

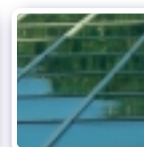
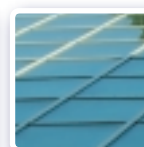
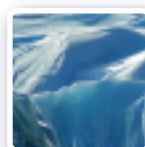
# UNITED STATES CLIMATE CHANGE ACTIONS



# United States Climate Change Actions

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## 1. Introduction

*"We will act, learn, and act again, adjusting our approaches as science advances and technology evolves."* June 11, 2002

With these words President Bush set forth the framework for action that the United States would take over the next eight years regarding the global challenge of climate change. Over this time, the United States has developed an ever-expanding suite of measures to address the interlinked challenges of climate change and energy security. We have initiated a number of policies and partnerships, each one reflecting our belief that the global community must work collaboratively and that the United States must play a leading role internationally. Our efforts emphasize the importance of results-driven action both internationally and domestically, and we have a track record of success.

The international community has recognized the importance of moving forward together in addressing climate change and the Bali Action Plan represents an important step in the global efforts to act, learn, and act again. A global challenge requires global solutions and all countries that contribute to atmospheric emissions must undertake measurable, reportable, and verifiable mitigation actions in order to cut greenhouse gas emissions. The United States is pleased to work towards the shared vision, mitigation, adaptation, technology and finance goals of the Bali Action Plan. As we move from Bali to Poznan to Copenhagen, the United States will continue to engage constructively and contribute to an agreed outcome on a post-2012 arrangement that is both environmentally effective and economically sustainable.

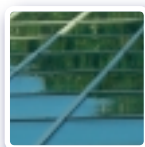
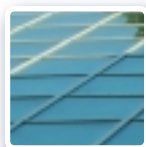
Between 2000 and 2006, the United States economy added more than the GDP of France (\$1.5 trillion) and the population grew by more than the combination of Austria and Sweden (17 million people) while net U.S. greenhouse gas emissions decreased by three percent.

Internationally, the United States has launched or participates in dozens of Partnerships that span a wide range of initiatives from developing transformational low-carbon technologies to improving observations systems that will help us better understand and address the possible impacts of climate change. We are also working with key partners through the Asia-Pacific Partnership on Clean Development and Climate to take concrete actions to reduce greenhouse gas emissions and increase economic development. Most recently through the Major Economies Meetings we collaborated with the world's largest economies to build consensus and contribute to solutions under the United Nations Framework Convention on Climate Change (UNFCCC). The Leaders of these major economies highlighted many areas of agreement including where we can act now to reduce our emissions.

Since 2001, the United States has spent \$45 billion on programs to advance science and technology related to climate change.

Domestically we have implemented policies ranging from setting an economy-wide greenhouse gas intensity target to mandating sectoral actions through our Energy Independence and Security Act of 2007 (EISA) and our mid-term greenhouse gas emissions goal. We have pursued a multitude of other result-driven policies and programs that have contributed to the recent U.S. greenhouse gas emission performance.

The following pages detail some of the specific results we have achieved in addressing climate change over the last eight years. It is a record of achievement and engagement that the United States looks forward to building on in future years.



## 2. Major Economies Meetings

In May 2007, President Bush launched the Major Economies Meetings on Energy Security and Climate Change to advance the shared objectives of reducing greenhouse gas emissions and contributing to ongoing negotiations under the UN Framework Convention on Climate Change (UNFCCC). This process — which brought together 17 economies representing more than 80 percent of the world’s economy, energy use, and greenhouse gas emissions — was endorsed by the G8 and APEC, as well as by the UN Secretary General and the UNFCCC Executive Secretary. Leaders’ Representatives from Australia, Brazil, Canada, China, the European Union (plus the European Commission), France, Germany, Indonesia, India, Italy, Japan, Mexico, Russia, South Africa, South Korea, and the United Kingdom, plus the United Nations all participated in a series of productive meetings which culminated in an unprecedented Leader’s Meeting in July of 2008.

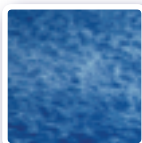
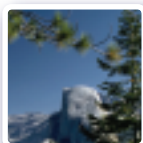
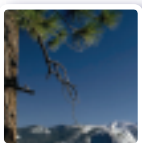
The declaration from the July Leaders Meeting advances global discussions on climate change and acknowledges that the challenges of climate change, energy security, and sustainable development are interlinked and that all Major Economies — developed and developing — have a role in combating climate change. The Leaders’ declaration emphasizes “ambitious, realistic, and achievable” steps countries can take to address climate change and highlights how “it would be desirable for all countries to adopt an ambitious long-term global goal for greenhouse gas emissions reduction that assures growth and prosperity, recognizing that achieving such a goal depends on significant advances in technology.”

Leaders also agreed to continue to work together to promote the success of the Copenhagen Climate Change Conference in December 2009, when the UN negotiations launched in December 2007 in Bali, Indonesia, are set to conclude.



Leaders from the 17 Major Economies agreed to take near-term actions to address climate change and energy security, including:

- Working together on technology cooperation and cutting emissions in specific economic sectors;
- Directing trade officials responsible for the WTO Doha negotiations to advance with urgency their discussions on climate-related issues, with an emphasis on eliminating trade barriers to the spread of clean energy technologies;
- Accelerating technology development, transfer, financing, capacity building and measurement methodologies to support mitigation and adaptation efforts; and
- Improving energy efficiency and promoting new, climate-beneficial actions under the Montreal Protocol on Substances that Deplete the Ozone Layer.



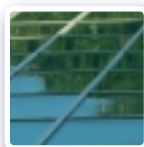
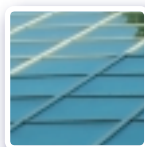
## 3. The Asia-Pacific Partnership on Clean Development and Climate (APP)

The Asia-Pacific Partnership on Clean Development and Climate (APP) provides a unique public-private forum for government and industry leaders from seven of the world's largest economies to identify opportunities to commercialize and deploy cleaner technologies. Partner countries Australia, Canada, China, India, Japan, Korea, and the United States collectively account for more than half of the world's population, GDP, energy consumption, and greenhouse gas emissions. By engaging private industry as well as government officials from multiple ministries, the APP is using public-private partnerships to build local capacity, improve energy efficiency, reduce greenhouse gas emissions, create new investment opportunities, and remove barriers to the introduction of clean energy technologies in the Asia-Pacific region.

The APP has created eight task forces to achieve the initiative's goals: Aluminum; Buildings and Appliances; Cement; Cleaner Fossil Energy; Coal Mining; Power Generation and Transmission; Renewable Energy and Distributed Generation; and Steel. Each Task Force has developed an Action Plan to serve as their blueprint for cooperation and provide a strategic framework for identifying and implementing priority actions. Thus far, the United States has appropriated \$70 million to the Asia-Pacific Partnership for collaborative activities in all eight sectoral areas. By focusing on concrete knowledge and technology transfer, over 150 individual projects and activities included in the APP Task Force Action Plans are yielding tangible results.

### Key U.S. Government-supported APP achievements include:

1. An APP project linking the California Energy Commission with Maharashtra state officials will completely alleviate the state's 5000 MW electricity shortage, increase industrial output, and reduce greenhouse gas emissions. These energy efficiency investments are expected to pay for themselves in increased revenue, and the state's fiscal deficit could also be reduced by 17 percent.
2. An APP-facilitated agreement between the world's four largest lighting companies to establish common Asian standards for compact fluorescent lamps (CFLs). Each CFL can reduce CO<sub>2</sub> emissions by nearly 75 pounds over its lifetime.
3. In India, clean coal can improve power plant efficiency by 4-5 percent (the equivalent of building 12 new 500 MW plants), and yield a 15 percent reduction in greenhouse gas emissions from existing power plants (approximately 10-15 million tons avoided CO<sub>2</sub>/year). Ongoing public-private collaboration fostered by the APP Coal Mining Task Force to promote cleaner coal in India includes a pilot-scale cleaning unit and a coal cleaning plant simulator.
4. The APP Power Generation and Transmission Task Force provided technical support, including assessment, training, and diagnostic equipment, to two large Indian power plants (Kolaghat in West Bengal and Ropar in Punjab) that will result in 4 percent boiler efficiency improvement at both 210 MW plants and ultimately achieve 10-15 percent reduction in total CO<sub>2</sub> emissions if implemented in full.
5. The APP Steel Task Force is fostering unprecedented cooperation between Partner countries' steel industries, resulting in the development of state-of-the-art clean technologies guidance. The best practice guidance is currently in use in all APP countries, and Indian power plants have been notably rapid in adopting its recommended energy-saving technologies.
6. Through the APP, Orb Energy is expanding the commercial solar photovoltaic (PV) market in India to many rural areas where potential customers have few to no options to buy a larger AC solar power unit. The project is expected to yield a total CO<sub>2</sub> emissions reduction of 50,000 tons by 2010.



## 4. Innovative International Partnerships

### a. Carbon Sequestration Leadership Forum (CSLF)

The Carbon Sequestration Leadership Forum (CSLF) was formed in 2003 as an international climate change initiative focused on development of improved cost-effective technologies for the separation and capture of carbon dioxide for its transport and long-term safe storage. The purpose of the CSLF is to make these technologies broadly available internationally and to identify and address wider issues relating to carbon capture and storage. The CSLF is currently comprised of 22 members, including 21 countries and the European Commission. Membership is open to national governmental entities that are significant producers or users of fossil fuel and that have a commitment to invest resources in research, development and demonstration activities in carbon dioxide capture and storage (CCS) technologies.

The CSLF provides a unique opportunity and structure for sharing policy and technical information about CCS. In the five years of its existence the CSLF has been active in many areas and CSLF task forces are currently working on risk assessment, communications, projects interaction and review, capacity building in emerging economies, and financial issues. The CSLF has recognized 20 collaborative projects, which are contributing substantially to the knowledge base on CCS and its wide scale deployment. Three of these projects are now complete.

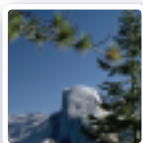
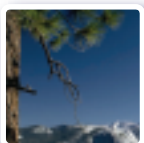
### b. International Partnership for the Hydrogen Economy (IPHE)

The formation of the International Partnership for the Hydrogen Economy (IPHE) was facilitated by the Department of Energy and the Department of Transportation in 2003 to foster international cooperation on hydrogen and fuel cell R&D, common codes and standards, and information sharing on infrastructure development. Today, the IPHE's 17 partners organize, evaluate, and coordinate multinational research, development, and deployment programs that advance the introduction of hydrogen and fuel cell technologies at a global scale. The IPHE has a two-committee structure, supported by a Secretariat and four work groups. The Steering Committee governs the overall direction and framework of the IPHE, while the Implementation — Liaison Committee focuses on execution of collaborative projects and initiatives. Each Committee meets twice a year. Experts from IPHE countries participate in work groups in the fields of education; regulations, codes and standards; and demonstration and infrastructure to share information regarding activities in their countries and collaborate on IPHE initiatives related to their topic area. A fourth work group, the Evaluation Team, evaluates collaborative research projects for IPHE recognition.

Since it was formed, IPHE has succeeded in establishing an effective operational structure to facilitate international collaboration and networking both among researchers and at the highest levels of

#### Key CSLF accomplishments include:

- Developing a set of high-level recommendations on Near-Term Opportunities for Carbon Capture and Storage to the International Energy Agency (IEA) for accelerating the development and deployment of CCS to the G8. These recommendations have been endorsed by the G8 energy ministers, and the G8 has agreed to support up to 20 CCS demonstration projects.
- Assisting emerging economy CSLF members to develop the knowledge, skills and expertise they need to implement CCS projects and activities. More than 600 scientists, engineers, and policy makers have attended the four CSLF Capacity Building Workshops that have been held through mid-year 2008.
- Developing a CCS technology gaps analysis and an inclusive technology roadmap as a guide to describe possible routes to future CCS needs and areas where an international collaborative effort can make a difference.



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government. With IPHE's help, nearly all partner countries have either completed or initiated roadmaps or national strategies for hydrogen and fuel cell R&D. IPHE has recently established a new set of strategic priorities, and is structuring its future activities based around these areas of focus. The four strategic priorities are 1) accelerating the market penetration and early adoption of hydrogen and fuel cell technologies and their supporting infrastructure, 2) policy and regulatory actions to support widespread deployment, 3) raising the profile with policy makers and the public, and 4) monitoring hydrogen, fuel cell and complementary technology developments.

The United States served as chair of the Steering Committee from 2003 through 2007 (when the function was transferred to Canada) and is continuing its active participation as a Vice-Chair of the Steering Committee.

## Key IPHE Results:

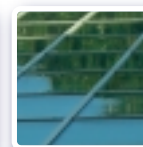
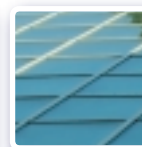
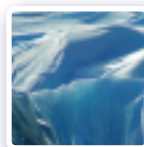
- Endorsed 30 international collaborative projects, covering a broad spectrum of topics including demonstrations (7 projects), fuel cells (7 projects), hydrogen production (3 projects), hydrogen storage (5 projects), regulations, codes and standards (5 projects), transmission and distribution (one project), and socio-economics of hydrogen (2 projects).
- Organized a series of workshops and conferences that brought together more than 500 technical experts across more than 25 countries to identify key areas for R&D on issues ranging from hydrogen production to utilization.
- Developed a "Priority Scorecard" that identifies key challenges, priorities, and opportunities for international cooperation.

## Key GEO Results:

- GEO members are creating national GEO Committees to coordinate and mobilize national efforts. These countries and many participating organizations are aligning their Earth observation strategies with GEOSS.
- Most global observing systems, including those of U.N. Specialized Agencies and Programmes, have been registered as components of GEOSS.
- GEO is improving data access and data sharing so that data can be shared between systems all around the globe.
- GEO is developing a Clearinghouse and Web Portal (GEOPortal) to help users around the world locate, access, and share information.
- GEO Members and Participating Organizations are implementing integrated projects for coordinated global greenhouse-gas observations, improving detection of climate change indicators and their impacts, and providing better access to information products for policy makers.

## c. Group on Earth Observations (GEO)

Observation and forecasting of climate change are essential to predicting impacts and developing adaptation measures to allow for sustainable economic growth. On July 31, 2003, the United States hosted 33 nations — including many developing nations — at the inaugural Earth Observation Summit, out of which came a commitment to establish an intergovernmental, comprehensive, coordinated, and sustained Global Earth Observation System of Systems (GEOSS). Interest in this initiative continues to grow. More than 70 countries, the European Commission, and 50 international organizations now participate in GEO. The uses and benefits of these observations are extensive. The climate applications include using the data to 1) create better climate models; 2) improve our knowledge of the behavior of carbon dioxide and aerosols in the atmosphere; and 3) develop strategies for carbon sequestration.





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The United States was instrumental in drafting the ten-year implementation plan for the GEOSS, which was approved by nearly 60 nations and the European Commission at the 3<sup>rd</sup> Earth Observation Summit in Brussels in February 2005 and by every subsequent GEO Member. The Plan includes 2-year, 6-year, and 10-year implementation targets. More detailed Work Plan tasks have also been agreed upon. GEO members and participating organizations are undertaking substantive and significant steps towards achieving these targets. In November of 2007, the 4<sup>th</sup> Earth Observation Summit convened in Cape Town to highlight early achievements and to look at future opportunities for international cooperation in the area of climate observations.

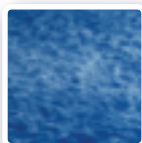
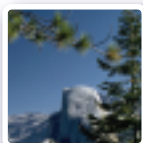
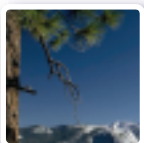
## d. Methane to Markets Partnership (M2M)

Launched in 2004, the Methane to Markets Partnership is a multilateral initiative that promotes energy security, improves environmental quality, and reduces greenhouse gas emissions throughout the world. The goal of the Partnership is to reduce global methane emissions in order to enhance economic growth, strengthen energy security, improve air quality, improve industrial safety, and reduce emissions of greenhouse gases. Capturing and using “waste” methane provides an additional energy source that stimulates economic growth while reducing global emissions of this powerful greenhouse gas. In addition to M2M’s 27 partner governments (26 countries and the European Commission), nearly 800 private companies, NGOs, international financial institutions, and other interested organizations participate in the Partnership through the Project Network, a worldwide community for organizations interested in methane capture and use projects.

The United States has pledged up to \$53 million for the first five years of the Partnership (\$28.5 million has been committed to date). Under Methane to Markets, partner countries work closely with the Project Network to promote and implement methane recovery and use projects in four sectors: oil and gas systems, coal mines, landfills, and animal waste management systems.

## Key Methane to Markets Results:

- EPA estimates that Methane to Markets has the potential to deliver, by 2015, annual reductions in methane emissions equivalent to 50 million metric tons of carbon equivalent (about the same as the annual emissions from 33 million passenger vehicles).
- For fiscal year 2007, Methane to Markets projects developed by the United States, when fully implemented, will result in estimated annual emission reductions of more than 24 million metric tons of CO<sub>2</sub> equivalent.
- Since its inception, U.S. government Methane to Markets activities have leveraged more than \$271 million for methane projects from the private sector, other countries, and international financial institutions.



## 5. Washington International Renewable Energy Conference (WIREC)

The Washington International Renewable Energy Conference (WIREC 2008) was held March 4-6 in Washington, DC. As the third international ministerial-level event on renewable energy, the conference and associated trade show drew over 9,000 participants from governments, non-governmental organizations, and the private sector. Notably, the Ministerial Meeting at WIREC brought together 103 ministers representing energy, economic and scientific sectors of governments around the world.

WIREC reinforced the message that renewable energy technologies will solve a significant part of global energy security, climate change and sustainable development problems. The conference provided a forum for discussions among the grassroots, scientific, economic and governmental communities, and led to commitments in the form of the Washington International Action Program (WIAP). In response to the call issued by the conference organizers, participants submitted over 140 pledge commitments related to implementation of renewable energy on behalf of organizations ranging from governments to civil society to the private sector.

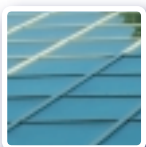
Collectively, this body of pledges serves as a vital tool for enhancing the development and global deployment of renewable energy. An analysis conducted by the U.S. Department of Energy's National Renewable Energy Laboratory concluded that, once fulfilled, the pledges can amount to thousands of megawatts of renewable energy capacity and thereby avoid the generation of billions of tons of greenhouse gases that would otherwise result from conventional sources.



Pledge Desk located at WIREC

### WIREC Pledges Include:

- 65 pledges made by governments across the globe. For example:
  - The Australian Government committed to a 20 percent renewable energy goal by 2020.
  - Rwanda pledged that by 2012, 90 percent of the electricity in Rwanda will be produced by renewable energy sources compared to 45 percent in 2008.
- A total of 31 pledges made by the U.S. government. For example:
  - The Department of Defense aims to procure or produce renewable energy such that it accounts for 25 percent of the Department's facility electrical consumption by 2025.
- 22 other pledges by U.S.-based organizations, including private sector, NGOs, local governments and research/academic institutions.



## 6. Bilateral and Regional Partnerships

The United States has negotiated agreements with major international partners to pursue research on global climate change, deploy climate observation systems, collaborate on energy and sequestration technologies, and explore methodologies for monitoring and measuring greenhouse gas emissions. Since June 2001, the United States has launched 15 bilateral and regional partnerships with Australia, Brazil, Canada, China, Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), the European Union, Germany, India, Italy, Japan, Mexico, New Zealand, Republic of Korea, Russia, and South Africa.

- Over 450 discrete projects have been created under these bilateral partnerships, ranging in focus from climate change science to energy and sequestration technologies to policy.
- The countries covered by these bilateral partnerships account for about 80 percent of global greenhouse gas emissions.

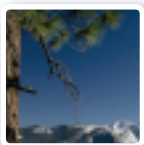
## 7. Land Use, Land Use Change and Forestry

United States agencies offer a broad array of programs that benefit the forest and land use sector:

- The U.S. Agency for International Development (USAID) spends \$90 million annually to reduce deforestation, increase sequestration, and enhance sustainable forest management.
- The Tropical Forest Conservation Act allows countries to relieve official debt to the United States while generating funds to help conserve tropical forests.
- The U.S. Initiative Against Illegal Logging helps countries combat illegal logging and the export of illegally harvested timber and timber products.

### The United States...

- Concluded 14 debt-for-nature agreements with 12 countries in Africa, Asia, and Latin America, generating \$188 million over 10-25 years to help conserve more than 20 million hectares of tropical forests.
- Invested over \$100 million in targeted conservation programs as part of the Congo Basin Forest Partnership.
- Is contributing \$30 million annually for conservation in the Amazon, including the Initiative for Conservation in the Andean Amazon.
- Has assisted seven Central American countries and is currently working with six Southeast Asian countries on land use greenhouse gas inventories.
- Is making available on the Internet at no cost the entire archive of Landsat data — dating back to 1972 and including new acquisitions.
- Has developed research-based adaptation strategies, carbon sequestration models and a body of resource management practices that are applied in more than 50 countries.



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The United States is also helping countries monitor and report greenhouse gas emissions from land use:

- The U.S. Geological Survey (USGS) is releasing free satellite data over the Internet, making land observation data available to a global science community for monitoring land surface changes over a multi-decade period.
- The U.S. Environmental Protection Agency, along with USAID and Colorado State University, are working with forest inventory teams in developing countries to enhance technical capacity and develop sustainable inventory management systems.
- U.S. Forest Service scientists are cooperating with the Center for International Forestry Research to quantify the carbon sequestration of mangrove forests and provide technical support to countries such as Liberia, Vietnam and Mexico to improve inventory and forest management systems.

In addition, the U.S. Lacey Act was expanded in 2008, making it illegal to import timber and plant products harvested in contravention of foreign conservation laws — providing substantial support to developing countries struggling with forest law enforcement in addressing forest and land use emissions.

## 8. Energy Independence and Security Act (EISA)

On December 19, 2007, President Bush signed into law the Energy Independence and Security Act of 2007 (EISA), which builds on progress made by the Energy Policy Act of 2005 in setting out a comprehensive energy strategy for the 21st century. EISA represents a major step forward in expanding the production of renewable fuels, reducing our dependence on oil, and confronting global climate change. Under EISA, almost every sector of the American economy will have new mandates to help reduce greenhouse gas emissions and increase energy security.

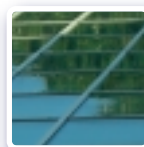
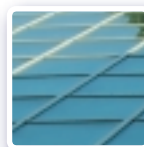
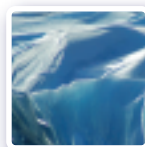
Key components of EISA include increasing the supply of renewable fuel sources by setting a mandatory

Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, while also reducing U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020 — which will increase fuel economy standards by 40 percent and save billions of gallons of fuel. The bill also includes provisions to improve energy efficiency in lighting and appliances, as well as requirements for Federal agency efficiency and renewable energy use that will help reduce greenhouse gas emissions.

Preliminary estimates show that combined, EISA mandates will prevent 5-6 billion metric tons of greenhouse gas emissions through 2030.

### Key aspects of EISA include:

- The **Renewable Fuels Mandate** will lead to a 500 percent increase in renewable fuels by 2022 to 36 billion gallons or roughly 15 percent of our projected U.S. fuel supply.
- The **Vehicle Fuel Economy Mandate** will increase current fuel economy standards by 40 percent, to 35 miles per gallon, by 2020. This is expected to avoid 8.5 billion gallons a year or roughly 5 percent of our projected fuel supply.
- The **Lighting Efficiency Mandate** will increase efficiency by 25-30 percent by 2012-2014 and 70 percent by 2020.
- There are multiple **Appliance Efficiency Mandates**, which will dramatically increase efficiency standards in over 45 energy-intensive appliances.
- Under EISA, **Federal Government Operations** (bigger than most countries) must increase efficiency by 30 percent and renewable fuel use 20 percent by 2015.
- These results help advance the U.S. commitment made at the UN climate change meeting in Bali last year to pursue quantifiable actions to reduce carbon emissions.



## 9. Climate Change Technology Program (CCTP)

The U.S. Climate Change Technology Program (CCTP) was established by President Bush in 2002, and subsequently authorized by the Energy Policy Act in 2005, to strengthen the Federal research portfolio on climate change technology development and coordinate and prioritize related investments. CCTP's mission is to accelerate the development and deployment of advanced technologies that reduce, avoid, capture, or sequester greenhouse gas emissions. In September 2006, CCTP published its *Strategic Plan*, which adopts a visionary 100-year planning horizon and is organized around six complementary goals: (1) reduce greenhouse gas emissions from energy end-use and infrastructure; (2) reduce emissions from energy supply; (3) capture and sequester carbon dioxide; (4) reduce emissions of non-CO<sub>2</sub> greenhouse gases; (5) improve capabilities to measure and monitor emissions; and (6) bolster the contributions to these endeavors of basic science.

CCTP has ambitious goals for technology development in each of its strategic areas. CCTP envisions significant contributions from the accelerated adoption of advanced technologies. Using the *Plan* and its technological vision of a low-emissions future as a roadmap, the United States is now laying a technological foundation to develop realistic, cost-effective mitigation options. Some research programs focus on improving and lowering the cost of existing technology options, while others explore more speculative technologies. Major areas of energy research include: energy efficiency; renewable energy; bio-refining; near-zero emission coal technologies; carbon sequestration; hydrogen; advanced nuclear power; and fusion energy.



### Key CCTP accomplishments include:

- Published *U.S. Climate Change Technology Program Strategic Plan*.
- Expanded Federal research and development on climate change technology from \$2.5 billion in FY 2003 to \$4.3 billion in FY 2008.
- Completed scenario modeling of different low greenhouse gas emissions futures, with estimates of potential benefits of accelerating development and adoption of advanced technologies to reduce greenhouse gas emissions.
- Provided technical support for G8, Major Economies, and COP processes, with regard to mitigation strategies, road mapping and sectoral approaches.
- Identified and documented more than 300 existing Federal programs, policies and measures that promote reductions of greenhouse gas emissions.
- Provided strengthened rationale for the \$4.4 billion Federal climate change R&D portfolio in the Administration's FY 2009 budget proposal to Congress.



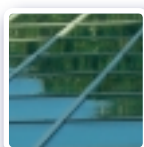
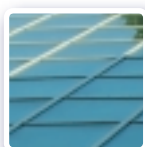
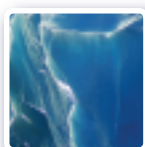
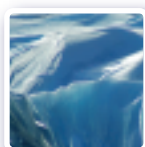
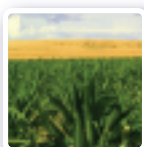
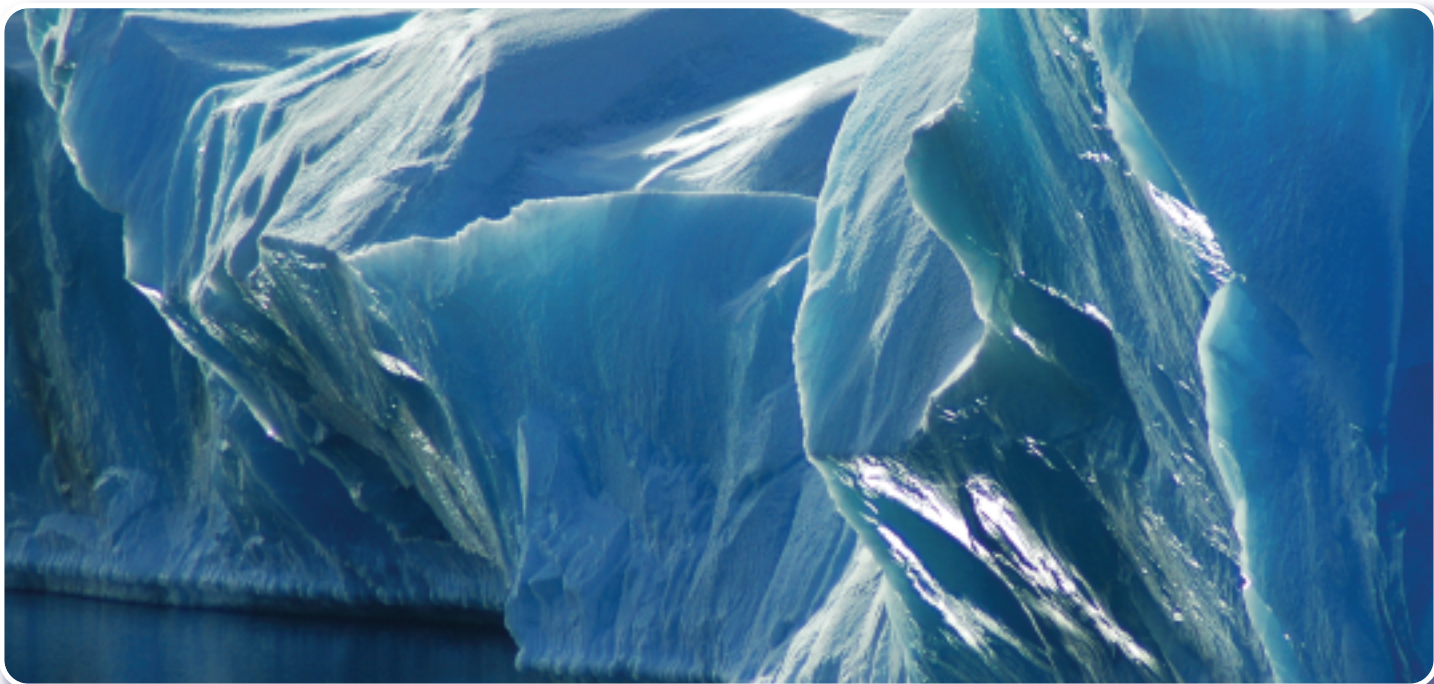
## 10. U.S. Climate Change Science Program (CCSP)

The CCSP incorporates the U.S. Global Change Research Program, established under the Global Change Research Act of 1990, and the Climate Change Research Initiative, established by the President in 2001. The program coordinates and integrates scientific research on global change and climate change sponsored by 13 participating departments and agencies of the U.S. Government. It is responsible for facilitating the development of a strategic approach to federally support climate research, integrated across the participating agencies.

Since CCSP was created in 2002, the program has successfully integrated a wide range of the research and climate science priorities of the 13 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.

Several key recent accomplishments of the CCSP include:

- Coordination of U.S. research manifested in thousands of peer-reviewed publications and observational data sets;
- The production and release of a suite of “Synthesis and Assessment Products” filling key gaps in knowledge regarding climate change and its impacts on the U.S., while providing this information in a manner suitable for policy makers and decision makers at many levels across the country;
- CCSP hosted the Technical Support Unit for the IPCC Fourth Assessment Report Working Group 1, and contributed, through its coordinated climate change research, to the wealth of information contained in all three of the working groups’ reports.
- CCSP provides the core of the U.S. portion of funding for coordination of international global change research and has actively engaged with international research and observation programs, such as the International Council for Science, IPCC, GEOSS, and more.



## 11. ENERGY STAR

ENERGY STAR was introduced by EPA in 1992 as a voluntary, market-based partnership to reduce greenhouse gas emissions through energy efficiency. Today, the ENERGY STAR label can be found on more than 50 different kinds of products as well as new homes and commercial and industrial buildings. Products and buildings that have earned the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy-efficiency specifications set by the government.

Since the inception of the program, more than 2.5 billion ENERGY STAR qualified products have been purchased, approximately 62,000 commercial buildings have been benchmarked for energy usage, more than 840,000 new homes have been constructed to ENERGY STAR specifications, nearly 40,000 existing homes have been retrofitted, and hundreds of industrial partners have lowered their energy use using ENERGY STAR tools.

EPA has recently revised the specifications for many product categories including computers, computer monitors, and imaging equipment; has added new products to the ENERGY STAR family including commercial ice makers, commercial dishwashers, external power supplies and battery chargers; and is in the process of updating the requirements for television sets. About 10 percent of the commercial square footage in the United States has used EPA's energy performance rating system to benchmark their buildings in about 12 industrial sectors.



### Key ENERGY STAR Results:

- In 2007 alone, Americans, with the help of ENERGY STAR, saved \$16 billion on their energy bills and reduced greenhouse gas emissions by the equivalent of 27 million cars.
- More than 2,000 manufacturers are using the ENERGY STAR label on over 40,000 individual product models across more than 50 product categories.
- Americans purchased about 500 million ENERGY STAR qualified products in 2007, bringing the total to more than 2.5 billion since 1992.
- More than 120,000 new homes were constructed to meet ENERGY STAR guidelines in 2007, which represents about 12 percent of the U.S. new housing starts in 2007 and brings the total to approximately 840,000 qualified homes nationwide.
- By the end of 2007, the ENERGY STAR performance rating system will be used to rate the performance of more than 62,000 buildings — doubling the number of buildings rated in just one year. In addition, more buildings than ever qualified for the ENERGY STAR rating - over 4,000, representing more than 740 million square feet.



## 12. Climate Leaders/Climate VISION

The U.S. Government has two complementary programs, Climate Leaders and Climate VISION, designed to help businesses in a variety of sectors reduce their greenhouse gas emissions. Climate Leaders is focused on the individual business level while Climate VISION is focused more broadly on major U.S. industrial sectors.

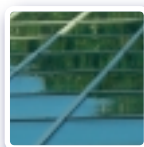
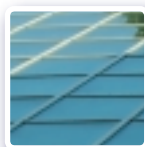
### a. Climate Leaders

Launched in February 2002, Climate Leaders is an EPA-led industry-government partnership that works with companies to develop long-term, comprehensive climate change strategies. Under this program, partners commit to reducing their impact on the global environment by completing a corporate-wide inventory of their greenhouse gas emissions, implementing a management plan to maintain consistent data, setting aggressive greenhouse gas reduction goals, and reporting their progress to EPA.

Climate Leaders has grown to include more than 220 partners, including both Fortune 100 corporations and small businesses, in all 50 states. The total U.S. greenhouse gas emissions of Climate Leaders partners represent more than 8 percent of the total U.S. greenhouse gas emissions.

#### Key Climate Leaders Highlights:

- Climate Leaders, the Administration's corporate leadership program, grew nearly 50 percent through August 2008 currently comprising a total of 226 partners.
- 22 partner companies have achieved greenhouse gas reduction goals set through Climate Leaders.
- 102 partners have announced aggressive targets for the future. Together, these goals represent a reduction in greenhouse gas emissions of more than 13 million metric tons of carbon equivalent per year.





## b. Climate VISION

In February 2003, President Bush announced that 12 major industrial sectors and The Business Roundtable had committed to work with four of his cabinet agencies (DOE, DOT, USDA, and EPA) to contribute to meeting his 18 percent intensity reduction goal by improving the energy efficiency or greenhouse gas emissions intensity of its sector. Currently participating business and trade associations represent 13 energy-intensive industry sectors including: electric power producers; petroleum refiners; automobile, iron and steel, aluminum, chemical, and magnesium manufacturers; forest products producers; and the cement, mining, industrial minerals, lime, and semiconductor industries. These sectors account for approximately 40 to 45 percent of total U.S. greenhouse gas emissions.

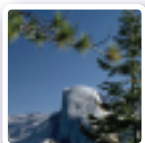
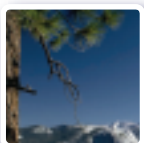
Climate VISION partners have issued letters of intent that set out goals — both quantitative and qualitative — for improving energy efficiency or greenhouse gas intensity that will contribute to meeting the 18 percent intensity goal. The partners have undertaken a range of activities in support of their goals, which are described in the work plans they prepared detailing strategies for meeting their goals. Each work plan is organized around four themes: emissions measurement and reporting protocols; identifying and implementing near-term cost-effective greenhouse gas reduction opportunities; cross-sector projects for reducing greenhouse gas emissions; and technology research, development and commercialization.

### Key Climate VISION Results:

Since the program launch in 2003, the Climate VISION partners report that they are making progress toward achieving their 2012 goals, with many ahead of schedule.

The success reported by the individual Climate VISION partners is also evident in greenhouse gas intensity data for the U.S. economy and the overall industrial and power sectors (the "Industry & Power Group").

For the U.S., the greenhouse gas intensity improvement from 2002 through 2006 was 9.5 percent, versus a baseline projection of a 3.8 percent improvement, suggesting that the U.S. is on a path that will achieve, if not exceed, the goal of an 18 percent improvement by the year 2012. For the Industry & Power Group, greenhouse gas intensity improved 9.4 percent from 2002 to 2006, substantially better than the 5.4 percent improvement in the baseline forecast.



### 13. Non-CO<sub>2</sub> Reduction Programs

Greenhouse gases other than carbon dioxide play an important role in efforts to understand and address global climate change. These non-CO<sub>2</sub> gases include a broad category of greenhouse gases such as methane, nitrous oxide and a number of synthetic or human-made gases known as high global warming potential (GWP) or fluorinated gases, including hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). In an effort to reduce emissions of these gases, the U.S. Environmental Protection Agency (EPA) is working cooperatively with a variety of companies and organizations in the energy, waste management, agriculture, and industrial sectors to implement voluntary programs that encourage cost-effective emissions reductions. Through these public-private partnerships, EPA helps partners to overcome a wide range of informational, technical, and institutional barriers to identify and implement various mitigation technologies, management practices, and process changes that yield both economic and environmental benefits.

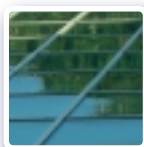
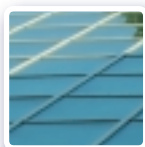
EPA's methane programs, including the Landfill Methane Outreach Program, Coalbed Methane Outreach Program, Natural Gas STAR, and AgSTAR, have been working with key industry sectors since 1993 to reduce methane emissions by capturing and using it as a clean energy source.

EPA is actively working to reduce emissions of high GWP gases given their potency and long atmospheric lifetimes. The high GWP partnership programs involve several industries, including HCFC-22 producers, primary aluminum smelters, semiconductor manufacturers, electric power companies, magnesium smelters and die-casters, and mobile air conditioning. These industries are reducing greenhouse gas emissions by developing and implementing cost-effective improvements to their industrial processes.



#### Key Highlights:

- The collective results of EPA's methane programs have been substantial. U.S. methane emissions in 2006 were 11 percent below 1990 levels, in spite of economic growth over that time period. In 2006 alone, these programs reduced emissions by 14.2 million metric tons of carbon equivalent, which is equivalent to the annual greenhouse gas emissions from 9.5 million cars.
- Like our methane programs, EPA's high GWP voluntary programs have achieved cost effective reductions that help fight climate change — Emissions of HFCs, PFCs, and SF<sub>6</sub> from "industrial sources" have fallen by 55 percent, primarily due to EPA-industry partnership programs. Even with the potential growth in high global warming potential emitting industries, our partners are expected to maintain emissions below 1990 levels through the year 2012.



## 14. Green Power Partnership (GPP)

Launched in 2001 as part of the President's National Energy Policy, the EPA-led Green Power Partnership (GPP) is a voluntary program that encourages organizations to buy green power as a way to reduce the environmental impacts associated with electricity use. Partners receive technical support and recognition for meeting or exceeding EPA green power purchase requirements. The GPP added 250 new partners in the past year, increasing the total number of partners to more than 1,000, including *Fortune* 500 companies, small and medium sized businesses, local, state, and federal governments, as well as a growing number of colleges and universities.

Through the GPP, companies, colleges, municipalities, and other organizations are buying more than 11.5 billion kilowatt hours of green power annually, which is an increase of almost two thirds over 2006 purchase figures. This is the equivalent amount of electricity needed to power more than 1.6 million average American homes for one year or needed to reduce the annual equivalent carbon dioxide emissions of more than 2.2 million passenger vehicles on U.S. roads.



### Key GPP Results:

Recognized the participants in EPA's Fortune 500 Green Power Challenge, a year-long initiative focused on doubling the collective green power purchases of eligible Fortune 500 corporations to exceed 5 billion kWh annually. GPP partners surpassed the goal, buying more than 6 billion kWh of green power.

Acknowledged participating partners in EPA's College & University Green Power Challenge, which concluded in April 2007. EPA ranked individual school's purchases of green power against others within their athletic conference and calculated cumulative purchase amounts between competing athletic conferences.



## 15. SmartWay Transport

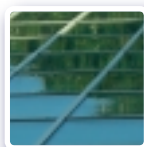
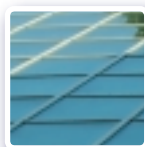
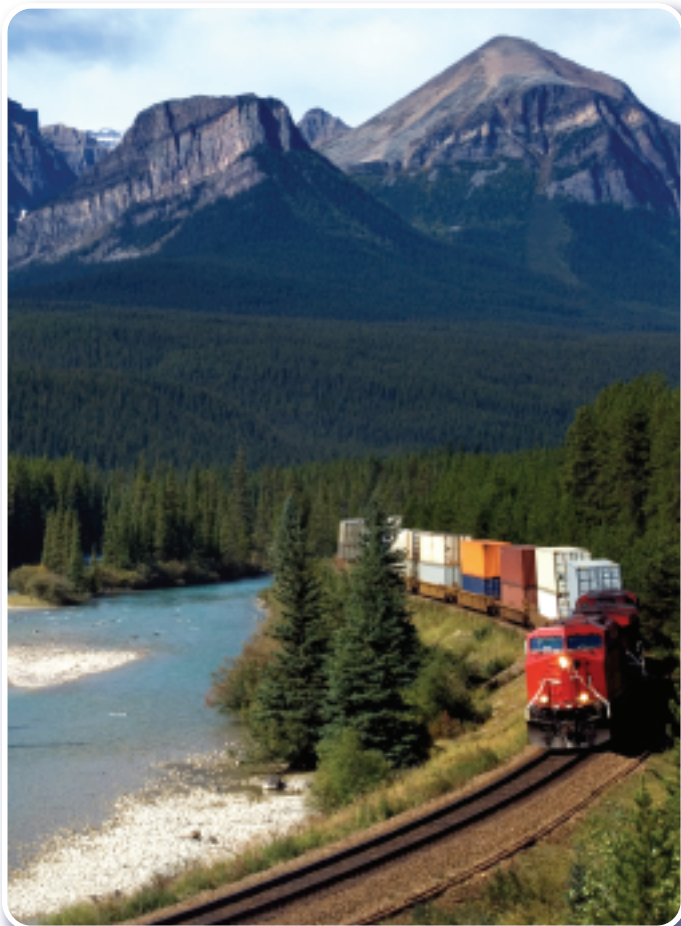
SmartWay is an innovative brand that represents environmentally cleaner, more fuel efficient transportation options. The SmartWay brand identifies products and services that reduce transportation-related emissions. For instance, the SmartWay “Leaf” label identifies the cleanest and most fuel-efficient cars and trucks available in today’s market, and helps consumers choose vehicles that will help them save fuel, money, and the environment.

The SmartWay Transport Partnership is a collaboration between EPA and the freight sector designed to improve energy efficiency, reduce greenhouse gas and air pollutant emissions, and improve energy security. SmartWay helps freight companies improve their environmental performance by working with them to set improvement goals, identify financing options, and share information on technologies, strategies and policies that will reduce the environmental impact of shipping.

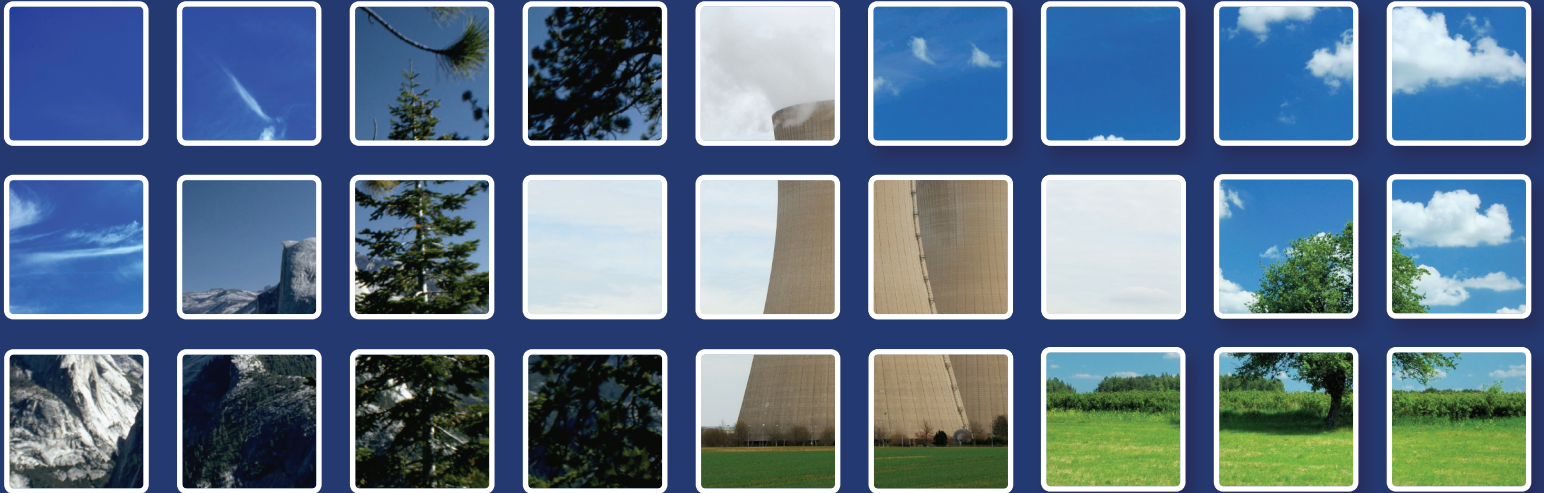
By 2012, SmartWay aims to reduce annual emissions of carbon dioxide by 33 to 66 million metric tons, lower annual nitrogen-oxide emissions by 200,000 tons, and cut annual diesel-fuel consumption between 3.3 and 6.6 billion gallons per year, saving the industry from \$13 billion to \$26 billion a year (assumes cost of around \$4 per gallon of fuel).

Thanks to the commitment and action of our SmartWay Partners, we are on track to achieve these goals for 2012:

- Today, there over 1,000 SmartWay Partners.
- They drive over 600,000 trucks and travel over 50 billion miles per year.
- At this rate, SmartWay Partners will reduce carbon dioxide emissions by over 6 million tons per year by the end of 2008.
- SmartWay Partners will save the trucking industry at least 2.5 billion dollars in annual fuel and maintenance costs.







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