

BUILDING A FOUNDATION FOR SUCCESS:

Recommendations for Early Action on Climate Change for the 44th President of the United States

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About David Gardiner & Associates

The mission of David Gardiner & Associates (DGA) is to help organizations and decision makers solve energy and climate challenges. By marshaling technology, policy, and finance, DGA helps its clients build consensus and advance workable solutions. DGA creates strategic advantages for its clients by helping them understand climate and energy issues and by providing advice, analysis, and strategies tailored to their needs. For more information, visit www.dgardiner.com.

About Clean Air-Cool Planet

Clean Air-Cool Planet (CA-CP) is the leading nonprofit organization dedicated solely to finding and promoting solutions to global warming. CA-CP designs and advocates effective policy solutions to address climate change and partners with companies, campuses, communities and science centers to help reduce carbon emissions. Through research and collaboration, the organization showcases practical climate solutions that demonstrate the economic opportunities and environmental benefits associated with early actions to mitigate climate change. For more information, visit www.cleanair-coolplanet.org.

The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the sponsors or interviewees.

To the Reader,

The next President will have the opportunity and responsibility of establishing American leadership on climate change with a robust new strategy. The scale and complexity of the issue is unprecedented and will require a renewed focus on the interconnection between the economy, national security and the environment. This report outlines 25 early-action recommendations through which the new Administration can lay the foundations for success in addressing climate change at both the domestic and international levels.

In recent months we have seen more reports on the vast loss of Arctic sea ice in the summer; increased melting of the Greenland Ice Sheet presaging an accelerated level of sea-level rise; the rate of buildup of greenhouse gases, particularly CO₂, increasing, instead of slowing; the apparent weakening of the carbon absorption capacity of the globe's oceanic and terrestrial carbon sinks; the increased acidification of the oceans caused by already-absorbed CO₂, threatening oceanic life; and temperature-driven pest outbreaks threatening forests throughout North America. These trends can only be expected to accelerate unless decisive action is taken soon.

The upcoming Presidential transition presents a unique opportunity to craft a new, more successful approach to the climate issue, and to break the gridlock that has so far prevented the U.S. from helping to lead the international effort to avert disastrous climate change. Successfully seizing this opportunity will require a policy approach that meets the scale of the climate challenge while being economically sound, responding to the realities of higher energy prices and acknowledging the impacts of the ongoing crisis in our financial markets. We at Clean Air-Cool Planet offer this report in the belief that a well-thought out program of early actions will help the next Administration successfully address this most important challenge.

Many thanks,

Adam Markham
Chief Executive Officer, Clean Air-Cool Planet

Rafe Pomerance
President, Clean Air-Cool Planet

**The upcoming Presidential
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EXECUTIVE SUMMARY

During the 2007 Presidential primary season, 164 towns in New Hampshire passed resolutions requesting the President of the United States take immediate action on climate change. Numerous candidates responded to this call, including current nominees Senator John McCain and Senator Barack Obama. Following up these resolutions, the bipartisan Carbon Coalition of New Hampshire invited the candidates to identify early actions they would take in seven priority areas:

- Picking the right team to carry the initiative
- Reallocation of budget priorities
- Legislation for economy-wide emissions reductions
- Aggressive research and development for low-carbon energy technology
- Federal planning for adaptation to climate change impacts
- Enable and encourage citizens to build efficiency and conservation in their homes and communities
- Re-engage cooperation with international partners

The following analysis provides concrete recommendations and a detailed timeline for early action addressing each of these seven benchmarks. These early efforts will be instrumental in building a foundation for successful climate change policy over an entire Presidential term. This report is unique because it:

- Started from the bottom up in town meetings as a grassroots effort building support for Presidential action on climate policy;
- Is based on the expert opinions of more than 40 professionals, including senior White House and Executive Branch staff from Republican and Democratic administrations with experience in Presidential transitions, climate change policy, budget and many other critical areas;
- Provides a focused, strategic set of action items achievable within 150 days of Election Day

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Embedded throughout the report are four overarching recommendations for the next President:

- Make climate change a top-tier issue for transition planning and early action;
- Link the Administration's climate change policy with its energy and economic initiatives;
- Use the convening power of the White House, the President's "bully pulpit", and careful consultation with Congress to build consensus for action at multiple levels;
- Take the following 25 early actions as building blocks for a successful Administration policy on climate change

For the next President to be successful in tackling climate change, he must link it in the American public's mind with the need to meet our existing energy challenge while reducing carbon dioxide emissions. An effective White House effort will re-establish American leadership on this global issue by building consensus for a plan that reduces carbon emissions, invests in a clean energy future, and returns money to American citizens.

Incoming administrations are most effective when they have a clearly articulated agenda. During a Presidential transition, however, only a limited number of issue areas are given the priority of early action. Historically, Republican administrations tend to capitalize on this agenda-setting exercise far

better than Democrats. The Reagan Administration and both Bush administrations achieved early policy victories because they chose to focus on a limited number of policy proposals as part of a targeted effort, in contrast to both the Carter and Clinton transitions, which were criticized for concurrently focusing on an overwhelming number of policy fronts.¹ For the 44th President of the United States, climate policy should become a top tier issue because:

- The impacts of unrestrained climate change are real, growing, and are projected to cause unacceptable economic and ecological damage;
- Our strategies to reduce greenhouse gas emissions are fundamentally linked to U.S. energy policy;
- A new and constructive approach to climate is critical to re-establishing U.S. leadership in the world;
- A properly designed greenhouse gas emissions reduction effort has the potential to generate significant amounts of revenue, which could be used for a variety of purposes, including tax cuts to help Americans with high energy costs, and clean energy research and development.

In order to achieve meaningful near-term success advancing a new strategy for climate policy in the United States, the next President will need to build a broad consensus for action and use the “bully pulpit” to inspire the nation. A White House-led effort to build consensus will include consulting with a bipartisan Congressional coalition, meeting with constituency groups, holding a summit on climate and energy, and reframing the debate to capture the economic, security, and environmental dimensions of mitigating climate change.

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In 1961, President John F. Kennedy began the “Space Race” with the intent to send humans into space and ultimately land a man on the moon within a decade. His powerful speeches and leadership in reorganizing NASA were the driving forces in diminishing public skepticism and making a lunar landing a reality. In a similar way, the next President should frame citizen engagement on climate action in a strategic message that bundles the moral imperative for action, the growth of clean energy jobs and investments in the future as tools for economic revitalization. It will take creativity, investment, and persistent effort at all levels of society to deliver a truly clean energy economy for our country.

An effective White House effort will re-establish American leadership on this global issue by building consensus for a plan that reduces carbon emissions, invests in a clean energy future, and returns money to American citizens

This will require setting a new agenda. Before his inauguration, President-elect Bill Clinton held a summit on the economy to which he invited academics, business executives and leaders from the financial community. The event was successful in translating a major campaign issue to the forefront of his early-action policy agenda. After his reelection, President Teddy Roosevelt convened the first Conference of Governors, which brought national attention and support to the issue of natural resource conservation. The next President should emulate these agenda-setting models to build a broad consensus for action on climate change. This will require engaging the citizenry, members of Congress, as well as key constituencies in the business, religious and labor communities.

Engaging the citizenry on climate action will require

¹ Harrison Wellford, “Preparing to be President on Day One.” *Public Administration Review*, July/August 2008.

using the “bully pulpit” and framing this issue in the new President’s first State of the Union address. He should declare the Administration’s intent to move expeditiously to develop a national energy and climate strategy that will help America shift from an energy mix that is insecure, polluting and expensive to one that is secure, clean, and affordable. The role of the President will be to reframe the public’s understanding of climate issues and to emphasize that climate policy and economic policy are not separate themes; they are linked and can be improved simultaneously.

Outreach to key leaders in business, labor, evangelical and other religious organizations will be critical to building a broad consensus for action on climate change. The next President should engage existing business/non-profit climate partnerships, such as the United States Climate Action Partnership (US-CAP), the Electric Power Research Institute, the Evangelical Climate Initiative and the Apollo Alliance, to collaborate on a national climate strategy.

No later than three months after Inauguration Day, the next President should host a National Summit on Climate and Energy to highlight the importance of the issue and set a new agenda for American action. This event will provide an early opportunity for the President to present new climate initiatives to major constituencies of the American economy.

In attendance should be hundreds of the country’s major corporate executives, thought leaders from the energy and climate fields, and Mayors and Governors representing every region of the United States. Discussions should focus on how to energize the economy by seizing the existing opportunities to mitigate greenhouse gas emissions and identify the associated innovation potential for communities and corporations.

Finally, the President should take a very deliberate approach toward building a consensus with Congress on climate action. To increase the likelihood of success, the President must recognize the obstacles that have prevented the passage of comprehensive climate legislation in past Congresses, and develop a strategy for building consensus that takes into account the powerful impact that public concern over high gasoline prices has had on the Congress during the course of 2008. The White House will need to work closely with key Congressional leaders from both parties to achieve this objective.

The role of the President will be to reframe the public’s understanding of climate issues and to emphasize that climate policy and economic policy are not separate themes; they are linked and can be improved simultaneously.

Summary of Early-Action Recommendations

This report recommends that the next President, beginning the day after Election Day, implement the following 25 actions to take immediate, meaningful action on climate policy:

Picking the Right Team to Carry the Initiative – The central issue for the next President is how to organize the Administration's core team, starting with White House staff, to help him carry out a climate agenda. The President should:

1. Establish a transition team focused on climate policy *before* Inauguration Day.
2. Create a National Energy and Climate Council in the White House to ensure a central, empowered entity that reports directly to the President.
3. Designate a Special Envoy on Climate Change to undertake initial high-level international contacts.
4. Put critical sub-Cabinet positions on the fast track for nomination and confirmation.

Reallocation of Budget Priorities – The President's budget proposal for FY2010 is the first key policy opportunity to make climate change a priority. The President should:

5. Identify climate change as an early budget priority.
6. Include a climate change rebate in the budget of \$80 billion annually over 10 years, derived from future carbon auction revenues.
7. Expand capacity at key agencies and provide at least \$400-500 million to make a new climate strategy operational.
8. Increase funding for the Climate Change Science Program from \$1.8 billion to \$2.1 billion, and to \$3 billion by FY2013.
9. Increase funding for the Climate Change Technology Program from \$3.7 billion to \$6 billion, and to \$13 billion by FY2015.

Legislation for Economy-Wide Emissions Reductions – New legislation to limit emissions of greenhouse gases is an essential policy step. The President should:

10. Articulate principles for Congressional action that include long-term emissions reductions linked to the goal for global emissions reductions of 50% by 2050, and which establish a program with auctioned permits that returns 80% of revenue from the auction process to the American public.
11. Establish a White House-Congressional bipartisan working group to shape legislation.

Aggressive Research and Development for Low-Carbon Energy Technology – While currently available technologies can do much to reduce greenhouse gas emissions, new breakthroughs will be needed for the long term. The President should:

12. Establish and empower the Advanced Research Projects Administration for Energy (ARPA-E) to embrace a risk-taking culture and a focus on game-changing technology.
13. Fully fund ARPA-E start up in a separate funding line in the DOE budget at \$150 million in FY2010.

Federal Planning for Adaptation to Climate Change Impacts – The reality of climate change at the local level is placing a new priority on helping Americans understand and adapt to its impacts. The President should:

14. Issue an Executive Order requiring all federal agencies to report on the potential impacts of climate change on their areas of responsibility.

15. Increase investment in regional climate change assessments and update regional scientific assessments on vulnerability.
16. Restore the “Mission to Planet Earth” as a NASA priority and invest in our capacity to monitor the changing climate.
17. Direct the Secretaries of Commerce, Interior and the EPA Administrator to provide needed information on climate change impacts to the American public through an initial pilot project on water resources.

Enable and Encourage Citizens to Build Efficiency and Conservation in Their Homes and Communities – The next President has the opportunity to mobilize the American public to be more energy efficient in their homes and communities, the most effective strategy for cutting energy bills and greenhouse gas emissions. The President should:

18. Initiate a national effort to retrofit half of America’s homes and buildings by 2020 with average energy savings of 30%.
19. Support a fundamental change in electric utility rules that creates incentives for electric utility companies to help building owners save energy.
20. Call for the establishment of local energy committees across the United States, and direct EPA and DOE to assist local efforts to increase efficiency with information and technical support.

Re-Engage Cooperation with International Partners – Climate change cannot be solved without U.S. leadership for a global response that engages key countries. The President should:

21. Direct the Special Envoy on Climate Change to consult with key nations.
22. Declare a change in U.S. policy, the centerpiece of which is the commitment to enact a mandatory domestic emissions reduction program.
23. Act early to engage developing countries through bilateral and collective efforts to reduce emissions.
24. Initiate or expand practical emissions reductions efforts in which other nations can participate, such as the Methane to Markets Partnership and a cooperative effort to reduce short-lived climate forcing pollutants in the Arctic.
25. Fully engage in the U.N.-based international negotiating process.

Timeline for Action

The next President must execute his climate policy initiatives in a phased approach. This transition plan recommends taking climate action in three phases: Election Day to Inauguration Day, Inauguration Day to Budget Request, Budget Request and Beyond. An effective transition will immediately pick the right team to lead the initiative, propose a significant budget request to execute the initiative and follow through with a clear set of domestic and international efforts that capture the scale and magnitude of the challenge. The following timeline for action is a template for specific priorities and timing correlated with their implementation:

PRIORITY	ELECTION DAY TO INAUGURATION DAY (11/4/08 – 1/20/09)	INAUGURATION DAY TO BUDGET REQUEST (1/20/09 – 2/20/09)	BUDGET REQUEST AND BEYOND (2/20/09 – 1/19/13)
PICKING THE RIGHT TEAM	- Form a transition team on climate policy - Select top WH staff first - Draft Executive Order creating a National Energy and Climate Council (NECC)	- Designate a Special Envoy on Climate - Put sub-cabinet positions on fast track for confirmation	Implement effective interagency efforts on climate policy
REALLOCATE BUDGET PRIORITIES	Identify new budget priorities	Include climate package in FY2010 budget proposal	Launch new climate initiatives at major government agencies
CAP + TRADE LEGISLATION	- Frame the debate - Articulate principles for Congressional action	Convene White House-Congressional bipartisan working group on cap-and-trade legislation	
R&D FOR TECHNOLOGY		- Establish and empower ARPA-E - Fund ARPA-E	
ADAPTATION TO CLIMATE IMPACTS		Issue Executive Order requiring federal agencies to assess climate impacts on agency areas of responsibility	- Reinvest in earth monitoring satellite system - Initiate regional scientific assessments on vulnerability - Begin a pilot water information
ENGAGE CITIZENS AND COMMUNITIES ON ENERGY EFFICIENCY	Organize a Climate and Energy Summit	Initiate a national effort to retrofit half of America's existing homes and buildings by 2020 with an average energy savings of 30%	- Review the National Action Plan on Energy Efficiency - Begin a pilot program working with states to establish local energy committees
RE-ENGAGE COOPERATION WITH INTERNATIONAL PARTNERS	Articulate a change in U.S. policy including a commitment to enact a mandatory emissions reduction program	- Send Climate Envoy to major developing countries, namely China and Brazil - Intensify complementary efforts	Fully engage in the U.N.-based international negotiating process

DETAILED EARLY ACTION RECOMMENDATIONS

Picking the Right Team

The Need for Action: *Before a President can have a meaningful impact on climate policy initiatives, he must work with his transition team to create a coordination and decision-making structure through which his White House staff and key agencies can address this multi-dimensional domestic and international issue. The next President will be handed an ad-hoc organizational structure on climate policy at the highest levels of government. The current structure of the White House is simply inadequate to the task. All existing White House offices – OMB, CEA, NSC, NEC, and CEQ – have other assignments and lack the focus needed for the climate challenge. In addition, during his first 150 days, the President will have few sub-Cabinet positions either nominated or confirmed, putting further priority on establishing White House staff with the capacity to manage and coordinate.*

Between Election Day and Inauguration Day, the next President will need to create a new organizational structure and staff a White House that can provide the leadership, focus, and coordination that will be critical to addressing climate change. **During previous Presidential transitions, the need to manage similarly critical issues resulted in Executive organizational changes:**

- In 1947, President Truman created the National Security Council (NSC) as an organ to manage federal instruments of national security policy during the post-war era. The NSC was given the task to advise the President on the integration of domestic, foreign and military policies relating to national security;
- President Lyndon B. Johnson proposed a “War on Poverty” and created the War on Poverty Task Force to mobilize government and engage the American people. Social programs such as Medicare and Medicaid were implemented as a direct result of this organizational effort;
- After holding an economic summit the previous December, on January 25th, 1993, five days after Inauguration Day, President Clinton created the National Economic Council to coordinate policy-making for domestic and international economic issues.

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Top-tier issues such as national security, poverty, and the economy have historically received the attention of Presidents in the form of early action. During the 2009 Presidential transition, energy and climate should be no different. A new White House structure focused on climate and energy will provide a central, empowered entity that reports directly to the President and takes leadership on Congressional and citizenry outreach.

Recommendation: Establish a special transition team focused on climate change policy and organization across the executive branch in order to capture the opportunity of early action immediately after winning the election. This team should identify climate change budget options for the President-elect, and recommend early policy action on the other items contained in this report: economy-wide climate legislation, energy research and development, adaptation and response, re-engaging in the international process, and mobilizing citizens and communities to engage in energy conservation and efficiency. The President-elect should select senior White House staff by mid-December followed by critical cabinet members by the end of the year, which include Energy Secretary, EPA Administrator, and Undersecretary of State for Global Affairs. It will be critical to identify climate change as an early budget

priority and specifically direct OMB to develop climate budget options.

Recommendation: Create a National Energy and Climate Council (NECC) in the White House on a parallel with other major White House offices. The Council should:

- Have a director that reports to the President, with broad experience and credibility on energy and climate issues, and the trust and confidence of the President;
- Focus on *both* climate and energy – the two issues are inextricably linked and neither issue can be responsibly confronted without the other;
- Develop and implement a climate and energy plan;
- Engage in a transparent manner with the public and Congress on critical issues relevant to energy and climate;
- Include deputy-level participation from the Council on Environmental Quality (CEQ), the National Economic Council (NEC), the National Security Council (NSC) and all relevant Cabinet agencies;
- Have offices located in the West Wing of the White House for both the Council director and his/her deputy; and
- Have a staff of 10 with senior staff responsible for coordinating the Administration's approach to international climate negotiations, domestic climate legislation, the roles that key sectors – electricity, transportation, manufacturing, buildings, agriculture, forestry - can play in reducing emissions, and constituency outreach.

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The NECC will fill a role that no entity at the White House can currently provide. The major White House offices – Office of Management and Budget (OMB), National Security Council (NSC), National Economic Council (NEC), Council on Environmental Quality (CEQ), and the Council of Economic Advisors (CEA) – all have other critical responsibilities that distract them from a dedicated focus on climate and energy. With a focused assignment, the confidence of the President, and a talented staff, the NECC can coordinate effectively with Cabinet agencies and conduct outreach efforts to various constituencies including private and non-governmental entities, and the citizenry.

Top-tier issues such as national security, poverty, and the economy have historically received the attention of Presidents in the form of early action. During the 2009 Presidential transition, energy and climate should be no different.

Day) appointment of the Special Envoy, undertaken with careful Congressional consultation before announcement, would also aid in smoother transition and avoidance of interagency battles for “lead” status in the negotiating process.

Recommendation: Put critical sub-cabinet positions on a fast track for nomination and Senate

Recommendation: Designate a Special Envoy on Climate Change at the White House to conduct initial international diplomacy. The Envoy should be of senior status, well seasoned in climate policy and international affairs, and most importantly, well trusted by the President. The Envoy will ultimately work closely with the Undersecretary of State for Global Affairs and the Assistant Secretary of State for Oceans, Environment, and Science, but will be able to effectively represent the Administration's views prior to the confirmation of appointees to these posts. An immediate post-Inauguration Day (or even post-Election

confirmation. Relevant positions include Environmental Protection Agency Assistant Administrator in the Office of Air and Radiation, Department of Energy Assistant Secretary for Energy Efficiency and Renewable Energy, and the State Department, Assistant Secretary for Oceans and International Environmental and Scientific Affairs and the Director of the Advanced Research Projects Administration for Energy (ARPA-E). Historically, positions relevant to national security and economy are selected first; however, the fact that climate and energy positions are now critical to both should elevate the importance of specific confirmations. The President should plan to nominate the 100 most important cabinet and sub-cabinet personnel by the first week of April, and these climate and energy positions should be among those he nominates first.²

² Clay Johnson, "Recommendations for an Effective 2008 Transition." *Public Administration Review*. July/August 2008.

Reallocation of Budget Priorities

The Need for Action: *The President's budget request for FY 2010 is a significant tool for setting a new agenda and implementing climate policy. The President will have little time from Election Day to Inauguration Day to identify budget preferences – an effort that reveals priorities to both Congress and Cabinet members. Currently, fundamental initiatives on climate and energy are underfunded, making achievement of the nation's energy and climate goals impossible. An opportunity exists for the next President to expand the operating budgets of those agencies essential to implementing an ambitious climate strategy.*

To date, too little has been done to fund the agencies that must analyze and develop a new climate strategy and provide the science to help Americans understand how climate change will affect their lives. These include the Environmental Protection Agency (EPA), Department of Energy (DOE), Department of Agriculture (USDA) and the Department of State (DOS). The Administration's first priority should be to fund agencies with the capacity to analyze and operationalize a new climate strategy by October 1st, in time for the next budget cycle. The second priority should be to fund science research and adaptation capacity, and to restore earth science programs at the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA) and the United States Geological Survey (USGS), which are underfunded and underutilized. The third priority should be to invest in energy research and development (the existing funds need to be more efficiently directed) and technology research, development and deployment (the budget for low-carbon technology R&D needs to be tripled).

PRESIDENT-ELECT'S FY2010 BUDGET:

- \$400-500 million to build capacity at the Environmental Protection Agency
- Augment Climate Change Science Program budget to \$2.1 billion and increase the Climate Change Technology Program to \$6 billion
- Fund the Advanced Research Projects Administration for Energy (ARPA-E) at \$150 million

Out-year Budget Projections:

- \$100 billion in future -year revenue from auction of carbon permits
- Consumer climate rebate of \$80 billion, derived from auction of carbon allowances

New resources will be available to finance these initiatives and to provide rebates to American consumers because domestic climate change legislation will include new revenues from the auction of carbon permits (although not in FY2010, but in out-year projections). Indeed, the scale of this budget component is large; some budget analysts have estimated that it is equal to 10% of the discretionary domestic budget.³ If enacted, the final amended version of S.2191 "America's Climate Security Act of 2007" would have increased revenues by \$1.21 trillion between 2009 and 2018 according to the Congressional Budget Office.⁴

Recommendation: Identify climate change as an early budget priority. The President-elect should establish climate change as a critical top tier issue in his first Budget Request because acting early to mitigate climate change has

the potential to generate significant amounts of revenue that could be used for a variety of purposes, including returning significant amounts of money to taxpayers and the economy.

³ In 2008, the US discretionary budget was approximately \$1.114 trillion.

⁴ Congressional Budget Office Cost Estimate for S.2191, America's Climate Security Act of 2007. Available at: http://www.cbo.gov/ftpdocs/91xx/doc9121/s2191_EPW_Amendment.pdf

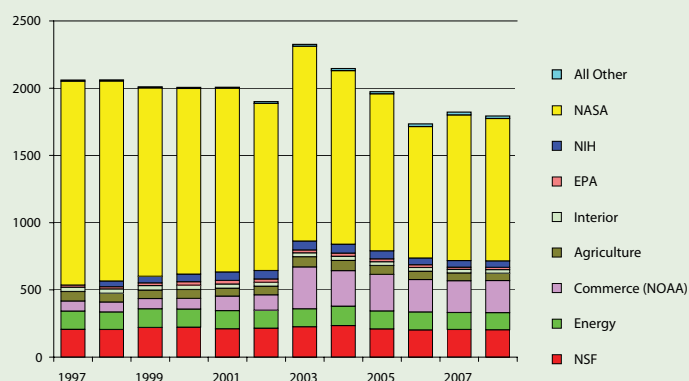
Recommendation: To help Americans cope with the rising costs of energy and speed the transition to cleaner forms of energy, the President should include a climate change rebate of \$80 billion annually over 10 years in his FY2010 budget. This rebate, which could be administered through reductions in personal, payroll, and corporate tax rates, would be derived from the auction of carbon allowances following successful implementation of a cap-and-trade program.

Recommendation: To operationalize a new climate strategy and prepare for the implementation of cap-and-trade legislation (a policy approach favored by both candidates), the President will need to expand existing capacity at key agencies, particularly the Environmental Protection Agency, which would shoulder the primary burden for implementing a cap-and-trade program. The budget request for FY2010 should provide at least \$400-500 million and a corresponding increase in full time employees (FTEs) for these functions. The Administration should consider necessary increases at other agencies such as DOE, USDA, and DOS (especially in the Bureau of Oceans, Environment and Science) and include as many as 800 FTEs across all agencies as part of a robust new climate strategy.

Recommendation: Increase the Climate Change Science Program budget from its current level of \$1.8 billion to \$2.1 billion within a year and \$3 billion within three years. This additional funding should focus on developing regional and local modeling capacity, launching new space-borne observations and starting a major new effort focused on the human dimensions of climate change. This will also require building capacity in the applied agencies with programmatic responsibilities such as USDA, DOI and EPA, which currently receive minimal support as evidenced by the following chart from the American Association for the Advancement of Science.

CLIMATE CHANGE SCIENCE PROGRAM FUNDING FY1997 - 2008

Climate Change Science Program, by Agency
(budget authority in millions of constant FY 2007 dollars, FY 1997-2008)



Source: Office of Management and Budget and U.S. Global Change Research Program reports. FY 2008 figures represent President's request. NOAA and NASA figures from 2003 have been recently revised to reflect program changes and are not directly comparable to figures before 2002. Previous years' figures represent U.S. Global Change Research Program investments. SEPT '07 REVISED © 2007 AAAS



Source: The American Association for the Advancement of Science, "Climate Change Research Flat in 2008 Budget."
Available at <http://www.aaas.org/spp/rd>

Recommendation: Increase spending on energy technology research, development and deployment. In order to achieve the scale of progress in energy technology needed, we must significantly increase the total level of investment in low-carbon energy technology, and also fund a new effort focused on potential breakthrough technologies. Numerous experts at the Department of Energy have agreed that the budget for the Climate Change Technology Program (CCTP) should be increased from its current level of \$3.7 billion to \$6 billion within a year and between \$9 and \$13 billion within five years. This is the technology priority for an aggressive climate strategy and will lead to the rapid deployment of low-carbon technologies. The ultimate goal for the CCTP is to achieve rapid expansion of technology, not just domestically but throughout the world, at a scale and pace necessary to accommodate the growing global demand for energy services and still reduce emissions. In addition, the next Administration should fund the Advanced Research Projects Administration for Energy (ARPA-E) at \$150 million in FY2010 in a separate funding line in the DOE budget.

Legislation for Economy-Wide Emissions Reduction

The Need for Action: *The enactment of economy-wide legislation requiring mandatory reductions of greenhouse gas emissions in the United States is a fundamental element of any national response to climate change and a critical prerequisite for U.S. global leadership. To date, the process has stalled for numerous reasons, not least of which is the lack of Presidential leadership to support mandatory limits on greenhouse gas emissions. Enacting an economy-wide policy approach designed specifically to reduce greenhouse gases will be preferable in many respects to a regulatory approach based on existing law. In order to overcome the hurdles that have prevented the passage of such legislation to date, the next President will need to put forward a new paradigm linking his Administration's approach to climate with America's long-term strategy for economic prosperity and energy security.*

To date, efforts to develop a national climate policy have been mired in contentious debate and litigation. Congressional efforts to develop national policy, such as the Senate's recent debate of the Lieberman-Warner climate legislation, have foundered over issues of program design, as well as regional and partisan divides. The President's first challenge in the legislative arena will be to frame the debate over climate change in light of concerns about energy, to put forward a new paradigm for Congress' work, and to build a broader consensus among legislators that can provide the basis for enacting effective and pragmatic legislation.

In the absence of federal action, however, many states have developed their own policies. These states have also gotten legal judgments that make it likely the Environmental Protection Agency will be forced to move down the path of regulating greenhouse gas emissions under the Clean Air Act during the next President's first term. On April 2, 2007, the Supreme Court ruled, 5-4 in *Massachusetts v. EPA*, that the Clean Air Act authorizes EPA to regulate emissions from new motor vehicles on the basis of their possible climate change impacts. On July 11, 2008, the Bush Administration punted the decision to regulate greenhouse gas emissions to the incoming Administration when EPA announced the Advanced Notice of Proposed Rulemaking – a broad regulatory announcement with a lengthy public comment period. Given the course of legal action, it is likely that the EPA will have to make an endangerment finding in the near future, which would set in motion the development of regulations under the Clean Air Act. Although a careful approach under this statute could result in effective regulations in some areas, it is also likely that a Clean Air Act-based regulatory effort will result in further litigation and raise the need for amendments to the underlying law.

The challenge for the next President will be to avert piece-meal regulation and transcend current Congressional divides by building consensus for an approach to greenhouse gas emissions reductions that is economically efficient, simple, fair, and transparent. Two elements are critical to ensuring success – **a set of clear and simple legislative principles** that can frame the debate while giving legislators room to develop the details and **a process of engaging congressional leadership** from both parties to drive the legislative process forward.

A successful bill must address three key issues. First, the bill must include national emission reduction goals through which the U.S. can contribute to the

The challenge for the next President will be to avert piece-meal regulation and transcend current Congressional divides by building consensus for an approach to greenhouse gas emissions reductions that is economically efficient, simple, fair, and transparent.

recognized global goal of a 50% reduction in emissions by 2050 as articulated in the G8 Hokkaido Toyako Summit Leaders Declaration on July 8, 2008.⁵ This means that the U.S. must reduce its emissions by 60-80% by 2050, which will require a combination of market-based incentives and technology advances. A significant number of businesses have endorsed this objective, such as the members of US-CAP. Second, assuming a cap-and-trade approach is pursued, the bill must clearly articulate how to distribute a new asset class called a carbon permit, which will have substantial value. The government could give these permits away directly by allocating them to various entities, such as emitters of greenhouse gases, or it could auction them, thereby generating significant revenue. Finally, to the extent that the permits are auctioned, the government must decide how to spend that new revenue, or by what means to return it to the taxpayers and the economy.

Recommendation: Articulate principles for Congressional action. The White House should articulate a set of fundamental principles to guide the Congress in considering legislation on climate change. These principles, which can then be refined into legislative concepts by the White House-Congressional leadership team, will help the 111th Congress overcome the obstacles that have stymied climate change bills to date.

The principles for legislation should:

- **Embody an ambitious goal for U.S. greenhouse gas emissions reductions linked to the recognized goal for global emissions reductions of 50% by 2050**, understanding that the U.S. goal will be met through a combination of market-based incentives and technology advances.
- **Acknowledge that the national emissions reduction effort will require periodic adjustment.** The legislation should establish a cap-and-trade program to encourage the economy to move towards a low-carbon energy mix. Recognizing the difficulty of setting precise legislative requirements for such a system for a 40-year period, the principles should assure periodic (say at ten-year intervals) review of progress in reaching targets and provide for necessary program adjustments.
- **Call for a simple, market-based trading approach in which at least 80% of the tradeable permits are auctioned.** Such an approach will produce a significant stream of revenue and avoid many of the internecine special interest economic struggles that have hobbled Congressional action thus far.
- **Commit to return 80% of the auction revenue to Americans through tax reductions or rebates.** Returning this money (up to \$80 billion per year) through appropriate mechanisms will reduce the impact of higher energy prices and help keep the economy growing.

PRINCIPLES FOR 'NEW PARADIGM' CLIMATE LEGISLATION:

- Ambitious, science-based emissions reduction goal
- Auction-based cap-and-trade approach
- Periodic review and adjustment
- Effective cost-control through an escalating safety valve
- Significant revenue returned to consumers through tax reductions and rebates
- Limited, accountable investment in low-carbon energy R&D, forest conservation, and adaptation
- 'Linkage' provisions to encourage international action and avoid export of emissions and job

⁵ G8 Hokkaido Toyako Summit Leaders Declaration on July 8, 2008.
Available at: http://www.g8summit.go.jp/eng/doc/doc080714__en.html

- **Provide investment in new energy technology and related efforts to reduce carbon emissions and lower the cost of addressing climate change.** Increasing the cost of carbon will not, by itself, drive the necessary energy technology changes. The legislation should put forward a strategy to utilize auction revenues to accelerate the development of low-carbon energy technology, fund priority efforts for climate adaptation and enhance low-cost carbon emission reductions through forest and agricultural conservation.
- **Include a mechanism to control the cost of emissions reductions in any given time period.** An escalating safety-valve price for allowances will ensure against unintended spikes in energy prices, and create a stable climate of expectation favoring investment in energy efficiency and low-carbon energy sources.
- **Recognize that reducing the threat of climate change requires a global effort.** The U.S. should lead the global effort to reduce emissions of greenhouse gases, but in a way that encourages similar action by all other major economies. The legislation should encourage emissions reductions, particularly among large developing economies, by giving the President authority to accelerate or slow the escalation of the safety-valve price (and thus the pace of the U.S. market-based reductions effort) based on his review of comparable efforts among other major emitters.

Recommendation: Establish a White House-Congressional bipartisan working group to further shape the legislation, make it consistent with the President's principles, and help move it through the Congress and onto the President's desk. The working group should meet bi-weekly with the President to ensure that it identifies and removes roadblocks to passage of climate legislation.

Aggressive Research and Development for Low-Carbon Energy Technology

The Need for Action: *The next President should focus the nation's attention on the need for breakthrough energy technology by establishing and funding the Advanced Research Projects Administration for Energy (ARPA-E) and selecting a top leader to manage it. Most federal energy research and development has focused on technology-specific incremental progress and large-scale demonstration projects. An R&D effort that creates breakthrough technologies with a clear path to market will provide a necessary complement to deploying new low-carbon technology opportunities.*

The U.S. research community has been at the center of our nation's most constructive contribution to the global effort to understand and respond to the threat of climate change. Our past investments in research and development (R&D) have helped drive the development of energy efficiency and renewable energy resources. The new Administration should act early to repair weaknesses and strengthen efforts in low-carbon energy R&D by announcing a new investment in transformational (breakthrough) R&D to accelerate the development of new energy technologies to reduce the drivers of climate change.

Despite the real progress to date, business as usual will not get the world to where it needs to be with respect to energy consumption and release of carbon into the atmosphere. Breakthroughs in technology are needed to increase the availability of zero carbon technologies and drive down the cost of low-carbon energy production. Investment in transformational R&D now is a key part of the strategy to arrest climate change at the minimum possible cost to the U.S. and global economy over time. The current system of federal energy R&D funding has four major components: research aimed at scientific understanding, energy efficiency improvements, technology-specific incremental progress (i.e., renewables or clean coal), and large scale demonstration projects. What is missing is an R&D organization designed and aimed at creating breakthrough technologies, and at exploiting cross-cutting approaches that fall outside the usual bureaucratic stovepipes.

Investment in transformational R&D now is a key part of the strategy to arrest climate change at the minimum possible cost to the U.S. and global economy over time.

The need for this new type of organization has already been recognized by Congress. In the America Competes Act⁶, Congress authorized the creation of ARPA-E, the Advanced Research Projects Agency for Energy, with the following goals in mind: reduce energy imports from foreign sources, reduce energy-related emissions including greenhouse gases, and improve energy efficiency of all economic sectors. Although President Bush signed the legislation, his Administration has not yet taken any steps to establish the agency. The management of a federal R&D agency aimed at transformational

research is substantially different from that aimed at steady progress. There is a proven example in the Defense Advanced Research Projects Agency (DARPA), which was chartered 50 years ago to provide breakthrough technologies to the Department of Defense. Without DARPA, the US military would not have stealth technology, unmanned surveillance aircraft, or the internet (originally known as the ARPAnet).

⁶ Public Law 110-69, 'America Competes Act' (HR 2272) August 9, 2007. More information available at: <http://opencrs.cdt.org/document/RL34328>

ARPA-E will fill the gap, known as the “Valley of Death” that exists between technology discovery and the point at which industry is willing to invest with a path to market. ARPA-E will focus on identifying technologies with the potential to have major impacts on the future national energy mix, and therefore on national greenhouse gas emissions levels. The agency will then fund R&D to get the technology over specific technical barriers which prevent industry from investing and commercializing critical new breakthrough technologies. ARPA-E will do this by tapping the creativity and innovation of private industry, academia, and other R&D organizations, not through creating its own laboratory system. Industry and the venture capitalists have funds available to rapidly develop new technologies into products once the critical technical risks have been identified and overcome, but only after this work has been done.

Recommendation: Establish and empower the Advanced Research Projects Administration for Energy (ARPA-E). Ensure that the structure and design of ARPA-E reflect its unique research mission. The central attributes for a transformational R&D organization include the following:

- *Breakthrough-focused Structure*
 - An ARPA-style organization must be nimble and willing to move to the areas with the greatest promise. Its role will be to identify promising technologies and mature them to the point where private sector product developers can take over.⁷
- *Risk-tolerant Culture*
 - Employees of the organization should be encouraged to take risks with the potential for game-changing impacts on energy security and climate change. This will differ from the status quo in which steady progress is rewarded and major risk taking is discouraged, staff is permanent and the organization may potentially become locked into a set of technologies.
- *Experienced R&D Manager*
 - The organization will need a technically-deep, experienced manager, ideally with professional experience in both the public and private sector. The Director of ARPA-E, a Senate confirmed position, must have the confidence and senior support of the President and Secretary of Energy to succeed against the bureaucratic obstacles that any fledgling agency will encounter.
- *Funding Additive to Existing Incremental DOE Programs*
 - ARPA-E will not and should not replace current DOE funded energy R&D, particularly that conducted by the Office of Energy Efficiency and Renewable Energy, which should be increased. ARPA-E is the missing piece, but does not cover all the needs of a strong energy R&D portfolio.

Recommendation: Fund ARPA-E. ARPA-E was authorized in the America Competes Act in 2007, but not funded in FY2008. The next Administration should consider the following minimum funding profile in a separate funding line in the DOE budget: FY09: \$15 million, FY10: \$150 million, FY11: \$300 million, FY12: \$300 million, FY13: \$300 million

⁷ An example of this transition path to industry was DARPA's investment in surface-emitting lasers on a chip. This technology is now the basis of optical communications (FIOS) and CD players, but is also the key component in robust fly-by-light control systems in military aircraft. DARPA's investment reduced the major technical unknowns and risks so that industrial R&D organizations could take over the work.

Federal Planning for Adaptation to Climate Change Impacts

The Need for Action: *The next President has the opportunity to make understanding and preparing for climate change impacts a priority for the American people by enhancing our knowledge of regional climate impacts and piloting an effort to deliver useful information to local officials who want to take adaptation measures. Climate change is already underway and impacts are being felt across the country and the globe. Community and private sector leaders must be given the tools to handle the impact this will have on their daily lives.*

Climate impacts are already visible in both our natural and socioeconomic systems. As a result, a broad user community has begun to request guidance from the federal government, asking for both robust analysis and assistance on this specific issue. City planners, water utility commissioners, flood insurers, energy companies and many others all need better scientific information on projected impacts at the local and community level to inform their investments in the future. The next Administration has the opportunity to shift the federal focus on adaptation from theoretical discussions to much more practical action.

The next President should encourage American society to plan for climate impacts by setting a robust research agenda to improve what we know and, in parallel, initiating a pilot delivery mechanism to expeditiously provide existing information to the user community. The government must reinvigorate the U.S. climate observing system to further develop our capacity to observe and predict climate change effects at the regional level. The ability to adapt is based not only on understanding climate impacts, but also having the capacity to plan and implement response strategies. As with national security preparedness in the United States, a conscious effort needs to be initiated for adaptation preparedness, particularly in areas such as coastal zone management and fresh water management.

Involving Americans at all levels in this effort is important to our success over time. One critical step is to create an information-sharing environment in which actions and smart investments in adaptation are facilitated. This should be an early-action priority for the new President due to the long planning period required to engineer cost-effective adaptation measures, and because it provides an opportunity to include community and private sector leaders from across America in building a more climate-ready future.

As with national security preparedness in the United States, a conscious effort needs to be initiated for adaptation preparedness, particularly in areas such as coastal zone management and fresh water management.

The next President needs to set in motion a new agenda on adaptation that begins by gathering data, assessing regional vulnerability and piloting an information delivery system for the user community.

Recommendation: Issue an Executive Order requiring all federal agencies to coordinate with the Council on Environmental Quality to provide an initial assessment within six months (in time for the FY2011 budget request) of the potential impacts of climate change on agency areas of responsibility and to recommend a preliminary set of response actions. For example, the Department of Transportation should determine the vulnerability of our

existing transportation infrastructure to sea level rise, the Army Corps of Engineers and the Bureau of Reclamation should look at climate impacts on navigation and reservoir management systems, the

Department of Energy should investigate the vulnerability of coastal energy infrastructure. This measure is meant to galvanize federal agency planning and ensure an appropriate focus on climate change that will produce more in-depth assessments and response strategies over time. Agencies with active land and resource management responsibilities will need to take special steps to adopt relevant adaptation policies, including the Department of the Interior (Bureau of Land Management, National Parks Service, Fish and Wildlife Service), the Department of Agriculture (Forest Service) and the Department of Commerce (National Oceanic and Atmospheric Administration). The Executive Order should specify a framework in which these agencies work together with the U.S. Geological Survey and CEQ to put forward a coordination plan for the assessment and development of adaptation strategies covering the nation's land, water, and habitat resources.

Recommendation: Initiate updated regional scientific assessments on vulnerability. The national user community needs regionally specific scientific information to evaluate meaningful policies to bolster adaptation capacities. Global climate models are essential to projecting future impacts of climate change, but they have limited utility at the regional scale where impacts will occur and adaptation plans will need to be made – their primary focus is on large regions and average conditions. Vulnerability assessments should focus on exposure to impacts, as well as direct and indirect climate risks. Advances have been made recently in the northeast; additional assessments are required to refine our understanding of climate impacts across the entire United States.⁸ The Global Change Research Act of 1990 requires a National Assessment report every four years focused on climate impacts. The next President should request analysis on the level of adaptive capacity and climate resiliency of regions, states and economic sectors. Informed decisions will be critical in keeping local populations safe (i.e. flood plains, disaster planning) as well as planning future economic growth (i.e. shifting agriculture, water availability).

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Recommendation: Restore the “Mission to Planet Earth” as a NASA priority, and re-invest in our earth monitoring satellite capacity. As the climate continues to change, we need to maintain the ability to see what is actually happening to the Earth. Much of the data on climate change is coming from satellites which have a limited lifetime. The National Academy of Sciences recently examined the particular problem of satellites and highlighted the concerns of degrading capability in the near future.⁹ The study concludes that the number of operating missions will decrease dramatically between 2006 and 2010 and the number of operating sensors on NASA spacecraft will decrease by 40 percent. It calls on NASA and NOAA to invest \$7.4 billion in 17 satellite missions involving the observation of climate, weather, precipitation and land cover over the next decade. This would amount to \$6.95 billion for NASA missions, which include measuring soil moisture, water-cycle processes, ice-sheet height changes, snow accumulation; and \$495 million for NOAA missions, which include measuring sea-surface wind vectors for weather and ocean ecosystems and solar- and earth-radiation characteristics for improving our understanding of climate forcing. Only a portion of this budget request is included as part of the increase in funding for the Climate Change Science Program.

In addition to the space-based sensors, additional sensors and observations should be used to monitor

⁸ Frumhoff, Peter et al. “Confronting Climate Change in the U.S. Northeast.” July 2007. Available at: <http://www.climatechoices.org/assets/documents/climatechoices/confronting-climate-change-in-the-u-s-northeast.pdf>

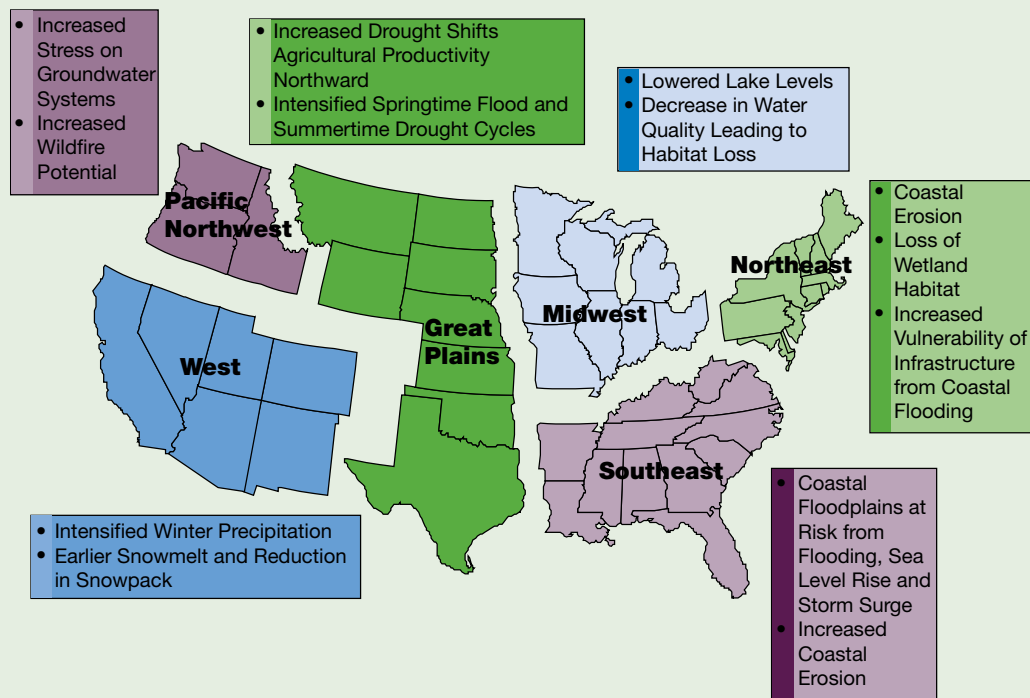
⁹ Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond, Committee on Earth Science and Applications from Space: A Community Assessment and Strategy for the Future, National Research Council, 2007

Ensuring the Climate Record from the NPOESS and GOES-R Spacecraft: Elements of a Strategy to Recover Measurement Capabilities Lost in Program Restructuring, Committee on a Strategy to Mitigate the Impact of Sensor Descope and Demanifests on the NPOESS and GOES-R Spacecraft, National Research Council, 2008

climate change. In particular, ground-based monitoring of health and stress of plants and wildlife is critical to measuring indicators of climate change and provide important information in developing plans for rescuing unique biological communities, as well as planning for changes in agriculture. Multiple programs sponsored by various federal agencies (NSF, USGS/Interior, Agriculture) should be strengthened for gathering data on the ground.

Recommendation: Direct the Secretaries of Commerce, Interior and the Administrator of EPA to work with the user community and begin a government pilot information-delivery system, initially focusing on specific data and planning tools for water issues. The user community includes states, insurance companies and public utility commissions and the initiative would be limited to sea-level rise, water availability, drought and salt water intrusion. This pilot water information delivery system should be in place within six months and its potential for replication evaluated one year after Inauguration Day. It will serve as a model for future institutional methods of information delivery. Ultimately, in addition to water, the user community will need information delivery systems for coastal zones, health impacts, habitat shifts and temperature changes, among other issues.

REGIONAL CLIMATE IMPACTS ON WATER ACCESS AND INFRASTRUCTURE



Source: EPA Office of Water, "National Water Program Strategy: Response to Climate Change."
Available at: <http://www.epa.gov/water/climatechange/>

Enable and Encourage Citizens to Build Efficiency and Conservation in Their Homes and Communities

The Need for Action: *One of the unique characteristics of the Office of the President is the capacity to inspire action among the nation's citizenry. Too often over the past eight years, however, the President has addressed the climate challenge without mentioning the opportunities for citizen and community action to solve the problem. The global impact of climate change needs to be mitigated with action at the local level in addition to action at the larger federal and international scale. The most significant opportunities for individuals to cut their greenhouse gas emissions and their energy bills are by making their homes, offices, and work places more energy efficient. The President should encourage an effort to improve the efficiency of the nation's buildings, including heating, cooling, lighting, appliances, and building envelopes.*

Energy efficiency is the fastest, cheapest and cleanest supply option to achieve near term climate and energy security goals. The case of energy savings in California illustrates this point best: By enacting aggressive energy efficiency improvements, since 1974, the state has held its per capita energy consumption constant, while in the rest of the United States it has increased by 50%. The next President should recognize this success story and move early to revitalize investment in energy efficiency in the United States.

The opportunity for improved energy efficiency exists across the spectrum of U.S. energy utilization, ranging from the national electricity grid and its transmission system to improving appliances beyond their minimal efficiency levels – the cost of efficient technology often paying for itself in energy savings. The President can have an immediate impact on the national energy portfolio by focusing on one area in particular, residential and commercial buildings.

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A critical component of this effort, which will include a combination of strategies such as insulation improvements, energy-efficient lighting, and improved heating and cooling units, will be the President's presentation of the initiative as a participatory effort for all American citizens. A renewed effort in the United States to embrace energy efficiency will require an overarching national building-retrofit effort, with support from state Public Utility Commissions and governors.

Recommendation: Initiate a national effort to retrofit half of America's existing homes and buildings by 2020 with an average energy savings of 30%. To date, electricity demand has risen by more than 50% since 1980 in the commercial and residential sectors, exposing many Americans to changing electricity prices and also increasing greenhouse gas emissions. Most of this rise in demand is to provide power for buildings – homes, offices, and factories. Investing in building energy efficiency now will save up to half the cost of producing the same power from a new power plant.¹⁰ Thus, a national effort to drive energy efficiency will cut costs for those that retrofit, and lower electricity costs for all by avoiding the construction of expensive new polluting power plants. In addition, it will create jobs, especially in the hard-hit home construction industry, while also reducing greenhouse gas emissions.

Recommendation: Support a fundamental change in utility rules to create a new system in which electric utilities get paid for helping building owners save energy. In 2005, the Department of Energy and the Environmental Protection Agency released a report, "The National Action Plan for Energy

¹⁰ The Federal Energy Regulatory Commission recently concluded that energy efficiency is a valid substitute for baseload capacity. Cost estimates show that energy efficiency may be available for 3 cents/kWh, while a combined cycle gas plant would cost 9 cents/kWh for the fuel alone. Presentation available at: <http://www.ferc.gov/legal/staff-reports/06-19-08-cost-electric.pdf>

Efficiency”, which recommended that policies be modified to align utility incentives with the delivery of cost-effective energy efficiency rather than compensating utilities for building infrastructure and selling more energy.¹¹ Incoming White House staff should review this strategy and convene a discussion with the National Association of Regulatory Utility Commissioners to examine and encourage policy revisions that increase the incentives to utilities to conserve energy.

Recommendation: Call for the establishment of local energy committees across the United States. The President should encourage communities throughout the United States to establish local energy committees to provide a central hub for local efforts to improve energy efficiency. The President should, in parallel, direct the Department of Energy and the Environmental Protection Agency to develop a joint program to assist communities in improving energy efficiency through providing information and technical support. Within six months, the Administration should begin a pilot program to support community efforts already underway, such as those in New Hampshire, following on the successful initiative begun there by the Carbon Coalition during the recent Presidential primary season.

The President should encourage communities throughout the United States to establish local energy committees to provide a central hub for local efforts to improve energy efficiency.

¹¹ US Environmental Protection Agency. “The National Action Plan for Energy Efficiency.” 2005. Available at: http://www.epa.gov/solar/documents/napee/napee_exsum.pdf

Re-Engage Cooperation with International Partners

The Need for Action: *The United States and other countries have agreed on a process for negotiating an international agreement on climate change that is scheduled to conclude at a high-level negotiating session in Copenhagen in December, 2009. This aggressive timetable poses challenges for the next President as he develops a new, more constructive U.S. approach to the negotiations, while also moving forward on domestic action. Refining the details of the Administration's climate change policy will take time, and key sub-cabinet officials can take up to eight months to confirm. Closely linking the Administration's international and domestic initiatives will make success more likely on both fronts. On the international side, this will require clearly communicating the new U.S. policy, engaging key partners, particularly among developing countries, putting forward cooperative U.S. policy initiatives, and participating constructively in the international negotiating process.*

The new Administration will have its best opportunity to re-establish U.S. leadership and credibility in international climate discussions in the six-month period following Inauguration Day. To make the most of this opportunity, following early high-level consultation, a new and more constructive U.S. policy must be declared. The new U.S. policy should highlight the President's commitment to enact a U.S. mandatory domestic emissions reduction program and the intention to work constructively towards a global agreement with participation from all major economies, while at the same time making clear that international commitments undertaken by the U.S. must and will be grounded in U.S. domestic policies in which Congress will play a key role. In tandem with the new policy, the Administration should take steps to cooperatively engage key developing countries, put forward practical policy initiatives, and re-engage in a more constructive manner the ongoing international negotiations.

To preview and follow-up the new policy with key international partners, the President should appoint a Special Envoy on Climate Change (see 'Picking the Right Team') who can speak with foreign leaders on his behalf. An effective envoy can consult partners prior to U.S. policy announcements, pursue cooperative engagements at high levels, and communicate the President's objectives, thus helping to establish a constructive dialogue as the Administration is filling out its climate team and developing the details of the U.S. negotiating position.

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To engage developing countries, the Administration should seek opportunities to enhance discussions on cooperative agreements with key partners such as China and Brazil, and should make clear the U.S. interest in expanding funding for clean energy investments in the developing world. It should also redirect and accelerate the so-called "Major Economies Process" and should use it to seek agreements on sectoral efforts among the top emitting countries.

To re-engage the international discussions in a way that offers the best chance of reaching agreement on a global strategy, the Administration should initiate or expand practical emissions reduction initiatives in which other nations can participate, and should at the same time re-engage the international negotiations with a new spirit of cooperation and collaboration.

The White House could send an important signal of its change of policy and its new cooperative approach by clarifying, early on, its intent to follow the best science in forming U.S. climate policy, and its support for the participation of U.S. scientists in the international effort to better understand and predict the consequences of climate change. Given recent research and global changes, especially at the poles, some IPCC researchers have indicated a need for an accelerated update of the Fourth Assessment or an earlier Fifth Assessment. The President-elect could indicate his willingness to support such an effort with U.S. scientists and funding.

In sum, the new Administration will enjoy an international six-month “honeymoon” which it should use to its advantage to reengage partners, change the common perception of U.S. intransigence, and establish improved conditions for an international agreement in which the U.S. can participate fully. To make the most of this opportunity, the Administration must successfully signal a change in policy, intensify complementary efforts and strongly engage the international negotiating process.

Recommendation: As soon as possible after Inauguration Day, the President’s Special Envoy on Climate Change, working with the Secretary of State, should begin informal consultations with key nations and groups. The envoy should consult with key partners regarding the change in U.S. policy, and should convey to them the President’s new ambitious climate objectives.

Recommendation: The President himself should articulate the change in U.S. policy. He should declare his intent to work with Congress to enact a domestic emissions reduction program, and his commitment to work towards an effective global agreement, with participation and appropriate commitments by all major economies, to achieve the necessary global reductions. At the same time, he should make clear that any U.S. emissions reduction commitment negotiated as part of a global agreement must be solidly based on enacted authority.

Recommendation: The Administration should act early to engage key developing countries. Among the Special Envoy’s first priorities should be to visit Beijing and Brasilia to convey the U.S. interest in bilateral discussions that might lead to a technology cooperation agreement with China, and a high-level forest conservation initiative with Brazil. The U.S.-China technology discussion would center on the possibility of a research and development partnership focusing on low-carbon energy technology, including carbon capture and sequestration and the full suite of renewable technologies. This collaborative effort would build on the success to date of the U.S.-China Strategic Economic Dialogue, but would go further in achieving gains in the deployment of clean energy technology through a joint effort to improve protection for intellectual property rights and assuring China its share in the clean energy market. The forest conservation dialogue would explore the possibility of an intensive process through which the U.S., Brazil, and the Coalition of Rainforest Nations could work to resolve the many technical and methodological issues that are currently impeding international acceptance of credits from reduction of deforestation (RED) activities in U.S. and global carbon markets.

The Administration should also seek to enhance and operationalize commitments made by the previous Administration on issues of clean energy finance. In his 2008 State of the Union speech, President Bush committed \$2 billion over three years to create the Clean Technology Fund (CTF) to accelerate the deployment of cleaner, more efficient technologies in developing nations like India and China. The Administration should identify the barriers that currently exist to deploying energy efficient and low-carbon technologies by calling on organizations such as the National Association of Energy Service Companies to assist with low-cost energy installation in concert with projects financed by the CTF.

In parallel with these efforts, the Administration should redirect and reinvigorate the Major Economies Process (MEP). The MEP discussions include the 17 countries most responsible for global energy use and greenhouse gas emissions, and therefore provide a potential venue for practical discussions that could be part of a global agreement. Recently, efforts have been made to absorb these discussions in the broader United Nations climate negotiations, which is unlikely to speed their progress. Technical discussions focused on industry sectors such as steel, cement, and aluminum have shown promise, but to date discussions have failed to result in meaningful outcomes to mitigate climate change. The next

Administration should seek to accelerate the MEP discussions, as well as related efforts such as the Asia-Pacific Partnership on Clean Development and Climate, and to reassess U.S. leadership with a focus on reaching agreements on sectoral standards, and emissions reductions strategies, associated with new financial commitments to support low-carbon energy and adaptation initiatives.

Recommendation: Initiate or expand practical emission reduction efforts in which other nations can participate.

Expand Methane to Markets: A growing number of governments have recognized the value of the Methane to Markets (M2M) approach to address this potent greenhouse gas, especially as a means to slow current warming more rapidly. The Partnership currently includes 25 countries. The new Administration should move early to expand M2M with increased funding from its current modest levels, allowing the inclusion of projects that cannot meet the current requirement to fully recover up-front costs. In order to avoid concern that M2M is competitive with Kyoto-based mechanisms, the Administration should seek opportunities to couple it where appropriate to CDM efforts, or to TOAs (Technology-Oriented Agreements) linked to existing and future emissions targets.

Offer Cooperative Approach to Reduce the Rate of Climate Change in the Arctic: The new Administration should announce its intention to continue and intensify U.S. cooperation with other Arctic Council nations (Norway, Sweden, Finland, Iceland, Denmark, Russia, and Canada) on an urgent plan to slow climate change in the Arctic by reducing short-lived climate forcers such as black carbon, tropospheric ozone, and methane. The Arctic climate strategy would explicitly recognize the need for global greenhouse gas reductions, but would seek to avoid triggering irrevocable ‘tipping points’ in the region while the global solution is being developed. It would include both research and immediately available mitigation actions. To demonstrate this commitment, the Administration should send a high-ranking State Department official, accompanied by senior EPA staff, to the April 2009 Arctic Council ministerial.

Recommendation: Fully engage in the U.N.-based international negotiating process. Sending the Special Envoy on Climate, a White House-based official with the full trust of the President, to consult with partners prior to negotiating sessions, will in itself enable a more proactive and constructive U.S. negotiating stance at the talks leading to COP-15 in Copenhagen. Early interactions with officials from key partners should emphasize U.S. interest in addressing issues important to developing countries, such as adaptation and technology transfer, as well as emphasizing domestic energy policy initiatives and emissions reduction efforts already underway and planned by the new Administration. These conversations should be designed to open the possibility of a “build up” approach in which agreement on sectoral standards and commitments and other policies and measures could be included in a Copenhagen result.

The new Administration should invite and encourage the attendance by members of Congress, and particularly members of the White House-Congressional team working on cap-and-trade legislation, to negotiating sessions (not just the final event in Copenhagen). Such attendance may also help encourage passage of a domestic climate bill with a strong international component well before COP-15 in December 2009, enabling truly substantive U.S. participation in the negotiating process.

The new Administration will have its best opportunity to re-establish U.S. leadership and credibility... in the six-month period following Inauguration Day.

APPENDIX I: LIST OF EXPERT INTERVIEWEES

Peter Backlund: *former* Senior Policy Analyst, Environment Division of the Office of Science and Technology Policy, currently Director of Research Relations, National Center for Atmospheric Research

Jim Ball: *currently* President, Creation Care

Ko Barrett: *former* Director, Global Climate Change Program, Office of Environment and Science Policy, Bureau for Economic Growth, Agriculture and Trade, U.S. Agency for International Development, *currently* Acting Deputy Director, Division Chief, Climate Assessment Services Division, NOAA

Rand Beers: *former* Director for Counter-Terrorism and Counter-Narcotics, National Security Council (1988-1998), *currently* President, National Security Network

David Behar: *currently* Climate Change Policy Manager, San Francisco Public Utilities Commission

Rosina Bierbaum: *former* Associate Director for Environment, Office of Science and Technology Policy, Executive Office of the President (1998-2001), *currently* Dean of the School of Natural Resources and Environment at the University of Michigan

Sally Bingham: *currently* Founder, Interfaith Power and Light

John P. Burke: *author* Presidential Transitions: From Politics to Practice, *currently* professor, American Politics, University of Vermont

David Conover: *former* Principal Deputy Assistant Secretary for Policy and International Affairs, U.S. Department of Energy and Director of the U.S. Climate Change Technology Partnership (2003-2006) *currently* Counsel, National Commission on Energy Policy

Martha Coven: *currently* Senior Legislative Associate, Center on Budget and Policy Priorities

Patrick Cummins: *currently* Director, Western Climate Initiative

Mikaela Engert: *currently* City Planner, City of Keene, New Hampshire

Bryan Hannegan: *former* Chief of Staff, White House Council on Environmental Quality and Acting Special Assistant to the President for Economic Policy (2004-2006), *currently* Vice President, Environment and Generation, Electric Power Research Institute

Ed Harrington: *former* City Controller, San Francisco, *currently* General Manager, San Francisco Public Utilities Commission

Bill Hohenstein: *former* Division Director, National Center for Environmental Economics, U.S. Environmental Protection Agency, *currently* Director, Global Change Program Office, U.S. Department of Agriculture

Robert Hurley: *former* Staff Director, U.S. Senate Committee on Environment & Public Works, *currently* Principal, The Accord Group

Rhett Lamb: *currently* Planning Director, City of Keene, New Hampshire

Jonathan Lash: *former* Co-Chair, President Clinton's Council on Sustainable Development, *currently* President, World Resources Institute

Susan Leal: *former* General Manager, San Francisco Public Utilities Commission, *currently* Director, Water Utilities Climate Alliance

Larry Linden: *former* Senior Policy Analyst, Office of Science and Technology Policy, White House Staff in the Carter Administration, *currently* Advisory Director, Goldman Sachs

Dr. Robert Marley: *currently* Deputy Director, U.S. Climate Change Technology Program, Office of Policy and International Affairs, U.S. Department of Energy

Dr. James McCarthy: *former* Co-Chair, Intergovernmental Panel on Climate Change (IPCC), Working Group II, *currently* professor of Biological Oceanography, Harvard University

Kathleen McGinty: *former* Chair, Council on Environmental Quality (1993-1998), *currently* Secretary, Pennsylvania Department of Environmental Protection

Brian McLean: *former* Director, Clean Air Markets Division, U.S. Environmental Protection Agency, *currently* Director of Atmospheric Programs, Office of Air and Radiation, U.S. Environmental Protection Agency

Frank Nutter: *former* President of the Alliance of American Insurers and the Property Loss Research Bureau, *currently* President, Reinsurance Association of America

Leon Panetta: *former* Chief of Staff, President Clinton (1994-1997), *currently* Director, The Leon & Sylvia Panetta Institute for Public Policy

Jonathan Phillips: *currently* Staffer, Select Committee for Energy Independence and Global Warming, Congressman Edward Markey

William Pizer: *former* Senior Fellow and Director, Energy and Natural Resources, Resources for the Future, *currently* Director, Office for Energy and Environment, United States Treasury Department

Wendy Sherman: *former* Counselor of the U.S. Department of State (1997-2001), *currently* Principal, The Albright Group

James Gustave Speth: *former* Chairman of the Council on Environmental Quality in the Executive Office of the President (1977-1981), *currently* Dean, Yale School of Forestry & Environmental Studies

Frances Spivy-Weber: *former* Director for International Programs, National Audubon Society (1983-1992), *currently* Board Member, California State Water Resources Control Board

Randy Steer: *currently* Office of Planning, Budget and Analysis, Energy Efficiency and Renewable Energy, U.S. Department of Energy

Roger Stephenson: *former* Interior representative to the White House Council on Environmental Quality (1995-1999), *currently* Executive Vice President for Programs, Clean Air-Cool Planet

Todd Stern: *former* White House Staff Secretary (1993-1999) and senior White House climate negotiator, *currently* Partner, Wilmer Hale

Elizabeth Stolpe: *former* Associate Director, White House Council on Environmental Quality, *currently* Senior Counsel Downstream, Shell Oil

Heather Taylor: *currently* Deputy Legislative Director, Natural Resources Defense Council

Angela Vincent: *currently* Regional Director Northeast/Mid-Atlantic Capacity Center, ICLEI

Wesley Warren: *formerly* Associate Director for Natural Resources, Environment and Energy, Office of Management and Budget (1996-2001), *currently* Director of Programs, Natural Resources Defense Council

Heather Wicke: *former* Environmental Legislative Advisor to Senator John McCain (2002-2005), *currently* Vice President and Director of Policy, Piedmont Environmental Council

APPENDIX II: STATEMENTS BY THE 2008 PRESIDENTIAL CANDIDATES ON CLIMATE AND ENERGY

Picking the Right Team to Carry the Initiative

Senator Barack Obama

“I will ensure that my Cabinet and all of my appointees honor the primacy of sound science in regulatory and policy decision-making, and adherence to sound science of course means recognition that the climate change threat is real and exacerbated by human activity. I will keep political ideology out of scientific decisions in the Executive Branch. I will also only appoint officials that are qualified to do their jobs, and aren’t going to represent big industry over the American people while serving in my Administration.”¹²

Senator John McCain

“As President I will appoint a Science and Technology Advisor within the White House to ensure that the role of science and technology in policies is fully recognized and leveraged, that policies will be based upon sound science, and that the scientific integrity of federal research is restored...and develop and implement a global competitive agenda through a series of business roundtables with industry and academia leaders.”¹³

Reallocation of Budget Priorities

Senator Barack Obama

“I have proposed programs that, taken together, will increase federal investment in the clean energy research, development, and deployment by \$150 billion over ten years. This research will cover basic research to develop alternative fuels and chemicals, equipment and designs that can greatly reduce energy use in residential and commercial buildings – both new and existing, new vehicle technologies capable of significantly reducing our oil consumption, and advanced energy storage and transmission.”¹⁴

Senator John McCain

“I am committed to investing \$2 billion every year for the next 15 years on clean coal technologies, to unlock the potential of America’s oldest and most abundant resource. We will commit up to a \$5,000 tax credit to each and every customer who buys a zero-emission vehicle. I further propose we inspire the ingenuity and resolve of the American people by offering a \$300 million prize for the development of a battery package that has the size, capacity, cost and power to leapfrog the commercially available plug-in hybrids or electric cars.”¹⁵

12 Provided to the Carbon Coalition by the Obama campaign on November 29, 2007. Available at: <http://www.carboncoalition.org/candidates/obama.php>

13 McCain Submission on Innovation to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#1>

14 Obama Submission on Energy to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#3>

15 McCain Submission on Energy to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#3>

Legislation for Economy-Wide Emissions Reductions

Senator Barack Obama

“I will implement a market-based cap-and-trade system to reduce carbon emissions by the amount scientists say is necessary: 80 percent below 1990 levels by 2050. I will start reducing emissions immediately by establishing strong annual reduction targets with an immediate goal of reducing emissions to 1990 levels by 2020.”¹⁶

Senator John McCain

“To dramatically reduce carbon emissions, I will institute a new cap-and-trade system that over time will change the dynamic of our energy economy. By the year 2012, we will seek a return to 2005 levels of emissions, by 2020, a return to 1990 levels, and so on until we have achieved at least a reduction of sixty percent below 1990 levels by the year 2050.”¹⁷

Aggressive Research and Development for Low-Carbon Energy Technology

Senator Barack Obama

“America’s challenges in providing secure, affordable energy while addressing climate change mean that we must make much more efficient use of energy and begin to rely on new energy sources that eliminate or greatly reduce greenhouse gas emissions. My programs focus both on a greatly expanded program of federally funded energy research and development and on policies designed to speed the adoption of innovative energy technologies and stimulate private innovation.”¹⁸

Senator John McCain

“One of the prevailing issues of our time and the next Presidency will be how to deal with the issues of energy security and sustainability. It is important that we shift to sustainable, clean burning energy sources or advance to technologies that make our more traditional resources cleaner burning...a McCain Administration would establish a permanent research and development tax credit equal to ten percent of wages spent on R&D, to open the door to a new generation of environmental entrepreneurs.”¹⁹

Federal Planning for Adaptation to Climate Change Impacts

Senator Barack Obama

“For decades, we’ve been warned by legions of scientists and mountains of evidence that this was coming – that we couldn’t just keep burning fossil fuels and contribute to the changing atmosphere without consequence. And yet, for decades, far too many have ignored the warnings, either dismissing the science as a hoax or believing that it was the concern of enviros looking to save polar bears and rainforests. But today, we’re seeing that climate change is about more than a few unseasonably mild winters or hot summers. It’s about the chain of natural catastrophes and devastating weather patterns that global

16 Obama Submission on Climate to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#2>

17 McCain Submission on Climate to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#2>

18 Obama Submission on Energy to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#3>

19 McCain Submission on Energy to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#3>

warming is beginning to set off around the world – the frequency and intensity of which are breaking records thousands of years old.”²⁰

Senator John McCain

“In the years ahead, we are likely to see reduced water supplies, more forest fires than in previous decades, changes in crop production, more heat waves afflicting our cities and a greater intensity in storms. Each one of these consequences of climate change will require policies to protect our citizens, especially those most vulnerable to violent weather. Each one will require new precautions in the repair and construction of our roads, bridges, railways, seawalls and other infrastructure. Some state and local governments have already begun their planning and preparation for extreme events and other impacts of climate change. The federal government can help them in many ways, above all by coordinating their efforts, and I am committed to providing that support.”²¹

Enable and Encourage Citizens to Build Efficiency and Conservation in Their Homes and Communities

Senator Barack Obama

“As president, I will make energy conservation a top priority and use my position as president to communicate directly with the American people about the importance of reducing our energy consumption. I will also work with Congress to start creating a smart, digitally-connected energy grid that will help consumers produce electricity at home through solar panels or wind turbines, and be able to sell electricity back through the grid for other consumers, and help consumers reduce their energy use during peak hours when electricity is more expensive. This effort will help more Americans better manage their energy consumption. I will also create a competitive grant program to award those states and localities that take the first steps in implementing new building codes that prioritize energy efficiency, and provide a federal match for those states with leading-edge public benefits funds that support energy efficiency retrofits of existing buildings.”²²

Senator John McCain

“To create greater demand for the best technologies and practices in energy conservation, we will use the purchasing power of the United States government. Our government can hardly expect citizens and private businesses to adopt or invest in low-carbon technologies when it doesn’t always hold itself to the same standard. We need to set a better example in Washington, by consistently applying the best environmental standards to every purchase our government makes.”²³ “New advances will make conservation an ever more important part of the solution. Improved light bulbs can use much less energy; smart grid technology can help homeowners and businesses lower their energy use, and breakthroughs in high tech materials can greatly improve fuel efficiency in the transportation sector.”²⁴

20 Remarks delivered in Chicago, Illinois on April 3, 2006. Available at: http://obama.senate.gov/speech/060403-energy_independ/

21 Remarks delivered at the Vestas Training Facility in Portland, Oregon on May 12, 2008. Available at: <http://www.johnmccain.com/Informing/News/Speeches/0B381ABD-E573-459D-8716-FBD83AB62D8D.htm>

22 Provided to the Carbon Coalition by the Obama campaign on November 29, 2007.

23 Remarks delivered at the Vestas Training Facility in Portland, Oregon on May 12, 2008. Available at: <http://www.johnmccain.com/Informing/News/Speeches/0B381ABD-E573-459D-8716-FBD83AB62D8D.htm>

24 Remarks delivered on April 23, 2007. Available at: <https://www.johnmccain.com/informing/news/Speeches/13bc1d97-4ca5-49dd-9805-1297872571ed.htm>

Re-Engage Cooperation with International Partners

Senator Barack Obama

“I will restore U.S. leadership in strategies for combating climate change and work closely with the international community. We will re-engage with the U.N. Framework Convention on Climate Change, the main international forum dedicated to addressing the climate change problem. In addition I will create a Global Energy Forum – based on the G8+5, which includes all G-8 members plus Brazil, China, India, Mexico and South Africa – comprising the largest energy consuming nations from both the developed and developing world.”²⁵

Senator John McCain

“I am committed as President to pursue the efforts to reduce greenhouse gases immediately. That includes joining Kyoto as long as we have India and China involved. It would not be fair to the planet to say the two largest growing economies who are greenhouse gas emitters are not part of it. Second of all there is a political reality and the American people would not support our engagement, joining Kyoto without India and China involved.”²⁶

²⁵ Obama Submission on Climate to Science Debate 2008. Available at: <http://www.sciencedebate2008.com/www/index.php?id=42#2>

²⁶ Comments from the Global Warming and Energy Solutions Conference in Manchester, New Hampshire on October 13, 2007.

