



**Competitive Enterprise Institute**  
**1001 Connecticut Ave NW • Suite 1250 • Washington, DC 20036**  
**202.331.1010 • www.cei.org**  
**Advancing Liberty – From the Economy to Ecology**

January 18, 2005

NJ Department of Environmental Protection  
Alice A. Previte, Esq.  
ATTN: DEP Docket No. 21-04-09/476  
Office of Legal Affairs  
PO Box 402  
Trenton, New Jersey 08625-0402

Dear Ms. Previte:

On behalf of the Competitive Enterprise Institute, a non-profit public policy organization headquartered in Washington, D.C., I am pleased to submit this comment on the New Jersey Department of Environmental Protection's (DEP) proposed rule, *Reclassification of CO<sub>2</sub> as an Air Contaminant* (PRN 2004-399).

### **I. Introduction**

DEP proposes to revise its regulatory definitions so that carbon dioxide (CO<sub>2</sub>) is removed from the category of "distillates of air" and reclassified as an "air contaminant" (pp. 3-4). This change in CO<sub>2</sub>'s status "is a regulatory prelude to anticipated future regulatory adoption of a Model Rule proposed through the Regional Greenhouse Gas Initiative (RGGI)," culminating in a Northeast/Mid-Atlantic "regional CO<sub>2</sub> cap-and-trade program" (p. 5).

DEP believes that regulating CO<sub>2</sub> is in the “best interest of human health, welfare, and the environment” (p. 5). I respectfully disagree. A carbon cap-and-trade program would make energy scarcer and less affordable, adversely affecting economic output, job creation, and household income. Because wealthier is healthier and richer is safer, cap-and-trade has a high potential to harm public health and welfare. The environmental benefits of a regional trading program, if any, would be so miniscule as to be undetectable.

The proposed rule is a conceptual muddle. Logically, DEP cannot classify CO<sub>2</sub> as an “air contaminant” unless it is prepared to apply the same designation to water vapor—the atmosphere’s main greenhouse gas. Presumably, DEP has no intention to “cap” steam from nuclear power plants, or evaporation from public green spaces, but it should be aware of the regulatory folly that its argument implicitly demands.

More importantly, the proposed rule lacks a credible scientific rationale. There is no solid evidence that CO<sub>2</sub> emissions are causing, or are likely to cause, “dangerous interference” with the global climate system. On the contrary, the balance of evidence suggests that CO<sub>2</sub> emissions are *greening* the planet, enhancing biodiversity and global food availability.

Even if DEP’s scientific premises were correct, the RGGI cap-and-trade program would have no discernible effect on global climate change. Thus, any DEP-administered CO<sub>2</sub> regulatory program is bound to fail a rudimentary cost-benefit test.

## **II. The Proposed Rule Is Conceptually Incoherent**

DEP describes the proposed rule as a “clarification” (p. 5). In reality, it is a conceptual muddle. Logically, DEP cannot classify CO<sub>2</sub> as an “air contaminant” unless it is prepared to apply the same designation to water vapor—the atmosphere’s main greenhouse gas. Yet DEP selectively, and inconsistently, targets CO<sub>2</sub> only, leaving water vapor’s regulatory status unchanged.

This is incoherent, and not only because hypothetical increases in water vapor account for the lion’s share of atmospheric warming in most climate models. As DEP acknowledges, both water vapor and carbon dioxide “must be removed from air prior to cryogenic fractional distillation, since these substances freeze at low temperatures and would damage distillation plant components”; hence, technically speaking, neither water vapor nor carbon dioxide is a “distillate of air” (p. 20).

DEP presumably has no intention to “cap” steam from nuclear power plants, or evaporation from reservoirs, suburban lawns, or public green spaces. Nonetheless, DEP should be aware of the regulatory folly that its argument implicitly demands.

## **III. The Proposed Rule Lacks a Credible Scientific Rationale**

The proposed rule assumes the validity of the theory of catastrophic global warming. However, there is no solid evidence that CO<sub>2</sub> emissions are causing, or are likely to cause, “dangerous interference” with the global climate system. Therefore, the proposed rule lacks a credible scientific rationale.

### Temperature Projections

To justify its proposed classification of CO<sub>2</sub> as an “air contaminant,” DEP cites the Intergovernmental Panel on Climate Change’s (IPCC) claim that the ongoing rise in the atmosphere’s CO<sub>2</sub> content will increase average global temperatures by 1.4°C to 5.8°C (2.5°F to 10.4°F) during the period from 1990 to 2100 (p. 9). However, the IPCC’s warming projections derive from highly questionable emissions scenarios.

As distinguished economists Ian Castles and David Henderson discovered, the IPCC emission scenarios assume wildly implausible rates of economic growth. For example, in the IPCC scenario with the *lowest* cumulative emissions and *lowest* temperature increase, per capita GDP in 2100 is more than 70 times 1990 levels in Asian developing countries and nearly 30 times 1990 levels in the rest of the developing world. These growth assumptions would be unrealistic even in a high-emissions scenario. As Dr. Castles points out, “No significant country has ever achieved a 20-fold increase in output per head in a century, let alone the 30-fold or 70-fold increases projected by the IPCC for most of the world’s population.”<sup>1</sup> Inflated growth projections lead to overblown emission scenarios, which in turn lead to overheated warming projections.

DEP also cites (p. 12) the Bush Administration’s *Climate Action Report, 2002 (CAR)*, which incorporates the scary 3-5°C (5-9°F) warming projection of the Clinton Administration’s report, *U.S. National Assessment on the Potential Consequences of Climate Variability and Change*. This estimate, too, has no credibility. The National Assessment team relied on two outlier climate models—the “hottest” and “wettest” out of some 26 models available at the time. Worse, as University of Virginia Environmental Science Professor Patrick Michaels discovered, and National Oceanic and Atmospheric Administration scientist Thomas Karl confirmed, the two underlying models—British and Canadian—were incapable of replicating past U.S. temperature trends regardless of the averaging period used (five-year, 10-year, or 25-year).<sup>2</sup>

Models that cannot hind-cast past climate cannot be trusted to forecast future climate. As with the IPCC’s warming projections, the National Assessment’s warming projections are too dubious to serve as a basis for public policy.

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<sup>1</sup> Ian Castles, “Greenhouse emissions calculations quite wrong,” *Canberra Times*, August 29, 2002, available in Castles, I. and Henderson, D. 2003: The IPCC Emission Scenarios: An Economic-Statistical Critique, *Energy & Environment* Nos. 2 & 3: 166-168.

<sup>2</sup> Testimony of Patrick Michaels, *The U.S. National Climate Change Assessment: Do the Climate Models Project a Useful Picture of Regional Climate?* House Energy and Commerce Subcommittee on Oversight and Investigations, July 25, 2002.

The U.S. Government has spent well over \$10 billion on climate modeling studies. What is the most critical insight to emerge from this massive investment? Although climate models differ in many of their inputs and outputs, nearly all models predict that, once anthropogenic global warming starts, the atmosphere warms at a constant rather than accelerating rate.<sup>3</sup> The planet's surface appears to have warmed 0.17°C per decade since 1976.<sup>4</sup> The lower to mid-troposphere—the layer of air from about one to five miles up—has warmed 0.08°C per decade since 1979, according to both satellite<sup>5</sup> and weather balloon<sup>6</sup> measurements.

Thus, even under the questionable assumption that all recent warming is due to man-made greenhouse gases, with no help from urban heat islands, solar variability, or other natural climate oscillations (see the following subsection), the linear form of model projections implies that the world will warm 0.8°C to 1.7°C over the next 100 years.

A 21<sup>st</sup> century warming in that range, especially when combined with the boost in crop and forest productivity from an atmosphere richer in plant food (i.e., carbon dioxide), would likely have a small but beneficial impact on the U.S. economy.<sup>7</sup> Reasonable projections of future warming provide no warrant for classifying CO<sub>2</sub> as an “air contaminant” or for restricting New Jerseyans’ access to carbon-based energy.

### Attribution

In support of the view that the Earth's climate is highly sensitive to increases in the air's CO<sub>2</sub> content, DEP quotes the IPCC's *Summary for Policymakers*: “In light of the new evidence and taking into account the remaining uncertainties, most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas emissions” (pp. 9-10).

Here, again, DEP is too willing to take the IPCC's conclusions on faith. A significant portion of the warming of recent decades is due to the heat effects of urbanization and other land-use changes. Despite the IPCC's protestations to the contrary, the upward bias from these widespread local heat effects has not been adequately filtered out of 20<sup>th</sup> century land surface temperature records.<sup>8</sup> For example, one recent study finds “strong observational evidence that the degree of industrialization is correlated with surface temperature,” leading the authors to conclude that “the observed surface temperature

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<sup>3</sup> Michaels et al. 2002. Revised 21<sup>st</sup>-century temperature projections. *Climate Research* 23:1-9.

<sup>4</sup> IPCC, *Climate Change 2001: The Scientific Basis*, p. 115.

<sup>5</sup> Dr. John Christy, Global Temperature Report: November 2004, December 08, 2004, <http://www.globalwarming.org/articlephp?uid=855>.

<sup>6</sup> Angell, J.K. 2003. Global, hemispheric, and zonal temperature deviations from radiosonde records. Trends Online: A Compendium of Data on Global Change. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, U.S.A.

<sup>7</sup> Mendelsohn, R. and Neumann, J.E. *The Impact of Climate Change on the United States Economy* (Cambridge, MA: Cambridge University Press, 1999).

<sup>8</sup> McKittrick, R. and Michaels, P.J. 2004. A test of corrections for extraneous signals in gridded surface temperature data. *Climate Research* 26: 159-173.

changes might be a result of local surface heating processes and not related to radiative greenhouse gas forcing.”<sup>9</sup>

The “new evidence” featured in the IPCC’s *Summary for Policymakers* has two main components: (a) a temperature reconstruction, popularly known as the “Hockey Stick,” which supposedly shows that the warming of the late 20<sup>th</sup> century is unprecedented in the last 1,000 years; and (b) the alleged agreement of climate model projections with observed temperature data. Let’s examine each in turn.

When plotted as a graph, the IPCC’s temperature reconstruction forms a relatively flat, slightly downward-sloping line from 1000 A.D. to 1900 A.D. (the shaft of the Hockey Stick) and a sharply upward-curving line during the 20<sup>th</sup> century, especially the latter decades (the blade of the Hockey Stick). Far from being “settled” science, the Hockey Stick is the subject of intense controversy, particularly as regards its methodological rigor and integrity.<sup>10</sup>

Moreover, a wealth of proxy data confirm the reality of a world-wide Medieval Warm Period (circa 800 AD-1300 AD) when at various times and places North America, Europe, Asia, Africa, and South America were as warm as or warmer than today.<sup>11</sup> Going back even further, ice core data from Antarctica indicate that all four previous interglacial periods were at least 2°C warmer than the present one, while ice core data from Greenland indicate that the last interglacial was a whopping 5°C warmer than today.<sup>12</sup>

Clearly, nature does not require the assistance of CO<sub>2</sub> emissions from SUVs and coal-burning power plants to raise average global temperatures to the level we experience today.

As to the putative agreement between model outputs and observed data, the surface temperature database is not a good test of model predictions, because (as noted above) it partly reflects the warming effects of urbanization and other land-use changes.

More importantly, observations contradict model predictions of a “greenhouse fingerprint” in the vertical distribution of temperature change in the atmosphere. Almost all models project 50-100 percent more warming in the lower to mid-troposphere than at the surface.<sup>13</sup> Satellite and weather balloon data show the opposite has occurred. As

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<sup>9</sup> De Laat, A.T.J. and Maurellis, A.N. 2004. Industrial CO<sub>2</sub> emissions as a proxy for anthropogenic influence on lower tropospheric temperature trends. *Geophysical Research Letters* 31:10.1029/2003GL019024.

<sup>10</sup> Willie Soon and David Legates, “Is the Hockey Stick Broken?” *Tech Central Station*, October 27, 2004, <http://www.techcentralstation.com/102704F.html>.

<sup>11</sup> CO<sub>2</sub>Science.org, see Subject Index for Medieval Warm Period.

<sup>12</sup> CO<sub>2</sub>Science.org, “Nearly a Half a Million Years of Climate and CO<sub>2</sub>,” review of Petit et al. 1999. Climate and atmospheric history of the past 420,000 years from the Vostok ice core, Antarctica. *Nature* 399: 429-436; “A New Ice Core from Greenland,” review of Anderson et al. 2004. High-resolution record of Northern Hemisphere climate extending into the last interglacial period. *Nature* 431: 147-151.

<sup>13</sup> Douglass, David H.; Pearson, Benjamin D.; Singer, S. Fred. 2004. Altitude dependence of atmospheric temperature trends: Climate models versus observations. *Geophys. Res. Lett.*, Vol. 31, No. 13, L1320810.1029/2004GL020103.

mentioned above, since 1979, the troposphere has warmed by about 0.08°C per decade—less than half the rate of the surface.<sup>14</sup>

Much if not all of that slight troposphere warming is attributable to the strong 1997-98 El Niño—a naturally occurring climate oscillation. Similarly, as can be seen in Figure 2.11 on page 118 of the IPCC report, most of the modest 0.037°C per decade rise in top-layer ocean temperature from 1958 to 1998 is attributable to the 1997-98 El Niño and the 1976-77-shift in the Pacific Decadal Oscillation—another natural climate cycle.

The sun's role as a driver of recent surface warming also cannot be ruled out. Solanki et al. (2002) developed a reconstruction of solar magnetic field fluctuations from beryllium-10 isotope concentrations in ice cores drilled in Greenland and Antarctica. They found that the last 60 years were a “period of high solar activity ... unique throughout the past 1150 years.”<sup>15</sup> In other words, the sun was unusually active during very period when the blade of the Hockey Stick rises sharply from the shaft.

In short, land-use changes and natural oscillations contributed to the observed warmth of recent decades. Scientists are still a long way from quantifying the relative contributions of land-use changes, natural oscillators, and greenhouse gas emissions to recent temperature changes. Considering the absence of a greenhouse fingerprint in the vertical profile of atmospheric temperature change, it is premature to conclude that “most” of the warming of the last 50 years is due to greenhouse gases.

### **Sea Level Rise**

The DEP worries that sea level rise from CO<sub>2</sub>-induced global warming will ravage New Jersey's coastal communities and eco-systems, and cites the IPCC's projection of a mean sea level rise of 0.09 to 0.88 meters (4 to 35 inches) over the period from 1990 to 2100 (p. 8). However, the IPCC's sea level projections are no more credible than the IPCC's temperature projections, since both derive from the same problematic emissions scenarios.

Observational data, including satellite altimetry, show no acceleration in sea level rise either during the past decade or the 20<sup>th</sup> century overall, according to Swedish scientist Nils-Axel Mörner, a leading researcher in the field. Mörner states that “when we consider past records, recorded variability, causational processes involved and the last centuries' data, our best estimate of possible future sea level changes is  $+10 \pm 10$  cm in a century or, maybe, even  $+5 \pm 15$  cm.” Hence, he concludes, “we have to discard the model output of IPCC (2001) as untenable, not to say impossible.” In light of the data, “There is no fear of any massive future flooding as claimed in most global warming scenarios.”<sup>16</sup>

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<sup>14</sup> Dr. John Christy, Global Temperature Report: November 2004, December 08, 2004, <http://www.globalwarming.org/articlephp?uid=855>.

<sup>15</sup> Solanki et al. 2002. Millennium-Scale Sunspot Number Reconstruction: Evidence for an Unusually Active Sun since the 1940s. *Physical Review Letters* vol. 91, no. 21, 1-4.

<sup>16</sup> Mörner, N-A. 2003. Estimating future sea level changes from past records. *Global and Planetary Change* 40: 49-54.

## Air Pollution Episodes

DEP worries that anthropogenic global warming will produce more frequent and severe air pollution episodes. However, DEP's source here (p. 14) is the *National Assessment* report, which, as explained above, relies on two untrustworthy climate models.

DEP should stop worrying. U.S. air quality will improve substantially over the next two decades, whether global warming occurs or not. Predictions of more frequent and severe air pollution episodes in U.S. cities are intuitively plausible, because heat promotes ozone formation. However such fears ignore the history of dramatic air quality improvements over the past 30 years and the panoply of regulatory requirements that ensure continuing reductions in air pollution over the next two decades.

As air quality analyst Joel Schwartz points out, "Since 1975, a period during which climate alarmists argue that the climate has already significantly warmed, the national-average number of exceedances of the 1-hour ozone standard declined 95 percent (from 10 to 0.5 days per year), while the number of 8-hour ozone exceedances declined about 60 percent (from 14 to 6 per year)."<sup>17</sup>

Hefty reductions in smog-forming emissions were the key to this progress. Nitrogen oxide (NO<sub>x</sub>) emissions decreased approximately 27 percent since 1980 and 22 percent since 1990. Volatile organic compound (VOC) emissions decreased approximately 48 percent since 1980 and 32 percent since 1990.<sup>18</sup>

EPA regulations already on the books ensure that most smog-forming pollution will be eliminated over the next 20 years.<sup>19</sup> These include:

- NO<sub>x</sub> SIP Call regulation requiring a 60 percent reduction in NO<sub>x</sub> emissions from power plants and industrial boilers during the May-September ozone season
- Tier II emission standards for cars, under which the average vehicle on the road in 15 to 20 years will be 90 percent cleaner than today's average vehicle
- Diesel truck rule requiring a 90 percent reduction in NO<sub>x</sub> and soot emissions from trucks beginning in 2007
- Non-road diesel rule requiring similar reductions in emissions from construction equipment, farm machinery, locomotives, and marine engines.

## Heat Stress

DEP worries that CO<sub>2</sub>-induced warming "will increase heat stress, especially for vulnerable urban populations, such as the elderly and urban poor" (p. 14). These fears are misplaced. Death due to heat stress is more likely to result from climate change policies

<sup>17</sup> Joel Schwartz, "Desperately Seeking Climate Change Impacts," *Tech Central Station*, August 4, 2004.

<sup>18</sup> U.S. EPA, *The Ozone Report: Measuring Progress through 2003*, p. 10.

<sup>19</sup> Joel Schwartz, *No Way Back: Why Air Pollution Will Continue to Decline* (Washington, D.C.: AEI Press, 2003).

that make air conditioning less affordable to the elderly and urban poor than from climate change itself.

Predictions of sharp increases in U.S. mortality from more frequent and severe heat waves overlook people's proven capacity to adapt to and protect themselves from climate-related stresses. During the past several decades, the sensitivity of the American population to extremes of heat and humidity has declined significantly in most major U.S. cities notwithstanding an overall rise in urban temperatures—whether due to climate change or the growth of urban heat islands—and the migration of population to hotter climate zones.

The decline in heat-related mortality results from a combination of factors: improved medical care, increased availability and use of air conditioning, greater public awareness of the potential dangers of heat stress, and both human biophysical and infrastructure adaptations. Southern cities, where summer heat and humidity are common and adaptation to climatic warmth is widespread, exhibit little or no evidence of increased mortality on hot and humid days.<sup>20</sup>

#### **IV. DEP Overlooks the Beneficial Effects of CO<sub>2</sub> Emissions and Climatic Warmth**

DEP believes that regulating CO<sub>2</sub> is in “best interest of human health, welfare, and the environment” (p. 5). But there is overwhelming evidence that CO<sub>2</sub> emissions are literally *greening* the planet, enhancing global food security and biodiversity. There is also substantial evidence that the positive health effects of moderate warming would outweigh the negative health effects, and that recent climate changes have increased the productivity of the world's tropical rainforests. In light of these findings also, classifying CO<sub>2</sub> as an “air contaminant” is unmerited and inappropriate.

#### **CO<sub>2</sub> and Global Food Security**

An adequate food supply is obviously vital to human health and welfare. DEP proposes to classify CO<sub>2</sub> as an “air contaminant” even though hundreds of laboratory and field studies show that higher CO<sub>2</sub> levels boost agricultural productivity by significant amounts.

Empirical research suggests that the 100ppm increase in the air's CO<sub>2</sub> content over the past 150 years has increased mean crop yields by the following amounts: wheat, 60 percent; other C3 cereals, 70 percent; C4 cereals, 28 percent; fruits and melons, 33 percent; legumes, 62 percent; root and tuber crops, 67 percent; and vegetables, 51 percent.<sup>21</sup> It is difficult to exaggerate the importance of this finding. Global population

<sup>20</sup> Davis, R. *et al.* 2004. Seasonality of climate-human mortality relationships in US cities and impacts of climate change. *Climate Research* 26:61-76; Davis *et al.* 2003. Decadal changes in summer mortality in U.S. cities. *International Journal of Biometeorology* 47: 166-175; Davis *et al.* 2002. Decadal changes in heat-related human mortality in the eastern United States. *Climate Research* 22: 175-184.

<sup>21</sup> Sherwood B. Idso, Craig D. Idso, and Keith E. Idso, 2003. *Enhanced or Impaired? Human Health in a CO<sub>2</sub>-Enriched World*, Center for the Study of Carbon Dioxide and Global Change, p. 18, <http://www.CO2science.org>.



has quintupled over the past century, sustained by increases in global per capita food supply. The CO<sub>2</sub> aerial fertilization effect is partly responsible for that achievement.

Indeed, were it not for the extra CO<sub>2</sub> put into the atmosphere by fossil fuel combustion, either many people now living would probably not exist, or many forests now standing would probably have been cleared and turned into farmland—or both. Continuing CO<sub>2</sub> enrichment of the atmosphere will likely be necessary to feed a global population expected to increase by 3.3 billion people over the next 50 years, especially if we want to meet human nutritional needs while conserving forests and wetlands for wildlife habitat.

In addition to increasing the quantity of food, the air's rising CO<sub>2</sub> content can also enhance the nutritional value of crops and the medicinal properties of plants. For example, elevated CO<sub>2</sub> levels increase the production of vitamin C and other antioxidants in bean sprouts, tomatoes, oranges, and strawberries. Extra CO<sub>2</sub> also increases both the biomass of pharmacological plants (such as the tropical spider lily, which contains cancer-fighting chemicals) and the concentration of medicinal ingredients within those plants. Thus, the CO<sub>2</sub> aerial fertilization effect not only “makes more of a good thing,” it also “makes a good thing better.”<sup>22</sup>

If the ongoing rise in the air's CO<sub>2</sub> content enhances the quantity and quality of food, how can CO<sub>2</sub> be an “air contaminant”?

### **CO<sub>2</sub> and Biodiversity**

The evidence is overwhelming that higher CO<sub>2</sub> concentrations help most plants grow faster, stronger, and more profusely, utilize water more efficiently, and resist pollution and other environmental stresses.<sup>23</sup> CO<sub>2</sub> enrichment of the atmosphere also raises the optimum temperature for plant growth. For example, an extra 300ppm of CO<sub>2</sub> would increase optimum temperature for most plants by about 4°C to 8°C—exceeding global warming projections in all but the most lurid scenarios.<sup>24</sup>

As atmospheric temperature and CO<sub>2</sub> levels have risen, the range of plant habitats has expanded pole-ward in latitude and upward in elevation, with no loss of habitat at lower latitudes or elevations. Animals that depend on those plants—and all animals depend directly or indirectly on plants as a food source—have similarly been able to extend their ranges. Thus, during the past century, “individual animal species, like individual plant species, have measurably increased the areas of the planet's surface that they occupy, creating more overlapping of ranges, greater local species richness, and improved ability to *avoid* extinction” (original emphasis).<sup>25</sup>

<sup>22</sup> *Enhanced or Impaired?* pp. 22-26.

<sup>23</sup> Idso, K.E. and Idso, S.B. 1994. Plant responses to atmospheric CO<sub>2</sub> enrichment in the face of environmental constraints: A review of the past 10 years' research. *Agricultural and Forest Meteorology* 69: 153-203.

<sup>24</sup> Sherwood B. Idso, Craig D. Idso, and Keith E. Idso. 2003. *The Specter of Species Extinction: Will Global Warming Decimate Earth's Biosphere?* George C. Marshall Institute & Center for the Study of Carbon Dioxide and Global Change, p. 8, <http://www.CO2science.org>.

<sup>25</sup> *The Specter of Species Extinction*, p. 2.

If the ongoing rise in the air's CO<sub>2</sub> content helps plant and animal species avoid extinction, how can CO<sub>2</sub> be an "air contaminant"?

### **Warming and Health**

This comment has already explained why heat-related mortality will likely continue to decline in the United States even if urban temperatures rise. A key point often overlooked by climate alarmists is that moderate global warming would be a net human-life *saver*, because most warming is expected to occur in the colder high latitudes during winter, and "many more people die from unseasonably cold temperatures than from excessive warmth."<sup>26</sup>

In their survey of the medical literature, carbon dioxide experts Sherwood, Craig, and Keith Idso review studies conducted in several U.S. states, England and Wales, Russia, Korea, Norway, Israel, and Brazil on the relationships between extreme heat, extreme cold, and cardiovascular diseases such as strokes, ischemic heart disease, hypertension, and diabetes. Collectively, these studies "demonstrate that global warming is actually beneficial to humanity, in that it reduces the incidence of cardiovascular diseases related to low temperatures and wintry weather by a much greater degree than it increases the incidence of cardiovascular diseases associated with high temperatures and summer heat waves."<sup>27</sup>

The Idsos also review several studies on the effects of hot and cold weather on respiratory diseases. Here too the studies "make it abundantly clear a warming world should positively impact the *respiratory* health of the world's citizens" (original emphasis).<sup>28</sup>

Finally, the Idsos review the literature on the effects of climate on all disease-related mortality. This literature too shows the same positive relationship between warmth and health. For example, a study of heat- and cold-related mortality in north Finland, south Finland, southwest Germany, the Netherlands, Greater London, north Italy, and Athens, Greece found that "annual cold related deaths were nearly ten times greater than annual heat related deaths."<sup>29</sup> Similarly, a study of U.S. deaths due to all causes over the period 1979-97 found that "deaths due to extreme cold exceeded those due to extreme heat by 80% to 125%."<sup>30</sup> The literature clearly implies that "global warming—if it continues, and for whatever reason—will result, not in more lives *lost*, but in more lives *saved*" (original emphasis).<sup>31</sup>

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<sup>26</sup> *Enhanced or Impaired?* P. 1.

<sup>27</sup> *Enhanced or Impaired?* pp. 2-5.

<sup>28</sup> *Enhanced or Impaired?* pp. 5-6.

<sup>29</sup> *Enhanced or Impaired?* p. 11.

<sup>30</sup> *Enhanced or Impaired?* p. 12.

<sup>31</sup> *Enhanced or Impaired?* p. 14.

If CO<sub>2</sub>-induced global warming is likely to reduce human mortality from cardiovascular, respiratory, and other illnesses, how can CO<sub>2</sub> be an “air contaminant”?

### **Warming and the Rain Forests**

Recent climate changes—whatever their causes—are enhancing the “net primary productivity” of the Earth’s green biomass. Satellite data from 1982 to 1999 indicate that, “global changes in climate have eased several critical climatic constraints to plant growth, such that net primary production increased 6% ... globally,” according to a study published in the journal *Science*. The Amazon rain forests accounted for 42 percent of the observed increase in plant growth.<sup>32</sup> As one commentator put it, “In general, where temperatures restricted plant growth, it became warmer; where sunlight was needed, clouds dissipated; and where it was too dry, it rained more.”<sup>33</sup>

If global warming is helping to save the rain forests, how can CO<sub>2</sub> be an “air contaminant”?

### **V. The Proposed Rule Fails a Rudimentary Cost-Benefit Test**

Obviously, the proposed rule and its regulatory offshoots are not in the public’s best interest if, as this letter argues, the ongoing rise in the air’s CO<sub>2</sub> content is likely to promote human health, welfare, and biodiversity. But even if the climatic consequences of CO<sub>2</sub> emissions were as dire as DEP imagines, a regional cap-and-trade program would still fail a rudimentary cost-benefit test.

### **Economic Pain for No Environmental Gain**

The proposed rule is a prelude to a future regional cap-and-trade program (p. 5). The regional program would reduce CO<sub>2</sub> emissions by substantially less than a nationwide program, which in turn would reduce emissions by substantially less than the Kyoto Protocol. Yet Kyoto, even according to its proponents, would have no perceptible effect on global average temperatures: full implementation would avert a hypothetical 0.07°C of warming by 2050.<sup>34</sup> The U.S. Energy Information Administration estimates that the Kyoto Protocol would cost the United States \$77 billion to \$283 billion annually, depending on the extent of international emissions trading.<sup>35</sup> Kyoto is all economic pain for no environmental gain. The same holds for any lesser CO<sub>2</sub> regulation program.

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<sup>32</sup> Nemani, R. R., *et al.* 2003. Climate-Driven Increases in Global Terrestrial Net Primary Production from 1982 to 1999. *Science* 300: 1560-1562. See also Cao, M. *et al.* 2004. Remotely sensed interannual variations and trends in terrestrial net primary productivity 1981-2000. *Ecosystems* 7: 233-242.

<sup>33</sup> Roger Highfield, *Daily Telegraph*, June 6, 2003.

<sup>34</sup> Wigley, T. 1998. The Kyoto Protocol: CO<sub>2</sub>, CH<sub>4</sub>, and Climate Implications. *Geophysical Research Letter* 25: 2285-88.

<sup>35</sup> Energy Information Administration, *Impacts of the Kyoto Protocol on Energy Markets and the U.S. Economy*, October 9, 1998, p. 122.

Of course, proponents argue that Kyoto is just a “first step”—the start of a series of carbon suppression treaties, each more stringent and/or inclusive than its predecessor. Conceivably, DEP views its proposed rule and the subsequent regional cap-and-trade program as steps towards U.S. participation in the Kyoto Protocol.

The problem with such “first step” reasoning is that any serious attempt to stabilize CO<sub>2</sub> levels via regulation would be economically ruinous and, thus, politically unsustainable. Claims that available technology can support easy, low-cost and large-scale emission reductions are not credible. A study by 18 scholars, published in *Science*, examines a host of options that might be used in coming decades to stabilize CO<sub>2</sub> concentrations, including wind and solar energy, nuclear fission and fusion, biomass fuels, efficiency improvements, carbon sequestration, and hydrogen fuel cells. They find that, “All these approaches currently have severe deficiencies that limit their ability to stabilize global climate.”<sup>36</sup>

The authors specifically take issue with the IPCC’s claim that “known technological options could achieve a broad range of atmospheric CO<sub>2</sub> stabilization levels, such as 550ppm, 450ppm or below over the next 100 years.” As noted in the study, world energy demand could triple by 2050. However, “Energy sources that can produce 100 to 300 percent of present world power consumption without greenhouse emissions do not exist operationally or as pilot plants.” The authors conclude: “CO<sub>2</sub> is a combustion product vital to how civilization is powered; it cannot be regulated away.”

The dilemma facing Kyoto supporters may be put as follows. On the one hand, the Kyoto Protocol and all lesser carbon reduction schemes such as the RGGI regional cap-and-trade program are ineffectual—too weak to stabilize atmospheric CO<sub>2</sub> levels. On the other hand, energy-suppression measures strong enough to stabilize CO<sub>2</sub> levels are a prescription for economic disaster—a “cure” worse than the alleged disease. Absent revolutionary technological breakthroughs that dramatically increase the supply of affordable, emission-free energy, regulating the carbon content of fuels or emissions is economically irrational.

### **Diseconomies of Scale**

However unfavorable the benefit-cost ratio of the Kyoto Protocol, that of the proposed regional cap-and-trade program would be worse. This is so for three reasons, explained in detail by a Heartland Institute study:<sup>37</sup>

- The smaller the geographic area subject to a greenhouse gas regulatory program, the fewer the opportunities to exploit inexpensive emission reduction options; hence, the greater the cost for each ton of emissions avoided.

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<sup>36</sup> Hoffert, M.I., *et al.* 2002. Advanced Technology Paths to Global Climate Stability: Energy for a Greenhouse Planet. *Science* 298: 981-987.

<sup>37</sup> Joseph L. Bast, James M. Taylor, and Jay Lehr, *State Greenhouse Gas Programs: An Economic and Scientific Analysis*, Heartland Institute, No. 101—February 2003, pp. 24-29, <http://www.heartland.org/pdf/11133.pdf>.

- Carbon “leakage”—a shift in carbon-intensive activities from regulated to unregulated jurisdictions—occurs more easily under a statewide or regional cap-and-trade program than under a national or international program. Increased consumption of carbon-based fuels in the non-regulated states will partially offset emission reductions achieved within the regulated states.
- The smaller the jurisdiction of the carbon reduction program, the smaller the potential market for emissions trading; hence, the more policymakers must rely on command-and-control regulations such as renewable portfolio standards. Command-and-control approaches are notoriously more expensive than market-oriented strategies.

Although the Heartland study does not examine the RGGI regional cap-and-trade initiative, it analyzes the costs of a New Jersey-only greenhouse gas reduction program. The study assumes that New Jersey aims to reduce greenhouse gas emissions to 1990 levels, and that the program costs \$55 per ton of emissions avoided. Heartland estimates that consumer and business losses could reach \$12.9 billion and that state revenue losses could reach \$20.9 billion.<sup>38</sup> Those are heavy costs to pay for imperceptible reductions in global temperature.

### **Negligible Co-Benefits**

DEP claims that future climate regulations will have important “co-benefits achieved through the reduction of criteria air pollutants associated with reductions in CO<sub>2</sub> emissions.” This is a specious attempt to sell climate policies that cannot stand on their own merits. As a pollution control measure, CO<sub>2</sub> caps would add little to current regulations, which already ensure substantial air quality improvement over the next 20 years (see **Air Pollution Episodes**, above). Worse, the costs would far outstrip the benefits, because it is much more expensive to reduce air pollution as a side effect of energy rationing than to reduce air pollution directly.<sup>39</sup>

A study by the U.S. Energy Information Administration makes this clear.<sup>40</sup> Reducing nitrogen oxide (NO<sub>x</sub>) emissions 75 percent below 1997 levels by 2005 under a program with a 2002 starting date would cost the nation’s power producers and consumers \$3 billion in 2005. Reducing sulfur dioxide (SO<sub>2</sub>) emissions 75 percent below 1997 levels by 2005 would also cost \$3 billion in 2005. Reducing CO<sub>2</sub> emissions by 7 percent below 1990 levels by 2005 would cost \$77 billion in 2005.

If the three requirements are “integrated,” the total cost is \$77 billion—\$5 billion less than if the requirements are implemented one at a time, with no coordination. That \$5 billion “savings” is due to the “co-benefits” of “integration”—the fact that CO<sub>2</sub>

<sup>38</sup> *State Greenhouse Gas Programs*, Appendix 3, p. 79.

<sup>39</sup> Joel Schwartz, *New Study Distorts Health Benefits of Greenhouse Gas Reductions*, RPPi Rapid Response No. 105, August 21, 2001, [http://www.rppi.org/rr105.html#\\_edn8](http://www.rppi.org/rr105.html#_edn8).

<sup>40</sup> Energy Information Administration, *Analysis of Strategies for Reducing Multiple Emissions from Power Plants: Sulfur Dioxide, Nitrogen Oxides, and Carbon Dioxide*, December 2000, p. xviii.

reductions entail ancillary NO<sub>x</sub> and SO<sub>2</sub> reductions, and vice versa. However, if the goal is cleaner air, then the “integrated” approach saves no money at all. Rather, it spends \$77 billion to achieve \$6 billion worth of NO<sub>x</sub> and SO<sub>2</sub> reductions. The carbon cap wastes \$71 billion—wealth no longer available to meet other consumer or environmental priorities.

From the foregoing considerations it is evident that the proposed rule and its regulatory adjuncts would impose substantial economic burdens on New Jersey consumers and businesses for no discernible environmental benefit.

## **VI. Conclusion**

DEP’s proposed classification of carbon dioxide as an “air contaminant” is a conceptual muddle, lacks a credible scientific rationale, and fails a rudimentary cost-benefit test.

While there is still time to rethink its policy positions, DEP should examine some of the non-alarmist literature on CO<sub>2</sub> and climate change. Topping my list of recommended readings is Dr. Patrick J. Michaels’s *Meltdown: The Predictable Distortion of Global Warming by Scientists, Politicians, and the Media* (Washington, D.C.: Cato Institute, 2004) and CO2Science.org, a Web site that reviews hundreds of articles on climate-related matters published in peer-reviewed scientific journals.

Please feel free to contact me should you wish to discuss any of the points presented in this letter.

Sincerely,

Marlo Lewis, Jr., Ph.D.  
Senior Fellow in Environmental Policy  
Competitive Enterprise Institute  
1001 Connecticut Ave., NW, Suite 1250  
Washington, D.C. 20036  
202-331-1010; mlewis@cei.org