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**Before the
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United States Senate**

“Kyoto Protocol: Assessing the status of efforts to reduce greenhouse gases”

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Mr. Chairman and Members of the Committee, thank you for the opportunity to appear before you today to discuss the Kyoto Protocol and assess efforts to reduce greenhouse gases. I would like to begin with a discussion of the Bush Administration’s overall climate change policy, including a description of our broad international engagement in carrying this policy forward. Finally, I would like to touch upon U.S. expectations at the Eleventh Session of the Conference of the Parties (COP 11) to the UN Framework Convention on Climate Change (UNFCCC).

President Bush’s Climate Change Policy

As a Party to the UNFCCC, the United States shares with many other countries its ultimate objective: stabilization of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous human-induced interference with the climate system. In February 2002, President Bush reaffirmed America’s commitment to the Framework Convention and its central goal, while also making clear that he could not commit the U.S. to the Kyoto Protocol that would have cost the U.S. economy up to \$400 billion dollars and 4.9 million jobs.¹

Addressing the challenge of global climate change will require a sustained, long-term commitment by all nations over many generations. To this end, the President has established a robust and flexible climate change policy that harnesses the power of markets and technological innovation, maintains economic growth, and encourages global participation. Major elements of this approach include implementing near-term policies and measures to slow the growth in greenhouse gas emissions, advancing climate change science, accelerating climate change technology development, and promoting international collaboration.

Near-Term Policies and Measures to Slow the Growth in Greenhouse Gas Emissions

Although climate change is a complex and long-term challenge, the Bush administration recognizes that there are cost-effective steps we can take now. In February 2002,

¹<http://www.whitehouse.gov/news/releases/2002/02/20020214-5.html>.

President Bush set an ambitious national goal to reduce the greenhouse gas intensity (emissions per unit of economic output) of the U.S. economy by 18 percent by 2012, which represents about a 29 percent improvement in the “business-as-usual” rate of change of 14 percent projected by the Energy Information Administration (EIA) over this period.² The Administration estimated that its 18 percent intensity improvement goal will reduce cumulative emissions by more than 1,833 million metric tons of carbon dioxide equivalent by 2012,³ and recent EIA projections suggest that achieving the 18 percent goal will reduce emissions by 366 million metric tons of carbon dioxide equivalent in 2012 alone.²

A hallmark of the intensity approach is flexibility, an especially important consideration when confronted with the many uncertainties surrounding climate change. These uncertainties suggest that a measured response is required that concentrates first on slowing emissions growth before trying to stop and eventually reverse it. A greenhouse gas emissions intensity goal can encourage reductions without risking economic consequences that could jeopardize our ability to invest in long-run scientific and technological solutions.

To this end, the Administration has developed an array of policy measures, including voluntary programs and financial incentives.

In setting the 18 percent decade goal, President Bush issued a challenge to the private sector to do its part. The President’s call resonated with business, which has responded positively through its participation in a number of new voluntary programs, including DOE’s Climate VISION program and EPA’s Climate Leaders and SmartWay Transport Partnership programs:

- **Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now)⁴:** In February 2003, the Federal Government and industry organizations representing thousands of companies from 12 energy-intensive economic sectors (since expanded to 14) and The Business Roundtable also joined in a voluntary partnership known as Climate VISION. Climate VISION is unique in that it focuses on economic sectors, not specific companies, with each industry association making a commitment on behalf of its members to reduce greenhouse gas emissions intensity. These Climate VISION partners, which include some of the largest companies in America, represent a broad range of industry sectors—oil and gas, electricity generation, coal and mineral production and mining, manufacturing (automobiles, cement, iron and steel, magnesium, aluminum, chemicals, and semiconductors), railroads, and forestry products—accounting for about 40 to 45 percent of total U.S. greenhouse gas emissions. Four Federal agencies participate in the program: DOE (lead),

²Energy Information Administration (EIA). 2005. *Annual energy outlook 2005: with projections to 2025*, DOE/EIA-0383(2005). Washington, DC: U.S. Department of Energy, p. 55. (<http://www.eia.doe.gov/oiaf/aeo/index.html>)

³<http://www.whitehouse.gov/news/releases/2002/02/20020214.html>.

⁴<http://www.climatevision.gov/>.

Department of Agriculture (USDA), Department of Transportation (DOT), and the Environmental Protection Agency (EPA).

- **Climate Leaders⁵:** Climate Leaders, established in February 2002, is an EPA partnership encouraging individual companies to develop long-term, comprehensive climate change strategies. Under this program, partners set corporate-wide greenhouse gas reduction goals and inventory their emissions to measure progress. By reporting inventory data to EPA, partners create a lasting record of their accomplishments and also identify themselves as corporate environmental leaders, strategically positioned to address climate change policy issues. Seventy-one major companies from diverse industries representing 8 percent of U.S. emissions are now participating.
- **SmartWay Transport Partnership⁶:** Launched in February 2004, the SmartWay Transport Partnership is designed to reduce fuel consumption and emissions by encouraging shippers and carriers to improve the overall environmental performance of the freight delivery system. Currently, 225 companies have joined SmartWay, including 170 Trucking Carriers, 25 Shippers, 7 Shipper/Carriers, 8 Railroads, 7 logistics companies and 8 Affiliates. Based on the actions taken by these partners to date, EPA projects savings of at least 175 million gallons of fuel by the year 2007.

Further, the USDA is using its conservation programs to provide an incentive for actions that increase carbon sequestration. Under the Farm Security and Rural Investment Act of 2002, the U.S. will invest about \$40 billion over 10 years for conservation measures on its farms and forest lands—including measures that will enhance the natural storage of carbon.

DOE is also pursuing many energy supply technologies with comparatively low or zero carbon dioxide emissions profiles, such as solar, wind, bioenergy, and combined heat and power. In addition, the Bush Administration also has increased fuel economy standards for new light trucks and sport utility vehicles by 1.5 miles per gallon over the next three model years, and a new round of standards was proposed on August 23.⁷

These and other initiatives may be contributing to greenhouse gas emission intensity reductions that we have seen already. The President's 18 percent ten-year goal represents an average annual rate of 1.8 percent. According to Energy Information Administration's (EIA) *Emissions of Greenhouse Gases in the United States 2003* report⁸, the greenhouse gas intensity was 2.3 percent lower in 2003 than in 2002, and a June 2005 EIA flash estimate of energy-related carbon emissions—which account for over four fifths of total

⁵<http://www.epa.gov/climateleaders/>.

⁶<http://www.epa.gov/smartway/>.

⁷http://nhtsa.gov/portal/site/nhtsa/template.MAXIMIZE/menuitem.f2217bee37fb302f6d7c121046108a0c/?javax.portlet.tpst=1e51531b2220b0f8ea14201046108a0c_ws_MX&javax.portlet.prp_1e51531b2220b0f8ea14201046108a0c_viewID=detail_view&javax.portlet.begCacheTok=token&javax.portlet.endCacheTok=token&itemID=d674acd2593e5010VgnVCM1000002c567798RCRD&overrideViewName=PressRelease.

⁸<http://www.eia.doe.gov/oiaf/1605/ggrpt/pdf/057303.pdf>, p. 15.

greenhouse gas emissions—suggests an improvement in carbon dioxide emissions intensity of 2.6 percent in 2004⁹. Overall, then, the Nation appears to be ahead of schedule in meeting the President’s goal.

Advancing Climate Change Science

In May 2001, President Bush commissioned the National Academies National Research Council (NRC) to examine the state of our knowledge and understanding of climate change science. The NRC’s report makes clear that there are still important gaps in our knowledge.¹⁰

Based on the resulting NRC report and the Administration’s ongoing climate science planning activity, President Bush created a new cabinet-level management committee (the Committee on Climate Change Science and Technology Integration) in February 2002 to oversee climate change science and technology activities. The President’s direction resulted in the creation of the U.S. Climate Change Science Program (CCSP), combining the existing U.S. Global Change Research Program (USGCRP) and the Climate Change Research Initiative (CCRI), as well as the creation of the Climate Change Technology Program (CCTP).

The Climate Change Science Program (CCSP)¹¹ integrates the federal research on global change and climate change across thirteen federal agencies (the National Science Foundation (NSF), the Department of Commerce, the DOE, EPA, the National Aeronautics and Space Administration (NASA), the Department of State, the Department of Interior, the Department of Agriculture, the Department of Health and Human Services, the Department of Transportation, the Department of Defense, U.S. Agency for International Development, and the Smithsonian Institution) and overseen by the Office of Science and Technology Policy, the Council on Environmental Quality, the National Economic Council and the Office of Management and Budget. The Administration requested \$1.9 billion for CCSP in FY 2006.

In July 2003, CCSP released its *Strategic Plan for the U.S. Climate Change Science Program*¹², the first comprehensive update of a national plan for climate and global change research since the original U.S. Global Change Research Program strategy was issued at the inception of the program in 1990. The plan is organized around five goals: (1) improving our knowledge of climate history and variability; (2) improving our ability to quantify factors that affect climate; (3) reducing uncertainty in climate projections; (4) improving our understanding of the sensitivity and adaptability of ecosystems and human systems to climate change; and (5) exploring uses and identifying limits of knowledge to manage risks and opportunities. A review of the CCSP plan by the NRC, which

⁹<http://www.eia.doe.gov/neic/press/press257.html>.

¹⁰National Research Council. 2001. *Climate Change Science: An Analysis of Some Key Questions*, Committee on the Science of Climate Change, National Research Council, National Academy Press, Washington, DC. (<http://www.nap.edu/catalog/10139.html>).

¹¹<http://www.climatechange.gov>.

¹²<http://www.climatechange.gov/Library/stratplan2003/final/default.htm>.

concluded that it “articulates a guiding vision, is appropriately ambitious, and is broad in scope,” shows the Administration is on the right track.¹³

Twenty-one Synthesis and Assessment Products are identified in the Strategic Plan in fulfillment of Section 106 of the 1990 Global Research Act to be produced through 2007. These reports are designed to address a full range of science questions and evaluate options for response that are of the greatest relevance to decision and policy makers and planners. The products are intended to provide the best possible state of science information, developed by a diverse group of climate experts, for the decision community.

Since CCSP was created in 2002, the program has successfully integrated a wide range of research, climate science priorities of the thirteen CCSP agencies. CCSP has taken on some of the most challenging questions in climate science and is developing products to convey the most advanced state of knowledge to be used by federal, state and local decision makers, resource managers, the science community, the media, and the general public.

CCSP will hold a public workshop on November 14-16 in Arlington, VA. The CCSP Workshop will address the capability of climate science to inform decision-making and will serve as a forum to address the progress and future plans regarding CCSP’s three decision-support deliverables as described above. The Workshop will provide an opportunity for scientists and user communities to discuss decision-maker needs and future application of scientific information on climate variability and change, as well as discussion on expected outcomes of CCSP’s research and assessment activities that are necessary for sound resource management, adaptive planning and policy.

Accelerating Climate Change Technology Development

While acting to slow the pace of greenhouse gas emissions intensity in the near term, the Administration is laying a strong technological foundation to develop realistic mitigation options to meet energy security and climate change objectives.

The Bush Administration is moving ahead on advanced technology options that have the potential to substantially reduce, avoid, or sequester future greenhouse gas emissions. Over 80 percent of current global anthropogenic greenhouse gas emissions are energy related, and although projections vary considerably, a tripling of global energy demand by 2100 is not unimaginable. Therefore, to provide the energy necessary for continued economic growth while we reduce greenhouse gas emissions, we may have to develop and deploy cost-effective technologies that alter the way we produce and use energy.

¹³National Research Council. 2004. *Implementing Climate and Global Change Research: A Review of the Final U.S. Climate Change Science Program Strategic Plan*, Committee to Review the U.S. Climate Change Science Program Strategic Plan, National Research Council, , National Academy Press, Washington, D.C., p. 1 (<http://books.nap.edu/catalog/10635.html>).

The Climate Change Technology Program (CCTP)¹⁴ was created to coordinate and prioritize the Federal Government's climate-related technology research, development, demonstration, and deployment (RDD&D) activities, for which the Administration has requested \$2.865 billion in FY 2006. Title XVI of the Energy Policy Act of 2005 authorizes CCTP within the Department of Energy (DOE).

Using various analytical tools, CCTP is assessing different technology options and their potential contributions to reducing greenhouse gas emissions. Given the tremendous capital investment in existing energy systems, the desired transformation of our global energy system may take decades or more to implement fully. A robust RDD&D effort can make advanced technologies available sooner rather than later and can accelerate modernization of capital stock at lower cost and with greater flexibility.

On August 5, Energy Secretary Bodman, who currently chairs the President's Cabinet Committee on Climate Change Science and Technology Integration, released the CCTP *Vision and Framework* for our forthcoming draft *Strategic Plan*.¹⁵ CCTP's strategic vision has six complementary goals: (1) reducing emissions from energy use and infrastructure; (2) reducing emissions from energy supply; (3) capturing and sequestering carbon dioxide; (4) reducing emissions of other greenhouse gases; (5) measuring and monitoring emissions; and (6) bolstering the contributions of basic science. The DOE also released for public review and comment the larger CCTP *Strategic Plan* on September 22.¹⁶

The Administration continues strong investment in many strategic technology areas. As the President's National Energy Policy requires, the strategic technology efforts with respect to energy production and distribution focus on ensuring environmental soundness, as well as dependability and affordability.

- **Energy Efficiency and Renewable Energy:** Energy efficiency is the single largest investment area under CCTP and it provides tremendous short-term potential to reduce energy use and greenhouse gas emissions. Renewable energy includes a range of different technologies that can play an important role in reducing greenhouse gas emissions. The United States invests significant resources in wind, solar photovoltaics, geothermal, and biomass technologies. Many of these technologies have made considerable progress in price competitiveness, but there remain opportunities to reduce manufacturing, operating, and maintenance costs of many of these technologies.
- **Hydrogen:** President Bush announced his Hydrogen Fuel Initiative¹⁷ in his 2003 State of the Union Address. The goal is to work closely with the private sector to accelerate our transition to a hydrogen economy, on both the technology of hydrogen fuel cells and a fueling infrastructure. The President's Hydrogen Fuel Initiative and

¹⁴<http://www.climatechange.gov/>.

¹⁵<http://www.climatechange.gov/vision2005/index.htm>.

¹⁶<http://www.climatechange.gov/stratplan/draft/index.htm>.

¹⁷<http://www.hydrogen.gov/president.html>.

the FreedomCAR Partnership¹⁸ which was launched in 2002 will provide \$1.7 billion through 2008 to develop hydrogen-powered fuel cells, hydrogen production and infrastructure technologies, and advanced automotive technologies, with the goal of commercializing fuel-cell vehicles by 2020.¹⁹

- **Carbon Sequestration:** Carbon capture and sequestration is a central element of CCTP's strategy because for the foreseeable future, fossil fuels will continue to be the world's most reliable and lowest-cost form of energy. A realistic approach is to find ways to capture and store the carbon dioxide produced when these fuels are used. DOE's core Carbon Sequestration Program²⁰ emphasizes technologies that capture carbon dioxide from large point sources and store it in geologic formations. In 2003, DOE launched a nationwide network of seven Regional Carbon Sequestration Partnerships²¹, involving State agencies, universities, and the private sector, to determine the best approaches for sequestration in each geographic region represented and to examine regulatory and infrastructure needs. On June 9th of this year, Secretary of Energy Bodman announced a major expansion of the Regional Partnerships program²².
- **Coal-Fired, Near-Zero-Emissions Power Generation:** The United States has vast reserves of coal, and about half of its electricity is generated from this fuel. Advanced coal-based power and fuels, therefore, is an area of special interest from both an energy security and climate change perspective. The Coal Research Initiative (CRI) consists of research, development, and demonstration of coal-related technologies that will improve coal's competitiveness in future energy supply markets. The Clean Coal Power Initiative (CCPI)²³, within the CRI, is a cost-shared program between the government and industry to demonstrate emerging technologies in coal-based power generation and to accelerate their commercialization. A major initiative under CCPI is the FutureGen project²⁴, a 10-year, \$1 billion government-industry cost-shared effort to design, build, and operate the world's first near-zero atmospheric emissions coal-fired power plant. This project, which cuts across many CCTP strategic areas, will incorporate the latest technologies in carbon sequestration, oxygen and hydrogen separation membranes, turbines, fuel cells, and coal-to-hydrogen gasification. Through the CRI, clean coal can remain part of a diverse, secure energy portfolio well into the future.
- **Nuclear Fission:** Concerns over resource availability, energy security, and air quality as well as climate change suggest a larger role for nuclear power as an energy supply choice. While current generations of nuclear energy systems are adequate in

¹⁸<http://www.eere.energy.gov/vehiclesandfuels/>.

¹⁹ Much of the funding dedicated to the Hydrogen Fuel Initiative is accounted for within other technology areas here.

²⁰<http://www.fe.doe.gov/programs/sequestration/index.html>.

²¹<http://www.fe.doe.gov/programs/sequestration/partnerships/>.

²²http://www.energy.gov/engine/content.do?PUBLIC_ID=18031&BT_CODE=PR_PRESSRELEASES&T_CODE=PRESSRELEASE.

²³<http://www.fe.doe.gov/programs/powersystems/cleancoal/index.html>.

²⁴<http://www.fe.doe.gov/programs/powersystems/futuregen/index.html>.

many markets today, new construction of advanced light-water reactors in the near term and of even more advanced systems in the longer term can broaden opportunities for nuclear energy, both in industrialized and developing countries. The Nuclear Power 2010 program²⁵ is working with industry to demonstrate the Nuclear Regulatory Commission's new licensing process, while the Generation IV Nuclear Energy Systems Initiative²⁶ is investigating the more advanced reactor and fuel cycle systems that represent a significant leap in economic performance, safety, and proliferation-resistance. One promising system being developed under the Nuclear Hydrogen Initiative²⁷ would pair very-high-temperature reactor technology with advanced hydrogen production capabilities that could produce both electricity and hydrogen on a scale to meet transportation needs. Complementing these programs is the Advanced Fuel Cycle Initiative²⁸, which is developing advanced, proliferation resistant nuclear fuel technologies that can improve the fuel cycle, reduce costs, and increase the safety of handling nuclear wastes.

- **Fusion:** Fusion energy is a potential major new source of energy that, if successfully developed, could be used to produce electricity and possibly hydrogen. Fusion has features that make it is an attractive option from both an environmental and safety perspective. However, the technical hurdles of fusion energy are very high, and with a commercialization objective of 2050, its impact would not be felt until the second half of the century, if at all. Nevertheless, the promise of fusion energy is simply too great to ignore.

Advances in these and other technology areas in the CCTP portfolio could put us on a path to ensuring access to clean, affordable energy supplies while dramatically reducing the greenhouse gas profile of our economy over the long term. Moreover, the deployment of cleaner energy technologies in developing economies like China and India can make a huge difference in altering the future global energy picture.

Promoting International Collaboration

President Bush—in both his June 2001 and February 2002 climate change policy speeches—highlighted the importance of international cooperation in developing an effective and efficient global response to the complex and long-term challenge of climate change.²⁹

Any effective international response to climate change requires developing country participation, which includes both near-term efforts to slow the growth in emissions and longer-term efforts to build capacity for future cooperation. Central to achieving global cooperation to address climate change will be the participation of developing countries.

²⁵<http://www.ne.doe.gov/NucPwr2010/NucPwr2010.html>.

²⁶<http://www.ne.doe.gov/infosheets/geni.pdf>.

²⁷<http://www.ne.doe.gov/infosheets/hydrogen.pdf>.

²⁸<http://www.ne.doe.gov/infosheets/afci.pdf>.

²⁹<http://www.whitehouse.gov/news/releases/2001/06/20010611-2.html> and <http://www.whitehouse.gov/news/releases/2002/02/20020214-5.html>.

The Bush Administration believes that the most effective way to engage developing countries is to focus not solely on greenhouse gas emissions, but rather on a broader development agenda that promotes economic growth, reduces poverty, provides access to modern sanitation, enhances agricultural productivity, provides energy security, reduces pollution, *and* mitigates greenhouse gas emissions.

The Administration also believes that well-designed multilateral collaborations focused on achieving practical results can accelerate development and commercialization of new technologies and advance climate change science. In particular, under President Bush's leadership, the United States has brought together key nations to tackle jointly some tough energy challenges. These multilateral collaborations mirror the main strategic thrusts of our domestic technology research programs, and they address a number of complementary energy concerns, such as energy security, climate change, and environmental stewardship. Another characteristic of the collaborations is that they include as partners Kyoto countries, non-Kyoto countries, industrialized countries, developing countries, and countries with economies in transition.

- **Asia-Pacific Partnership for Clean Development and Climate³⁰**: In July 2005, Deputy Secretary of State Zoellick announced plans to create the Asia-Pacific Partnership for Clean Development and Climate to focus on voluntary practical measures to create new investment opportunities, build local capacity, and remove barriers to the introduction of clean, more efficient technologies.³¹ The partnership is designed to help each country meet nationally designed strategies for improving energy security, reducing pollution, and addressing the long-term challenge of climate change. We view the partnership as a complement, not an alternative, to the UN Framework Convention on Climate Change. It is critically important to be able to build on mutual interests and incentives to tackle global challenges effectively. The six countries that currently comprise this partnership represent about half of the world's economy, population, energy use and greenhouse gas emissions. We are actively engaging with our Partners toward a formal launch early next year.
- **Methane to Markets Partnership³²**: Launched in November of last year, the Methane to Markets Partnership, led on the U.S. side by EPA, now includes 16 partner countries. This Partnership is an international initiative that focuses on advancing cost-effective, near-term methane recovery and use as a clean energy source to enhance economic growth, promote energy security, improve the environment, and reduce greenhouse gases. Initially, the Partnership will target three major methane sources: landfills, underground coal mines, and natural gas and oil systems. The Partnership has the potential to deliver by 2015 annual reductions in methane emissions of up to 50 million metric tons of carbon equivalent or recovery of

³⁰Partners include Australia, China, India, Japan and South Korea and the United States. Fact sheet at <http://www.whitehouse.gov/news/releases/2005/07/20050727-11.html>.

³¹<http://www.state.gov/s/d/rem/50326.htm>.

³²<http://www.epa.gov/methanetomarkets/> and <http://www.methanetomarkets.org/>. Founding Methane to Markets member governments include the United States, Argentina, Australia, Brazil, China, Colombia, India, Italy, Japan, Mexico, Nigeria, Russian Federation, Ukraine, and the United Kingdom. The Republic of Korea became the 15th member in June and Canada the 16th member in July.

500 billion cubic feet of natural gas. When fully achieved, these results could lead to stabilized or even declining levels of global atmospheric concentrations of methane.

- **International Partnership for the Hydrogen Economy (IPHE)³³**: Recognizing the common interest in hydrogen research that many countries share, the United States called for an international hydrogen partnership in April 2003, and in November 2003, representatives from 15 national governments and the European Commission gathered in Washington to launch IPHE. IPHE provides a vehicle to organize, coordinate, and leverage multinational hydrogen research programs that advance the transition to a global hydrogen economy. It reviews the progress of collaborative projects, identifies promising directions for research, and provides technical assessments for policy decisions. IPHE also will develop common recommendations for internationally-recognized standards and safety protocols to speed market penetration of hydrogen technologies. Through IPHE, the U.S. has assisted Brazil and China in developing hydrogen roadmaps.
- **Carbon Sequestration Leadership Forum (CSLF)³⁴**: CSLF is a U.S.-launched initiative that was established formally at a ministerial meeting held in Washington, D.C., in June 2003. CSLF is a multilateral initiative that provides a framework for international collaboration on sequestration technologies. The Forum's main focus is assisting the development of technologies to separate, capture, transport, and store carbon dioxide safely over the long term, making carbon sequestration technologies broadly available internationally, and addressing wider issues, such as regulation and policy, relating to carbon capture and storage. In addition to these activities, CSLF members and other interested nations are invited to participate in the FutureGen clean coal project.
- **Generation IV International Forum (GIF)³⁵**: In 2002, nine countries and Euratom joined together with the United States to charter GIF, a multilateral collaboration whose goal is to develop the fourth generation of advanced, economical, safe, and proliferation-resistant nuclear systems that can be adopted commercially no later than 2030. A technology roadmap developed by the GIF and DOE's Nuclear Energy Research Advisory Committee in 2003 identified six technologies as candidates for future designs. Based on the *Roadmap*, GIF countries are jointly preparing a collaborative research program to develop and demonstrate the projects.

³³<http://www.iphe.net/>. Founding IPHE members include the United States, Australia, Brazil, Canada, China, European Commission, France, Germany, Iceland, India, Italy, Japan, Norway, Republic of Korea, Russia, and the United Kingdom. New Zealand became the 17th member in January 2005.

³⁴<http://www.cslforum.org/>. CSLF members include the United States, Australia, Brazil, Canada, China, Colombia, Denmark, European Commission, France, Germany, India, Italy, Japan, Mexico, Netherlands, Norway, Republic of Korea, Russian Federation, South Africa, and the United Kingdom.

³⁵<http://gen-iv.ne.doe.gov/>. GIF members include the United States, Argentina, Brazil, Canada, Euratom, France, Japan, Republic of Korea, South Africa, Switzerland, and the United Kingdom.

- **ITER³⁶**: In January 2003, President Bush announced that the United States was joining the negotiations for the construction and operation of the international fusion experiment known as ITER.³⁷ If successful, this multi-billion-dollar research project will advance progress toward producing clean, renewable, commercially-available fusion energy by the middle of the century. It was recently agreed that the experimental reactor will be sited in Cadarache, France.

- **Regional and Bilateral Activities**: Since 2001, the United States has established 15 climate partnerships with key countries and regional organizations that, together with the United States, account for almost 80 percent of global greenhouse gas emissions.³⁸ These partnerships encompass over 400 individual activities, and successful joint projects have been initiated in areas such as climate change research and science, climate observation systems, clean and advanced energy technologies, carbon capture, storage and sequestration, and policy approaches to reducing greenhouse gas emissions.

- **Clean Energy Initiative³⁹**: At the 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, the United States launched a “Clean Energy Initiative,” whose mission is to bring together governments, international organizations, industry and civil society in partnerships to alleviate poverty and spur economic growth in the developing world by modernizing energy services. The Initiative consists of four market-oriented, performance-based partnerships:
 - **Global Village Energy Partnership (GVEP)⁴⁰** is an international partnership with over 700 public and private sector partners including the World Bank, UNDP, and leading energy companies. The U.S. implementation of GVEP, led by the U.S. Agency for International Development, is a 10-year initiative that seeks to increase access to modern energy services for those in developing countries in a manner that enhances economic and social development and reduces poverty.

 - **Partnership for Clean Indoor Air⁴¹**, led by EPA, which is addressing the increased environmental health risk faced by more than 2 billion people in the developing world who burn traditional biomass fuels indoors for cooking and heating.

³⁶ ITER member countries include the United States, China, European Union, Japan, Russian Federation, and the Republic of Korea.

³⁷<http://www.whitehouse.gov/news/releases/2003/01/20030130-18.html>.

³⁸Partners include Australia, Brazil, Canada, China, Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), European Union, Germany, India, Italy, Japan, Mexico, New Zealand, Republic of Korea, Russian Federation, and South Africa.

³⁹<http://www.sdp.gov/sdp/initiative/cei/28304.htm>.

⁴⁰<http://www.sdp.gov/sdp/initiative/cei/44949.htm>.

⁴¹<http://www.sdp.gov/sdp/initiative/cei/29808.htm> and <http://www.pciaonline.org/>.

- **Partnership for Clean Fuels and Vehicles**⁴², which is helping to reduce vehicular air pollution in developing countries by promoting the elimination of lead in gasoline and encouraging the adoption of cleaner vehicle technologies; and
- **Efficient Energy for Sustainable Development (EESD)**⁴³, led by DOE, which aims to improve the productivity and efficiency of energy systems, while reducing pollution and waste, saving money and improving reliability through less energy intensive products, more energy efficient processes and production modernization.
- **Renewable Energy and Energy Efficiency Partnership (REEEP)**: Also formed at the 2002 WSSD, the Renewable Energy and Energy Efficiency Partnership (REEEP) seeks to accelerate and expand the global market for renewable energy and energy-efficiency technologies. As the world's largest producer and consumer of renewable energy, and with more renewable energy generation capacity than Germany, Denmark, Sweden, France, Italy, and the United Kingdom combined, the United States is one of 17 countries who are partners in REEEP. The United States also actively participated in the Renewables 2004 conference sponsored by the German Government in June 2004, and submitted five action items intended to provide specific technology plans and cost targets for renewable energy technologies using solar, biomass, wind, and geothermal resources.
- **Renewable Energy Policy Network for the 21st Century (REN21)**⁴⁴: REN21 is a global policy network, which connects governments, international institutions and organizations, partnerships and initiatives and other stakeholders on the political level with those “on the ground,” aimed at providing a forum for international leadership on renewable energy. Its goal is to allow the rapid expansion of renewable energies in developing and industrial countries by bolstering policy development and decision-making on sub-national, national and international levels. The United States serves as one of the 11 governments serving on REN21's Steering Committee.
- **Group on Earth Observations**⁴⁵: Of particular importance is the need for a broad global observation system to support measurements of climate variables. On July 31, 2003, the United States hosted 33 nations—including many developing nations—at the inaugural Earth Observation Summit (EOS), out of which came a commitment to establish an intergovernmental, comprehensive, coordinated, and sustained Earth observation system. While the use and benefits of these observations are extensive, the climate applications of the data collected by the system include the use of the data to create better climate models, to improve our knowledge of the behavior of carbon dioxide and aerosols in the atmosphere, and to develop strategies for carbon sequestration. The United States was instrumental in drafting a ten-year

⁴²<http://www.sdp.gov/sdp/initiative/cei/29809.htm> and <http://www.unep.org/pcf/v/main/main.htm>.

⁴³<http://www.sdp.gov/sdp/initiative/cei/28304.htm>.

⁴⁴<http://www.ren21.net/>.

⁴⁵<http://earthobservations.org/>.

implementation plan for a Global Earth Observation System of Systems, which was approved by 55 nations and the European Commission at the 3rd EOS summit in Brussels in February 2005. The United States also released its contribution through the Strategic Plan for the U.S. Integrated Earth Observing System in April 2005.⁴⁶ The plan will help coordinate a wide range of environmental monitoring platforms, resources, and networks.

Other examples of our engagement across the globe in advancing climate change science and addressing greenhouse gas emissions include our participation in the Intergovernmental Panel on Climate Change (IPCC), the Global Environment Facility (GEF) and activities under the Tropical Forest Conservation Act.

- **Intergovernmental Panel on Climate Change (IPCC)⁴⁷:** The IPCC was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988 to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. It is open to all Members of the United Nations and of WMO. The United States has played an active role in the IPCC since its establishment and has provided more of its funding than any other nation. Dr. Susan Solomon, a senior scientist at the National Oceanic and Atmospheric Administration's Aeronomy Laboratory in Boulder, Colorado, serves as co-chair of the IPCC Working Group I, which is assessing the scientific basis of climate change. The United States hosts the Working Group's Technical Support Unit and hundreds of U.S. scientists are participating in the preparation of the IPCC's Fourth Assessment Report, which is due to be completed in 2007.
- **Global Environment Facility (GEF)⁴⁸:** The GEF is the financial mechanism under the UN Framework Convention on Climate Change. It focuses on innovative and generally small scale projects and funds only the incremental costs involved in producing global environmental benefits. The GEF has committed about \$5.4 billion to date, leveraging over \$17 billion from other sources, including the private sector, international development banks and organizations, governments, NGOs and bilateral agencies. It has designed and initiated nearly 1,600 investment and capacity building projects that are now being implemented by developing countries with the help of ten agencies, including the UN Development Program and the International Fund for Agricultural Development. The GEF has also provided nearly 5,000 small grants directly to NGOs and community groups in over 70 countries. U.S. contributions will fund solely technology transfer and capacity building in developing countries.

⁴⁶http://iwgeo.ssc.nasa.gov/docs/EOCStrategic_Plan.pdf.

⁴⁷<http://www.ipcc.ch/>.

⁴⁸<http://www.gefweb.org/>.

- Tropical Forest Conservation Act⁴⁹**: Many of our international activities also help to promote the biological sequestration of carbon dioxide, an important tool for addressing climate change that can have benefits both for conservation and climate change. The Tropical Forest Conservation Act (TFCA) offers eligible developing countries opportunities to reduce concessional debt owed to the United States while generating local currency funds to support programs to conserve tropical forests. Since 1998, the United States has concluded nine TFCA agreements with eight countries that will generate more than \$95 million for tropical forest conservation over the next 10-25 years. Three U.S.-based international NGOs (The Nature Conservancy, the World Wildlife Fund and Conservation International) contributed approximately \$7.5 million to six of the nine agreements, thereby increasing the amount of debt we were able to treat. In FY 2006, the Administration has requested a total of approximately \$100 million for certain debt restructuring programs. These programs include bilateral Heavily Indebted Poor Countries (HIPC) and poorest country debt reduction, contributions to the HIPC Trust Fund and TFCA debt reduction.

Eleventh Session of the Conference of the Parties (COP 11) to the UNFCCC

The Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change will hold its 11th Session in Montréal from November 28 to December 9, 2005. Under Secretary of State for Democracy and Global Affairs Paula J. Dobriansky will head the U.S. delegation to this meeting. As the Kyoto Protocol entered into force on February 16 of this year, the Montréal meeting will also be the first “meeting of the Parties (MOP)” under that instrument.

While the COP and the MOP will take separate decisions, reflecting the different legal instruments involved and the different membership in these two bodies, there will be a joint “High Level Segment” from December 7-9. It is likely that statements of ministers and other heads of delegation will take up a good portion of the time, rather than the more interactive and successful roundtables that characterized the High Level Segments of COP 9 in Milan in 2003 and COP 10 in Buenos Aires in 2004. In addition, there will be a heavy workload under the MOP as the Parties to that instrument seek to adopt the “Marrakech Accords” and other decisions to begin implementing the Kyoto Protocol.

We intend to work constructively within the COP framework and to carry forward our positive message, as we have in the last two COPs, and anticipate that it will have increased resonance as a result of the positive G-8 outcomes and the positive response to the approach of our Asia Pacific Partnership. At those previous COPs, we have highlighted all that the United States is doing with respect to science and technology, and with respect to our domestic actions and international partnerships related to climate change.

⁴⁹http://www.usaid.gov/our_work/environment/forestry/intro_tfca.html. TFCA agreements have been concluded with Bangladesh, Belize, Colombia, El Salvador, Jamaica, Panama (two agreements), Peru and the Philippines.

Concluding Remarks

Mr. Chairman and Members of the Committee, I hope that my testimony this afternoon conveys a sense of the vast extent to which the United States is working to reduce greenhouse gas intensity, promote energy efficient technologies and advance climate science, while also placing primary importance on supporting economic growth and prosperity.

We see economic growth, reducing poverty, providing access to modern sanitation, enhancing agricultural productivity, providing energy security, reducing pollution, and addressing the climate change problem, as integrally related. Meeting the challenge of the expected future growth in global energy demand and reducing greenhouse gas emissions will require a transformation in the way the world produces and consumes energy over the next generation and beyond. This is why we are leading global efforts to develop and deploy breakthrough technologies for both the developed and developing world.

I thank you for this opportunity to testify before this Committee. I look forward to responding to any questions you may have.