from the basic purpose of the CAA to protect the public against *harmful* air pollution.

EPA's reading of section 111 is seriously misguided. EPA's authority to regulate GHGs under the CAA stems from *Massachusetts v. EPA*, 549 U.S. 497 (2007). *Massachusetts* held that GHGs are "air pollutants" under the "sweeping" definition of that term in section 302 as any substance emitted to the ambient air. 549 U.S. at 528. Under *Massachusetts*, however, EPA does not gain regulatory authority over an air pollutant just because it is an air pollutant. *Massachusetts* held that EPA could only regulate GHGs if it found that they endanger public health and welfare. *Id.* at 533-34. Now, however, EPA wishes to regulate GHGs simply because GHGs are air pollutants. Such action exceeds EPA's authority.

B. EPA's Two Alternative Proposals Are Also Legally Deficient

As stated above, under EPA's alternative proposals, EPA would not make an endangerment finding in this proceeding but would instead rely either on EPA's 2009 motor vehicle endangerment finding or on that finding combined with the its denial of reconsideration of that finding along with two more recent NRC reports. As also discussed in more detail in NMA's comments, these alternatives are legally deficient. Peabody highlights three of these reasons – EPA violates notice-and-comment requirements, EPA cannot ignore new science, and the NRC reports are not independent of the reports EPA relied on in its 2009 endangerment finding – and provides more detail as to two of them.

1. Failure to Make Statutorily Required Endangerment Finding and Denial of Notice and Comment on Such Finding

Once EPA concedes, as it does for purposes of its first and second alternatives, that it cannot establish an NSPS for a pollutant emitted by a source category unless it has, in some fashion, found that such pollution endangers public health or welfare, EPA cannot get around actually making that finding and doing so *in the NSPS rulemaking*. Failure to do so represents a violation of the right of the public to notice and comment on a fundamental aspect of the basis of EPA's decision to regulate.

This is not just form over substance. Those affected by section 111(b) standards must be given an opportunity to comment on all aspects of the basis on which those standards are set, including the endangerment that EPA seeks to regulate against. The right to comment on endangerment issues in the context of the CO₂ NSPS rulemaking is particularly necessary given that EPA's motor vehicle endangerment finding is stale. That finding was based on science that preceded the proposal of that finding in early 2009 and more particularly, since EPA relied heavily on the 2007 IPCC report, the science EPA primarily relied on was science published prior to the mid-2006 cut-off date for that report. The NOPR itself cites more recent science – specifically the 2010 and 2011 NRC reports – to bolster the motor vehicle endangerment finding. Yet for purposes of its first alternative, neither of these reports nor any other relevant science following the motor vehicle endangerment finding is deemed relevant for the NSPS rulemaking and exposed to public comment. And for purposes of its second alternative, EPA summarizes but does not ask for comment on the two NRC reports and does not discuss any other new science. As discussed in the next section following, there has been a great deal of science since the motor vehicle endangerment finding that undermines that finding, that contradicts the 2010 and 2011 NRC reports, and that argues against establishing CO₂ NSPS for EPA's new source

category. EPA would nevertheless proceed to establish such NSPS without allowing the public any opportunity to bring this new information to EPA's attention for the purpose of arguing against adoption of the NSPS. That failure is plain error.

Additionally, EPA's statement in alternative one that if the public wishes to bring new climate science to EPA's attention, it could petition to reconsider the motor vehicle regulation endangerment finding does not solve the notice and comment deficiency. There is no set time for EPA to act on reconsideration petitions, and it has taken EPA many years to act on reconsideration petitions. While the endangerment reconsideration petition that EPA posits languishes at EPA, the Agency would be free to promulgate CO₂ NSPS that would go into effect immediately. This would be rulemaking untethered from its supposed purpose of protecting public health and welfare at its worst.

2. New Science Requires EPA to Propose an Endangerment Finding for Public Comment Before Finalizing Its Proposed NSPS

Peabody attaches two documents setting forth new science since the motor vehicle endangerment finding that EPA must consider as a part of a new endangerment analysis before issuing its Proposed NSPS as a final regulation. This material consists both of a detailed discussion of new climate science and a discussion of what has become known as "climategate 2.0" material. Peabody also discusses below new science on the positive effects of enhanced atmospheric CO₂ on plant life. This material is submitted to counter the implication left by EPA that climate science is settled and that the two NRC reports eliminate any need for EPA to provide its own independent review of the endangerment which (to the extent EPA admits that endangerment is relevant in this proceeding) provides the basis for EPA's regulation.

Peabody submits this material with two caveats. First, it is not necessary for this material to be submitted in the record in order to show that EPA's failure to propose an endangerment

finding in this proceeding constitutes legal error. For the reasons discussed above, EPA has a legal duty to propose an endangerment finding as a part of this proceeding; its failure to do so, without more, is legal error.

Second, by submitting this material, Peabody does not concede that it or the public at large has had an adequate opportunity to comment on the endangerment that, in EPA's view, provides a basis for the regulation it is proposing. It is EPA's obligation to propose an endangerment finding that examines the science that EPA believes is relevant in justifying that finding. EPA's failure to do so means that Peabody and the public do not know EPA's view of climate science following the motor vehicle endangerment finding, other than the two NRC reports, and therefore Peabody and the public have been denied the opportunity to comment on an EPA proposed endangerment finding. EPA must now take the information Peabody is providing and propose an endangerment finding that Peabody and others may comment on.

a. New Climate Science Undermines EPA's 2009 Endangerment Finding

The heart of EPA's 2009 motor vehicle endangerment finding, its discussion of science in the preamble to its NSPS Proposal, and its discussion of science in the Regulatory Impact Analysis (RIA) accompanying that proposal is that anthropogenic emissions of GHGs will lead to a warmer climate which will in turn produce a host of consequences impairing public health and welfare. Yet in virtually every area of public health and welfare concern that EPA discusses, new science weakens EPA's conclusions. None of this science is examined by EPA. As a few examples:

- Hurricanes. New research on past tropical cyclone behavior sheds uncertainty on future changes in tropical cyclone intensity and the influence that human greenhouse gas emissions may have (Landsea et al., 2010; Vecchi et al., 2011; Villarini et al., 2011; Hagen and

Landsea, 2012); new research on hurricane modeling lessens the certainty of the direction of future changes in intensity and establishes that intensity and frequency are interrelated (Knutson et al., 2010, Zhao and Held, 2010); and new research on the tracking behavior of tropical cyclones calls into question whether projections of future storm intensity are alone sufficient to threaten public health and welfare (Murakami and Wang, 2010; Wang et al., 2011, Murakami et al., 2012; Raible et al., 2012). Additionally, research shows that changing demographics of coastal communities makes disentangling the impacts of human greenhouse gas emissions from other sources of impacts on the future evolution of vulnerabilities to tropical cyclones exceedingly difficult if not impossible prior to at least the late 21st century (Compton et al., 2011; Willoughby, 2012). Together, this collection of new and influential scientific research undermines the EPA's conclusions regarding future hurricanes and their impacts and requires a re-evaluation of the best available science.

- Tornados and storms. The IPCC 2012 (Special Report on Weather Extremes “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation” SREX) concludes, “There is low confidence in observed trends in small spatial-scale phenomena such as tornadoes and hail because of data inhomogeneities and inadequacies in monitoring systems” (p. 112). And, regarding projections, “[t]here is low confidence in projections of small-scale phenomena such as tornadoes because competing physical processes may affect future trends and because climate models do not simulate such phenomena (p. 113).

- Major precipitation events. New research has detected a significant influence on major precipitation events from water impoundments (Degu et al., 2011), irrigation (DeAngelis et al., 2010), and changes in land use (Groisman et al., 2012). Additionally, evidence continues to mount that urban areas have a significant and large-scale influence on precipitation

characteristics, including increasing the frequency and magnitude of intense precipitation events. Specific demonstrations of this have been made for Atlanta (Shem and Shepherd, 2008), Indianapolis (Nyogi et al., 2011), Houston (Shepherd, 2010), Oklahoma City (Hand and Shepherd, 2009), multiple cities across the Southeastern United States (Mitra et al., 2011, Ashley et al, 2011). New research also discloses the increasing role of aerosols on major precipitation. (Koren et al., 2012).

- Storm surges. For nor'easters along the U.S. East Coast, storm surges and damage to coastal property are enhanced by slow moving storm systems. However, long-term studies indicate that there has been no overall change in the average speed of movement of these storms since at least the 1950s (Bernhardt and DeGaetano, 2012). Nor has there been any increases in wave height associated with these storms since at least the mid-1970s (Komar and Allan, 2008). There has been no change in the number of storm surge events along the East Coast once local sea level rise has been accounted for (Sweet and Zervas, 2011). Multiple studies identify ENSO and the NAO as being strong drivers in the natural variability of many characteristics of nor'easters (Sweet and Zervas, 2011; Bernhardt and DeGaetano, 2012).

- Wildfires. The expectation for increases in wildfires in the Southwestern U.S. are driven by climate models which project warmer and drier conditions in the future. However, there is mounting evidence that wildfire regimes are more complex than the warmer/ drier conditions equates to more fires hypothesis. Roos and Swetnam (2012) reconstructed wildfire frequency in Ponderosa pine forests across Arizona and New Mexico back more than 1,400 years. They found that the frequency of major fires was unchanged between the warm/dry conditions associated with the Medieval Warm Period (a period from about 800 to 1300 A.D) and the cooler/wetter conditions of the Little Ice Age (1400 to 1850 A.D), and noted that rather

than long-period climate shifts fire frequency was more related to decadal variability in precipitation regimes with large fires being associated with pluvial conditions (which lead to an accumulation of the fuel load) followed by several dry years. They note that the fire suppression policies put in place during the late 19th and continuing through the 20th century resulted in a “a duration of time with little to no local or regional fire activity [that] was truly anomalous in the entirety of the 1416 year record” and that the recent increase in large fires is a direct result of the increased fuel-load associated with the fire suppression policies. Had such policies not been put in place, the natural wildfire history of the 20th century would have looked much different, with large fires occurring throughout the period, rather than clumped in recent decades. And as to climate model projections themselves, research results indicate that as climate models become better refined, the model-projected declines in Southwestern precipitation become less, with the net result that the hydroclimate of the Southwest does not become as much drier as has been projected previously. The new results indicate a lessening of the threat for an increase in future wildfire occurrence. Litschert et al. (2012).

- Sea level rise. Wenzel et al (2010) confirms other studies of tide gauge records which show that there has been no statistically significant acceleration in sea level rise over the past 100+ years, in contrast to statements of the IPCC. Sea levels have been rising naturally since the end of the last major ice age 20,000 years ago, and the rate of rise began to decelerate about 8,000 years ago. The oscillations noted in this study correspond to the typical full and half-cycle lengths of the natural Pacific Decadal Oscillation and the natural 60-year climate cycle. The Pacific Decadal Oscillation warm phase has been shown to produce a marked temporary rise in global mean sea levels. Meyssignac et al (2012) concluded that, “Results suggest that in the tropical Pacific, sea level trend fluctuations are dominated by the internal

variability of the ocean–atmosphere coupled system. While our analysis cannot rule out any influence of anthropogenic forcing, it concludes that the latter effect in that particular region is still hardly detectable.” In Morner (2010), Morner, an IPCC reviewer, said he was “astonished to find that not one of their 22 contributing authors on sea levels was a sea level specialist: not one.” Morner examined the Maldives, which some reports claim will be submerged in the next fifty years, and concluded that the sea level around the Maldives has been much higher before and actually fell 20 centimeters (7.8 inches) during the 1970s. He also asserted that sea levels have been stable for the past three decades. As to Tuvalu, the other prominent example given of the effects of purportedly disastrous sea level rise, Morner (2010) found no recent trends. “Over and over again, I have tried to demonstrate (Mörner, 2007; 2010, 2011) that sea is not at all in a rising mode in Tuvalu judging from the only information there is; i.e. the tide gauge records.”

- Heat-related mortality. Even assuming rising temperatures as EPA predicts, all heat related mortality is preventable (Ebi, 2012). The measures to do so are not overly complicated, nor are they particularly expensive. Simple heat wave awareness programs stressing proper clothing, proper hydration, and other behavioral modification have shown to be successful in reducing heat-related mortality (Das, 2011). Earlier studies, such as Davis et al., 2002; 2003a, 2003b, showed that heat-related deaths in the United States were declining. This decline has continued beyond the 1990s (the end of the period examined in the Davis et al. series of studies) and into the 21st century. Kalkstein et al. (2010) examined trends in heat-related mortality from extreme heat events (EHE) in 40 major U.S. cities using data extending to 2004 and reported that, “Our results generally show a reduction in EHE-attributable mortality rates since 1996. Indeed, in a recent study specifically designed to analyze the impacts of migration from extreme weather events, Deschênes and Moretti (2009) find that people are actively moving

away from the cold and into the heat—inducing, by choice, a change in their personal thermal climate similar in character to that projected to occur due to anthropogenic greenhouse gas emissions.

- Ozone-related health issues. The evidence of temperature rise that EPA relies on says that U.S. temperatures have risen by 2° F since 1970, yet EPA’s own AirTrends website continues to show that domestic ozone levels are decreasing. From 1980-2010, average peak ozone levels decreased by 28 percent. The 90th percentile ozone level declined from about 125 ppb in 1980 down to about 80 ppb in 2010, a 36 percent decrease. Average peak annual 8-hour ozone declined more than 30 percent from 1975 to 2010, while the maximum 8-hour ozone level declined more than 65 percent. Not only did peak levels of ozone decline, but Summer-average ozone levels declined also; June-August average ozone declined about 18 percent from 1975-2010, while June-August average ozone at the worst location in the country declined about 35 percent. EPA never explains why we should expect the future to be the opposite of the past or even mention that past ozone levels declined dramatically despite warming of similar magnitude to what it predicts between now and 2050.

b. Climategate 2.0 Material Undermines EPA’s 2009 Endangerment Finding

In late October 2011, approximately two years after the original climategate emails were released on the Internet, a second, larger trove of material from University of East Anglia (“UEA”) Climatic Research Unit (“CRU”) became available online. This installment contained nearly five times the number of emails – approximately 5,000 in total. These “climategate 2.0” strongly bolster the case that the motor vehicle GHG endangerment finding, which relied heavily on the work of the IPCC, is based on flawed scientific work. The climategate 2.0 emails demonstrate that the leading climate scientists collaborated with one another in an agenda-

driven, results-oriented effort to perpetuate a “consensus” view of 20th Century climate change characterized by unprecedented warming of the earth over the last 100 years due to anthropogenic emissions of greenhouse gases. The leading climate scientists authored, advocated or otherwise supported studies and research that advanced their own viewpoint, and actively undermined or marginalized works that did not hew to their preconceived conclusions. In this manner, they enforced what is in reality a false consensus of climate change that hides significant and important contrary information from both the public and governmental policymakers.

The attached report discussing five themes that emerge in the climategate 2.0 emails:

(1) *The Divergence Problem with historical temperature proxies based on tree-ring data.*

EPA’s motor vehicle GHG endangerment finding claims, as one of its three principal lines of evidence that anthropogenic GHG emissions are significantly warming the climate, that late 20th century temperatures were so high that they must have mostly an anthropogenic cause. The evidence EPA relied on in this regard drew heavily from conclusions reached by the IPCC from studies of 1000-year temperature trends based on tree-ring temperature reconstructions. The emails show that leading scientists were well aware that tree-ring temperature reconstructions failed to track instrument records beginning in the mid-20th century, yet they failed to disclose or adequately investigate this fundamental flaw and advanced such proxies as indicative of a much cooler climate over the last millennium culminating in significant 20th century warming.

(2) *Leading climate scientists’ evasion of freedom of information act requests and destruction of responsive material.* The climategate 2.0 emails once again show a concerted effort by the leading scientists to block requests for underlying data and information supporting

their papers and to subvert the FOIA process, in contravention of the scientific transparency required for EPA scientific findings.

(3) *Internal expressions of doubt among the leading climate scientists as to the validity and accuracy of their work.* The emails show that leading scientists harbored serious doubts as to the legitimacy of key studies and analytical techniques but failed to admit such doubts to the public or to accurately represent uncertainty. This information undermines EPA's discussion of uncertainty in its scientific conclusions.

(4) *Concerted efforts to downplay the Medieval Warming Period as natural analogue to 20th Century warming.* The emails show that the leading scientists engaged in a concerted effort to marginalize the Medieval Warming Period in order to advance a "consensus" view of unprecedented late 20th Century warmth. This information undermines EPA's central conclusion that late 20th Century warming was so unusual compared to the last 1,000 years that it must have been caused mostly by humans.

(5) *Shortcomings in the peer review process.* The emails show the leading scientists expressing cavalier disdain for papers published by lesser-known climate scientists and for disfavored journals, which illustrates serious flaws in the peer review process. This information undermines EPA's contention that the science it relied on was the result of independent peer review.

Considered together, the foregoing themes significantly undermine the prevailing theory of climate change and unprecedented warmth in the late 20th Century as reported in the Fourth Assessment Report of United Nations Intergovernmental Panel on Climate Change, and as reflected in the motor vehicle endangerment finding. The climategate 2.0 material makes abundantly clear that the leading proponents of this theory, who were key IPCC authors, were

biased and that their approach to science was, in fact, highly unscientific and results-oriented. In short, climate science must be rigorously re-evaluated in light of these systemic problems.

c. Science Continues to Support CO₂-Fertilization Effect

Just within the last year, more than 40 peer-reviewed academic journal articles have appeared supporting the benefits of increased atmospheric CO₂ on plant life. These include studies of increased greening in, for instance:

- China (Peng, S., Chen, A., Xu, L., Cao, C., Fang, J., Myneni, R.B., Pinzon, J.E., Tucker, C.J. and Piao, S. 2011. Recent change of vegetation growth trend in China. *Environmental Research Letters* **6**: 10.1088/1748-9326/6/4/044027);
- The Tibetan Plateau (Herzschuh, U., Ni, J., Birks, H.J.B. and Böhner, J. 2011. Driving forces of mid-Holocene vegetation shifts on the upper Tibetan Plateau, with emphasis on changes in atmospheric CO₂ concentrations. *Quaternary Science Reviews* **30**: 1907-1917);
- Europe (Bellassen, V., Viovy, N., Luysaert, S., Le Marie, G., Schelhaas, M.-J. and Ciais, P. 2011. Reconstruction and attribution of the carbon sink of European forests between 1950 and 2000. *Global Change Biology* **17**: 3274-3292), Denmark (Pilegaard, K., Ibrom, A., Courtney, M.S., Hummelshøj, P. and Jensen, N.O. 2011. Increasing net CO₂ uptake by a Danish beech forest during the period from 1996 to 2009. *Agricultural and Forest Meteorology* **151**: 934-946);
- Australia (Macinnis-Ng, C., Zeppel, M., Williams, M. and Eamus, D. 2011. Applying a SPA model to examine the impact of climate change on GPP of open woodlands and the potential for woody thickening. *Ecohydrology* **4**: 379-393);
- Brazil (Silva, L.C.R., Anand, M., Oliveira, J.M. and Pillar, V.D. 2009. Past century changes in *Araucaria angustifolia* (Bertol.) Kuntze water use efficiency and growth in

forest and grassland ecosystems of southern Brazil: implications for forest expansion. *Global Change Biology* **15**: 2387-2396);

- The U.S. Mid-Atlantic (Pan, Y., Birdsey, R., Hom, J. and McCullough, K. 2010. Separating effects of changes in atmospheric composition, climate and land-use on carbon sequestration of U.S. Mid-Atlantic temperate forests. *Forest Ecology and Management* **259**: 151-164), and many other areas.

These studies are collected at <http://www.nipccreport.org/archive/plants/greening.html>. EPA must examine this new information in determining whether its 2009 endangerment finding still has validity.

3. The Two NRC Reports Cannot Substitute for a New Endangerment Finding

Chapter 3 of EPA's Regulatory Impact Analysis (RIA) states that the science behind the 2009 Endangerment Finding has been bolstered by two new recent assessments by the National Research Council which provide "independent" confirmation of the state of climate change science. See RIA § 3.1.3 ("...Importantly, these recent NRC assessments represent another independent and critical inquiry of the state of climate change science, *separate and apart from the previous IPCC, NRC, and USGCRP assessments,*" emphasis added). But the NRC reports were not independent of the IPCC and USGCRP reports that EPA relied on.

In one egregious example, Susan Solomon, the chair of the 2011 NRC Report "Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia," was also the lead editor of IPCC 2007, Working Group 1 (WG1). The report cited her own work. EPA provided funding for the report.

Moreover, the preface (p. ix) to the 2010 NRC report entitled "Advancing the Science of Climate Change" states that "[i]n addition to drawing on the new scientific results being

published nearly every week, we were aided in this task by the final U.S. Global Change Research Program (USGCRP) Synthesis and Assessment Product *Global Climate Change Impacts in the United States* (USGCRP, 2009a), the recent National Research Council (NRC) report *Restructuring Federal Climate Research to Meet the Challenges of Climate Change* (NRC, 2009k), and the four volumes of the fourth assessment report by the Intergovernmental Panel on Climate Change (IPCC, 2007a-d).”

There is no definition of the term “independent” which includes being “aided” by other reports, especially the very same set of reports that the NRC report is supposed to be “independent” of. In fact, the on-line dictionary, *dictionary.com*, defines “independent” as “not relying on another or others for aid or support.”

How much the NRC report was “aided” by previous assessment reports of the USGCRP and the IPCC is clear from the numerous citations of those reports to base the major conclusions of the NRC report. Additionally, while the NRC claims to draw on “new scientific results being published nearly every week,” in actuality there is very little of the new and influential research that has been published since the release of the IPCC AR4 and USGCRP assessments that is included in the NRC reports. A few examples of the NRC reports relying on the same work as EPA relied on follow:

- The primary reference cited by the NRC to back its conclusions as to how GHGs force climate (pp. 189-200) of “Advancing the Science of Climate Change”) is Forster et al., 2007, which is Chapter 2 of the IPCC AR4 WGI report.
- A primary reference cited by the NRC to back its findings reported in the “Climate Feedbacks and Sensitivity” section (p. 200-201) is Hegerl et al., 2007, which is Chapter 9 of the

IPCC AR4 WGI report. Many of the other references were either dated and/or included in Hegerl et al. (2007).

- On the key issue of attributing climate change to human activities (p. 214-216), the NRC report is replete with references to IPCC and USGCRP assessments. Of the 10 items included in the NRC's bullet list of reasons for attributing climate change to humans, the large majority are based on direct citations of IPCC AR4 Chapters or previous (and somewhat dated) NRC reports.

- The section "Projections of 21st Century Climate" (p. 221-224) is based on climate models projections and relies virtually exclusively on the results presented in the IPCC and USGCRP assessments.

In the same vein, the NRC report fails to examine a host of new science on the impacts of climate change that go to the heart of EPA's finding that climate change poses a danger to public health and welfare. As just a few examples:

- The section on "Causes of Sea Level Rise" (p. 238-243) fails to include any of a growing list of recent publications which find that the pumping of groundwater for irrigation and other uses is growing rapidly across the world, and that this water, once stored in deep aquifers is now ending up in the oceans and contributing a sizeable fraction to the observed sea level rise. Recent estimates are that between 15% and 40% (and growing) of the current observed rate of sea level rise is being contributed by continental "dewatering" (Wada et al., 2010; Konikow, 2011; Wada et al., 2012; Pokhrel et al., 2012).

- The section on "Projections of Future Sea Level Rise" (p. 243-245) makes inadequate mention of a growing list of new and influential publications which find that glacier processes in Greenland do not lend support a rapid and sustained increase in ice discharge from

the Greenland ice sheet and thus do not support a large contribution of sea level rise from Greenland this century (e.g., van de Wal et al., 2008; Nick et al., 2009; Schoof, 2010; Bjørk et al., 2012). Without fully considering these scientifically important results, it is impossible to make an accurate assessment of the current sea level rise projections and gives rise to an overestimation of the future rate of sea level rise.

- The section on Public Health: Extreme Temperatures and Thermal Stress (P. 311-313), includes virtually none of a large number of influential publications that clearly and unequivocally demonstrate that populations readily adapt to heat waves (e.g., Davis et al., 2003; Barnett, 2007; Gosling et al., 2009; Kalkstein et al., 2010). The results of these studies, and others like them, suggest that if heat waves were to increase in frequency and intensity in the future, a declining population sensitivity would almost certainly be the result. Without adequately accounting for adaptation, both autonomous and planned, projections of negative health-related impacts from increasing heat waves are not robust and inaccurate. The NRC report is incomplete on this topic.

In sum, the two NRC reports that EPA cites cannot substitute for EPA making a new endangerment finding based on a discussion of new science. The reports were heavily influenced by and relied on the same material that was relied on in EPA's 2009 endangerment finding, they do not provide new and independent confirmation of that endangerment finding, and they cannot replace the Administrator's obligation to render her own judgment on endangerment science.

III. EPA Failed to Consider the Health and Welfare Benefits of Coal-Fueled Electricity that Its Regulations Will Now Eliminate

EPA's limited endangerment analysis is entirely one-sided, focusing on what it sees as the climate danger posed by GHG emissions. But EPA fails to assess whether the emission of

GHGs produce health and welfare benefits. Specifically, EPA fails to consider that GHGs are produced because society relies on fossil fuels and the emission of CO₂ is the inevitable byproduct of combusting fossil fuels. Coal has been the dominant fossil fuel used for electric production because coal has historically been the lowest cost fossil fuel and has been the least susceptible to price fluctuations. Coal usage has therefore produced positive benefits in low costs to consumers, and these lower costs have translated into health and welfare benefits. These benefits far outweigh any climate benefits produced by EPA's regulations, even accepting EPA's view of climate science, because EPA's policies will not prevent increasing global atmospheric levels of GHGs.

A. EPA Must Analyze the Proposed NSPS Cumulatively With Its Other Power Sector Regulations

EPA has not issued the Proposed NSPS in a vacuum. As shown in NMA's comments, the Proposed NSPS is part of a coordinated strategy by EPA to transform the power from its reliance on coal to what EPA believes is a more "modern" and "clean" industry. Thus, EPA's other power sector rules are causing the retirement of existing coal-fueled generation, and EPA's proposed NSPS prevents the construction of new coal-fueled generation. The net effect is to achieve EPA's overall policy goal of significantly reducing coal usage.

Despite the fact that EPA's policies are having their intended effect, EPA has never produced any analysis of the effect all of its power sector regulations will create. By proceeding piecemeal, and by limiting its regulatory analysis to each individual rule, EPA masks the overall consequences of its policies on society. This is in direct contravention of two executive orders, one issued by President Clinton and one issued by President Obama, Executive Orders 12866 and 13563, respectively, that require cumulative analysis. As stated by Executive Order 12866, in language reiterated in Executive Order 13563, "[e]ach agency shall tailor its regulations to

impose the least burden on society, including individuals, businesses of differing sizes, and other entities (including small communities and governmental entities), consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, *the costs of cumulative regulations.*” (Emphasis added.)

Consistent with these Executive Orders and other authorities cited in NMA’s comments, EPA must produce a cumulative analysis of all of its power sector regulations. And because EPA’s Proposed NSPS is one part of an EPA program to significantly reduce coal usage, Peabody’s discussion below considers the effect of all of the parts of this program, including the Proposed NSPS, cumulatively.

B. EPA’s Anti-Coal Regulations Harm Society

1. EPA’s Policies Will Raise Costs to Consumers

EPA’s anti-coal agenda is likely to create hugely negative impacts for electric consumers. In a September 2011 study performed for the American Coalition for Clean Coal Electricity (ACCCE) entitled *Potential Impacts of EPA Air, Coal Combustion Residuals, and Cooling Water Regulations*, the National Economic Research Associates (NERA) analyzed the impact of four EPA rules – the MATS rule, CSAPR, the coal combustion residuals rule and the cooling water intake structures regulation. It noted the following effects:

- **Retirements.** It estimated *39 GW of prematurely retired capacity by 2015* among the current coal-fired power plants. This estimate represents additional retirements above those in the reference case (i.e., retirements predicted without the four regulations in place) and accounts for *about 12 percent of the 2010 U.S. coal-fired electricity generating capacity*. This estimate does not include the potential effects of other potential requirements – notably potential greenhouse gas emission regulations.

- **Energy Market Effects.** Costs are projected to be approximately \$21 billion (in 2010\$) per year over the period from 2012 to 2020. The costs represent a total of *\$127 billion* (present value in 2010\$ as of January 1, 2011) over the period from 2012 to 2020. *Capital costs for environmental controls and replacement capacity are about \$104 billion.* These costs

include compliance costs for coal units that do not retire, capital costs for new capacity that would replace retiring coal units, and changes in fuel costs.

- **Natural Gas Prices.** The regulations are predicted to increase natural gas-fired generation by 19.7 percent on average over the period and increase Henry Hub natural gas prices by 10.7 percent on average. The increases in natural gas prices would lead to an *estimated average increase in costs of about \$8 billion per year for residential, commercial and industrial natural gas consumers*, which translates into an *increase of \$52 billion over the 2012-2020 period* (present value in 2010\$ as of 2011 discounted at 7 percent).

- **Electricity Prices.** Average U.S. *retail electricity prices are projected to increase by an average of 6.5 percent over the period 2012 to 2020*, with prices in certain regions increasing considerably more than that.

- **Jobs.** Over the period from 2012 to 2020, about *183,000 jobs per year are predicted to be lost*, net of “green jobs” created, due to the effects of the four regulations. The cumulative effects mean that over the period from 2012 to 2020, *about 1.65 million job-years of employment would be lost*.

- **GDP and Income.** *U.S. GDP would be reduced by \$29 billion each year on average over the period, with a cumulative loss from 2012 to 2020 of \$190 billion (2010\$). U.S. disposable personal income would be reduced by \$34 billion each year on average over the period, with a cumulative loss from 2012 to 2020 of \$222 billion (2010\$).* The average annual loss in disposable personal income per household is \$270, with a cumulative present value loss of about \$1,750 (2010\$) over the period from 2012 to 2020.

A more recent NERA analysis for ACCCE analyzed just the effects of the MATS rule.

NERA used EPA’s retrofit assumptions and costs to project the following impacts of the final MATS rule. It found:

- **Compliance costs for the electric sector in 2015 are \$10.4 billion (2010\$).** By comparison, EPA estimated compliance costs of \$9.7 billion (2010\$) in 2015. Total compliance costs based on NERA’s analysis are \$94.8 billion. EPA declined to provide total compliance costs, despite requests from Congress.

- **Additional capital investments by the electric sector total \$84 billion between 2012 and 2015.** This represents an increase of 30 percent in electric sector capital requirements which, according to NERA, could cause financing challenges, credit downgrades and higher costs of borrowing.

- **Labor wages decline significantly, which results in the loss of 180,000 to 215,000 jobs in 2015.** In addition, GDP losses total as much as \$112 billion. Total household disposable income is reduced by as much as \$71 billion. The largest annual loss in household income occurs in 2012.

2. These Impacts Will Be Experienced Disproportionately by Lower-Income and Fixed Income Groups and Will Impair Their Health and Welfare

These economic impacts will in turn impair public health and welfare because the effect will be felt by those least able to afford them. Dollars spent on higher energy bills will in turn crowd out dollars that would otherwise be available to pay for good nutrition and health care. Jobs lost because of higher energy costs means less money for health insurance. It is a truism that wealth equals health, and it is equally true that health will deteriorate as energy costs rise, particularly for lower income people and those living on fixed incomes.

In a report prepared for the American Coalition for Clean Coal Electricity entitled *Energy Cost Impacts on American Families, 2001-2012*, attorney and economist Eugene Trisko reported that energy cost increases fall disproportionately on those least able to afford them. Key findings of this report are:

- In 2010, the median household income of U.S. families was \$49,445. Slightly more than one-half of U.S. households have average pre-tax annual incomes below \$50,000. In 2001, families with gross annual incomes below \$50,000 spent an average of 12% of their average after-tax income of \$21,834 on residential and transportation energy. By 2005, energy costs rose to 16% of their average aftertax income of \$22,682. In 2012, these households are projected to spend 21% of their average after-tax income of \$22,390 on energy.
- Family incomes have not kept pace with the rising costs of energy. Since 2007, the U.S. Census Bureau reports that real (inflation-adjusted) median household income has declined by 6% (from \$52,823) and is 7% below the median household income peak (\$53,252) that occurred in 1999.
- Poverty rates have increased to historic highs along with the declining long-term trend in family incomes. The number of people in poverty in 2010 was the largest number in the 52 years since the Census Bureau began to publish poverty statistics. Poverty is more prevalent among some minority groups. Some 27% of Blacks and 26% of Hispanics lived in poverty in 2010, compared with 15% for the overall population.
- Higher gasoline prices account for nearly four-fifths of the increased cost of energy for consumers since 2001. In nominal dollars, average U.S. household expenditures for gasoline will grow by 136% from 2001 to 2012, based on EIA gasoline price projections for 2012. In comparison, residential energy costs for heating, cooling, and other

household energy services will increase on average by 43%, from \$1,493 in 2001 to a projected \$2,131 per household in 2012.

- Electricity is the bargain among all consumer energy products. Among consumer energy goods and services, electricity has maintained relatively lower annual average price increases compared to residential natural gas and gasoline. Electricity prices have increased by 51% in nominal dollars since 1990, well below the 72% rate of inflation in the Consumer Price Index. The nominal prices of residential natural gas and gasoline have nearly doubled and tripled, respectively, over this period.
- Virtually all of the residential electricity price increases over the past two decades have occurred since 2000. These increases are due in part to additional capital, operating and maintenance costs associated with meeting clean air and other environmental standards.
- Lower-income families are more vulnerable to energy costs than higher-income families because energy represents a larger portion of their household budgets. Energy is consuming one-fifth or more of the household incomes of lower- and middle-income families, reducing the amount of income that can be spent on food, housing, health care, and other necessities.
- In 2010, 62% of Hispanic households and 68% of Black households had average annual incomes below \$50,000, compared with 46% of white households and 39% of Asian households. Due to these income inequalities, the burdens of energy price increases are imposed disproportionately on Black and Hispanic households. Fixed-income seniors are a growing proportion of the U.S. population, and are among the most vulnerable to energy cost increases due to their relatively low average incomes. In 2010, the median gross income of 25.4 million households with a principal householder aged 65 or older was \$31,408, 36% below the national median household income.

These increased costs to lower income people cause not just economic harm but harm to their health as well. Studies show that greater use of coal-fueled electricity helps free up a family's disposable income for good nutrition, quality medical care and other smart lifestyle choices that lead to improved health. A 2002 study by researchers Daniel E. Klein and Ralph L. Keeney found that coal prevents at least 14,000 to 25,000 premature deaths each year due to low-cost electricity. A 2007 study by Dr. M. Harvey Brenner, a professor of Health and Policy Management at Johns Hopkins University, confirmed the Klein-Keeney findings. Brenner concluded that if coal were removed from the energy mix, the result would be approximately 170,000 to 368,000 premature deaths in the United States.

3. Increased GHG Emissions Are Associated with Improved Health and Welfare, Not Impaired Health and Welfare

The NSPS Proposal ignores the obvious association between increased GHG emissions and positive health and welfare benefits. GHG emissions and improving quality of life are associated because the economy runs on energy, and that energy is principally derived from fossil fuels.

The fallacy in EPA's approach is shown by the conclusion in the preamble of the NSPS Proposal that atmospheric concentrations of GHGs are presently causing unprecedented warming both in the U.S. and worldwide and that this warming is now resulting in substantial damage to American health and welfare. EPA's view misses the obvious fact that public health and welfare has been *improving* notwithstanding the state of the climate which is always changing.

Historically, fossil fueled-energy usage has produced dramatic health and welfare benefit, particularly as a result of the large-scale introduction of electricity. Quality of life and access to electricity are not coincidental. Electricity is the *sine qua non* of modern society. In 1999, the U.S. Academy of Engineering identified societal electrification as the "most significant engineering achievement" of the past century – a century which saw population growth of over four billion people, the rise of the metropolis, dramatic improvements in diet and health and emergence of a vast system of electronic communication.

The rise in the standard of living in the U.S. over the past century has been the envy of the world. Society after society seeks to emulate the progress the U.S. has made in health, education, productivity, environmental improvement, and science and technology. The

foundation of this leap forward is the ever increasing access to reliable and affordable electricity.²

Electricity has become unique and pervasive in the American lifestyle. Over the eight year period 2001-2009 alone, for example, U.S. households added 36 million air conditioners, 12 million electric dryers, and 8 million refrigerators. Electricity can be employed in ways no other energy form can be used: It is high quality and therefore convertible to virtually any energy service; it permits previously unattainable precision, control, and speed; it provides temperature and energy density far greater than attainable from standard fuels; and, it has no inertia and so allows instantaneous access and is 100% convertible to work. For these reasons, readily available, affordable electricity is essential to increases in quality of life and economic well-being. Consider the following benefits that energy usage in general and electricity specifically have brought about:

Life Expectancy

There is a demonstrated link between low energy costs, economic growth and declining mortality over recent centuries. Brenner, *Journal of Epidemiology* (2005). Growing access to electricity meant more food, cleaner water, new medicines, safer work settings, and increased control of the environment through heating and, eventually, air conditioning – all hallmarks of industrialization and modernization made possible by electric power. Prior to widespread available electricity, for example, Americans' average life expectancy in 1900 was 47 years. By 2000, life expectancy in the U.S. was 77 years.

Education

² Unless otherwise noted, all citations in this section of the comments are to Clemente, *More People, Living Longer, Living Better*, on file with EPA as a part of Peabody's comments in Docket ID No. EPA-HQ-OAR-2009-0171.

Prior to widespread available electricity in the U.S., in 1900 just 19% of American females graduated from college and 11% of Americans were illiterate. The typical housewife spent over 60 hours a week cooking, cleaning, and doing laundry. By 1970, electricity and electricity-based appliances were readily accessible and the illiteracy rate had dropped to less than 1%. As labor-saving electricity became pervasive in society, the percentage of children enrolled in school doubled, and the number of women who could study and work outside the home increased greatly, so that by 2000, 57% of American women graduated from college.

Sanitation

The impact of electricity access on sanitation and cleaner water is especially noteworthy. In 1940, 45% of the homes did not have complete plumbing facilities and 35% had no flush toilet. By 1960, electricity consumption at greatly increased, power was widely available and 84% of the homes had complete plumbing facilities and 90% had flush toilets. Better sanitation had a markedly positive impact on decreasing the incidence of waterborne diseases.

Economic

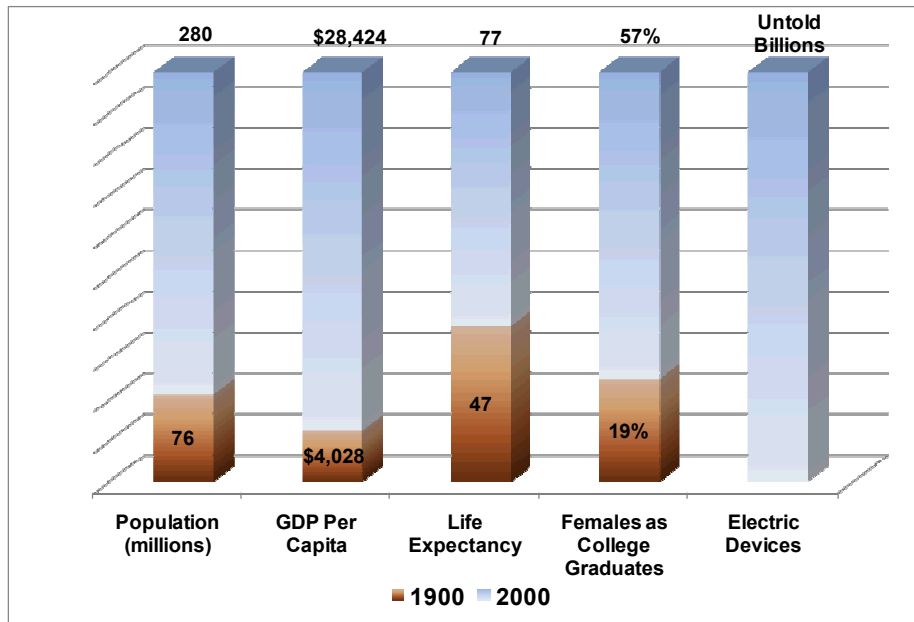
There is a strong positive correlation between economic output and energy use, which reflects GHG emissions. The growth in GHG emissions, however, has been less than the rate of growth in GDP. For example, during the 1950s real GDP grew at a 4% annual rate while CO₂ emissions from energy rose 2.4%. From 1960 to 1973, the growth rates were 4.1 and 3.7% respectively. CO₂ emissions increased only 0.7% from 1974 to 1986 while GDP growth slowed to 2.8%. During the next two decades from 1987 to 2007, GDP rose nearly 3% per annum while CO₂ emissions grew 1.2% per year. So as the economy grows, carbon intensity, defined as CO₂ per dollar of GDP, falls.

Schurr (1984) maintains that the increased use of more flexible energy forms, liquid fuels and especially electricity, significantly enhanced “the discovery, development, and use of new processes, new equipment, new systems of production and new industrial locations.”

Jorgenson’s studies (1981; 1984) introduce the concept of electricity-using productivity growth and suggest that higher energy prices act as a drag on productivity growth. Based upon the findings of Schurr (1984) and Jorgenson (1991, 1994), impressive productivity growth in the U.S. economy since the late 1980s can be explained, at least in part, by falling real electricity prices. Indeed, the deceleration in productivity growth since 2000 could be associated with rising real electricity prices and rising real oil and natural gas prices.

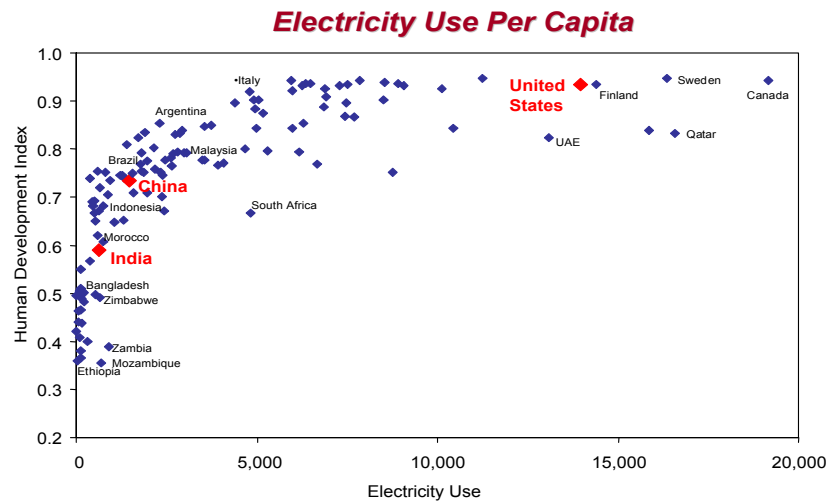
The benefits provided from electricity could not have been made possible without the use of fossil fuels. Consumers prefer low cost, reliable power and producers who provide these services prosper. The fact that the U.S. economy currently derives 85% of its total energy from coal, oil and natural gas is a testament to the availability and competitive advantage of fossil fuels.

Of course, the use of fossil fuels for energy produces GHG emissions, and these emissions are believed by EPA to produce changes in climate that could impair public health or welfare. But EPA’s view of these climate change effects must be balanced by an appreciation of the benefits the energy creates. Consider what America looked like before electrification:



The benefits of electricity are even more pronounced when we consider current global conditions. More than 1.5 billion people have no electricity. Another 2 billion have extremely limited access. In essence, about 3.5 billion people – almost 12 times the population of the U.S. – have either no electricity or only a constrained supply. As shown by the following chart, this lack of access to electricity is directly correlated with quality of life.

Electricity Use and the U.N. Human Development Index



Source: International Energy Agency, World Energy Outlook 2005.

The disparity in access to electricity around the world is alarming. The average consumer in Germany, for example, uses 7,111 kWh of power each year. The average Indian uses just 480 kWh. In Europe, virtually no household lacks access to electricity. In India, over 400 million people have no electricity, 600 million cook with wood or dung and over 900 million have no refrigeration.

The human and economic consequences of these differences in access are stark indeed. In Germany, the per capita Gross National Income is \$36,810. In India, it is \$820. In Germany, a new baby can expect to live almost 80 years, in India only 64. In Germany, there is virtually no child malnourishment. In India, about half the children are malnourished and tens of millions are classified as “stunted.”

To further demonstrate the consequences of the broad divide in electricity access, compare two sets of countries: (a) the Euro nations (populations where the average consumer uses about 7000 kWh) and (b) a set of 17 countries which have the least access to electricity –

none of the 17 uses more than 600 kWh/y per person and the average is 242 kWh. The results demonstrate the grim reality of life without electricity.

*Calculations based on from World Bank Development Indicators database (averages)

Another way to demonstrate the health and welfare effect of energy sources that produce GHG emissions is to compare U.S. quality of life with the quality of life in countries that produce much less CO₂ than the U.S. The results should not be surprising.

Societies with CO₂ Emissions 80% Lower than the United States

10 Quality of Life Indicators	Societies 80% Lower CO₂	United States
Electricity use per capita-kWh	717	13,648
Infant mortality rate	52	6
Life expectancy in years	59	78
GDP per capita	\$ 3,995	\$ 46,289

Agricultural productivity/worker	\$ 1,395	\$ 41,797
Labor productivity/worker	\$ 3,064	\$ 31,245
Access to clean drinking water (%)	74	100
Child malnutrition (%)	35	<1
% of people living on < \$2 per day	51	--
Female Literacy Rate (%)	69	99

C. EPA Policies Won't Meaningfully Affect Global Atmospheric GHG Concentrations

Both the NSPS Proposal preamble and EPA's Regulatory Impact Analysis (RIA) associated with the proposal failed to examine any global warming impacts that will be avoided by preventing the construction of new coal-fueled generation in the United States. Undoubtedly, this is because EPA forecast that little or no new coal-fueled electric generation will be built in the United States anyway, and therefore, as the RIA states, the climate change benefits of the proposal are "negligible."

As shown in NMA's comments, EPA is mistaken that no new coal-fueled generation stations will be built in the United States. But there is a more fundamental reason why EPA's anti-coal policies will not meaningfully address the global level of atmospheric GHGs that EPA says will be the cause of deleterious climate change. Other countries are dramatically increasing their use of coal, and this increased coal usage – and indeed the fact that the developing world will continue to develop and will continue to increase its usage of fossil fuels no matter what policies the U.S. pursues internally – is resulting in increasing GHG emissions globally that far outstrip any U.S. reductions that EPA will cause.

For example, while EPA's policies and low domestic natural gas prices combined to depress domestic coal production, the BP 2012 Statistical Review of World Energy released on June 13, 2012 indicated that international coal usage continues to advance:

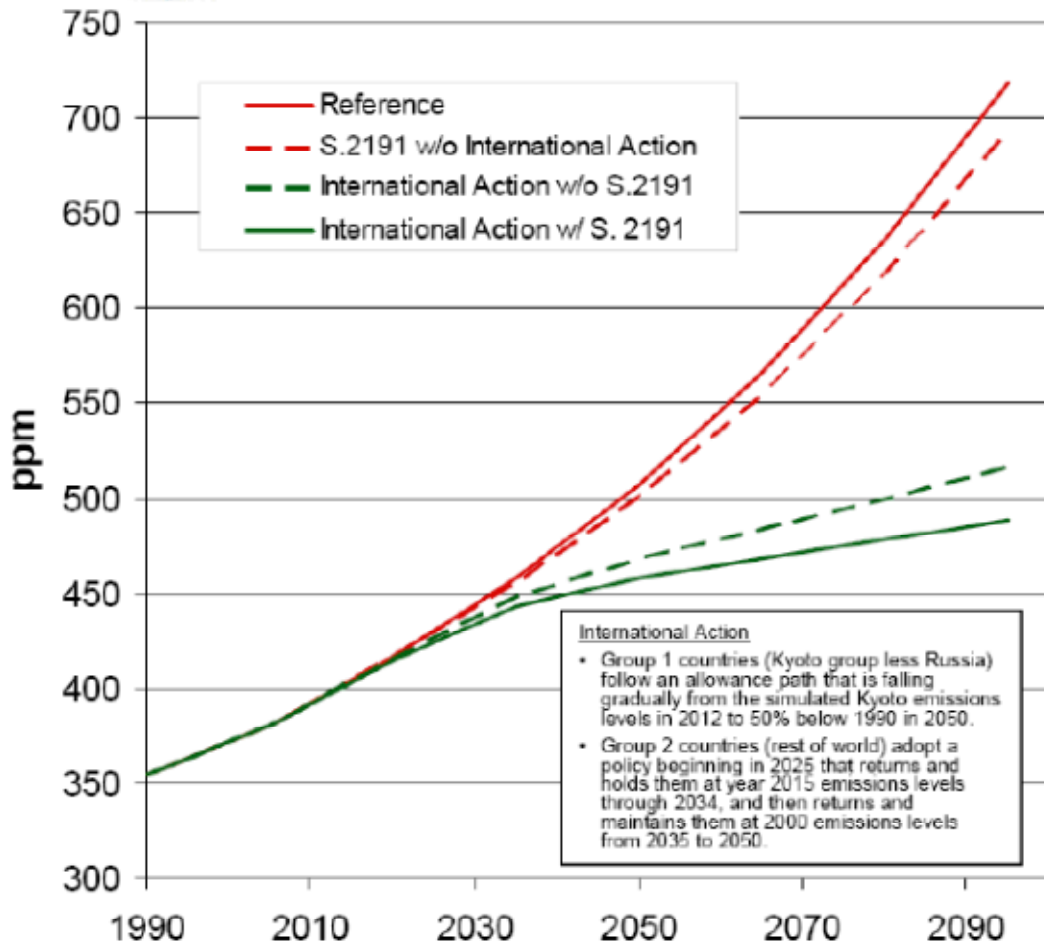
- Coal's share of the global energy mix rose to 30.3% in 2011, the highest since 1969.
- Total global coal consumption in 2011 rose 5.4%, with the Asia-Pacific region accounting for 68.6% of global coal consumption during the year.
 - China, the world's largest coal consumer, burned 1.84 billion mt of oil equivalent in 2011, up 9.7% on-year and accounting for 49.4% of total consumption.
 - Chinese coal production jumped 8.8% on-year to 1.96 billion mt of oil equivalent in 2011, nearly half of global output for the year.
 - World proved reserves of coal in 2011 were 860.9 billion mt, sufficient to meet 112 years of global production, and by far the largest reserves-to-production ratio for any fossil fuel. The world will tap into these reserves.

Thus, there is no “solution” to the climate change problem that EPA perceives unless the developing world participates. EPA itself displayed this graphically in a chart it produced in its analysis of the effect on global GHG concentrations over a 100-year period if S. 2191, the Lieberman-Warner climate change legislation that was reported by the Senate Committee on Environment and Public Works in 2008, were enacted into law. The analysis is reproduced below and shows that, without legally binding international action, U.S. efforts at reducing GHG emissions will have almost no impact on overall GHG concentrations and the injury which Plaintiffs assert.³

³ See EPA ANALYSIS OF THE LIEBERMAN-WARNER CLIMATE SECURITY ACT OF 2008, S. 2191 IN 110TH CONGRESS (March 14, 2008) at 192, *available at* http://www.epa.gov/climatechange/downloads/s2191_EPA_Analysis.pdf. The solid top line in the graph assumes the legislation is not enacted; the dotted top line assumes that the legislation is enacted. Both top lines assume the rest of the world does not take action to significantly reduce its GHG emissions as compared with efforts they are already undertaking. As can be seen, at the end of the 100-year period 1990-2010, the bill would result in only a six-year delay of the GHG levels predicted without the bill. The bottom two show that the rest of the world must reduce GHG emissions if overall atmospheric concentrations are to be meaningfully reduced.



Global CO₂ Concentrations (MiniCAM) Results



In sum, there is no climate change health and welfare benefit to EPA’s NSPS Proposal or to EPA’s power sector regulations in general.

D. EPA Failed to Consider Life-Cycle GHG Emissions of Natural Gas Generation

Although EPA set the proposed CO₂ NSPS based on the emissions profile of an NGCC unit, EPA failed to consider the life-cycle emissions produced by such units. A significant body of research has emerged, discussed in more detail in NMA’s comments, questioning whether, on a full life-cycle basis, NGCC facilities emit more GHGs than coal-fueled units. Most notably, in

a recent study published in *Climatic Change Letters* entitled “Coal to gas: The influence of methane leakage,” noted National Center for Atmospheric Research (NCAR) climatologist Tom Wigley stated that substituting natural gas for coal would have limited impact on climate change. According to the NCAR press release of the study, “Wigley’s computer simulations indicate that *a worldwide, partial shift from coal to natural gas would slightly accelerate climate change through at least 2050, even if no methane leaked from natural gas operations, and through as late as 2140 if there were substantial leaks.* After that, the greater reliance on natural gas would begin to slow down the increase in global average temperature, but only by a few tenths of a degree.”⁴

EPA cannot easily dismiss Dr. Wigley’s conclusions. EPA cited Dr. Wigley’s work several times in its Technical Support Document for the motor vehicle endangerment finding, and he was prominently involved in drafting the IPCC reports on which EPA relies so heavily.

Moreover, according to a recent report by the International Energy Administration entitled *World Energy Outlook Special Report on Unconventional Gas, Golden Rules for a Golden Age of Gas* (at 91-92), significantly increased use of natural gas from unconventional sources worldwide would only “put[] CO₂ emissions on a long-term trajectory consistent with establishing the atmospheric concentration of greenhouse-gas emissions at around 650 parts per million, a trajectory consistent with a probable temperature rise of more than 3.5 degrees Celsius (°C) in the long term, well above the widely accepted 2°C target.” The report says that “widespread application of technologies such as carbon capture and storage” is needed to reduce temperature increases to the desired level, but that such widespread application is not expected until 2035.

⁴ <https://www2.ucar.edu/atmosnews/news/5292/switching-coal-natural-gas-would-do-little-global-climate-study-indicates> (emphasis added).

IV. Conclusion

EPA has committed basic legal error by failing to justify its NSPS Proposal in a finding that CO₂ emissions for new coal-fueled EGUs endanger the public health and welfare. And EPA has failed to consider the health and welfare benefits of coal-fueled electric generation that will be foregone under the proposal. The proposal is ill-conceived and should be withdrawn.

Dated: June 25, 2012

Respectfully submitted,

Peabody Energy Company