

## **U.S. PIRG**

**Submission to U.S. House of Representatives, Committee on Energy and Commerce  
Regarding Regulation of Global Warming Pollution in the United States**

**Submitted: March 19, 2007**

Dear Honorable Chairman Dingell and Chairman Boucher:

On behalf of U.S. PIRG's hundreds of thousands of citizen members across the country, we are grateful for the opportunity to share with you our views on how to structure strong, science-based legislation to reduce America's emissions of global warming pollution in a fair and environmentally responsible manner.

U.S. PIRG is the federation of state Public Interest Research Groups. We are a non-profit, non-partisan advocacy organization that works on behalf of the American public to win concrete results for our health and our well-being. Our network of researchers, advocates, organizers, and students across the country (including Environment Michigan and PIRGIM in Michigan and thousands of citizen members in Virginia) work to promote clean air and water, protect open space, safeguard consumers, and promote good government.

Global warming poses a severe threat to America's future. As the recent Fourth Assessment Report of the Intergovernmental Panel on Climate Change verifies, there is now virtually no doubt that human activities are responsible for most of observed increase in global average temperature. There is, however, good news from the world of climate science: by taking aggressive action now, we still have time to prevent the most dangerous impacts of global warming.

Over the past decade, state PIRGs have worked with policy makers at the state level to develop and implement public policies designed to reduce global warming pollution. We have successfully advocated for stronger energy efficiency standards for buildings and equipment, renewable energy standards for electricity production, global warming emission standards for vehicles, a regional cap on global warming emissions from power plants in the Northeast, and a statewide cap on global warming emissions in California, among other reforms. Combined, these state-level actions will achieve significant reductions in global warming pollution in the United States in the coming years and decades.

We recognize, however, that while state-level action is important in its own right and states have a crucial role as public policy innovators, action by Congress will be required to achieve the reductions in global warming pollution needed to prevent dangerous, human-caused global warming. This submission details our views on how climate legislation should be structured.

The key points of our submission are as follows:

- The United States should adopt a mandatory, enforceable cap on total U.S. global warming emissions based on the need to prevent dangerous, human-caused global warming. Current science suggests that achieving this goal will require the United States to stabilize emissions at or below today's levels by the end of the decade; reduce emissions by 15 to 20 percent below today's levels by 2020; and achieve emission reductions of at least 80 percent by 2050.
- The United States should use multiple policy tools – including regulation, taxation, public-sector investment, and market-based systems like cap-and-trade – to achieve the level of reductions called for under the cap. There is no single, “silver bullet” policy solution to global warming.

- The United States already has technological tools and public policy models that can take us a long way toward achieving our global warming emission-reduction goals. State-level policy innovations of the past decade can provide a solid grounding for U.S. global warming policy.
- To reduce the cost of global warming emission reductions to the American economy, the following three objectives should be included in any U.S. global warming policy:
  - Improve the energy efficiency of the U.S. economy;
  - Develop and require the deployment of renewable energy technologies; and
  - Align economic incentives with the goals of climate policy.
- With regard to cap-and-trade, we believe a cap-and-trade system should begin by regulating those sectors of the economy that are most amenable to a market-based trading system: specifically, electric power plants and large industrial emitters. The cap-and-trade system should include the following design elements:
  - A “midstream” point of regulation in which power plants or large industrial emitters are required to hold pollution allowances.
  - The auctioning of 100 percent of pollution allowances (as opposed to their free distribution to emitters). Auctioning allowances is fairer and more economically efficient than free distribution and creates revenues that can be used for public purposes, including investments in clean energy technologies and energy efficiency.
  - The program should not include a price cap or other “safety valves” that increase the cost of emission reductions in future years. Offsets should not be allowed, as they have the potential to reduce the environmental integrity of the program and reduce domestic emission reductions, which can deliver important local economic and public health benefits.

We also believe that the United States should re-engage with the international community in global efforts to reduce the threat of global warming. We believe that America can best do so by making the commitment to reduce global warming emissions domestically. Where America leads, we believe other nations will follow.

We hope the information and perspectives presented in this response are useful to you in your efforts to design strong, effective, and fair policies that can enable the United States to reduce the threat of global warming.

Sincerely,

Margie Alt  
Executive Director

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## Responses to the Committee's Questions

### 1. Outline which issues should be addressed in the Committee's legislation, how you think they should be resolved, and your recommended timetable for Congressional consideration and enactment.

The central goal of U.S. global warming policy must be to reduce total U.S. global warming emissions on a trajectory sufficient to prevent dangerous human-caused global warming. Achieving this goal will require an enforceable cap on global warming pollution in the United States. Achieving the goal at the least possible cost will require the use of a mix of public policy instruments; there is no "one size fits all" policy solution to global warming. We already have the technology to make serious inroads in reducing global warming pollution, as well as a growing body of public policy experience driven by actions in the states. Finally, urgent action is needed – delaying the timeline for achieving significant emission reductions will only increase the risks of global warming and the costs of emission reductions in the future.

#### *The need to cap global warming pollution*

Global warming is occurring now. The recent Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) estimates that global average temperatures have already increased by approximately 1.4°F since the second half of the 19<sup>th</sup> Century.<sup>1</sup>

The United States has committed, as a signatory to the 1992 United Nations Framework Convention on Climate Change, to the goal of "[s]tabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."<sup>2</sup> The European Union and others have come to accept a 2° Celsius (3.6°F) rise in temperatures over pre-industrial levels as a rough threshold beyond which dangerous impacts from global warming will become inevitable.<sup>3</sup>

Science suggests that, to have a reasonable chance of keeping global temperature rise below 3.6°F, the world must stabilize concentrations of global warming pollutants at or below 450 parts per million (ppm) carbon dioxide-equivalent. Even by achieving this stabilization level, the probability of keeping temperature rise below 3.6°F is about 50-50.<sup>4</sup> Thus, reducing global warming emissions sufficient to maintain global warming pollutant concentrations at or below 450 ppm is the *minimum* action necessary, as indicated by current science, to prevent dangerous, human-caused climate change.<sup>5</sup>

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<sup>1</sup> Intergovernmental Panel on Climate Change, *Climate Change 2007: The Scientific Basis: Summary for Policy Makers*, 2007

<sup>2</sup> United Nations, *United Nations Framework Convention on Climate Change*, 1992.

<sup>3</sup> For a description of the impacts of global warming at various levels of temperature rise, see Rachel Warren, "Impacts of Global Climate Change at Different Annual Mean Global Temperature Increases," in Hans Joachim Schnellhuber, ed., *Avoiding Dangerous Climate Change*, Cambridge University Press, 2006.

<sup>4</sup> Malte Meinshausen, "What Does a 2° C Target Mean for Greenhouse Gas Concentrations? A Brief Analysis Based on Multi-Gas Emission Pathways and Several Climate Sensitivity Uncertainty Estimates," in Hans Joachim Schnellhuber, ed., *Avoiding Dangerous Climate Change*, Cambridge University Press, 2006.

<sup>5</sup> In addition, see Jim Hansen, *Global Warming: Connecting the Dots from Causes to Solutions*, Presentation to the National Press Club and American University, 26 February 2007.

To stabilize greenhouse gas concentrations at or below 450 ppm, the world must stop the growth in carbon dioxide emissions by approximately the end of this decade, reduce emissions to 1990 levels by the 2030s, and reduce emissions by one third below 1990 levels by 2050.<sup>6</sup>

The United States, as the world’s leading emitter of global warming pollutants (and the last Western industrialized country, other than Australia, to make a national commitment to reduce global warming emissions), has a disproportionate responsibility to achieve emission reductions. To do its “fair share” to reduce emissions, the United States must:

- stabilize emissions at or below today’s levels by the end of this decade
- reduce emissions by at least 15 to 20 percent below today’s levels by 2020, and
- reduce emissions by at least 80 percent by 2050.

These reduction levels assume similarly aggressive efforts to reduce emissions by other Western countries, along with action by developing nations such as China and India. ***In other words, should the United States fail to achieve global warming emission reductions at or beyond these levels, the chances of preventing dangerous, human-caused global warming will be much reduced.***

***Resources for fighting global warming: Technology and policy tools***

Preventing dangerous climate change is a daunting challenge. But the United States has many tools that it can apply to the task, including a history of technological innovation and a growing body of policy experience being developed in the states.

The United States already has the technology needed to achieve the short and medium-term emission reduction goals described above. For example, by achieving five simple and technologically feasible targets for energy efficiency and renewable energy development (along with keeping emissions of non-carbon dioxide global warming pollutants constant), the United States could reduce its global warming emissions by 19 percent below 2004 levels by 2020.<sup>7</sup> (See table below.)

**Global Warming Emission Impacts in 2020 of Selected Energy Targets (Relative to 2004 Emissions)<sup>8</sup>**

<b>Strategy</b>	<b>Savings MMTCO<sub>2</sub>E</b>
Stabilize Vehicle Travel	0*
40 MPG Fuel Economy and Heavy-Duty Truck Fuel Economy Standards	383
10% of Transportation Fuel from Renewables	61
10% Reduction in Energy Consumption	400
20% of Electricity from New Renewables	511
<b>Total Savings</b>	<b>1355</b>
2004 U.S. Global Warming Emissions	7122
<b>Reduction Relative to 2004</b>	<b>19%</b>

\* Avoids increase in emissions resulting from projected increases in vehicle travel between now and 2020.

<sup>6</sup> Malte Meinshausen, *EQW Pathway Set 1: Emission Data for CO2 Equivalence Stabilization and Peaking Pathways*, 2005. Excel workbook downloaded from www.simcap.org.

<sup>7</sup> U.S. PIRG Education Fund, *Rising to the Challenge: Six Steps to Cut Global Warming Pollution in the United States*, 2006.

<sup>8</sup> Ibid.

The long-term goal of achieving an 80 percent reduction in U.S. global warming emissions is also feasible, given an aggressive push to improve energy efficiency and expand the production of renewable energy in the United States.<sup>9</sup>

Moreover, the United States already has models of effective policies that can be used to encourage a shift to cleaner and less-polluting sources of energy. In recent years, states have adopted a variety of innovative public policies to reduce global warming pollution. (See table below.) Among them are the following:

- Renewable energy standards for electricity that have been adopted in 21 states.
- Global warming emission standards for vehicles that have been adopted in 11 states.
- Enhanced appliance efficiency standards, building energy codes, and incentives for government-sector renewable energy use and “green” building.
- Incentive programs to enhance the market penetration of solar photovoltaic energy in states such as California and New Jersey.
- Ratepayer-funded energy efficiency programs and energy efficiency portfolio standards for electricity providers.

### Key Actions on Global Warming in States Represented on the House Energy and Commerce Committee

State	Global Warming Pollution-Reduction Goals	Cap on Global Warming Emissions from Power Plants	Global Warming Emission Standards for Vehicles	Renewable Electricity Standard	Appliance and Equipment Efficiency Standards
AR					
AZ	Yes, goal to reduce emissions to 2000 levels by 2020 and to 50% below 2000 levels by 2040. Also agreed to set regional cap as part of Western Climate Action Initiative.			Yes, 15% by 2025.	Yes
CA	Yes, statewide cap to reduce global warming emissions to 1990 levels by 2020. Goal to further reduce emissions to 80% below 1990 levels by 2050. Also agreed to set regional cap as part of Western Climate Action Initiative.	(Global warming emissions standard for electricity used in California.)	Yes	Yes, 20% by 2010.	Yes
CO				Yes, 10% by 2015.	
FL					
GA					
IL	Yes, goal to reduce emissions to 1990 levels by 2020 and to 60% below 1990 levels by 2050.			State goal: 8% by 2013, no specific enforcement measures.	
IN					
KY					
LA					
MA	Yes, goal to reduce emissions to 1990 levels by 2010, at least 10% below 1990 levels by 2020, and by 75-85% in the long term.*	Yes, Regional Greenhouse Gas Initiative.	Yes	Yes, 4% by 2009 and 1% annual increase.	Yes
MD		Yes, Regional Greenhouse Gas Initiative.	Yes	Yes, 7.5% by 2019.	Yes
ME	Yes, goal to reduce emissions to 1990 levels by 2010, at least 10% below 1990 levels by 2020, and by 75-85% in the long term.*	Yes, Regional Greenhouse Gas Initiative.	Yes	Yes, 30% by 2000; 10% new renewables by 2017 goal.	

<sup>9</sup> Charles F. Kutcher, ed., American Solar Energy Society, *Tackling Climate Change in the U.S.: Potential Carbon Emissions Reductions from Energy Efficiency and Renewable Energy by 2030*, January 2007.

State	Global Warming Pollution-Reduction Goals	Cap on Global Warming Emissions from Power Plants	Global Warming Emission Standards for Vehicles	Renewable Electricity Standard	Appliance and Equipment Efficiency Standards
MI					
MS					
NC					
NE					
NJ	Yes, goal to reduce emissions to emissions to 1990 levels by 2020 and to 80% below 2006 levels by 2050.	Yes, Regional Greenhouse Gas Initiative.	Yes	Yes, 22.5% by 2020.	Yes
NM	Yes, goal to reduce emissions to 2000 levels by 2012, 10% below 2000 levels by 2020 and 75% below 2000 levels by 2050. Also agreed to set regional cap as part of Western Climate Action Initiative.			Yes, 10% by 2011.	
NY		Yes, Regional Greenhouse Gas Initiative.	Yes	Yes, 24% by 2013.	Yes
OK					
OR	Yes, goal to reduce emissions to 10% below 1990 levels by 2020 and 75% below 1990 by 2050. Also agreed to set regional cap as part of Western Climate Action Initiative.		Yes		Yes
PA			Yes	Yes, 8% from Tier I technologies and 10% from Tier II technologies by 2020. Includes non-renewables.	
TN					
TX				Yes, 5,880 MW by 2015.	
UT					
VA					
WA	Yes, goal to reduce emissions to 1990 levels by 2020, 25% below 1990 levels by 2035, and 50% below 1990 levels by 2050. Also agreed to set regional cap as part of Western Climate Action Initiative.		Yes	Yes, 15% by 2020.	Yes
WI				Yes, 10% by 2015.	
WY					

\* New England Governors and Eastern Canadian Premiers Climate Action Plan, August 2001.

As a result of these and other state-driven efforts, there is a solid and growing body of real-world policy experience that points the way toward a “made in America” approach to climate policy that achieves aggressive reductions in global warming pollution while enhancing the nation’s economy, energy security, health and well-being.

***Impacts on the U.S. economy, consumer prices, and jobs***

Capping global warming pollution in the United States provides a powerful opportunity for an economic “win-win” – if we pursue pollution reductions sensibly.

First, America wins by avoiding the significant economic costs posed by global warming itself. A recent British government inquiry led by former World Bank Chief Economist Sir Nicholas Stern estimated that unchecked global warming could reduce global GDP by 5 to 20 percent.<sup>10</sup> In the United States, global warming poses severe economic risks, including the threat posed by sea-level rise and extreme storms to coastal population centers and greater potential for drought in

<sup>10</sup> HM Treasury, *Stern Review: The Economics of Climate Change*, 2006.

some portions of the country, among other impacts. Taking aggressive action to reduce global warming pollution now can reduce these serious risks.

Second, America can design public policies that reduce global warming emissions while bolstering the nation's long-term economic health. The economic impact of efforts to limit global warming pollution depends as much on *how* emissions are reduced as on *how much* emissions are reduced. Put simply, there are expensive ways to cut global warming pollution and there are less expensive ways to do so. To reduce the cost of achieving the necessary emission reductions, the United States should do the following:

- 1) Improve the energy efficiency of the U.S. economy.** Technically feasible, cost-effective improvements in energy efficiency already have the potential to save vast amounts of energy in the United States.<sup>11</sup> Energy efficiency provides several important benefits: it reduces demand for imported fossil fuels, keeping money within the American economy; it creates domestic jobs; and it reduces the cost of achieving reductions in global warming pollution by reducing demand for energy.<sup>12</sup> Moreover, saving electricity through increased efficiency is often less expensive than building new power generation capacity.

There are many policy tools – including efficiency standards for buildings, vehicles and equipment, energy efficiency portfolio standards for electricity providers, and financial incentives for the deployment of energy efficient equipment – that can be used to improve energy efficiency in the United States. Mandatory federal energy efficiency standards are already playing an important role in saving energy, reducing pollution, and saving money. According to the American Council for an Energy-Efficient Economy, energy efficiency standards saved consumers \$50 billion on their energy bills between 1990 and 2000, with the benefits of the standards outweighing the costs by a factor of 3-to-1.<sup>13</sup>

Deploying energy efficiency standards and programs as part of an overall climate strategy will enable the nation to achieve greater emission reductions at lower cost.

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<sup>11</sup> For example, a 2004 study by the Northeast States Center for a Clean Air Future found that carbon dioxide emission reductions of up to 45 percent would be cost effective for most vehicle classes at gasoline prices of \$2 per gallon, using technologies currently in use or projected to be available soon. (Source: Northeast States Center for a Clean Air Future, *Reducing Greenhouse Gas Emissions from Light-Duty Motor Vehicles*, September 2004.) Similarly, a 2004 review of 11 energy efficiency studies by the American Council for an Energy-Efficient Economy (ACEEE) found a mean economic potential for energy savings from energy efficiency improvements of 20 percent for electricity and 21.5 percent for natural gas. (Source: Steven Nadel, Anna Shipley and R. Neal Elliott, American Council for an Energy-Efficient Economy, *The Technical, Economic and Achievable Potential for Energy-Efficiency in the U.S. – A Meta-Analysis of Recent Studies*, 2004.)

<sup>12</sup> Jobs: See, for example, Howard Geller, John DeCicco and Skip Laitner, American Council for an Energy-Efficient Economy, *Energy Efficiency and Job Creation*, 1992, for an illustration of the net job creation impact of investments in energy efficiency. Reducing the cost: Research conducted for the Regional Greenhouse Gas Initiative suggests that doubling investment in energy efficiency significantly reduces the cost of emission allowances and the increase in electricity prices under the program. (Source: ICF Consulting, *RGGI Electric Sector Modeling Results: Updated Reference, RGGI Package and Sensitivities*, 21 September 2005.)

<sup>13</sup> American Council for an Energy-Efficient Economy, *Appliance and Equipment Efficiency Standards: One of America's Most Effective Energy-Saving Policies*, downloaded from [www.aceee.org/energy/applstnd.htm](http://www.aceee.org/energy/applstnd.htm), 19 March 2007.

- 2) **Develop and require the deployment of renewable energy technologies.** Policies to develop and promote new clean energy technologies play a key role in achieving emission reductions cost-effectively.<sup>14</sup> Renewable energy technologies are particularly important, as they produce no global warming emissions and are potent domestic job-creators.<sup>15</sup> To achieve the steep reductions in global warming emissions that will be needed in future years, the United States will need to rely on the nation's vast potential for carbon-free energy production. Public policy can play a key role in bringing renewable energy technologies to the point of market readiness via increased federal funding for renewable energy research and development and renewable energy standards for electricity production and vehicle fuels. It is critical that public policies communicate a firm, sustained commitment to renewable energy, thereby providing investors, utilities and others with confidence to make long-term investments in renewable energy.
  
- 3) **Align economic incentives with the goals of climate policy.** For decades, fossil fuels have received the lion's share of federal energy subsidies. As of 1999, fossil fuels received nearly half of all federal energy subsidies, with renewable energy receiving 18 percent (with most of those subsidies targeted at ethanol production) and conservation programs receiving only 4 percent.<sup>16</sup> In addition, a poorly designed cap-and-trade system in which emission allowances are distributed for free can have perverse economic impacts – providing windfall profits for the owners of polluting facilities at the expense of consumers and minimizing incentives for technological innovation.

By shifting federal subsidies toward clean energy technologies and ensuring that any cap-and-trade system provides the proper incentives for clean energy development, the United States can ensure that taxpayer dollars are not used at cross-purposes with the nation's climate protection goals and minimize the cost of emission reductions to consumers.

Limiting global warming pollution will inevitably create economic winners and losers. Congress should carefully study whether some mitigation for affected parties is warranted. However, such efforts should not interfere with the clear, consistent market and policy signals climate legislation must send if the United States hopes to reduce global warming emissions effectively and efficiently over the next several decades.

### ***Summary: The task facing Congress***

Given all of the above, the central task facing Congress is the adoption of legislation establishing a mandatory, enforceable cap on global warming pollution in the United States, with the initial cap calling for stabilization of emissions by 2010; reductions of 15 to 20 percent by 2020; and reductions of 80 percent by 2050.

Such legislation should include the following features:

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<sup>14</sup> Lawrence H. Goulder, Pew Center on Global Climate Change, *Induced Technological Change and Climate Policy*, October 2004.

<sup>15</sup> For example, wind, biomass and solar power each generate more jobs per unit of energy than coal or natural gas-fired power plants. (Source: Daniel M. Kammen, Kamal Kapadia, and Matthias Fripp, University of California, Berkeley, *Putting Renewables to Work: How Many Jobs Can the Clean Energy Industry Generate?* 13 April 2004.)

<sup>16</sup> U.S. Department of Energy, Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy Markets 1999: Energy Transformation and End Use*, May 2000.

- Provisions to update global warming emission-reduction targets to account for changing conditions and new scientific knowledge.
- The use of multiple tools – including regulation, taxation, public-sector investment, and market-based systems – to achieve the desired reductions, recognizing that there is no “silver bullet” policy solution to a problem as complex as global warming.
- Program design elements that maximize public benefits (including co-benefits such as improved energy security and reduced emissions of “conventional” pollutants) and minimize societal costs.

In the meantime, Congress faces urgent short-term priorities and opportunities. Specifically, Congress *must halt the rush to build a fleet of new conventional coal-fired power plants across the country*. If all of the more than 150 coal-fired power plants currently being proposed are built, it will result in a 25 percent increase in global warming emissions from the electric sector and a 10 percent increase in total U.S. carbon dioxide emissions.<sup>17</sup> Such an increase in emissions would make it far more difficult – and far more costly – for the United States to achieve the reductions in global warming pollution that will be needed to prevent dangerous climate change. At minimum, Congress must immediately send a clear message that these power plants will not be “grandfathered” in any future program to reduce global warming emissions.

Second, Congress faces several opportunities to adopt strong clean energy policies, including a renewable energy standard for electricity generation that would require 20 percent of America’s electricity to come from renewable energy by 2020. Such policies can help put the United States on the road to a clean energy economy and make future reductions in global warming pollution possible, while Congress works to adopt a comprehensive climate policy for the nation.

Finally, with regard to the timetable for Congressional enactment, it is important to remember that at least one-fourth of carbon dioxide emissions from burning fossil fuels remain in the atmosphere essentially forever (more than 500 years).<sup>18</sup> As a result, failure to act now will result in emissions that will continue to affect the climate for centuries to come and will force us to achieve steeper emission reductions in the future. For this reason, enactment of strong, science-based limits on total U.S. global warming emissions should occur as soon as possible.

## **2. Cap-and-trade**

Cap-and-trade programs, if well designed, can play an important role in the United States’ efforts to reduce domestic global warming emissions. However, the design of the program is crucial to its effectiveness. Moreover, cap-and-trade is not a “one size fits all” solution to global warming. Global warming emissions in the United States are produced by many types of emitters and as a result of many industrial and land-use practices. Cap-and-trade may prove to be an effective tool to address certain types of emissions from certain actors, but not others. Finally, even if the United States adopts a cap-and-trade program, supplementary policies will be needed to ensure that emission reductions occur at the lowest possible cost and provide the greatest complementary benefits to the public and the economy.

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<sup>17</sup> U.S. PIRG Education Fund, *Making Sense of the “Coal Rush”: The Consequences of Expanding America’s Dependence on Coal*, July 2006.

<sup>18</sup> Jim Hansen, *Global Warming: Connecting the Dots from Causes to Solutions*, Presentation to the National Press Club and American University, 26 February 2007.

**a. What sectors should it cover? Should some sectors be phased in over time?**

Cap-and-trade is best suited to reduce emissions from large stationary sources. Indeed, all of the existing models for a carbon cap-and-trade program (the federal/state NO<sub>x</sub> Budget Program in the eastern U.S., the federal Acid Rain Program, the European Union Emission Trading Scheme, and the Regional Greenhouse Gas Initiative) deal solely with large emitters.

Implementation of cap-and-trade for large emitters is administratively simple (as most of these sources are already regulated in some way) and the cost of monitoring emissions is relatively low. Moreover, large emitters have a great deal of control over their level of emissions and can choose to invest capital in a variety of emission-reduction strategies.

Cap-and-trade is of less obvious value in regulating emissions from sectors of the economy with large numbers of small emitters – such as the transportation sector. While a cap-and-trade program may provide benefits in the transportation sector, other policy options – such as fiscal incentives and disincentives, energy efficiency and renewable energy standards, and public infrastructure investments – could also be used to achieve emission reductions consistent with the overall cap. The same is true of other sectors – such as the residential and small business sectors – where there are many individual small emitters.

Even in the sectors in which cap-and-trade becomes the centerpiece of U.S. climate policy, it must not be considered a “silver bullet.” Additional public policies – including energy efficiency standards, programs to promote renewable energy, and government-supported research and development – will be crucial to ensuring that global warming emission reductions are achieved at the least possible cost and with the greatest long-term benefits.

**b. To what degree should the details be set in statute by Congress or delegated to another entity?**

Congress must set by statute the overall limits on total U.S. global warming pollution and establish the key design elements of any cap-and-trade program (e.g., how allowances will be distributed, whether offsets will be allowed and under what circumstances, etc.).

It would be appropriate for Congress to delegate to a federal agency (specifically, the Environmental Protection Agency (EPA)) the ability to set a specific “cap within a cap” for large emitters that would be regulated under a cap-and-trade system, provided that the cap achieves reductions commensurate with the relative contribution large emitters must make toward achieving the overall emission-reduction target. In delegating implementation of cap-and-trade to a federal agency, Congress should provide flexibility to allow future updating of emission-reduction targets based on new scientific evidence. It should also include some leeway to adjust design elements of the cap-and-trade program based on the experience gained through implementation of the program in its early years.

For sectors that are not regulated through cap-and-trade, Congress must adopt an overall, enforceable cap on total U.S. global warming emissions. Congress can choose to delegate responsibility for enacting policies sufficient to reach those targets to relevant federal agencies.

Should Congress opt to delegate responsibility for design of a cap-and-trade program, it should delegate that responsibility to the EPA, which has extensive experience in establishing, monitoring, and enforcing cap-and-trade programs.

**c. Should the program’s requirements be imposed upstream or downstream or some combination thereof?**

The ideal point of regulation in any cap-and-trade system is the point at which an entity has the most direct control over emissions. In the case of large emitters, that point is “midstream” – that is, at the factory or power plant level and not where fossil fuels are produced or refined (“upstream”) or where products, such as electricity, are consumed (“downstream”).

The midstream point of regulation for these sectors is important for two reasons. First, it provides transparency about the cost of global warming emission allowances to the entities with the greatest capability to make capital decisions that will reduce their future emissions. Producers make capital investment decisions based on expectations of future costs. In an “upstream” approach, the cost of global warming emission allowances would be rolled into the cost of fossil fuels. The inherent volatility of fossil fuel prices already makes it difficult to make educated capital investment decisions. Separating the cost of global warming emission allowances from fossil fuel prices would convey to producers that they will face an additional, somewhat predictable cost for polluting activity that will be in place well into the future, enabling them to make better-informed capital investment decisions.

There is a second important reason to set the point of regulation midstream that goes beyond economics. A vigorous and effective U.S. climate strategy will depend upon sustained public support. The American people have traditionally been more tolerant of fees that target societal “bads” (e.g., pollution) over those that tax goods (e.g., energy). An upstream point of regulation would result in producers and consumers perceiving the cost of allowances, when passed down to them, as an additional tax on energy. Requiring large emitters to hold allowances would reinforce the notion that the intent of the program is to encourage reductions in emissions, not to increase energy prices.

A midstream approach of the type described here is unlikely to work well in sectors with large numbers of small emitters, such as transportation. The logical extension of the midstream approach in the transportation sector would be to require automakers to hold allowances based on the projected global warming emissions that will be produced by the vehicles they manufacture. However, such an approach only addresses one of several factors that influence global warming emissions from vehicles, leaving out important decisions such as how much individuals will drive. Automakers have little control over how consumers will use their products once they leave the showroom. Moreover, many *consumers* only have limited control over how much they choose to drive, since vehicle travel is influenced by an array of public- and private-sector decisions over which they may have little control – including relative levels of public investment in transit versus highways, land-use patterns, and location and operational decisions made by employers.

As a result, the United States should initially focus cap-and-trade on large emitters, while remaining open to the possibility of including other sectors at later dates. However, the United States must establish an enforceable cap on emissions from *all* sectors of the economy and use a variety of policy tools – including tax policy, energy efficiency and renewable energy standards, public investments in low-carbon infrastructure (such as public transportation), and other regulatory tools – to achieve the targets.

**d. How should allowances be allocated? By whom? What percentage of the allowances, if any, should be auctioned? Should non-emitting sources, such as nuclear plants, be given allowances?**

All allowances should be auctioned. Auctioning allowances is fair. It avoids the potential for emitters to receive “windfall profits” (as has occurred in the European Emission Trading Scheme); places all emitters – new and existing, dirty, and clean – on a level economic playing field; and eliminates the potential for “gaming” of the allowance distribution system through the granting of special advantages or exemptions.

More fundamentally, auctioning allowances is consistent with the “polluter pays” principle, which holds that polluters should be held responsible for the external costs their activities impose on the rest of society. The polluter pays principle is more than a matter of simple fairness, but it is also a matter of economic efficiency. A cap-and-trade system in which allowances are auctioned, and the revenues are “recycled” directly to consumers, for example, is up to 50 percent less costly to the economy than a system of “grandfathering” existing emitters through free distribution of allowances.<sup>19</sup>

Auctioning 100 percent of pollution allowances would preclude any special “set-asides” of emission allowances for non-emitting technologies like renewable power. However, the proceeds of allowance auctions should be used to facilitate the clean energy transition described above (by investing in energy efficiency and renewable energy technologies) and be used to offset any increase in energy prices for consumers.

**e. How should the cap be set?**

The cap for large emitters in a cap-and-trade program must be a “hard” (or enforceable) cap on emissions consistent with the preponderance of scientific evidence regarding the degree of emission reductions needed to prevent dangerous, human-caused climate change. The initial cap should extend to at least 2050 and be ratcheted down over time. The initial emissions cap needed to achieve this goal must be consistent with the goal of stabilizing U.S. global warming emissions by 2010; reducing them by 15 to 20 percent by 2020; and reducing them by 80 percent by 2050.

In addition, any cap should be an absolute cap on emissions and not a limit on the “emission intensity” of the U.S. economy. An intensity-based cap is not, in fact, a cap on emissions – indeed, under conditions of rapid economic growth, such a cap could allow for an increase in emissions over time. Such a situation would make it more difficult – and/or more expensive – for the world to reduce global warming pollution to the levels science tells us are necessary to prevent dangerous human-induced global warming.

For similar reasons, there should be no price cap (which would allow emitters to pay a set price for emission allowances if the price set by the market exceeds a certain level), since it would fail to guarantee that the level of emission reductions called for in the program will actually be achieved, thereby shifting costs into the future.

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<sup>19</sup> See Dallas Burtraw, Resources for the Future, “Carbon Emission Trading Costs and Allowance Allocations: Evaluating the Options,” *Resources*, Fall 2001 and Anne Smith, Martin T. Ross, Charles River Associates, *Allowance Allocations: Who Wins and Who Loses Under a Carbon Dioxide Control Program*, prepared for Center for Clean Air Policy, February 2002.

**f. Where should the cap be set for different years?**

Should a cap-and-trade system be implemented for large emitters, the level of the cap should be set to ensure that the program achieves emission reductions commensurate with the relative contribution large emitters must make toward achieving the nation's overall emission reduction target. Our proposal for the level of the overall nationwide cap is to stabilize total U.S. global warming emissions by 2010; reduce them by 15 to 20 percent by 2020; and reduce them by 80 percent by 2050.

**g. Which greenhouse gases should be covered?**

U.S. climate policy should establish an enforceable cap on all global warming pollutants – specifically, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and any other anthropogenically-emitted gas that the EPA Administrator, after notice and comment, determines to contribute to global warming.

A cap-and-trade program should extend, at minimum, to all global warming pollutants produced by large emitters. In some cases, firms producing products or creating emissions of large volumes of global warming pollutants other than carbon dioxide (e.g., methane, nitrous oxide, etc.) can be included in the cap-and-trade program. Emission equivalency, for trading purposes, should be based on global warming potentials established by the IPCC.

In some cases, such as carbon dioxide and nitrogen oxide fluxes from soils in agriculture, monitoring of emissions will be sufficiently difficult as to preclude their inclusion within a cap-and-trade program. Other policy instruments will be needed to ensure that these emissions are reduced consistent with the United States' overall emission-reduction goals.

**h. Should early reductions be credited? If so, what criteria should be used to determine what is an early reduction?**

There are two potential categories of early reduction credits – those that reward actions taken prior to adoption of legislation establishing a cap-and-trade system and those that reward actions taken between the time of adoption and the time of enforcement.

Calculation of early reduction credits – particularly for actions taken prior to adoption of a cap-and-trade system – creates significant administrative difficulties that could undermine the legitimacy and fairness of the program. It is very difficult to determine the degree to which emission reductions achieved through voluntary efforts are “additional” – that is, real reductions in emissions versus those that would have occurred anyway. We are unaware of criteria that credit these types of early reductions in ways that guarantee “additionality” and are skeptical that they can be developed and administered effectively, consistently, and fairly.

It is possible to develop criteria for early reductions that take place after adoption of a cap-and-trade program but prior to enforcement. However, the question of “additionality” remains in play. Early reduction credits, to the extent they are used, should be strictly limited to emission reductions that reflect significant, ongoing emission reduction efforts – such as permanent fuel switching or emission reductions resulting from energy efficiency improvements – and not reward emission reductions resulting from curtailment of production or plant closures. To the extent that early reduction credits are used, they should be limited only to those entities participating in the cap-and-trade program (i.e., offsets should not be eligible) and should be

counted as “banked” allowances, which can be used toward a facility’s compliance obligation in future years.

**i. Should the program include a price cap? If so, at what level?**

The cap-and-trade program should not include a price cap. Price caps erode the environmental integrity of the program by allowing emissions to exceed the cap under certain circumstances. In addition, the economic risks posed by climate change are significant and severe. Price caps merely shift the economic costs of climate change from today to future years, since increased emissions now will require steeper emission cuts in the future.

There are other ways to contain costs in cap-and-trade programs. Analysis conducted for the Regional Greenhouse Gas Initiative ( a regional, power sector cap-and-trade program that includes 10 northeastern states) shows that increasing investments in energy efficiency can significantly reduce allowance prices as well as overall increases in energy prices that result from the cap-and-trade program.<sup>20</sup> A wise U.S. climate policy would provide a policy framework that incorporates improved energy efficiency standards for equipment, the removal of non-market barriers to energy efficiency improvements, and vigorous financial support for energy efficiency (financed, perhaps, from revenues from allowance auctions), which would reduce the cost of compliance with the program while preserving its environmental integrity.

**j. Should offsets be allowed? If so, what types of offsets? What criteria should govern the types of offsets that would be allowed?**

To ensure the environmental integrity and efficiency of the cap-and-trade program, offsets – which allow emitters covered by a carbon cap to comply by paying for emission reductions at facilities or for activities not covered by the program – should not be allowed. Offsets are problematic because they provide less-certain reductions in emissions, thus eroding the environmental integrity of the program, and because they reduce the potential for the American people to receive the “co-benefits” of domestic emission reductions, such as cleaner air and improved energy security.

There is a fundamental difference between offsets (which represent emission reductions made outside the scope of the cap-and-trade program) and emission allowances. Allowances represent units pollution emitted – they can be accurately measured and tracked. Offsets represent units of pollution *not emitted*. To determine whether an emission reduction achieved through an offset is equivalent to an allowance, one must know not only how much pollution was emitted from the source receiving the offset, but how much pollution *would have been emitted* had the offset not been issued. This is difficult, if not impossible, to know with certainty.

The alternative approach would be to allow some offsets, but to insist on strict protocols for demonstrating their validity and integrity. Developing and enforcing those protocols, however, is likely to be cumbersome, time-consuming, and expensive – distracting government officials from the already challenging task of administering the core cap-and-trade system and other public policies needed to achieve the overall emission reduction target.

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<sup>20</sup> ICF Consulting, *RGGI Electric Sector Modeling Results: Updated Reference, RGGI Package and Sensitivities*, 21 September 2005.

In any case, the widespread use of offsets (particularly international offsets) would reduce the amount of emission reductions that occur domestically. To the extent that many of the nation's largest emitters of carbon dioxide are also among its largest emitters of health-threatening air pollution and most profligate consumers of fossil fuels, allowing offsets reduces the potential for climate policy to drive simultaneous improvements in air quality and energy security. Indeed, allowing international offsets would result in American consumers paying for capital improvements in other nations' industrial and energy systems.

To the extent that offsets are allowed, they must be allowed under only the following conditions:

- All offsets must be demonstrated to represent real, additional, quantifiable, permanent, and enforceable emission reductions. "Additional" should be interpreted to reflect financial additionality.
- Offset use should be strictly limited, particularly at the start of the program, until experience can be gained with the offsets mechanism and to ensure that significant domestic emission reductions occur.

**k. If an auction or a safety valve is used, what should be done with the revenue from those features?**

Auction revenues should be used for two purposes: to facilitate the transition to a clean energy system through investments in energy efficiency and renewable energy, and to defray the cost of the program to consumers.

A significant portion of auction revenues should be reserved for encouraging the transition to a cleaner energy system. Shifting to a low-carbon energy system will require large capital investments on the part of government, businesses, and individuals. Auction revenues can help ensure that capital exists to facilitate that transition. Such investments should be focused toward:

- Improving the energy efficiency of the U.S. economy, thereby reducing the cost of achieving substantial reductions in global warming emissions.
- Developing new clean energy technologies – and particularly renewable energy and energy efficiency technologies – through research and development.
- Encouraging the deployment of renewable energy technologies, which can reduce the cost and difficulty of achieving the more sizeable emission reductions required in later years of the program.

In addition, a portion of auction revenues can be returned to consumers to reduce or offset any increase in energy costs that would result from the program. This "recycling" of auction revenues can occur either through the reduction of other broad-based taxes or through an annual rebate check to each American household. While either approach would be acceptable, the latter approach has two important benefits: first, it ensures that low-income households (who spend a large share of their income on energy but generally do not pay federal income tax) are compensated fairly, and second, it ensures that the public sees tangible benefits from the policy in the form of an annual check in the mail.<sup>21</sup>

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<sup>21</sup> In a 2000 analysis, the Congressional Budget Office (CBO) found that low-income households would be negatively affected by a cap-and-trade system in which allowances were distributed to polluters for free, as well as a system in which allowances were auctioned, but the auction proceeds were used to reduce corporate taxes. By contrast, the CBO found that low-income households would actually *gain* from a system in which allowances were auctioned, but the proceeds from the auctions were returned to

**l. Are there special features that should be added to encourage technological development?**

As noted in our answer to question 2(k), a portion of auction revenues can and should be used to encourage technological development, including investment in federal energy research and development programs. Incentives for zero- or low-emission technologies must be prioritized on a least-cost basis considering full life-cycle emissions and other environmental impacts.

**m. Are there design features that would encourage high-emitting developing countries to agree to limits on their greenhouse gas emissions?**

The most significant action the United States can undertake to encourage emission-reduction efforts by developing countries is to establish a rigorous, science-based cap on domestic global warming emissions. Such a program would allow the United States to reclaim the “high ground” in negotiations with these countries and allow us to align ourselves with other Western allies that have adopted emission controls to bring developing nations to the table.

There are undoubtedly many policy tools the U.S. can use – including diplomacy, trade preferences, aid distribution, and technology transfers – to encourage developing nations to reduce their emissions. U.S. PIRG does not take positions on these issues. However, the idea that the United States can somehow force developing nations to take action on global warming by *withholding action domestically* is bankrupt in concept and ineffective in practice. The overriding goal of U.S. climate policy – including a cap-and-trade program – must be to reduce U.S. global warming emissions commensurate with our degree of responsibility for global warming and our obligations as responsible members of the international community. In addition, the United States should also re-engage in international negotiations around global warming. As the United States has shown at numerous points in our history, if we lead, the world will follow.

**3. How well do you believe existing authorities permitting or compelling voluntary or mandatory actions are functioning? What lessons do you think can be learned from existing voluntary or mandatory programs?**

Current federal voluntary emission reduction programs have failed to achieve significant emission reductions. An April 2006 Government Accountability Office report found that two voluntary emission reduction programs (EPA’s Climate Leaders program and DOE’s Climate VISION program) were plagued by the failure of participating firms to establish plans for emission reductions as well as challenges in measuring and tracking compliance with the firms’ voluntary goals.<sup>22</sup>

We do not doubt that there are specific voluntary efforts that have achieved real reductions in global warming emissions. But, as the continued upward trajectory of U.S. GHG emissions demonstrates (global warming emissions increased by nearly 17 percent between 1990 and 2005),

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consumers. (Source: Congressional Budget Office, *Who Gains and Who Pays Under Carbon-Allowance Trading? The Distributional Effects of Alternative Policy Designs*, 2000.)

<sup>22</sup> U.S. Government Accountability Office, *Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs*, 2006

voluntary efforts are wholly insufficient to achieve the level of reductions needed to prevent dangerous global warming.<sup>23</sup>

With regard to existing authorities, the EPA currently has authority to regulate global warming pollutants under the Clean Air Act. The EPA's steadfast refusal to acknowledge and accept that authority has reduced America's ability to address the global warming crisis. At the same time, agencies such as DOE and NHTSA have failed in recent years to fully and promptly utilize their authority to set energy efficiency standards for appliances and vehicles – steps that could make a major contribution toward reducing greenhouse gas emissions.

Rather than look to voluntary or mandatory federal programs for lessons in designing U.S. climate policy, we suggest that Congress examine the many ways in which state governments have used their existing authorities to promote strong, well-designed policies intended to reduce global warming emissions. Among these policies are renewable energy standards for electricity generation, global warming emissions standards for vehicles, energy efficiency standards for equipment and appliances, and ratepayer-supported funds to promote energy efficiency and renewable energy.

It is important to note that many of these policies address not only global warming pollution but also significant energy-related concerns, including rising fossil fuel and electricity prices and increased dependence on foreign sources of energy. States are increasingly recognizing that careful, well-designed public policies can provide a “win-win” – enabling reductions in global warming emissions while at the same time bolstering economic development and energy security. We encourage Congress, as it proceeds in the development of a comprehensive global warming policy for the United States, to seek out the perspectives of individuals involved in designing and implementing these policies in America's “laboratories of democracy”: the states.

**4. How should potential mandatory domestic requirements be integrated with future obligations the United States may assume under the 1992 United Nations Framework Convention on Climate Change? In particular, how should any U.S. domestic regime be timed relative to any international obligations? Should adoption of mandatory domestic requirements be conditioned upon assumption of specific responsibilities by developing nations?**

As noted above, the withholding of domestic action on global warming until after commitments are received from developing nations is unlikely to be successful – either as a negotiating tool or as a thoughtful and appropriate response to global warming. Establishing a strong domestic program for reducing global warming emissions will give the United States credibility in international negotiations and position America once more as a leader in global environmental protection.

Fundamentally, as the world's largest emitter of global warming pollution, the United States has an obligation to act. It is only from the position of a nation that is acting aggressively on global warming that we can legitimately demand that other nations act aggressively as well.

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<sup>23</sup> U.S. Department of Energy, Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2005*, November 2006.