



Climate Policy: What's Best—Emission Reduction or Adaptation and Sequestration?

By Kenneth P. Green

Rumor has it that the Bush administration is considering moving away from what has largely been a policy of voluntary emission reductions and technology development toward a new policy that will “change the whole nature of the discussion” regarding energy and climate policy. If such a change involves restricting greenhouse gas emissions, increasing energy prices, or limiting energy availability, the economic and political consequences could be tremendous, as low-cost energy is the lifeblood of the American economy. Increasing our focus on adapting to climate variability and ultimately removing carbon from the atmosphere in the future would prove to be better policy.

It has been a hot summer in the world of climate change in Washington, not only in terms of temperature, but also in terms of national discourse. While Al Gore circles the globe pushing his theatrical view of climate Armageddon, rumors are now floating in the nation's capital that President George W. Bush has had an epiphany—this one on climate change and the environment—and that he may be planning to propose a national climate policy of massive proportion. White House staffers are said to be “formulating a huge energy initiative designed to ‘change the whole nature of the discussion’ and challenge the G.O.P., Democrats, the oil and electricity industries and environmentalists.”¹ The release in mid-September 2006 of the administration's Climate Technology Program Strategic Plan, which focuses on sensible voluntary emission reductions and the development of new emissions control and sequestration technology, has done nothing to dampen the rumors of a major policy change to come, possibly as early as the 2007 State of the Union address.

For those who favor limited government, this could be the unkindest cut of all from the Bush

administration. No matter how you slice it, a national policy to control greenhouse gases would mean regulating virtually every aspect of energy production and use, from the types of energy we use to the devices that we power with it to live our lives and do our jobs. A national policy, however dressed up in market-friendly language, would allow environmental regulators with a well-known disdain for private enterprise to control people's private and economic lives.

If the president simply acknowledges that humans are probably causing some climate change, that warming will likely continue, and that warming might pose serious challenges for human societies and ecosystems, his epiphany will be a bit late, but at least reasonable. Whether liberal or conservative, thoughtful analysts have recognized this for over a decade now. But if the president's realization involves some massive scheme of action to enlarge the scope of government interference in energy markets, he may well be taking aim at the goose that lays the golden egg—our economy is fueled by abundant, low-cost energy.

Thus, this is a good time to review why certain climate policies, such as greenhouse gas emission reduction programs—whether offered by Republicans or Democrats—are bad policy, and why other

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approaches that rely on our resilience and technology are better ways to protect people and the planet from climate change, whether of human origin or not.

The Problems with Emission Restriction

The main reason focusing on greenhouse gas reduction is bad policy is that intractable economic dynamics make preventing greenhouse gas emissions in the near future virtually impossible and guarantee the waste of most resources invested in the attempt. Achieving rapid greenhouse gas emission reduction is wishful thinking, not meaningful policy.

Greenhouse gas emissions are the direct consequence of burning fuel, whether from wood, coal, oil, gasoline, or natural gas. The vast majority of energy in the United States is generated using exactly those fuels. As energy analysts Peter Huber and Mark Mills observe, “Power is one of the three fundamental inputs that determine the productivity of labor in every sector of the economy.”²

Unlike other pollutants we have controlled, greenhouse gases (particularly carbon dioxide) are not easily removed at the end of a pipe, whether it is a tailpipe or a smokestack. Short-term reduction of greenhouse gas emissions will therefore require a net reduction in fuel usage. That reduction would come from costly energy-efficiency measures, from displacement by more expensive non-greenhouse sources such as wind power, or from carbon taxes or emission-trading programs. But there is one undeniable reality: in a greenhouse gas-constrained world, energy would become more expensive, with unacceptable consequences at the level of the individual, the firm, and the nation.

At the individual level, people all over the world want a better quality of life, not just as a spiritual matter, but also as a consumer matter. They want more and better products: more health care, more education, better nutrition, better housing, more mobility, more opportunity, more choice—and they want it within their lifetimes. Securing all of those things requires energy, and lots of it—far too much to be generated without significant input from coal, oil, and natural gas, all of which emit greenhouse gases when burned. Limiting the use of

or increasing the price of energy would mean that people could afford less rather than more, resulting in a dynamic unlikely to find either political favor or genuine compliance in democratic countries.

At the level of the firm, businesses are made more competitive by stable, low-cost forms of energy as a primary input to the production of goods or services. Raising the costs of energy or limiting its availability through the imposition of technology or emission standards for greenhouse gases is likely to make companies within an energy-control region less competitive against those outside the controlled area. This would likely produce several negative consequences that the public would not like. Affected firms might raise the costs of goods and services locally, leading customers to look for better prices farther away (which might increase greenhouse gas emissions due to transportation). Firms might try to reduce costs in other areas by suppressing employee wages or switching to lower-cost raw materials or suppliers. Firms might choose to relocate or limit expansion to areas without greenhouse gas reduction requirements. What firms cannot do is sit by while they lose their competitive edge, deliver less return to shareholders, and eventually see their

business go to less-regulated competitors, whether regional, national, or international.

At the national level, the relationship between a society’s energy costs and its economic growth is likely to make serious reductions in energy use or increased prices for energy unpalatable, and spending on such efforts wasted. The fact that increased energy costs damage the economy is well known to students of energy policy. As Ben Bernanke, chairman of the Federal Reserve, said:

The rise in prices paid by households for energy—for example for gasoline, heating oil, and natural gas—represent, of course, an increase in the cost of living and in price inflation. This direct effect of higher energy prices on the cost of living is sometimes called the first-round effect on inflation. In addition, higher energy costs may have indirect effects on the inflation rate—if, for example, firms

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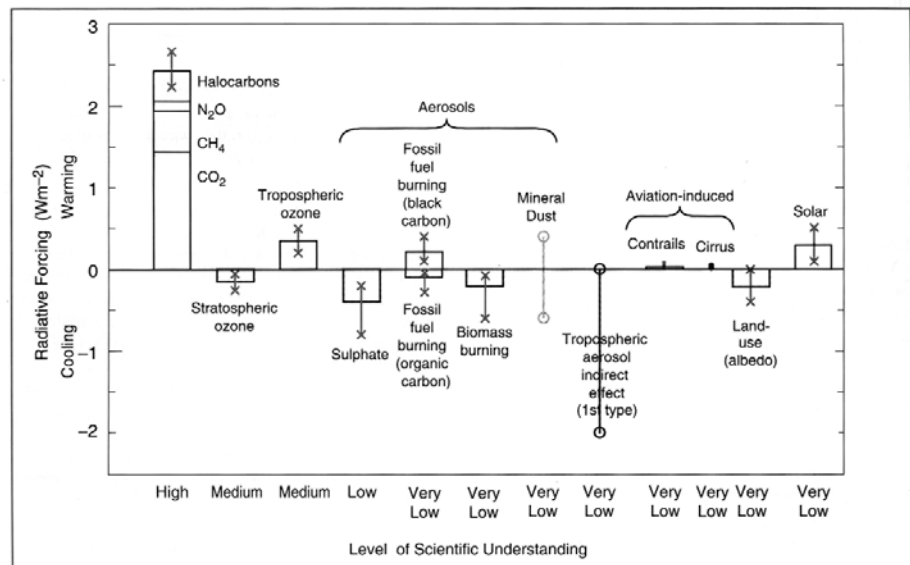
pass on their increased costs of production in the form of higher consumer prices for non-energy goods or services or if workers respond to the increase in the cost of living by demanding higher nominal wages. A jump in energy costs could also increase the public's longer-term inflation expectations, a factor that would put additional upward pressure on inflation. These indirect effects of higher energy prices on the overall rate of inflation are called *second-round effects*.³

At the international level, the fact that most developing countries have refused to comply with global greenhouse gas reduction schemes will render the safety benefits of anything done by developed countries moot. Because China, India, and other developing countries will continue to grow and emit greenhouse gases, the reductions that already-developed and already more energy-efficient countries could achieve would have little effect on the climate. To prevent such free-riding, a global climate regime would require a global body with binding authority to set and enforce limits on all countries' energy use. Most countries—particularly the successful ones—will not submit that kind of authority to distant, unelected bodies of bureaucrats.

Finally, despite Orwellian pronouncements that “the science debate is over,” there is a scientific factor that argues against a focus on greenhouse gas reduction as the primary response to observed climate change. While it is clear that the climate has warmed in the last 150 years, and basic physics makes it likely that humans have played a part in the more recent phases of that warming, identifying exactly which part of the warming is caused by which activity remains poorly understood, and is often done using computer models that are notorious for their limited capacity to model the climate.

The conviction that human emissions of greenhouse gases are causing abnormal temperature change comes

FIGURE 1:
UNITED NATIONS CLIMATE PANEL ESTIMATES OF THE LEVEL OF SCIENTIFIC UNDERSTANDING OF FACTORS THOUGHT TO AFFECT CLIMATE



NOTE: The wide bars above the center line represent the forces that warm the climate, while bars below represent forces that cool the climate. The thinner lines represent the potential size of each force when accounting for scientific uncertainty regarding each particular force. The selection of studies included in creating this chart was done by the United Nations climate panel, and may or may not include the findings of all articles published on the subject which might expand the range of forcing estimates or uncertainty.

SOURCE: United Nations Intergovernmental Panel on Climate Change, *Climate Change 2001, The Scientific Basis, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change* (United Kingdom: Cambridge University Press, 2001), 8.

from two scientific beliefs. The first is that scientists understand most of the things that influence the climate and therefore know what “normal” emissions look like. The second belief is that scientists have computer simulations accurate enough to let them estimate which particular influence has caused recent climate changes. Putting the two beliefs together, some scientific and political bodies like the United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) blame humanity for most of the climate change seen since 1975.⁴

But some inconvenient, lesser-known truths within the UN's climate reports give reason to take this claim with a grain of salt. Figure 1, from the last published landmark report of the IPCC, shows the level of scientific certainty that technical experts themselves assign to their understanding of the things that warm or cool the climate. The scientists call these “radiative forcings,” which include things like greenhouse gases, ozone pollution, particulate pollution, changes in solar activity, changes in land use, and other things that could affect

the climate. While understanding the effects of greenhouse gases is ranked as “high,” understanding of the majority of potential forces is “low” to “very low.” Some of the potential cooling forces and feedback mechanisms that influence the climate that are poorly understood may well be large enough to offset the warming influence of greenhouse gases, a prospect still under active exploration. For example, an article from the August 4, 2006, issue of *Science* estimates that human emissions of aerosol particles such as those shown in figure 1 may increase cloud cover by up to 5 percent. If correct, this could offset greenhouse gas–induced warming altogether.⁵

The limited state of knowledge regarding climate systems means we do not yet know if we will receive any benefit from reducing greenhouse gases and, in fact, we may easily make things worse. A recent article in the *Washington Post* observed that international efforts to repair the ozone layer, while well-intended, seem to have aggravated climate change by replacing more stable refrigerants (which are global warming gases) with less stable alternatives used in higher quantities that are also global warming gases.⁶ The same is true of the well-intended efforts to control acid rain. By reducing the amount of reflective aerosols in the atmosphere, controlling acid rain reduced a cooling force that was moderating global temperatures from the 1950s through the 1980s. Beate Liepert, a climate researcher at the Lamont-Doherty Earth Observatory, points out, “We thought we live in a global warming world, but this is actually not right. . . . We lived in a global warming plus a global dimming world and now we are taking out global dimming. So we end up with the global warming world, which will be much worse than we thought it will be, much hotter.”⁷

Adaptation & Sequestration: A Better Approach?

Measures to increase our adaptive capability and to increase our ability to withdraw greenhouse gases out of the atmosphere (sequestration) offer both short-term and long-term benefits, whether or not any given change in climate is caused by human greenhouse gas

emissions or by the natural variations of Earth’s chaotic climate. Such measures have been proposed since the issue of climate change rose to prominence,⁸ but a widespread fixation on greenhouse gas reduction has left such approaches to languish.

That may finally be changing. As Frances Cairncross, president of the British Association for the Advancement of Science, recently observed, “Almost all the discussion of climate change up to now has been about ‘mitigation’—in other words, how to prevent it from happening. But prevention, although important, is not enough. Climate change is going to happen, and we need to think more about adapting to it.”⁹ So, what would adaptive measures consist of?

In the near term, focusing on adaptation would help both our society and our ecology build resilience to climate variation. With regard to our social and economic systems, measures to increase adaptive capacity could include actions such as eliminating federal programs that subsidize construction in climatically vulnerable regions, including low-lying coastal areas, flood plains, fire-risk areas, and drought-prone areas. Additional efforts would focus on improving the resilience of infrastructure in energy, transport, food, medicine, water, levees, and other vital systems that might be influenced by climate variability.

With regard to ecosystems, adaptive policies recognize that the best way to protect ecosystems—both ours and others’—is to make sure they are healthy and resilient, and the best way to do that is to sustain and promote wealth-building institutions such as free markets, property rights, and the rule of law at home and around the world. Only wealthy countries can afford to set biological resources aside, reduce the strain on ecosystems, and help nurture their innate ecological resilience. In a more active sense, managing ecosystems to facilitate adaptation could involve changing the way we view ecosystem protection, possibly shifting from a view focused on particular regional ecosystems as stand-alone entities to a wider view that lets us preserve the ability of both plants and animal habitats to shift north or south as climate changes.

In both the short- and long-term, an increased focus on sequestration might let us reduce the scale of the

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challenge. We would do well to look for ways to maximize carbon sequestration in trees and soils in the present, while seeking new technological means to reduce the atmospheric concentration of greenhouse gases in ways that are affordable in the future. Research is underway to allow us to pull greenhouse gases out of the air, through sequestering it away in trees, soils, and on the ocean floor.¹⁰ The U.S. Department of Energy is actively pursuing sequestration options that, they suggest, would be dramatically lower than the cost of upfront emission reductions.¹¹ The Office of Science in the Department of Energy has even greater ambitions: to genetically alter microorganisms to pull greenhouse gases out of the air, thus producing useful byproducts such as hydrogen gas.¹² Finally, the recently released Climate Change Technology Program Strategic Plan, which calls for spending \$3 billion on climate research, includes a robust plan to develop sequestration technologies that range from the immediately deployable to the longer-term goal of pulling greenhouse gases out of the atmosphere directly.¹³

The Rumor Mill

As of this writing, rumor suggests that George W. Bush might announce his climate epiphany as early as the State of the Union address in January. The hints being dropped by administration officials in the press suggest that they are considering a massive expansion in government intervention in energy markets in response to the threat of climate change. Just as when they were proposed by previous Democratic administrations, such approaches would offer little or no benefits, while imposing significant costs. A sharper focus on increasing America's ability to adapt to climate change and ultimately remove greenhouse gases from the atmosphere would be a superior response to federal emission reduction mandates in response to the threat of climate change.

AEI editorial associate Nicole Passan worked with Mr. Green to edit and produce this Environmental Policy Outlook.

Notes

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13. Department of Energy, "Capturing and Storing Carbon Dioxide," chapter 6 in *U.S. Climate Change Technology Program, Strategic Plan* (Washington, DC: U.S. Climate Change Technology Program September 2006), available at www.climatechange.gov/stratplan/final/full_report.pdf.