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Environmental Protection Agency

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

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

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Thank you for the opportunity to comment on Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, Docket ID No.EPA-HQ-OAR-2011-0660.

I write on behalf of The Cornwall Alliance for the Stewardship of Creation to voice our opposition, for the reasons below, to the carbon-dioxide endangerment finding and regulations, past and future, predicated on it, including those limiting carbon-dioxide emissions from power plants.

A non-profit religious, charitable, and educational organization, the Cornwall Alliance is a coalition of evangelical theologians, pastors, ministry leaders, scientists, economists, policy experts, and committed laymen promoting environmental stewardship and economic development built on Biblical principles. Our network of some sixty scholars is roughly evenly divided among theologians/pastors, scientists, and economists. Hundreds of other scholars and thousands of laymen have endorsed statements we have issued on environmental stewardship and, particularly, climate change. Our mission is to magnify the glory of God in creation, the wisdom of His truth in environmental stewardship, the kindness of His mercy in lifting the needy out of poverty, and the wonders of His grace in the gospel of Jesus Christ.

In December, 2010, we published *A Renewed Call to Truth, Prudence, and Protection of the Poor: An Evangelical Examination of the Theology, Science, and Economics of Global Warming* (<http://www.cornwallalliance.org/docs/a-renewed-call-to-truth-prudence-and-protection-of-the-poor.pdf>), a 76-page study by 29 expert authors and reviewers, including expert reviewers for the United Nations Intergovernmental Panel on Climate Change. In the Executive Summary of that paper, we wrote:

- **Our examination of theology, worldview, and ethics** (Chapter One) finds that global warming alarmism wrongly views the Earth and its ecosystems as the fragile product of chance, not the robust, resilient, self-regulating, and self-correcting product of God's wise design and powerful sustaining. It rests on and promotes a view of human beings as threats to Earth's flourishing rather than the bearers of God's image, crowned with glory and honor, and given a mandate to act as stewards over the Earth—filling, subduing, and ruling it for God's glory and mankind's

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benefit. It either wrongly assumes that the environment can flourish only if humanity forfeits economic advance and prosperity or ignores economic impacts altogether. And in its rush to impose draconian reductions in greenhouse gas emissions, it ignores the destructive impact of that policy on the world's poor.

- **Our examination of the science** of global warming (Chapter Two) finds that global warming alarmism wrongly claims that recent temperature changes have been greater and more rapid than those of the past and therefore must be manmade, not natural. It exaggerates the influence of manmade greenhouse gases on global temperature and ignores or underestimates the influence of natural cycles. It mistakenly takes the output of computer climate models as evidence when it is only predictions based on hypotheses that must be tested by observation. It falsely claims overwhelming scientific consensus in favor of the hypothesis of dangerous manmade warming (ignoring tens of thousands of scientists who disagree) and then falsely claims that such consensus proves the hypothesis and justifies policies to fight it. It seeks to intimidate or demonize scientific skeptics rather than welcoming their work as of the very essence of scientific inquiry: putting hypotheses to the test rather than blindly embracing them.
- **Our examination of the economics** of global warming alarmism (Chapter Three) finds that it exaggerates the harms from global warming and ignores or underestimates the benefits not only from warming but also from increased atmospheric carbon dioxide. It grossly underestimates the costs and overestimates the benefits of policies meant to reduce carbon dioxide emissions. It exaggerates the technical feasibility and underestimates the costs of alternative fuels to replace fossil fuels in providing the abundant, affordable energy necessary for wealth creation and poverty reduction. It ignores the urgent need to provide cleaner energy to the roughly two billion poor in the world whose use of wood and dung as primary cooking and heating fuels causes millions of premature deaths and hundreds of millions of debilitating respiratory diseases every year. It fails to recognize that the slowed economic development resulting from its own policies will cost many times more human lives than would the warming it is meant to avert.
- In light of all these findings, **we conclude** that
 - human activity has negligible influence on global temperature,
 - the influence is not dangerous,
 - there is no need to mandate the reduction of greenhouse gas emissions, and
 - environmental and energy policy should remove, not build, obstacles to the abundant, affordable energy necessary to lift the world's poor out of poverty and sustain prosperity for all.

On the basis of our *Renewed Call to Truth*, we issued *An Evangelical Declaration on Global Warming* (<http://www.cornwallalliance.org/articles/read/an-evangelical-declaration-on-global-warming/>), which stated:

As governments consider policies to fight alleged man-made global warming, evangelical leaders have a responsibility to be well informed, and then to speak out. *A Renewed Call to Truth, Prudence, and Protection of the Poor: An Evangelical Examination of the Theology, Science, and Economics of Global Warming* demonstrates that many of these proposed policies would destroy jobs and impose trillions of dollars in costs to achieve no net benefits. They could be implemented only by enormous and dangerous expansion of government control over private life. Worst of all, by raising energy prices and hindering economic development, they would slow or stop the rise of the world's poor out of poverty and so condemn millions to premature death.

WHAT WE BELIEVE

1. We believe Earth and its ecosystems—created by God’s intelligent design and infinite power and sustained by His faithful providence —are robust, resilient, self-regulating, and self-correcting, admirably suited for human flourishing, and displaying His glory. Earth’s climate system is no exception. Recent global warming is one of many natural cycles of warming and cooling in geologic history.
2. We believe abundant, affordable energy is indispensable to human flourishing, particularly to societies which are rising out of abject poverty and the high rates of disease and premature death that accompany it. With present technologies, fossil and nuclear fuels are indispensable if energy is to be abundant and affordable.
3. We believe mandatory reductions in carbon dioxide and other greenhouse gas emissions, achievable mainly by greatly reduced use of fossil fuels, will greatly increase the price of energy and harm economies.
4. We believe such policies will harm the poor more than others because the poor spend a higher percentage of their income on energy and desperately need economic growth to rise out of poverty and overcome its miseries.

WHAT WE DENY

1. We deny that Earth and its ecosystems are the fragile and unstable products of chance, and particularly that Earth’s climate system is vulnerable to dangerous alteration because of minuscule changes in atmospheric chemistry. Recent warming was neither abnormally large nor abnormally rapid. There is no convincing scientific evidence that human contribution to greenhouse gases is causing dangerous global warming.
2. We deny that alternative, renewable fuels can, with present or near-term technology, replace fossil and nuclear fuels, either wholly or in significant part, to provide the abundant, affordable energy necessary to sustain prosperous economies or overcome poverty.
3. We deny that carbon dioxide—essential to all plant growth—is a pollutant. Reducing greenhouse gases cannot achieve significant reductions in future global temperatures, and the costs of the policies would far exceed the benefits.
4. We deny that such policies, which amount to a regressive tax, comply with the Biblical requirement of protecting the poor from harm and oppression.

A CALL TO ACTION

In light of these facts,

1. We call on our fellow Christians to practice creation stewardship out of Biblical conviction, adoration for our Creator, and love for our fellow man—especially the poor.
2. We call on Christian leaders to understand the truth about climate change and embrace Biblical thinking, sound science, and careful economic analysis in creation stewardship.
3. We call on political leaders to adopt policies that protect human liberty, make energy more affordable, and free the poor to rise out of poverty, while abandoning fruitless, indeed harmful policies to control global temperature.

This Declaration was endorsed initially by over 500 evangelicals, including approximately 30 ministry leaders, approximately 60 theologians, philosophers, ethicists, and pastors, 40 scientists, 10 environmental economists, and 15 leaders in Christian higher education.

By referring to these documents and providing their hyperlinks in this letter we include them in their entirety by reference as part of our comments and for insertion in the public record of comments on EPA’s April 24, 2009 Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases

Under Section 202(a) of the Clean Air Act. In particular, the *Renewed Call to Truth* provides documentation for most of the factual assertions in this letter.

The two statements in the *Renewed Call to Truth* and the *Evangelical Declaration on Global Warming* that are the most directly relevant to the endangerment finding are:

1. “human activity has negligible influence on global temperature, the influence is not dangerous, there is no need to mandate the reduction of greenhouse gas emissions” (*Renewed Call*, Executive Summary, p. 2), and
2. “We deny that carbon dioxide—essential to all plant growth—is a pollutant. Reducing greenhouse gases cannot achieve significant reductions in future global temperatures, and the costs of the policies would far exceed the benefits” (*Evangelical Declaration on Global Warming*, What We Deny, point 3).

These statements rest on three lines of evidence and reasoning from three fields of study: worldview (beliefs about fundamental reality), science (the study of the physical universe), and economics (the study of the allocation of scarce resources to competing demands). While we recognize that the EPA will be most interested in the latter two, we believe no investigator can safely ignore the first, for it informs and shapes the trajectory of research agendas and data interpretation in the latter two. While the *Renewed Call to Truth* weaves together a wide variety of theoretical and empirical arguments for its conclusion, and we commend those to your consideration, we shall offer just one line of argument under each field of study here.

Our worldview, as Biblical theists, teaches that Earth and its various ecosystems, including its climate system, are the work, in both origin and continuance, of an omniscient Designer, an omnipotent Creator, and a faithful Sustainer. It would be absurd to think an intelligent architect would design, and a capable contractor would construct, and a faithful manager would maintain a building in such a way that all its feedback mechanisms would magnify rather than reduce any perturbation—such that a relatively tiny influence like someone’s leaning on a wall would set off a positive feedback loop of stresses leading to the building’s collapse. In the same way, it would be absurd to think the omniscient Designer, omnipotent Creator, and faithful Sustainer of Earth and its climate system would design, create, and sustain it such that all its feedback mechanisms would magnify rather than reduce any perturbation such that a relatively tiny influence like an increase in atmospheric carbon-dioxide concentration from *27 thousandths of a percent* to *54 thousandths of a percent* would cause global warming of such magnitude that it would constitute a major threat to human health and prosperity or to the welfare of the rest of Earth’s biosphere.

Our science, particularly of Earth’s climate system, confirms the expectation provided by our worldview. “Climate sensitivity”—defined as the amount of increase to be anticipated from doubled atmospheric carbon-dioxide concentration after climate feedbacks—must be high (on the order of 3+ C°) to cause significant harm to human and other ecosystems. To arrive at such high climate sensitivity, net climate feedbacks must be strongly positive, not weakly positive, let alone negative. However, empirical observation and well-established theory in physics increasingly support the theory that net climate feedbacks not only are not strongly positive but are indeed strongly negative, not magnifying but minimizing the impact of enhanced atmospheric carbon-dioxide on global temperature. Here are some basic numbers behind that claim. It is widely recognized that the direct warming effect of doubled carbon-dioxide in Earth’s atmosphere would be about 1 C° to 1.2 C°. To achieve 3+ C° warming would require, thus, net feedbacks multiplying (magnifying) that direct warming by from 250 percent (from 1.2 C°) to 300 percent (from 1.0 C°). The IPCC acknowledges that our understanding of the magnitude and

often even the sign (positive or negative) of many specific climate feedbacks is poor. However, to arrive at the high climate sensitivity necessary to yield dangerous warming, the computer climate models on which it relies all make assumptions that result in considering the net effect of all the climate feedbacks to be strongly positive. Yet what we already know of the physics that constrain Earth's temperature (narrowly, the Stefan-Boltzmann Law and more broadly the physics of black-body radiation) is the opposite. With no "greenhouse gases," Earth's average surface temperature would be about -18°C . With its greenhouse gas composition as of the early to mid twentieth century, but with no climate feedbacks, it would be about 60°C , the difference being an increase of 78°C . However, Earth *does* have climate feedbacks, and after their effect on the greenhouse warming, Earth's observed average surface temperature is about 15°C , an increase of only about 33°C . This means net climate feedbacks—whatever individual ones might do, whether positively or negatively, whether of large or small magnitude—serve not to magnify but to reduce greenhouse warming, and by a very significant amount: about 58 percent ($33 / 78 = 0.423$; $1 - 0.423 = 0.577$). Applying this finding to the 1.0°C to 1.2°C of direct, pre-feedback warming that can be calculated to result from doubled atmospheric carbon-dioxide results in post-feedback warming not of 3.0°C but of 0.42°C to 0.50°C of increase in global average surface temperature—a magnitude that not only is not dangerous to either human or other ecosystems but is instead largely beneficial.

Our economics finds that the costs of reducing carbon-dioxide emissions would far exceed the benefits, even assuming the IPCC's own projections of high climate sensitivity and consequently high-magnitude warming from doubled atmospheric carbon-dioxide. Simply to forgo the energy provided by fossil fuels would be to plunge the world back into the extreme poverty that characterized almost all of humanity before the Industrial Revolution, when life expectancy at birth was around 27 to 28 years; infant and child mortality rates stood near 50 percent; food, clothing, and shelter were minimal; famines were frequent and severe; diseases went largely untreated; and so, as Thomas Hobbes put it, life was "solitary, poor, nasty, brutish, and short." Reducing total worldwide energy consumption that much would lead quickly and inevitably to mass starvation and make civilization as we know it impossible. Sad to say, attempting to generate that same amount of energy from non-fossil sources—with the exception of nuclear and hydro—would be little better, because their energy density and power density are so much lower, making it inevitable that the cost per unit of energy generated from them must be much higher. The power density of the average natural gas well is 45 times higher than that of wind turbines and 7.9 times higher than that of solar photovoltaic. Coal compares similarly. Consequently, to generate energy from wind or solar requires many times more land and many times more physical materials than to generate the same amount from natural gas or coal. Not only would this drive up energy costs, and therefore all other costs of production and transportation, but also it would greatly increase humanity's ecological "footprint," requiring the conversion of many times more land from its natural state to wind or solar farms. The following table, taken from chapter 3 of our *Renewed Call to Truth*, shows relative costs of generating electricity from different sources:

Index of lifetime generation costs by generating type ^a			
Generating type ^b	Midpoint	Low	High
Waste incineration	1.00	-0.41	5.37
Nuclear	2.70	2.14	7.05
Coal (high quality)	2.80	2.66	7.10
CHP (using coal)	3.43	2.57	4.82
Coal (lignite)	3.45	3.02	6.62
Coal (integrated coal gas)	3.93	2.80	6.07
Biomass	4.28	3.83	10.32
Large-scale hydro	4.66	4.66	8.72

Gas (CCGT)	4.80	3.92	6.43
Gas (open)	4.80	4.80	5.03
CHP (using CCGT)	4.84	2.91	8.31
Wind onshore	5.98	3.19	14.81
Wind offshore	6.90	5.19	12.68
Run of river/small hydro	9.51	4.08	24.85
Solar PV	16.88	12.39	192.75
Solar thermal	17.00	17.00	27.67

^aThe costs include capital costs, operating and maintenance costs, and fuel costs over the lifetime of a power generating plant, discounted to the present and "levelized" over the expected output of the generating source over its lifetime. The midpoint value is based on a 5% discount rate, as is the low value (except in the case of high quality coal); the high value is derived using a 10% discount rate.

^bOpen-cycle gas turbines lose exhaust heat but are therefore able to respond quickly to changes in demand; closed-cycle gas turbines (CCGT) recycle exhaust heat, but this makes such plants suitable for base-load power and more difficult to ramp up and down. Combined heat and power (CHP) occurs when exhaust heat from space heating is used to generate power; such power is usually available at night and in colder climates.

As economic history and present observation clearly show, wealth enables people to adapt to and thrive in a wide variety of climates, from the frigid Arctic to the torrid Tropics, from dry deserts to wet rainforests, from below-sea-level valleys to high-altitude mountains. But depriving people of energy means depriving them of the wealth that makes such adaptation and thriving possible, which in turn means condemning them to poverty and the high rates of disease and premature death that inevitably accompany it.

Yet treating carbon-dioxide as a dangerous pollutant, and on that basis instituting regulations that will have the practical effect of shutting down scores or hundreds of coal-fired power plants and preventing the construction of new ones, leads to precisely that result, as demonstrated in another of the Cornwall Alliance's studies, *The Cost of Good Intentions: The Ethics and Economics of the War on Conventional Energy* (http://www.cornwallalliance.org/docs/Cost_of_Good_Intentions_1.pdf; by referring to this document and providing its hyperlink, we include it by reference in our comments and for the public record). Instead, we must recognize it as the beneficial natural compound it truly is—a compound essential to all life, since plants use it in photosynthesis to produce fiber, and animals and human beings depend, whether directly or indirectly, on plants for their food. Since every doubling of atmospheric carbon-dioxide concentration produces, on average, about 35 percent increase in plant growth efficiency (causing plants to grow better in hotter and colder temperatures, in wetter and drier soils, and at higher and lower altitudes and latitudes, and making them more resistant to disease and pests), increasing atmospheric carbon-dioxide is actually a great boon not only to humanity (by increasing crop yields) but also to all other life on Earth.

In light of all these considerations, we strongly reject the belief that carbon-dioxide is a dangerous pollutant under the definitions of the Clean Air Act and urge the EPA not to implement and enforce but to vacate the endangerment finding and all regulations predicated on it.

Sincerely,



E. Calvin Beisner, Ph.D.

Founder and National Spokesman, on behalf of The Cornwall Alliance

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