

U.S. ENVIRONMENTAL PROTECTION AGENCY

**Proposed Endangerment and Cause or Contribute Findings
For Greenhouse Gases Under Section 202(a) of the Clean
Air Act; Proposed Rule**

**Docket ID No. EPA-HQ-OAR-2009-0171
74 Fed. Reg. 16448 (Apr. 10, 2009)**

COMMENTS OF PEABODY ENERGY COMPANY

I. Introduction

Peabody appreciates this opportunity to submit these comments on Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Proposed Rule, 74 Fed. Reg. 16448 (Apr. 10, 2009) (hereafter, “Endangerment Finding Proposal”), by the Environmental Protection Agency (“EPA” or “Agency”). Peabody believes that the Endangerment Finding Proposal is incomplete and one-sided and therefore arbitrary and capricious.

Carbon dioxide (“CO₂”) is a naturally-occurring substance that is necessary for life on Earth. It is thus not a “pollutant” that endangers public health or welfare. Of course, too much of any substance can lead to damaging consequences – for instance, too much water can lead to flooding. EPA’s view is that, because of human activities, there is too much CO₂ and other GHGs in the atmosphere and that, as a result, the public health and welfare is currently endangered. EPA also believes that this danger will rise in the future with increasing greenhouse gas (“GHG”) emissions.

Peabody does not believe that the public health and welfare is presently at risk as a result of current atmospheric concentrations of GHGs. As set forth in more detail below, Peabody believes that the activities that lead to GHG emissions – particularly the production of electricity – have created and will continue to create overwhelmingly positive health and welfare benefits.

The future, of course, is inherently uncertain. EPA’s view of a potentially calamitous climate future is based on computer simulation models that are, at best, highly imperfect. Although EPA credits these extremely uncertain computer model predictions, it does not give sufficient weight to the demonstrated, known benefits of CO₂ as plant food. Moreover, EPA gives no weight at all to the highly beneficial effects produced by the activities that create the CO₂ emissions in the first place.

Obviously, however, the emission of GHGs does not occur in a vacuum. GHGs are emitted across the economy for many reasons, the principal of which is that various residential, commercial and industrial processes utilize fossil fuels for energy and because CO₂, the most

ubiquitous GHG, is the inevitable byproduct of combusting such fuels. These processes produce fundamental health and welfare benefits without which modern life would be impossible.

EPA's one-sided analysis causes it to miss an obvious fact. ***Although the Agency finds that society's emissions of GHGs pose a health and welfare danger, over the last century, as anthropogenic greenhouse emissions have increased, every relevant indicator of public health and welfare has improved dramatically rather than deteriorated.*** This relationship between increasing GHG emissions and improved public health and welfare is not an accident. The direct cause of both the increased emissions and the improvements in health and welfare is society's use of energy, particularly electricity.

Peabody attaches the report *More People, Living Longer, Living Better* by Frank Clemente, Ph. D. Professor of Social Science and Energy Policy at Penn State University, detailing the positive health and welfare consequences resulting from the fact that society emits GHGs. Peabody believes that these positive consequences outweigh any asserted negative consequences of GHG emissions. More fundamentally for purposes of EPA's Endangerment Finding Proposal analysis, whether or not EPA agrees that the positive consequences of GHG emissions outweigh the negative consequences, EPA's failure to even consider the positive consequences renders that proposed finding legally deficient.

Additionally, EPA's failure to adequately assess the positive health and welfare effects of increased atmospheric levels of CO₂ on plant life and, in particular, crops biases the agency's analysis. With world population continuing to rise at a rapid rate, the agricultural community must find ways to increase the productivity of crop land so as to increase food production without disturbing sensitive lands not currently used for agriculture. The Endangerment Finding Proposal, however, arbitrarily ignores significant scientific research showing the increases in food production that have resulted and will continue to result from the carbon fertilization effect. This evidence is set forth in the November 24, 2008 Comments of Dr. Craig D. Idso, Chairman of the Center for the Study of Carbon Dioxide and Global Change in Tempe, Arizona in the Advance Notice of Proposed Rulemaking docket. Dr. Idso's comment document, EPA-HQ-OAR-2008-0318-1504.1, should be considered to be resubmitted in the current docket here.

II. Peabody

Peabody is the world's largest private-sector coal company. Our products fuel approximately 10 percent of America's and 2 percent of the world's electricity. Last year Peabody shipped 238 million tons of coal. The company has 340 electricity generating and industrial customers in nearly 40 states and 19 countries. In the United States, Peabody companies operate three large surface mines in the Powder River Basin of Wyoming that produce about 150 million tons per year; three surface mines in the Southwest that produce about 14 million tons per year; an underground mine in Colorado that produces about 8.6 million tons per year; and a number of surface and underground mines in the Illinois Basin that collectively produce about 32 million tons per year. Peabody's 2007 domestic coal production of about 200 million tons per year equaled about 17.4 percent of total domestic production. See Technical Support Document, *The Coal Sectors, Proposed Rule for Mandatory Reporting of Greenhouse Gases*, Office of Air and Radiation, U.S. Environmental Protection Agency, January 28, 2009 ("TSD"), EPA-HQ-OAR-2008-0037, Ex. 10.

III. EPA Fails to Account for the Positive Health and Welfare Effects of GHG-Emission Sources

A. EPA Misconstrues Section 202(a)

Section 202(a) of the Clean Air Act (“CAA”) provides that:

[t]he Administrator shall prescribe standards applicable to the emission of any class or classes of new motor vehicles or new motor vehicle engines, which is his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.

As EPA noted in *Regulating Greenhouse Gas Emissions under the Clean Air Act, Advance Notice of Proposed Rulemaking*, 73 Fed. Reg. 44354, 44419-20 (Jul. 30, 2008) (hereafter, “ANPR”), the Endangerment Finding language in Section 202(a) is very similar to Endangerment Finding provisions in other CAA provisions applicable to both stationary and other mobile sources. Hence, an Endangerment Finding in the context of Section 202(a) will inevitably result in similar Endangerment Findings under these other provisions for other sources, as it cannot seriously be argued that new motor vehicle GHG emissions endanger public health or welfare but GHG emissions from other significant sources do not.

The Endangerment Finding Proposal preamble and the accompanying Technical Support Document (“TSD”), EPA-HQ-OAR-2009-0137, present a lengthy discussion of global warming science showing that, in EPA’s view: (a) emissions of GHGs contribute to what EPA describes as elevated atmospheric concentrations of these substances and (b) these elevated concentrations constitute “air pollution” endangering both public health and welfare. The analysis, however, does not discuss the public health or welfare benefits of the processes that produce the emissions. For purposes of Section 202(a), this process would be the combustion of gasoline or other transportation fuel in new motor vehicles. For purposes of other CAA provisions with similar Endangerment Finding triggers, the processes would be the combustion of fossil fuel for electric generation, manufacturing, industrial production or a myriad of other activities, or it could be non-combustion activity such as the emission of methane by coal mines, agriculture or municipal solid waste facilities, the production of nitrous oxides in various agricultural operations, the use of chlorofluorocarbons for refrigeration, and many others.

EPA’s decision to limit its analysis to the perceived detrimental aspects of emissions after they enter the atmosphere – as opposed to the possible positive aspects of emissions because of the processes that create the emissions – is based on EPA’s overly narrow interpretation of both the meaning of the term “emission” in Section 202(a) (and therefore in other Endangerment Finding provisions) and the intent of these provisions. Interestingly, although the Endangerment Finding Proposal preamble presents a lengthy discussion of Section 202(a)’s phraseology, with particular emphasis on the terms “in his judgment,” “contribute,” and “may reasonably be anticipated to endanger,” the preamble offers no interpretation at all of the word “emission.”

Logically, it makes little sense to limit the definition of the term “emission” to only the “air pollutants” that are emitted. Obviously, GHGs are emitted for a reason; they are the inevitable byproduct of the combustion of fossil fuels for energy or the end result of some other

process. For this reason, when EPA assesses whether the emission of GHGs endanger public health and welfare, EPA must assess the dangers and benefits on both sides of the point where the emissions occur: in the atmosphere where the emissions lodge and, on the other side of the emitting stack or structure, in the processes that create the emissions. Otherwise, EPA will not be able to accurately assess whether the fact that society emits GHGs is a benefit or a detriment.

This broader definition of the term “emission” comports with the prophylactic purposes of the CAA. As the regulatory preamble notes, the *en banc* panel in *Ethyl Corp. v. EPA*, 541 F.2d 1, 13 (D.C. Cir. 1976), stated that “a statute allowing for the regulation of danger is, necessarily, a precautionary statute.” Similarly, as the preamble also notes, the House Committee that proposed the current version of the Section 202(a) endangerment finding language also referred to the “preventive or precautionary nature of the Act.” H.R. Rep. 95-294 at 49. But, as *Ethyl Corp.* concluded, in exercising precaution in the assessment of possible endangerment, the Administrator must “act, in part on ‘factual issues,’ but largely on choices of policy....” *Ethyl Corp.*, 541 F.3d at 29. Indeed, the preamble itself emphasizes that:

[t]hroughout this Notice the judgments on endangerment and cause or contribute are described as a finding or findings. This is for ease of reference and is not intended to imply that the Administrator’s exercise of judgment in applying the scientific information to the statutory criteria is solely a factual finding; while grounded squarely in the science of climate change, *these judgments also embody policy considerations.*

74 Fed. Reg. at 18892, n.10 (emphasis supplied).

The necessity for exercising policy judgment in acting in a precautionary fashion reflects the fact that determining the proper quantum of precaution in a particular case requires a balancing of risks and benefits in a broad sense. Obviously, over-caution creates its own health and welfare risks. As Justice Breyer stated in his concurring opinion in *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457, 495-496 (2001) (Breyer, concurring), “a world that is free of all risk – [would be] an impossible and undesirable objective.” And as the Endangerment Finding Proposal preamble states, the purpose of such a finding is to review “the totality of the circumstances” to determine “whether the emissions ‘*justify regulation*’ under the CAA.” 74 Fed. Reg. at 18892/3 (emphasis supplied).

If, as EPA says, the basic purpose of the Endangerment Finding is to assess all risks and benefits of emissions in order to arrive at a policy judgment of the proper amount of precaution that justifies regulation in a particular case, that purpose cannot be fulfilled if EPA only looks at the atmospheric impacts of emissions, and ignores the health and welfare reasons why the emissions occur in the first place. Without a full view of the balance of health and welfare factors that relate to emissions, EPA could find that society would be better off without GHG emissions, when a balanced analysis might yield the opposite conclusion.

The prospect of GHG regulation provides a particularly compelling illustration of the need for a balanced approach in assessing possible endangerment. As the regulatory preamble states, in somewhat of an understatement, “[t]he Administrator recognizes that the context for this action is unique.” *Id.* at 18890/3. And, as the Intergovernmental Panel on Climate Change

(“IPCC”), a source on which EPA relies extensively, has noted, “[e]missions of GHGs are associated with an extraordinary array of human activities.” IPCC, *Climate Change 2001: Mitigation* (“IPCC 2001”), at 608, available at <http://www.ipcc.ch/>. Eighty-five percent of energy in the United States is derived from the combustion of fossil fuel. As a result, according to EPA, “[v]irtually every sector of the U.S. economy is either directly or indirectly a source of GHG emissions.” 68 Fed. Reg. at 52,928.

Because GHG emissions, particularly CO₂ emissions, are so closely tied with all facets of modern life, a finding that GHG emissions endanger public health and welfare is akin to saying that modern life endangers public health or welfare. That may be true in some sense, but the necessary rejoinder is: compared to what? Certainly not as compared with pre-industrial society with pre-industrial levels of atmospheric GHG concentrations. To again quote Justice Breyer’s concurring opinion in *Am. Trucking Ass’n*s, “[p]reindustrial society was not a very healthy society; hence a standard demanding the return of the Stone Age would not prove ‘requisite to protect the public health.’” 531 U.S. at 496. Thus, although EPA would presumably conclude that pre-industrial society would not pose a health and welfare danger in terms of GHG emissions, the lack of industrial activity that causes GHG emissions would pose other, almost certainly more serious health and welfare consequences.

Finally, the broader assessment of health and welfare impacts that Peabody believes is required by Section 202(a) and other Endangerment Finding provisions of the CAA does not mean that EPA is without power to conduct a full assessment of the health and welfare impacts caused by potential climate change. To the contrary, such an assessment is a fundamental part of endangerment analysis. Nor does Peabody maintain that, on balance, EPA could not find that GHG emissions endanger the public health or welfare. EPA, for instance, might find that the risks of what EPA might see as potentially catastrophic climate change outweigh the benefits accruing from energy production and other processes that result in the emission of GHGs. Or EPA might find that the risks to society of unabated GHG emissions outweigh the risks to society of some level of abated GHG emissions. EPA undoubtedly has some discretion in weighing these factors, assuming it marshaled sufficient scientific information in support of its conclusions, a matter on which Peabody does not comment here.

But what EPA cannot do, consistent with Section 202(a) and other Endangerment Finding provisions of the CAA, is to ignore the public health and welfare benefits that cause society to emit GHGs – to, in effect, pretend that a possible scenario exists where GHGs are not emitted at all and modern life continues. Such a scenario does not exist, and to assume that it does is to ignore the purpose for which EPA is called on to assess endangerment, which is to duly protect society against real-world risk.

B. EPA Arbitrarily Failed to Conduct a Full Risk Analysis

EPA confounds its failure to conduct a full endangerment assessment under Section 202(a) by failing to conduct a Regulatory Impact Analysis under Executive Order 12866, to produce the analyses called for by the Regulatory Flexibility Act, 5 U.S.C. § 601 *et seq.*, and the Unfunded Mandates Reform Act, 2 U.S.C. §§ 1531-38, and otherwise to fully assess the risks that will inevitably flow from an Endangerment Finding. Such an analysis would permit the Agency to obtain a fuller understanding of its decision to find that GHGs endanger the public

health or welfare. Peabody urges EPA to conduct these analyses now, before finalizing its Endangerment Finding Proposal.

EPA states that it did not undertake a full risk and cost/benefit analysis because, in the Administrator's view, the Endangerment Finding does not impose any regulatory requirements. 74 Fed. Reg. at 18909/1-2. Although Peabody agrees that the Endangerment Finding does not itself require action by private entities, EPA has plainly stated that the Endangerment Finding imposes a legal obligation on EPA to impose such requirements. Thus, an Endangerment Finding will represent a legally binding commitment by EPA to regulate, and it should therefore have been accompanied by a complete statement of the risks and dangers posed by such commitment.

EPA's failure to conduct the proper risk analysis at this time apparently stems from the Agency's decision to bifurcate the Endangerment Finding and GHG rulemaking processes. But, as EPA states, "[t]ypically, the endangerment and cause or contribute findings have been proposed concurrently with proposed standards under various sections of the CAA." *Id.* at 18888/3. In fact, to Peabody's knowledge, EPA has never proposed an Endangerment Finding without also proposing regulations. Separating the Endangerment Finding Proposal from the proposed regulations makes little sense for a number of reasons, not the least of which is the failure to assess the relative risks of the regulation/no-regulation scenarios at the time the decision to regulate is made. In contrast, in both rulemakings that EPA cites where the Endangerment Finding and regulations occurred concurrently, EPA provided a detailed discussion of the costs and benefits of regulation. *See* rulemakings cited at *id.*

EPA's departure from precedent here is particularly egregious given the large consequences GHG regulation could have throughout the economy if EPA makes an Endangerment Finding. For the reasons discussed above, this regulation will apply not just to new motor vehicles but will also necessarily apply to numerous other mobile and stationary sources. Yet EPA proposes to commit itself to such regulation without knowing whether the public health and welfare dangers of regulation outweigh the corresponding dangers of non-regulation, and without even knowing the regulatory actions it will take. Indeed, as EPA is well aware, a number of environmental parties believe that simply finalizing the Endangerment Finding will confirm their view that CO₂ is a regulated pollutant for purposes of the New Source Review/Prevention of Significant Deterioration programs, potentially triggering very large consequences for sources with the potential to emit at least 250 tons per year of that substance.

Given the enormity of the economic and public health and welfare consequences that will flow from an EPA commitment to GHG regulation through an Endangerment Finding, it is arbitrary and capricious – and seriously misguided public policy – for EPA not to produce a full risk assessment at this time. If, as EPA says, the Endangerment Finding does not itself impose GHG-emission reduction requirements, then the Agency should not be in a rush to make such a finding in advance of promulgation of actual regulation. EPA therefore has time to produce the necessary public health and welfare and economic analyses before, rather than after, committing to regulation.

An Office of Management and Budget ("OMB") memorandum submitted in the docket here also emphasized the desirability of conducting the appropriate risk analysis at the time the

decision to regulate is made. *See* EPA–HQ–OAR–2009-01241. Although the Memorandum is undated and not attributed to a specific author, OMB states that it was developed as part of the interagency review process on the Endangerment Finding Proposal and represents “a conglomeration of counsel we've received from various agencies.” *OMB Memo: Serious Economic Impact Likely From EPA CO₂ Rules*, Dow Jones Newswires, May 12, 2009.

As stated in the Memorandum:

an endangerment finding under section 202 may not be the most appropriate approach for regulating GHGs. Making the decision to regulate CO₂ under the CAA for the first time is likely to have serious economic consequences for regulated entities throughout the U.S. economy, including small businesses and small communities. Should EPA later extend this finding to stationary sources, small businesses and institutions would be subject to costly regulatory programs such as New Source Review.

Memorandum at 2.

Consistent with this view, the Memorandum states that the Endangerment Finding should include “additional information on benefits, costs, and risks (where this information exists); meeting appropriate standards for peer review; and accepted research protocols.” *Id.* at 1. The Memorandum recommended that EPA address costs, benefits, and risks,” including the following:

- Methodology or methodologies used for weighing risks and various outcomes and the risks associated with each;
- Confidence intervals related to model results at the regional and local scales;
- Underlying assumptions of findings, publications on which the findings are based, and “business-as-usual” scenarios;
- Quality and homogeneity of temperature data from surface networks that may affect estimates of past temperature trends, and calibration and verification of models;
- Impacts of climate change on the value of net economic benefits.

Id. at 1-2. Absent such information, the Memorandum recommended that the “Finding should also acknowledge that EPA has not undertaken a systematic risk analysis or cost-benefit analysis.” *Id.* at 2.

It is not clear whether the Memorandum was written before or after the Endangerment Finding Proposal was written, although the fact that it was developed as a part of the interagency review process suggests that it was written before the Endangerment Finding Proposal and was provided to EPA for the Agency’s consideration as a part of development of that finding. It is, therefore, disturbing that EPA did not refer to the Memorandum in the Endangerment Finding

Proposal. EPA, obviously, cannot, consistent with law or sound public policy, ignore the views of others in the federal government.

In any event, the OMB Memorandum is correct: given the magnitude of the decision to which EPA proposes to commit itself, the comprehensive analysis of the decision should be made now, not later.

C. EPA's Reason for Refusing to Consider Adaptation in its Endangerment Analysis is Illogical

Although EPA recognizes that harmful climate change effects may potentially be mitigated through adaptation, it nevertheless refused to consider adaptation in its analysis. EPA concluded that the potential for society to adapt to climate change is relevant to endangerment analysis only insofar as it demonstrates that GHG emissions will harm public health and welfare by forcing society to adapt.

This conclusion, however, is illogical because the effects of climate change, the emissions that are thought to produce that climate change and adaptation are all inextricably linked. EPA's predictions of deleterious climate change effects are based on 100-year projections of global GHG emissions, and these emissions scenarios of course are dependent on 100-year projections of global economic activity that will create the emissions. Over such a long period, the climate effects on health and welfare and the underlying economic activity thought to cause those effects cannot be separated. If climate effects occur, economic activity will unfold much differently over time than if climate effects do not occur. Society will either adapt – which will lower or eliminate the public health and welfare consequences as compared with EPA's no-adaptation scenario – or society will reduce emissions, which will moderate or eliminate the climate change that causes the public health and welfare effects – or society will do both. What will not occur, however, is the scenario EPA posits, where society continues over 100 years to emit GHGs and (in EPA's view) suffers devastating climate change effects without either lowering emissions or adapting.

Of course, there may be costs in the adaptation or emission-reduction scenarios, but those costs will by definition be lower than the climate change costs EPA presents (otherwise, society would not adapt or lower emissions). And since the purpose of an endangerment analysis is to determine both whether emissions endanger public health and welfare and the amount of such endangerment, the more appropriate analysis would be for EPA to consider adaptation over the next 100 years, as opposed to EPA's scenario of considering a future that will not occur.

**IV. GHG Emissions Are Associated with Significant, Positive
Health and Welfare Effects**

The Endangerment Finding 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 Endangerment Finding 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.

Professor Clemente's attached report places this issue in historical context and shows the dramatic health and welfare benefits created by fossil fueled-energy usage, particularly as a result of the large-scale introduction of electricity. As he shows, 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.

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 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

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.

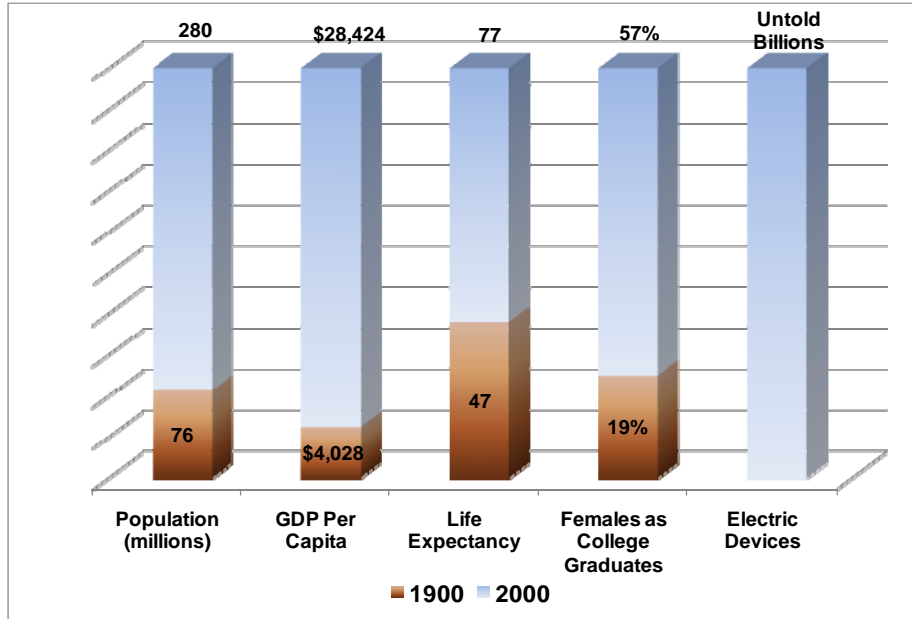
Economic

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.

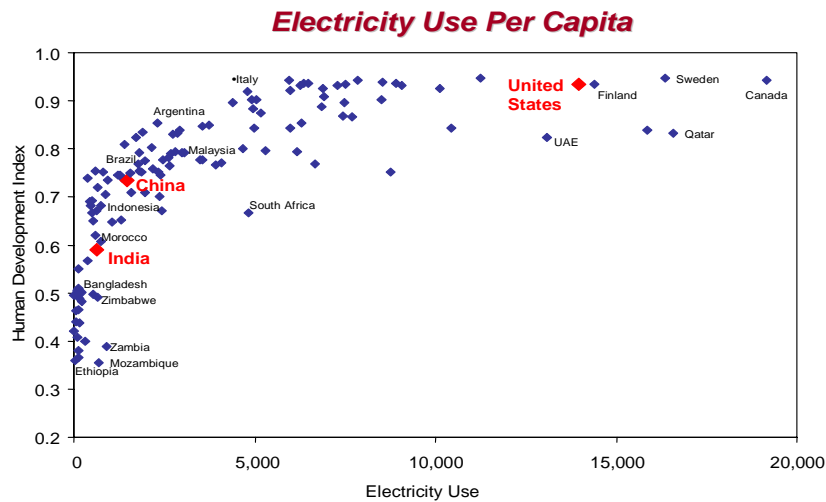
The benefits provided from electricity could not have been made possible without the use of fossil fuels. Consumers prefer low cost, reliable power and producers who provide these services prosper. The fact that the U.S. economy currently derives 85% of its total energy from coal, oil and natural gas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

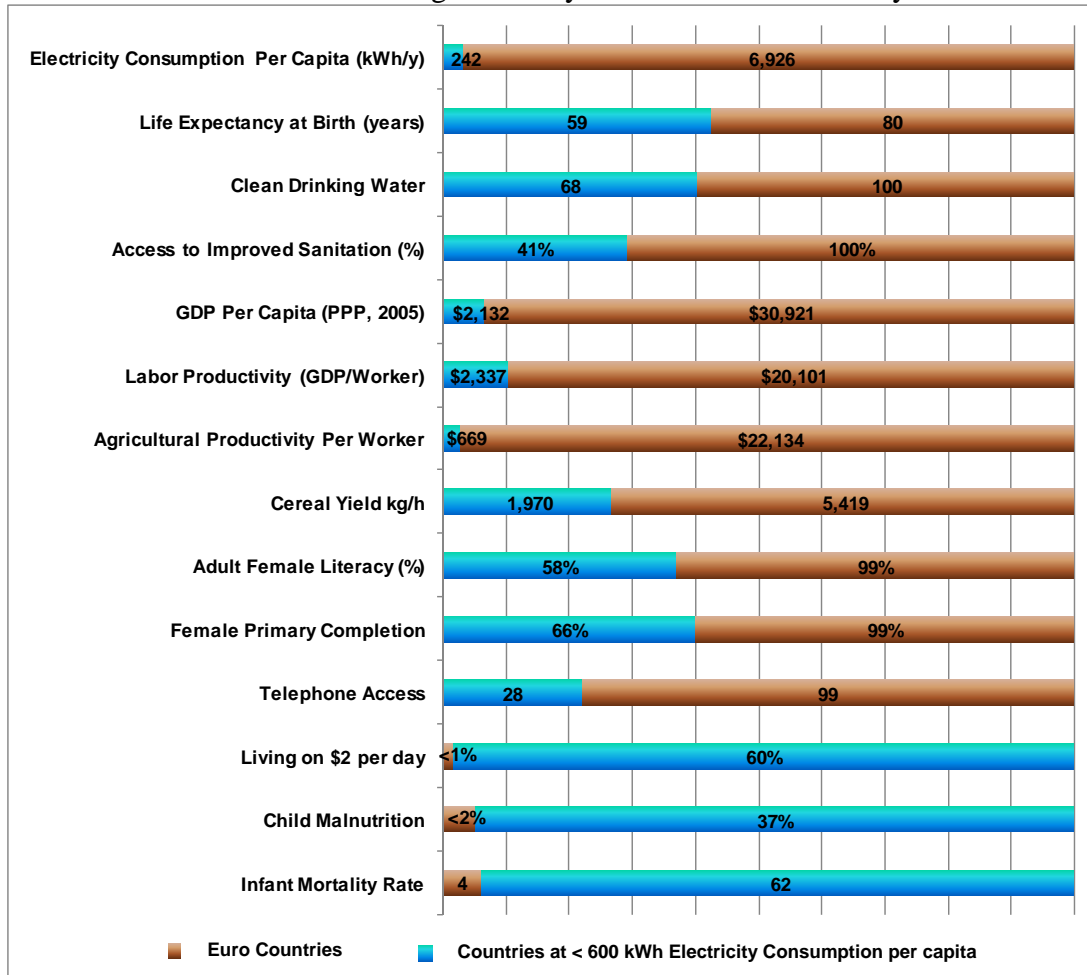


Source: International Energy Agency, World Energy Outlook 2005.

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, the Clemente report compares 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

V. EPA Fails to Adequately Assess the Carbon Fertilization Effect

Perhaps the most pressing health and welfare issue in the world today is the need for a second green revolution to feed the ever-increasing world population without using ecologically sensitive land for agriculture. The United Nations has called for a doubling of food production by 2030 in order to meet rising demand. *See* http://news.bbc.co.uk/2/hi/in_depth/7432583.stm.

The Endangerment Finding Proposal, however, barely scratches the surface with regard to the effect increased atmospheric concentrations of CO₂ may have on increasing food production through the carbon fertilization effect. Document EPA-HQ-OAR-2008-0318-1504.1 discusses in great detail the ever-increasing number of peer-reviewed studies showing the benefits of increased CO₂ on plant productivity in general, including agricultural crops. EPA does not even mention this material in its analysis. Peabody hereby resubmits this document in the record here.

As the document shows, increased levels of CO₂ have a positive effect on the productivity of major crops grown for food across the world, including maize, peanuts, potatoes, rice, sorghum, soybeans, tomatoes, and wheat. Positive productivity effects were also found for other important agricultural crops, including alfalfa, cotton, and sunflowers. Other positive effects include better water use efficiency, amelioration of environmental stresses, acclimation, resistance to competition and respiration. Benefits were also found for a variety of woody plants, including fruit-bearing trees. EPA cannot provide a balanced discussion of the potential health and welfare effect of increased levels of CO₂ in the atmosphere while ignoring these studies.

VI. Conclusion

Peabody urges EPA to take a more balanced view of the public health and welfare and to consider the overwhelmingly positive consequences to society that have resulted and will continue to result from the types of activity – and particularly the production of electricity – that create GHG emissions. Peabody is confident that the result of such a balanced view will be a finding of non-endangerment.

Dated: June 23, 2009

Respectfully submitted,

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