RESPONSE BY
THE PEW CENTER ON GLOBAL CLIMATE CHANGE
TO FEBRUARY 27, 2007 LETTER FROM
REP. JOHN D. DINGELL AND REP. RICK BOUCHER

March 19, 2007

This document presents the responses of the Pew Center on Global Climate Change to questions posed in the February 27, 2007 letter from Rep. John D. Dingell, Chairman of the Committee on Energy and Commerce, and Rep. Rick Boucher, Chairman of the Subcommittee on Energy and Air Quality. These responses represent the views of the U.S. Climate Action Partnership, of which the Pew Center is a member, as well as other work of the Pew Center, as noted below.

1. Please 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. For any policy recommendations, please address the impacts you believe the relevant policy would have on:
    a. emissions of greenhouse gases and the rate and consequences of climate change; and
    b. the effects on the U.S. economy, consumer prices, and jobs.

As a member of the U.S. Climate Action Partnership (USCAP), the Pew Center joined with ten companies and 3 other non-profit organizations in January 2007 to recommend the prompt enactment of national legislation in the United States to slow, stop and reverse the growth of greenhouse gas (GHG) emissions over the shortest period of time reasonably achievable.

We recommend a U.S. policy framework that includes the following:

- Mandatory approaches to reduce greenhouse gas emissions from the major emitting sectors, including emissions from large stationary sources, transportation, and energy use in commercial and residential buildings that could be phased in over time, with attention to near-, mid- and long-term time horizons;
- Flexible approaches to establish a price signal for carbon that may vary by economic sector and could include, depending on the sector: market-based incentives; performance standards; cap-and-trade; tax reform; incentives for technology research, development, and deployment; or other appropriate policy tools; and
- Approaches that create incentives and encourage actions by other countries, including large emitting economies in the developing world, to implement GHG emission reduction strategies.

The USCAP offers the following interconnected set of recommendations for the general structure and key elements of climate protection legislation that we urge Congress to enact as quickly as possible. The legislation should require actions to be implemented on a fast track while a cap and trade program is put in place, including the establishment of a GHG inventory and registry, credit for early action, aggressive technology research and development, and policies to discourage new investments in high-emitting facilities and accelerate deployment of zero and low-emitting technologies and energy efficiency. We recommend these fast track actions begin within one year

of enactment.

The Pew Center has additionally published several reports that analyze design approaches, culminating in our *Agenda for Climate Action* which provides 15 recommendations relating to obtaining significant reductions in GHGs across key sectors in a way that will not harm the economy.[1] Tackling climate change will require both broad and specific policies addressing a wide range of activities and sectors. We recommend the development of an integrated national climate change strategy that combines technology development with broad policies addressing mitigation, scientific research, energy policy, economy-wide markets, and adaptation. We also support more specific policies addressing emissions in key sectors to address their contributions to this problem, and the need for a broad international framework that includes all major emitters.

The Pew Center's recommendations are:
Invest in science and technology research.

1. Ensure a robust research program through the Climate Change Science Program
2. Offer long-term, stable funds—in the form of a reverse auction—to GHG-related technology research and development.

Establish mandatory limits on greenhouse gas emissions and harness market mechanisms for economy-wide reductions.

3. Create a mandatory GHG reporting system as a basis for an economy-wide emissions trading program.
4. Implement a large-source, economy-wide cap-and-trade program for GHGs.

Stimulate innovation across key economic sectors.

5. Transportation: Convert the Corporate Average Fuel Economy (CAFE) program into strengthened, tradable corporate average emissions standards. Support biofuels, hydrogen, and other low-GHG fuel alternatives.
6. Manufacturing: Provide outreach and incentives to manufacturers for improvements in industrial efficiency and low-GHG technologies, and support the production of low-GHG products.
7. Agriculture: Raise the priority and funding levels for Farm Bill programs and other federal initiatives on carbon sequestration.

Drive the energy system toward greater efficiency, lower-carbon energy sources, and carbon capture technologies.

8. Coal and Carbon Sequestration: Provide funding for tests of geologic carbon sequestration and for research, development and demonstration (RD&D) projects on separation and capture technologies, in combination with advanced generation coal plants. Establish an appropriate regulatory framework for carbon storage.
9. Natural Gas: Expand natural gas transportation infrastructure and production.
10. Renewables: Significantly "ramp up" renewables for electricity and fuels, including an extension and expansion of the production tax credit, a uniform system for tracking renewable energy credits, and increased emphasis on biomass.
11. Nuclear Power: Provide opportunities for nuclear power to play a continuing role in a future low-carbon electricity sector.
12. Efficient Energy Production and Distribution: Support the development and use of combined heat and power installations, distributed generation technologies, and test beds for an upgraded electricity grid.

[1] *Agenda for Climate Action*, Pew Center on Global Climate Change, February 2006.

13. Efficient Energy Usage: Reduce energy consumption through policies that spur efficiency, including appliance and equipment standards, building R&D and codes, and consumer education.

Begin now to adapt to the inevitable consequences of climate change.

14. Develop a national adaptation strategy through the Climate Change Science Program and Climate Change Technology Program, and fund development of early-warning systems for related threats.

Engage in negotiations to strengthen the international climate effort.

15. Review options for a new or modified agreement to ensure fair and timely action by all major emitting countries, and participate in negotiations to establish binding climate commitments consistent with domestic interests.

The Pew Center supports an approach that aims to engage all major emitting sectors, make use of both market mechanisms and activity-based approaches, accelerate technological development and diffusion, assure credit for early actions, promote public education, and couple both near-term and long-term goals. While reductions across sectors and sources of emissions are key, these steps are not likely to happen simultaneously. Some recommendations provide an important foundation for more ambitious changes that will require additional time, technological progress and investment.

(a) Impact on emissions and their consequences. The USCAP believes that climate stabilization requires immediate action and sustained effort over several decades. Mandatory requirements and incentives must be stringent enough to achieve necessary emissions reductions within timeframes that prevent an unacceptable level of GHG concentrations and climate change. We must start a program in the near-term that captures short-range reduction opportunities, puts us on the path to stabilizing concentrations, and preserves our options to avoid an unacceptable level of climate change in the future.

U.S. legislation should be designed to achieve the goal of limiting global atmospheric GHG concentrations to a level that minimizes large-scale adverse climate change impacts to human populations and the natural environment, which will require global GHG concentrations to be stabilized over the long-term at a carbon dioxide equivalent level between 450–550 parts per million.

(b) Impact on U.S. economy. The USCAP realizes that while achieving our environmental goal will require a fundamental transformation of the energy system over the long-term, we cannot predict with accuracy all technological developments between now and 2100. For these reasons, legislation should focus on what we know can be cost-effectively achieved over the next twenty to thirty years while putting us on a trajectory for deeper emission reductions by mid-century.

Each year we delay action to control emissions increases the risk of unavoidable consequences that could necessitate even steeper reductions in the future, at potentially greater economic cost and social disruption. Action sooner rather than later preserves valuable response options, narrows the uncertainties associated with changes to the climate, and should lower the costs of mitigation and adaptation.

The Pew Center has worked with leading companies through its Business Environmental Leadership Council and found that often, initial reductions in greenhouse gas emissions (through firms' voluntary targets) often are achieved with cost savings (from reduced energy use and process efficiency changes). However, we realize that achieving more significant reductions on an economy-wide basis is not a cost-free proposition. In order to achieve the dramatic reductions

of greenhouse gases (GHGs) that will be needed without disrupting the economy, design and implementation of reduction programs must take into account capital stock turnover and provide for flexibility in reaching targets. Analysis of modest proposals by EIA[2], MIT[3] and others illustrate that emissions of GHGs can be reduced without significant economic impact. Experience with the acid rain program and other environmental trading programs in the U.S. shows that a trading program can lead to cost-effective reductions.[4] The E.U.'s emissions trading system has demonstrated that putting a price on carbon is feasible and can push firms to invest in lower carbon technology.[5]

2. One particular policy option that has received a substantial amount of attention and analysis is "cap-and-trade." Please answer the following questions regarding the potential enactment of a cap-and-trade policy:
    a. Which sectors should it cover? Should some sectors be phased in over time?

The USCAP feels that our environmental goal and economic objectives can best be accomplished through an economy-wide, market-driven approach. This approach will ensure emission reduction targets will be met while simultaneously generating a price signal resulting in market incentives that stimulate investment and innovation in the technologies that will be necessary to achieve our environmental goal. The U.S. climate protection program should create a domestic market that will establish a uniform price for GHG emissions for all sectors and should promote the creation of a global market.

As reflected in the Center's "Agenda for Climate Action," the Pew Center believes that a federal cap-and-trade program should cover large stationary sources of emissions, and not just the utility sector. An absolute cap for the national program should be set to achieve a modest level of emission reductions and announced sufficiently far in advance to allow for planning. Further reductions should be phased in over time as new technologies come online and capital stock turns over. Because individual sectors have different sensitivities to the price of carbon and are growing at different rates, sector-specific emission limits or allowance allocations within the overall cap could be established.

The Pew Center believes it is critical that the transportation sector be included in a comprehensive national program. Transportation contributes more than a quarter of U.S. greenhouse gas emissions, and numerous experts have concluded that, with careful program design, significant improvements in vehicle efficiency and GHG performance can be achieved at reasonable cost. The sector can be addressed through more aggressive efficiency standards, or by converting CAFE into GHG standards that could be tradable with the broader cap and trade program. Also, lower carbon fuels could be encouraged through approaches such as California's proposed new low-carbon fuel standard, and overall vehicle miles traveled can be reduced through smart growth and public transit

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[2] *Energy Market and Economic Impacts of a Proposal to Reduce Greenhouse Gas Intensity with a Cap and Trade System*, Energy Information Administration, January 2007.

[3] Paltsev, S, J. M. Reilly, H. D. Jacoby, A. D. Ellerman and K. H. Tay. Emissions. *Trading to Reduce Greenhouse Gas Emissions in the United States: The McCain-Lieberman Proposal*, MIT Joint Program on the Science and Policy of Global Change, Report No. 97, June 2003.

[4] Burtraw, D., D. Evans, A. Krupnick, K. Palmer, R. Toth. "Economics of Pollution Trading for SO_2 and NO_x," *Annu. Rev. Environ. Resour.* 2005. 30:253–89.

[5] *Review of EU Emissions Trading Scheme – Survey Highlights*, European Commission Directorate General for Environment, November 2005.

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

The Pew Center believes Congress should determine which sectors are covered, the emissions targets and the timeline for reductions that should be made. Likewise, flexibility mechanisms available to assist entities in meeting their targets (e.g., offsets, credit for early action, banking, borrowing, etc.) should be spelled out in the statute. Congress should also establish the rules governing distribution of emissions allowances and percentage allocated vs. auctioned.

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

The USCAP recommends the cap and trade program should cover as much of the economy's GHG emissions as is politically and administratively possible. There are potentially effective approaches to achieving these objectives including the following.

- An "upstream" program that requires fossil fuel producers (or shippers in the case of natural gas) to be covered by allowances that equal the emissions released when the fuel is combusted, thereby adding the cost of the emission reduction allowance to the price of the fuel; OR
- A "hybrid" program that includes a downstream cap applied to GHG emissions from large stationary sources (e.g., covering 80% of the emissions from the fewest possible number of sources) combined with an upstream cap or another policy tool applied to the carbon content of fossil fuels used by remaining sources.

Between the two, the Pew Center's preference would be for the latter approach.

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?

The USCAP believes that an emission allowance allocation system should seek to mitigate economic transition costs to entities and regions of the country that will be relatively more adversely affected by GHG emission limits or have already made investments in higher cost, low-GHG technologies, while simultaneously encouraging the transition from older, higher-emitting technologies to newer, lower-emitting technologies. A significant portion of allowances should be initially distributed free to capped entities and to economic sectors particularly disadvantaged by the secondary price effects of a cap including the possibility of funding transition assistance to adversely affected workers and communities. Free allocations to the private sector should be phased out over a reasonable period of time after which allowances should be auctioned.

e. How should the cap be set (e.g., tons of greenhouse gases emitted, CO2 intensity)?

The USCAP believes the cap-and-trade program should place specified limits on tons of GHG emissions.

The Pew Center additionally believes that because the climate responds to absolute emissions of greenhouse gases, the cap should be set to limit total tons of greenhouse gas emissions rather than CO_2 intensity, which could allow total emissions to continue to rise.

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

To begin the process of reducing U.S. emissions, the members of USCAP recommend Congress establish a mandatory emission reduction pathway with specific targets that are:

- between 100–105% of today's levels within five years of rapid enactment
- between 90–100% of today's levels within ten years of rapid enactment
- between 70–90% of today's levels within fifteen years of rapid enactment

The short- and mid-term targets selected by Congress should be aimed at making it clear to the millions of actors in our economy and to other nations that we are committed to a pathway that will slow, stop and reverse the growth of U.S. emissions. Furthermore, Congress should specify an emission target zone aimed at reducing emissions by 60% to 80% from current levels by 2050.

g. Which greenhouse gases should be covered?

The program should cover all six greenhouse gases.

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

It will take time to get a cap and trade program up and running. Members of USCAP believe we need to reward those firms that have acted to reduce GHG emissions and encourage others to do so while the program is being established. Legislation should require regulations to be promulgated by no later than the end of 2008 establishing an early action program that grants a credit for reductions made starting from a specified date, such as 1995, until such time as the mandatory program becomes effective. Claimants would be required to demonstrate their eligibility for the credit based on accurate data.

The Pew Center feels that credit or recognition should be given for GHG emission reductions achieved before the program becomes mandatory. The system should be designed so that the many companies that have voluntarily reduced their GHG emissions (as urged by the last three presidents) will not be implicitly penalized for doing so. Without such credit, companies that have taken early action could face higher costs for future emissions reductions than companies that did not pursue early voluntary reductions and thus have more "low hanging fruit" to harvest – therefore putting the early actors at a competitive disadvantage.

Credit should be provided not only to companies that happened to register their reductions under the U.S. Department of Energy's Voluntary Reporting of Greenhouse Gases Program (established under section 1605(b) of the Energy Policy Act of 1992), but also to those conforming to U.S. EPA Climate Leaders guidelines, the reporting protocol developed by the World Business Council on Sustainable Development and the World Resources Institute, the protocol developed by the World Economic Forum, and equivalent state and private registries, such as the California

Climate Action Registry. The test should be whether the reductions were real and verifiable.

i. Should the program employ a safety valve? If so, at what level?

The USCAP believes the most powerful cost control measure is a robust cap and trade program since markets do the best job of controlling costs over time. If used, cost control measures must be designed to enable a long-term price signal that is stable and high enough to drive investment in low- and zero-emitting technologies, including carbon capture and storage. Any additional cost-control option considered by Congress must ensure the integrity of the emissions cap over a multi-year period and preserve the market's effectiveness in driving reductions, investment, and innovation. As policy makers weigh additional cost control options, it is important for them to consider who and what portions of the economy are impacted, the time duration of the impact and remedy, international competitiveness, the implications for international emissions trading, and how the measure impacts the price signal necessary to stimulate investment and technological innovation.

Some possible additional cost control options include but are not limited to a safety valve, borrowing, strategic allowance reserve, preferential allocations, dedicated funding, technology incentives and transition assistance.

Please note, though, that the Pew Center is especially concerned that use of a low safety valve may greatly complicate linkage with international systems and minimize the incentive for technology transfer and innovation.

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

The USCAP believes that legislation should permit entities subject to the cap to meet part of their obligations through the purchase of verified emission offsets from a range of domestic sinks, domestic sources of emissions that are not subject to the cap, and projects outside the US. The offset must be environmentally additional, verifiable, permanent, and enforceable.

The Pew Center's body of work has found that offset programs have significant benefits, because they provide flexibility in the geographic and sectoral location of emissions reductions. Inclusion of an offset program expands incentives for emissions reductions beyond those entities covered by the cap. These reductions opportunities will lower the overall cost of program compliance, and motivate a continuous search for low-cost, verifiable reduction opportunities.

Offsets are a fundamental tool to efficiently lower the cost of emissions reductions both for firms and for the economy as a whole. They are also a critical market-based mechanism for directing investment to promising technologies and approaches for energy efficiency, low or no-carbon energy, low GHG manufacturing, and carbon sequestration. Offsets specifically expand the scope of the program and serve to unleash the power of the market to stimulate innovation and cost-effectively reduce emissions.

Some categories of offsets are more easily verified than others, and will make particularly robust candidates for offset programs. These might include landfill methane, non-CO_2 gases from uncapped small or diffuse industrial sources, manure management, waste management, and coal bed methane capture/flaring. Other categories (e.g., land use and management) may require

certain criteria for avoiding leakage and maintaining carbon stocks. In addition, it may be preferable to limit (or discount) some categories (e.g., agricultural and forest management practices) that may be better suited to other types of policies and incentives. Likewise, efficiency improvements and renewable energy deployment are best promoted through other standards and incentives, rather than through offsets to cap and trade. If they are included as offsets, there should be a "set aside" available for these categories in order to minimize double counting.

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

The USCAP believes that some economic sectors, geographic regions, and income groups may be disproportionately impacted by both climate change impacts and mandatory GHG reductions. Any climate protection program needs to take account of these impacts and provide appropriate assistance to those disadvantaged or disproportionately impacted by such program.

In addition, a federal technology research, development and demonstration (RD&D) and deployment program is a necessary complement to the GHG reduction policies that will drive demand for low carbon technology. The program should be designed with the following key characteristics.

- Joint public/private sector cost-sharing and oversight;
- Establishment of performance criteria and a technology roadmap to guide RD&D and deployment program investment decisions;
- Stable, long-term financing (e.g., a dedicated federal revenue stream or other means not reliant upon annual congressional appropriations);
- Establishment of a public/private institution to govern the administration of the RD&D and deployment program fund; and
- A mix of deployment policies to create incentives to use low-GHG technologies and address regulatory or financial barriers. Such policies could include loan guarantees, investment tax credits, and procurement standards.

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

The USCAP believes that cost-effective deployment of existing technologies to improve energy efficiency and reduce GHG emissions should be a priority, as it will yield emission reductions in the near-term while new technologies are developed. The most efficient and powerful way to stimulate private investment in research, development, and deployment is to adopt policies establishing a market value for GHG emissions over the long term. Where near-term price signals are insufficient to deploy cleaner existing technologies, additional incentives or other measures must be considered, especially where carbon emissions could be significantly reduced and the "lock-in" of future carbon emissions avoided. Rapid advancement and deployment of new, breakthrough technologies are also core elements of any climate change solution. Thus, an effective climate change program must include policies to promote significant research, development and deployment of hyper-efficient end use technologies; low-or zero-GHG emitting technologies; and cost-effective carbon capture and storage, which will be particularly important in the deployment of advanced coal technologies.

The Pew Center has published a number of reports related to technology policy. Policy-makers should be wary of the dangers of "picking winners" among technologies, but some support to

push the likely candidates along can overcome cost barriers that would otherwise be insurmountable. Research has shown that focusing exclusively on technology-push policies (i.e., instruments that offer technology funding incentives without motivating a corresponding demand for these technologies) or exclusively on technology-pull policies (i.e., mandates that generate demand for advanced technologies without corresponding support for their development) is more expensive than a combination of the two approaches. Opportunities to introduce competition into the incentive process will reduce the costs of the program and avoid picking winners.

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

The Pew Center believes that from an environmental standpoint, and to preserve U.S. competitiveness, mandatory emission limits for the United States must be accompanied by multilateral commitments from all major emitting countries. Stronger action by the United States is an essential precondition for such an agreement. For the foreseeable future, however, even with stronger U.S. action, it is highly unlikely that China, India, and other emerging economies will commit to *limits* on their greenhouse gas emissions. A binding agreement among the major economies may be possible only if it allows for different *types* of commitments; developed countries might have emission targets while developing countries have policy commitments.[6]

The two actions most critical to achieving a major-economies agreement are 1) enactment of mandatory limits on U.S. emissions, and 2) U.S. leadership in the negotiation of a new multilateral agreement. In the design of cap-and-trade legislation, provisions allowing offsets for verified emission reductions in other countries would provide additional incentive for action in those countries while allowing U.S. emitters lower-cost compliance options. China, India, Brazil and other developing countries are presently generating emission credits through the Kyoto Protocol's Clean Development Mechanism. U.S. legislation could recognize these credits and/or establish an independent mechanism to verify reductions.

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?

The Pew Center believes that voluntary programs have undoubtedly been a valuable exercise for participating entities to gain experience in emissions measurement and reduction opportunities. Some voluntary program participants have made significant, real reductions. However, voluntary programs in the U.S. have not resulted in widespread action throughout the U.S. economy. While there have been since the first Bush Administration federal voluntary GHG reduction programs, U.S. emissions have increased by 16% since 1990. Clearly, voluntary programs have not put us on a path to reduce—or even stabilize—emissions, and there is no reason to believe that they will in the future. Experience with voluntary programs has taught us that reduction opportunities exist, but that reductions will not occur at the levels needed without mandatory emissions policies.

[6] China, for instance, might commit to strengthen its existing energy intensity goals, renewable energy targets, and vehicle fuel economy standards. Such commitments would drive emission reductions without binding China to a specific emissions level. For more on post-2012 options, see the report of the Pew Center's Climate Dialogue at Pocantico, http://www.pewclimate.org/global-warming-in-depth/international/reports/pocantico_release.cfm.

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?

The USCAP believes that U.S. action to implement mandatory measures and incentives for reducing emissions should not be contingent on simultaneous action by other countries. Rather, we believe that U.S. leadership is essential for establishing an equitable and effective international policy framework for robust action by all major emitting countries. USCAP recommends that Congress strongly urge the Administration to safeguard U.S. interests by engaging in international negotiations with the aim of establishing commitments by all major emitting countries.

The Pew Center additionally believes the United States should move forward with a domestic regime while working within the UN Framework Convention and other forums to achieve agreement on a post-2012 international regime. With the likely direction of U.S. climate policy now becoming clear, it is possible to begin exploring with other countries the broad contours of a post-2012 agreement. Once the scope, timing, and stringency of domestic U.S. measures are established, the United States will be in a position to consider a binding commitment. Early U.S. engagement and renewed leadership are critical to securing commitments from other countries and to ensuring that a post-2012 regime is compatible with U.S. policies and interests.