

APPENDIX A. OTHER RELATED GHG PROGRAMS AND INITIATIVES

The Program is only one program aimed at reducing GHG emissions. There are a number of actions by international entities, presidential initiatives, DOE, other federal agencies, state jurisdictions, and NGOs that, in some way, complement the intent of the Program. The following list of GHG reduction programs is provided for information purposes (*and is not necessarily inclusive of all GHG programs and initiatives*).

A.1 INTERNATIONAL TREATIES, PROGRAMS, AND POLICIES

The Rio Climate Treaty was signed in June 1992 in Rio de Janeiro, Brazil by more than 150 nations including the U.S. It has been ratified by many nations and seeks to stabilize the concentration of GHG concentrations; however, it does not set binding emissions limitations. Nations are urged to adopt their own national policies and measures.

More than 160 nations negotiated the Kyoto Protocol in December 1997, which became effective in February 2005. During the period 2008 to 2012, the protocol requires industrialized nations to reduce emissions of CO₂ and other specified heat-trapping gases to 5.2 percent below their 1990 levels. Through its Joint Implementation (JI) and the Clean Development Mechanism (CDM), industrialized countries would be able to achieve part of their emission reduction commitments by conducting emission-reducing projects abroad and counting the reductions achieved toward their own commitments. The U.S. has declined to ratify this legislation and will not participate in this agreement. A summary of International Treaties and other international programs and policies is included in Table A-1.

Table A-1. International Treaties, Programs, and Policies

Treaty/Program/Policy	Purpose	Website
Rio Climate Treaty	To stabilize the concentration of GHGs worldwide	www.climate.org/topics/intaction/index.shtml
Kyoto Protocol	To reduce GHG emissions worldwide	www.eia.doe.gov/oiaf/kyoto/execsum.html
Global Environmental Facility (GEF)	To transfer energy and sequestration technologies and other programs that protect the global environment to the developing world	www.gefweb.org/
United Nations Framework Convention on Climate Change (UNFCCC)	To promote research on global climate change through mechanisms such as the Kyoto Protocol, which was an addition to the UNFCCC	http://unfccc.int/2860.php
Carbon Sequestration Leadership Forum	To develop, improve, and make available technologies for separating and capturing CO ₂ through international climate change initiatives	www.csforum.org/

A.2 PRESIDENTIAL INITIATIVES

In addition to the National CCTI and the GCCI mentioned in Section 1.1, a number of other Presidential initiatives have been put into effect. The Clear Skies Initiative would set a national cap on sulfur dioxide (SO₂), nitrogen oxides (NO_x), and mercury (Hg) emissions through the introduction of a mandatory program in order to reduce power plant emissions. Also, in his State of the Union address on January 28, 2003, President Bush launched the Hydrogen Fuel Initiative. Through this initiative, the President committed \$1.2 billion over five years to developing technology for commercially viable hydrogen-powered fuel cells. These fuel cells would not generate any pollution or GHG. The National Hydrogen Energy Roadmap outlines specific research objectives for this initiative. Additionally, the Debt for Nature Forest Conservation Programs (Tropical Forest Conservation Act) seeks to increase

conservation funding for tropical forests that are valued for their carbon-storage capacity. A listing of Presidential initiatives is included in Table A-2.

Table A-2. Presidential Initiatives

Initiative	Purpose	Website
National Climate Change Technology Initiative (NCCTI)	To strengthen Federal leadership of climate change-related technology	www.climate-science.gov/about/nccti.htm
Global Climate Change Initiative (GCCII)	To reduce carbon intensity of the U.S. economy by 18 percent by 2012	www.whitehouse.gov/news/releases/2002/02/climatechange.html
Clear Skies Initiative	To set a National cap on power plant emissions of SO ₂ , NO _x , and Mercury	www.epa.gov/clearskies/
Hydrogen Fuel Initiative	To develop commercially-viable hydrogen-powered fuel cells	www.whitehouse.gov/news/releases/2003/02/20030206-2.html National Hydrogen Energy Roadmap
Debt for Nature Forest Conservation Programs (Tropical Forest Conservation Act)	To preserve tropical forests worldwide	www.usgcrp.gov

A.3 DOE ACTIONS

As outlined in the 2003 DOE Strategic Plan, a goal of the department is to “improve energy security by developing technologies that foster a diverse supply of reliable, affordable, and environmentally sound energy by providing for reliable delivery of energy, guarding against energy emergencies, exploring advanced technologies that make a fundamental improvement in our mix of energy options, and improving energy efficiency” (DOE, 2003). DOE has committed billions of dollars to initiatives and programs aimed at achieving near-zero GHG emissions. A summary of these initiatives is provided in Table A-3.

Table A-3. DOE Initiatives

Initiative	Purpose	Website
Biomass Research and Development Initiative	To provide \$21 million in grants to carry out RD&D efforts on biomass energy, bio-based products, bio-fuels, and bio-power.	www.bioproducts-bioenergy.gov/default.asp
Clean Coal Power Initiative (CCPI)	To increase investment in clean coal technology through industry partnerships	www.netl.doe.gov/coal/ccpi
Climate Challenge Program Initiatives	To promote electric company-sponsored activities and projects aimed at the application of efficient electric technologies through 5 industry-wide initiatives	www.eei.org/industry_issues/environment/climate/pp_climate_challenge.pdf
Clean Energy Initiative	To improve the productivity and efficiency of current energy systems through the Efficient Energy for Sustainable Development Partnership	www.pi.energy.gov/clean_energy_initiative.html
Integrated Sequestration and Hydrogen Research Initiative (<i>FutureGen</i>)	To build the first integrated sequestration and hydrogen production power plant	www.fe.doe.gov/programs/powersystems/futuregen/index.html
North American Energy Working Group (NAEWG) – an energy initiative	To enhance cooperation between the U.S., Canada, and Mexico on energy-related matters	www.eia.doe.gov/emeu/northamerica/engindex.htm
Power Plant Improvement	To request proposals for and the potential funding of	www.netl.doe.gov/ppii/program/progr

Table A-3. DOE Initiatives

Initiative	Purpose	Website
Initiative (PPII)	commercial scale demonstrations of environmentally sound technologies, primarily coal-fired power plant technologies	am.html
Zero Energy Homes Research Initiative	To reduce the amount of energy consumed by single-family homes and to build more energy-efficiency homes	www.eere.energy.gov/buildings/tech/zeroenergy.html

A.3.1 DOE's Office of Fossil Energy, National Energy Technology Laboratory (NETL)

Within the Office of Fossil Energy, NETL's purpose is to develop advanced technologies related to coal, natural gas, and oil. NETL partners with industry, academia, and other governmental stakeholders to conduct and implement Research, Development, and Demonstration (RD&D) programs and to create commercially viable technical solutions to energy and environmental problems.

NETL oversees many high-profile projects and research efforts including the CCPI and the Integrated Sequestration and Hydrogen Research Initiative (FutureGen). The CCPI is President Bush's \$2 billion, 10-year initiative to develop an environmentally sound generation of new coal-based electric power technologies for which industry will contribute matching funds of at least 50 percent. *FutureGen* is a \$1 billion initiative to build the world's first zero-emissions, integrated sequestration and hydrogen production research power plant.

NETL's Strategic Center for Coal (SCC) focuses on creating opportunities for the sustainability of ultra-clean coal-to-energy plants through public and private sector partnerships and investments. The Program is one of the RD&D programs within the SCC at NETL. SCC projects include clean coal demonstrations, distributed energy projects, and carbon sequestration projects, including the successful Weyburn CO₂ Carbon Sequestration Project involving enhanced oil recovery. A list of these initiatives is included in Table A-4.

Table A-4. DOE Office of Fossil Energy and NETL Programs

Program	Purpose	Website
Clean Coal Technology Program (CCTP)	To develop improved environmentally-sound coal-based electric power To demonstrate and deploy advanced clean coal technologies	www.netl.doe.gov/cctc/programs/program.html www.fe.doe.gov/programs/powersystems/cleancoal/index.html
Office of Advanced Initiatives (OAI)	To provide overall management and implementation of non-fossil energy initiatives, including those with other Federal agencies	www.netl.doe.gov/oia/index.html
Strategic Center for Coal	To create and sustain clean coal technologies	www.netl.doe.gov/coal/main.html
Climate Change Policy Support	To develop and demonstrate fossil fuel-based technologies	www.netl.doe.gov/products/ccps/index.html
Vision 21	To develop fossil fuel power plants that will co-produce multiple commercial products	www.fe.doe.gov/programs/powersystems/vision21/index.html
Hydrogen & Other Clean Fuels	To investigate advanced hydrogen production technologies from fossil fuels, natural gas, and coal in order to develop commercially viable hydrogen-powered fuel cells to power cars, trucks, homes and businesses with no pollution or greenhouse gases.	www.fe.doe.gov/programs/fuels/index.html

Table A-4. DOE Office of Fossil Energy and NETL Programs

Program	Purpose	Website
Oil & Gas Supply & Delivery	To investigate ways to enhance oil production (e.g. using carbon dioxide to force more oil to the surface while trapping this greenhouse gas underground).	www.fe.doe.gov/programs/oilgas/eor/index.html

A.3.2 DOE’s Energy Efficiency & Renewable Energy Office (EERE) Programs

The DOE’s Energy Efficiency & Renewable Energy Office (EERE) oversees 11 programs geared toward increasing the use of renewable-energy technologies, increasing energy efficiency, and reducing the energy intensity of industry. Each of these programs is currently involved in R&D of new technologies and the continuation of existing innovative efforts.

Many of these programs are collaborations between EERE and other offices, agencies, or private industries. For example, DOE’s Hydrogen Fuel Cells and Infrastructure Technologies Program integrates the efforts of 4 offices to research, develop, and validate fuel cell technologies and hydrogen production, delivery, and storage technologies. The Weatherization and Intergovernmental Program works with communities, manufacturers, consumers, and businesses and has partnered with various state and local energy organizations to support and provide funding for projects which promote energy efficiency in buildings, use of renewable energy on tribal lands, and commercialization of innovative energy-efficient technologies.

The EERE’s wide array of programs includes:

- Building Energy Codes
- NICE3
- Clean Cities
- Rebuild America
- ENERGY STAR®
- State Energy Program
- International Renewable Energy Program
- Tribal Energy Program
- Inventions & Innovation
- Weatherization Assistance Program

These and other key programs are referenced in Table A-5.

Table A-5. DOE Energy Efficiency, & Renewable Energy Office (EERE) Programs

Program	Purpose	Website
Biomass Program	To develop technology for conversion of biomass (plant-derived material) to valuable fuels, chemicals, materials and power	www.eere.energy.gov/biomass/
Building Technologies Program (include Building America)	To improve energy efficiency of buildings through innovative technologies and better building practices	www.eere.energy.gov/buildings/
Distributed Energy (DE) Program	To support cost-effective R&D programs aimed at improving opportunities for promoting distributed energy equipment	www.eere.energy.gov/de/

Table A-5. DOE Energy Efficiency, & Renewable Energy Office (EERE) Programs

Program	Purpose	Website
Federal Energy Management Program (FEMP)	To reduce the costs and environmental impact of the Federal government through the promotion of water conservation and energy efficiency	www.eere.energy.gov/femp/
FreedomCAR and Vehicle Technologies Program	To develop advanced transportation technologies to reduce the nation's use of imported oil and improve air quality	www.eere.energy.gov/vehiclesandfuels/
Geothermal Technologies Program	To promote geothermal energy as an economically competitive contributor to the U.S. energy supply	www.eere.energy.gov/geothermal/
Hydrogen, Fuel Cells & Infrastructure Technologies Program	To accelerate the development and market introduction of hydrogen and fuel cell technologies	www.eere.energy.gov/hydrogenandfuelcells/
Industrial Technologies Program (ITP)	To improve the energy efficiency and environmental performance of U.S. industries	www.eere.energy.gov/industry/
Solar Energy Technologies Program	To develop solar energy technologies as a viable energy source	www.eere.energy.gov/solar/
Weatherization and Intergovernmental Program	To facilitate the adoption of energy-efficient technologies and policies	www.eere.energy.gov/wip/about/about.html
Wind and Hydropower Technologies Program	To promote wind power so that it can competitively compete with other sources of energy	www.eere.energy.gov/windandhydro/

A.3.3 DOE's Office of Science

In support of carbon-sequestration initiatives, DOE's Office of Science focuses its efforts on various endeavors including:

- Sequestering carbon in underground geologic repositories;
- Enhancing the natural terrestrial cycle;
- Carbon sequestration in the oceans; and
- Sequencing genomes of micro-organism for carbon management.

Also, one of the Office of Science research branches, the Office of Biological and Environmental Research, has established a research consortium, CSite, to perform fundamental research on terrestrial ecosystem carbon sequestration.

A.3.4 DOE Interagency/Industry Efforts

Through partnerships with private industry and governmental agencies such as EPA, the Department of Transportation (DOT), USDA, and the Department of Interior (DOI), DOE has initiated many efforts to reduce GHG emissions. Some of the key DOE interagency/industry efforts are outlined in Table A-6.

Table A-6. Key DOE Interagency/Industry Efforts

Efforts	Purpose	Website
U.S. Climate Change Technology Program (CCTP)	To review the portfolio of more than \$2 billion in climate change research activities and make periodic recommendations.	www.climateotechnology.gov/ www.climateotechnology.gov/library/2003/currentactivities/index.htm
Climate VISION Partnership	To reduce greenhouse gas intensity through partnerships with U.S. EPA, DOT, USDA, and DOI.	www.climatevision.gov/
Climate Challenge Program	To cut greenhouse gas emissions through a voluntary program initiated by the electric utility industry and DOE.	www.we-energies.com/environment/gcc_climate_challenge.htm

A.3.5 Other DOE Efforts

Other DOE efforts for the reduction of GHG emissions include the Technology Cooperation Agreement Pilot Project (TCAPP), the National Inventory and Voluntary Reporting of Greenhouse Gases Program (VRGGP), the GHG Reduction and Sequestration Registry, and additional activities outlined in Table A-7.

Table A-7. Other DOE Efforts

Efforts	Purpose	Website
Database of State Incentives for Renewable Energy (DSIRE)	To provide a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy	www.dsireusa.org/
Technology Cooperation Agreement Pilot Project (TCAPP)	To promote and encourage climate change technology cooperation with developing countries and to facilitate voluntary partnerships between several governments and the private sector.	www.bcse.org/tcapp.html
National Inventory and Voluntary Reporting of Greenhouse Gases Program (VRGGP)	To promote voluntary actions, under DOE's 1605(b) program, to reduce emissions and meet U.S. commitments under the Framework Convention on Climate Change	www.eia.doe.gov/oiaf/1605/frntvrgg.html
GHG Reduction and Sequestration Registry	To recognize greenhouse gas reductions by non-governmental organizations, businesses, farmers, and the federal, state and local governments.	www.usgcrp.gov/usgcrp/Library/gcinitiative2002/gccstorybook.doc

A.4 OTHER FEDERAL AGENCIES

In addition to the efforts currently underway at DOE, other federal agencies, such as EPA, USDA, DOT, DOI, and the National Oceanic and Atmospheric Administration (NOAA), are involved in projects concerned with GHG emissions reduction and energy efficiency. The contributions of these programs towards reducing GHG emissions are provided in more detail in Appendix D "Cumulative Impacts".

A.4.1 U.S. Environmental Protection Agency (EPA)

Through environmental research and sponsorship of voluntary programs and partnerships, EPA has taken a lead role in energy-conservation efforts and minimization of GHGs. In turn, the agency provides the partners and the public with access to emerging technology information. Table A-8 outlines some of EPA's key energy related program areas and partnerships, including the Coalbed Methane Outreach Program (CMOP), the Green Power Partnership, the Climate Leaders Program, and the Methane to Markets Partnership.

Table A-8. Key EPA Program Areas

Key Programs	Purpose	Website
Climate Leaders Program	To encourage companies to develop long-term comprehensive climate change strategies and set greenhouse gas (GHG) emissions reduction goals	www.epa.gov/climateleaders/
Methane to Markets	To promote cost-effective, near-term methane recovery and use as a clean energy source.	http://www.epa.gov/methanetomarkets/
Energy Star	To provide energy efficient products for home and business and provide energy efficient management options through business partnerships	www.energystar.gov/
Networked Environmental Information System for Global Emissions Inventories (NEISGEI)	To create a web-based global air emissions inventory network to provide emissions data and inventories	www.neisgei.org/
Green Power Partnership	To encourage organizations to use green power as part of a best management practices environmental program.	www.epa.gov/greenpower/index.htm
Coalbed Methane Outreach Program	To reduce methane emissions from coal mining activities through identification of obstacles to investments in methane recovery technology, and identification and implementation of ways to use coal mine methane	www.epa.gov/cmop/
SF ₆ Emission Reduction Partnership for Electric Power Systems	To identify and implement cost-effective solutions to reduce sulfur hexafluoride (SF ₆) emissions through a voluntary partnership with over 70 utilities	www.epa.gov/highgwp/electricpower-sf6/index.html
Environmental Technology Verification Program (ETV)	To test and verify the validity of innovative energy technologies which improve energy efficiency, reduce greenhouse gas emissions, and improve performance of fossil fuels through the ETV Greenhouse Gas Technology Center	www.epa.gov/etv/

A.4.2 U.S. Department of Agriculture (USDA)

USDA provides incentives - through financial grants, technical assistance, and pilot programs - to private landowners, including farmers and forest and grazing landowners, for implementing practices that reduce GHG and store carbon. "In FY2004, USDA will invest almost \$3.9 billion in agriculture and forest conservation, an increase of \$1.7 billion over FY 2001 levels" (USDA, 2003). Among the major programs are the Environmental Quality Incentives Program (EQIP), the Forest Land Enhancement Program (FLEP), Conservation Reserve Enhancement Program (CREP), Greenhouse Gas Pilot Projects, and the Greenhouse Gas Accounting Protocols. Additionally, through partnerships with private industry such as the American Forest and Paper Association and the National Rural Electric Cooperative Association, USDA works to improve GHG intensity and promote renewable energy. Table A-9 lists some of USDA's program areas.

Table A-9. Key USDA Program Areas

Key Programs	Purpose	Website
Global Change Program	To investigate the current and potential role of agriculture in the global carbon cycle through its Carbon Cycle and Carbon Storage Research Program	www.ars.usda.gov/research/programs/programs.htm?NP_CODE=204
Forest Land Enhancement Program (FLEP)	To promote carbon sequestration through activities such as afforestation, reforestation, forest stand improvements, agro-forestry, and windbreaks	www.fs.fed.us/spf/coop/programs/loa/flep.shtml
Conservation Reserve Enhancement Program (CREP)	To provide agricultural landowners with incentives in the form of annual rental payments and cost-share assistance for installing specific conservation practices on eligible land	www.fsa.usda.gov/daftp/cepd/crep.htm
The Environmental Quality Incentives Program (EQIP)	To provide financial and technical assistance to farmers and ranchers to install or implement conservation practices on eligible agricultural land	www.nrcs.usda.gov/programs/eqip/
Greenhouse Gas Pilot Projects	To encourage farmers and other private landowners to adopt land management practices that will store carbon and reduce greenhouse gases	http://japan.usembassy.gov/e/p/tp-20030609b8.html
Greenhouse Gas Accounting Protocols	To develop new accounting rules and guidelines for reporting greenhouse gas emissions in order to improve the voluntary greenhouse gas registry	http://japan.usembassy.gov/e/p/tp-20030609b8.html
The Wetland Reserve Program (WRP)	To protect, restore, and enhance wetlands through technical and financial support to eligible landowners	www.nrcs.usda.gov/programs/wrp/
USDA Partnerships	To improve greenhouse gas intensity and eliminate barriers to farmers/ranchers in generating renewable energy	www.nreca.org/nreca/Press_Room/Press_Releases/Current/20031022PressRelease.html

A.4.3 U.S. Department of Transportation (DOT)

The DOT's Center for Climate Change and Environmental Forecasting (<http://climate.volpe.dot.gov/about.html>) uses research and analysis, outreach activities and partnerships, strategic planning, and policy assessment to reduce transportation-related GHGs.

A.4.4 U.S. Department of Interior (DOI)

In September 2004, the DOI Bureau of Land Management (BLM) released a Draft Programmatic Environmental Impact Statement (DPEIS) on wind-energy development. The report evaluates environmental, social, and economic impacts associated with wind energy development on Western public lands (excluding Alaska) administered by the BLM. A full text version and summary of the PEIS can be found at <http://windeis.anl.gov/>.

Furthermore, the DOI Office of Surface Mining's (OSM) Abandoned Mine Lands (AML) program provides for the restoration of eligible lands and waters mined and abandoned or left inadequately restored. By reforesting abandoned mine lands, the program supports the goals of terrestrial carbon sequestration.

A.4.5 National Oceanic and Atmospheric Administration (NOAA)

NOAA has a number of programs focused on investigating the ocean carbon cycle. The key programs include the Atlantic Oceanographic and Meteorological Laboratory (AOML) Carbon Dioxide Program, the Pacific Marine Environmental Laboratory (PMEL) Carbon Dioxide Program, and the Global Carbon Cycle Program outlined in Table A-10.

Table A-10. Key NOAA Program Areas

Key Programs	Purpose	Website
Atlantic Oceanographic and Meteorological Laboratory (AOML) Carbon Dioxide Program	To assess the ocean's role in controlling atmospheric CO ₂ levels with focus on observations of the exchange of CO ₂ across the air-sea interface and its eventual penetration into the water masses of the deep ocean	www.aoml.noaa.gov/ocd/gcc/co2research/
Pacific Marine Environmental Laboratory (PMEL) Carbon Dioxide Program	To conduct ocean carbon cycle research from ships and moorings in all of the major ocean basins in collaboration with AOML's Carbon Dioxide Program	www.pmel.noaa.gov/co2/co2-home.html
Global Carbon Cycle Program	To improve the ability to predict the fate of anthropogenic CO ₂ and future atmospheric CO ₂ concentrations using a combination of atmospheric and oceanic global observations, process-oriented field studies and modeling	www.ogp.noaa.gov/mpe/gcc/

A.4.6 Other Federal Agencies

The Carbon Cycle Science Program is an interagency partnership focused on research relating to the understanding of the global carbon cycle. It includes the U.S. Global Change Research Program (USGCRP) and the North American Carbon Program (NACP). A major research effort of the program is to identify, characterize, quantify, and project the major regional sources and sinks of CO₂. This program coordinates the research of 10 federal departments and agencies. It included a budget of \$221 million in FY 2002 for research projects. More information on this program can be found at <http://www.carboncyclescience.gov/>.

A.5 REGIONAL ENTITIES

There are a number of states and regions in the U.S. that have CO₂ emissions reduction regulatory requirements and/or statewide emissions reduction target commitments established by Executive Order, as outlined in Tables A-11 and A-12. Figure A-1 summarizes the status of state progress on GHG inventories and action plans. Additional information on state and regional GHG reduction programs is also found in Appendix D "Cumulative Impacts". Information on the Regional Greenhouse Gas Initiative is found in Section A.5.1.

Table A-11. Regional Projects/Programs

Project/Program	Purpose	Website
Clean Air – Cool Planet (NE partnership)	To create partnerships and local initiatives aimed at reducing greenhouse gases	www.cleanair-coolplanet.org/
Climate Solutions	To helping the Pacific Northwest become a world leader in global warming solutions through programs such as the Northwest Clean Energy Challenge that recognizes businesses, governments, and utilities that invest in renewable energy	www.climatesolutions.org/

Table A-11. Regional Projects/Programs

Project/Program	Purpose	Website
Mid-Atlantic Renewable Energy Coalition	To increase consumer demand for clean electricity in the Mid-Atlantic states	www.cleanyourair.org/
Renewable Northwest Project (RNP)	To promote renewable energy projects in the Northwest by encouraging businesses and governments to participate	www.rnp.org/
Western Resource Advocates	To promote sustainable energy technologies in the Rocky Mountain and Desert Southwest areas through projects such as the Western Resource Advocates' Energy Project	www.westernresourceadvocates.org
Southern Alliance for Clean Energy	To monitor and propose energy policies which are beneficial both environmentally and economically to the area	www.cleanenergy.org/
Regional Greenhouse Gas Initiative	A cooperative effort by Northeastern and Mid-Atlantic states to reduce CO ₂ emissions.	www.rggi.org

Table A-12. State Legislative and Policy Initiatives Pertaining to GHG

<i>Voluntary</i>		<i>Mandatory</i>					<i>Market-based</i>	
<i>GHG Reduct. Targets</i>	<i>GHG Registry</i>	<i>Sector Target Caps</i>	<i>Sector Min. Stds</i>	<i>GHG Emiss. Discl.</i>	<i>Carbon Seq.</i>	<i>Other Emiss. Reduct.</i>	<i>Trading Prog.</i>	<i>Offsets Prog</i>
CT MA MD (P) ME NH NJ NY (P) RI VT	CA CT (P) IL (P) MA (P) MD (P) ME (P) NH NJ NY (P) RI (P) TX (P) VT (P) WI	IL (P) MA NH WA (P) WI (P)	CA MA OR	CT MA MD NC NV	HI FL MN NE ND OK OR RI (P) WY	HI MD TN VT	CT (P) MA (P) MD (P) ME (P) NH (P) NJ* RI (P) VT (P)	MA NH OR

*NJ trading plan abandoned in September, 2002.

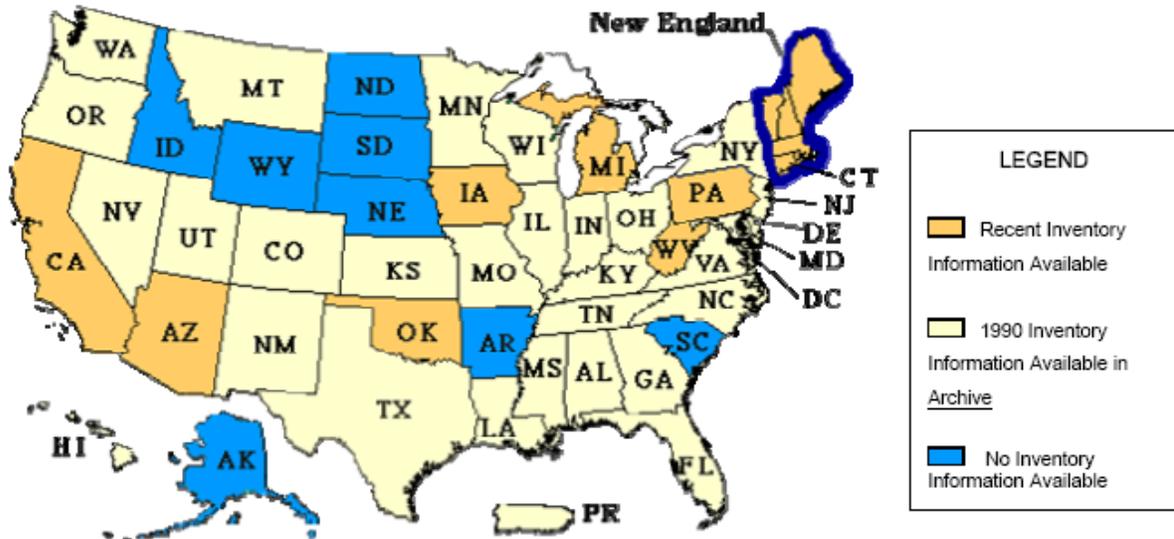


Figure A-1. Status of State GHG Inventories and Action Plans

A.5.1 Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort by 9 Northeast and Mid-Atlantic states to discuss the design of a regional cap-and-trade program initially covering CO₂ emissions from power plants in the region. This program would regulate emissions from fossil fuel-fired electricity generating units having a rated capacity equal to or greater than 25 megawatts. In the future, RGGI may be extended to include other sources of greenhouse gas emissions, and greenhouse gases other than CO₂ (RGGI, 2006)

On December 20, 2005, seven states announced an agreement to implement the Regional Greenhouse Gas Initiative, as outlined in a Memorandum of Understanding (MOU) signed by the Governors of the participating states. The states that agreed to sign the MOU are Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont. The MOU outlines the program in detail, including the framework for a Model Rule to be developed in 2006. The Model Rule will be released in draft form, affording stakeholders and the public an opportunity to submit comments. The states anticipate the release of a draft Model Rule 90 days after signing of the MOU (RGGI, 2006).

The first compliance period will commence January 1, 2009, where through 2014, each state's base annual CO₂ emissions budget shall remain unchanged. Beginning in 2015, each state's base emissions budget will decline by 2.5 percent per year, so that each state's budget for 2018 will be 10 percent below its initial annual budget. If this goal were achieved, total regional CO₂ emissions reductions would be approximately 12 million short tons (11 million metric tons [MMT]) per year from baseline levels. Under the MOU, the signatory states would commence a comprehensive review of the program in 2012, the same timeframe as the federal GCCI review.

The program emphasizes energy efficiency and non-carbon emitting energy generation technologies to meet the CO₂ emissions reduction goal. In each compliance period, a source may cover up to 3.3 percent of its reported emissions with offset allowances.

Initially, offsets allowances may be issued to verified reduction projects anywhere in the U.S. in the following areas:

- Natural gas, heating oil, and propane energy efficiency;
- Landfill gas capture and combustion;
- Methane capture from animal operations;
- Forestation of non-forested land;
- Reductions of sulfur hexafluoride (SF6) emissions from electricity transmission and distribution equipment; and
- Reductions in fugitive emissions from natural gas transmission and distribution systems.

The MOU allows offsets from states outside the signatory states, but with only half credit provided for outside projects. However, if the price of CO₂ allowances exceeds a certain level, use and geographic location of offset allowances would be expanded.

The MOU also states that if a federal program is adopted that is comparable to the RGGI, the signatory states would transition to the federal program.

A.6 NON-GOVERNMENTAL ORGANIZATIONS

In addition to their various partnerships with government agencies, non-government organizations (NGOs) have formed their own collaborations to promote the reduction of GHG emissions, develop markets for green power, and participate in the brokering and trading of GHG emission allowances and offsets. A total of 267 NGOs attended the ninth session of the Conference of the Parties in Milan, Italy in December 2003. Some of the key GHG-related NGOs are listed in Table A-13.

Table A-13. Non-Government Organizations (NGO's)

Organization	Purpose	Website
Business Council for Sustainable Energy	To promote market-based approaches for reducing pollution and providing a diverse, secure mix of energy resources	www.bcse.org/
Center for Energy and Climate Solutions	To promote clean and efficient energy technologies as a money-saving tool for reducing greenhouse gas emissions and other pollutants	www.energyandclimate.org/
Center for Environmental Leadership in Business	To engage the private sector worldwide in promoting policy solutions and test ideas aimed at creating solutions to critical global environmental problems	www.celb.org/xp/CELB/
Chicago Climate Exchange (CCX)	To establish a rules-based market for reducing and trading greenhouse gas emissions	www.chicagoclimatex.com/
Clean Air Canada, Inc. (CACI; becoming EMA-Canada)	To develop and facilitate market-based approaches to reducing, offsetting, and managing emissions through the review and register of emission reduction activities at various organizations, providing a forum for information exchange, and promoting public education and communication	www.cleanaircanada.org/
Climate, Community & Biodiversity Alliance	To combine technical, business, and policy expertise to promote land-use-based carbon offsets as equitable, measurable, and cost effective solutions for managing multiple global problems	www.celb.org/xp/CELB/programs/climate/ccba.xml

Table A-13. Non-Government Organizations (NGO's)

Climate Neutral Network	To develop products and enterprises that eliminate their impacts on the earth's climate	www.climateneutral.com/
Clinton Climate Initiative (CCI)	To make a difference in the fight against climate change in practical and measurable ways, initiating programs that directly result in substantial reductions in heat-trapping greenhouse gas emissions.	http://www.clintonfoundation.org/cf-pgm-cci-home.htm
Emissions Marketing Association (EMA)	To promote market-based trading solutions for environmental management	www.emissions.org/
Environmental Defense (ED) – Partnership for Climate Action (PCA)	To promote investments to reduce emissions and work on effective strategies to cut industrial pollutants such as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, and other GHGs through partnerships with member companies	www.environmentaldefense.org/system/templates/page/subissue.cfm?subissue=3
Environmental Resources Trust (ERT) -- The Greenhouse Gas Registry Program	To report and track greenhouse gas emissions through voluntary reporting and establish an emissions trading market	www.ert.net/ghg/index.html
Global Environmental Management Initiative (GEMI)	To investigate business opportunities and risks related to the growing concern about global climate change	www.gemi.org/
Global Reporting Initiative (GRI)	To develop and disseminate globally applicable Sustainability Reporting Guidelines which report on the economic, environmental, and social dimensions of their activities, products, and services	www.globalreporting.org/
Greenhouse Emissions Management Consortium (GEMCO)	A not-for-profit Canadian corporation formed by companies that wish to demonstrate industry leadership in developing voluntary and market-based approaches to greenhouse gas emissions management.	www.gemco.org/
Intergovernmental Panel on Climate Change (IPCC)	To assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation.	http://www.ipcc.ch/index.html
International Emissions Trading Association (IETA)	To develop an active, global greenhouse gas market and ensure effective business participation	www.ieta.org/ieta/www/pages/index.php
Joint Program on the Science and Policy of Global Climate Change	To conduct research, independent policy analysis, and public communication on issues of global environmental change	http://web.mit.edu/globalchange/www/
Pew Center – Business Environmental Leadership Council (BELC)	To respond to the challenges posed by climate change by working with various companies who address climate change by establishing and meeting emissions reduction objectives; investing in new, more efficient products, practices, and technologies; and supporting actions to achieve cost-effective emissions reductions	www.pewclimate.org/companies_leading_the_way_belc/
The Climate Crisis Coalition	To broaden the circle of individuals, organizations and constituencies engaged in the global warming issue, to link it with other issues and to provide a structure to forge a common agenda and advance action plans with a united front.	http://www.climatecrisiscoalition.org/
The Climate Group	To advance business and government leadership on climate change.	http://www.theclimategroup.org/index.php?pid=354
The Climate Trust	To promote climate change solutions by providing high quality greenhouse gas offset projects and advancing sound offset policy	www.climatetrust.org/

Table A-13. Non-Government Organizations (NGO's)

United Nations Framework Convention on Climate Change (UNFCCC)	An international treaty to begin to consider what can be done to reduce global warming and to cope with whatever temperature increases are inevitable. A number of nations have approved an addition to the treaty: the Kyoto Protocol, which has more powerful (and legally binding) measures. The UNFCCC secretariat supports all institutions involved in the climate change process, particularly the COP, the subsidiary bodies and their Bureau.	http://unfccc.int/2860.php
Voluntary Challenge & Registry (VCR)	To promote voluntary approaches to addressing climate change through a non-profit partnership between Industry and governments across Canada	www.vcr-mvr.ca/
World Bank – Global Gas Flaring Reduction Partnership (GGFRP)	To support national governments and the petroleum industry in their efforts to reduce flaring and venting of gas associated with the extraction of crude oil	http://www2.ifc.org/ogmc/global_gas.htm
World Bank – Prototype Carbon Fund (PCF)	To aid borrowing client countries in combating climate change, promote sustainable development, and demonstrate the possibilities of public/private partnerships	http://carbonfinance.org/pcf/router.cfm?Page=About#4
World Business Council for Sustainable Development (WBCSD)	To promote sustainable development via the three pillars of economic growth, ecological balance, and social progress through a coalition of 170 international companies	http://www.wbcd.ch/templates/TemplateWBCSD5/layout.asp?MenuID=1
World Economic Forum	To engage leading businesses and environmental organizations to participate in a Global Greenhouse Gas (GHG) Register to promote corporate GHG emission transparency.	www.weforum.org/site/homepublic.nsf/Content/Global+Greenhouse+Gas+Register
World Resources Institute (WRI)	To protect the global climate system from further harm due to emissions of greenhouse gases	www.wri.org/
World Wildlife Fund (WWF) – Climate Savers	To engage environmentally committed businesses to develop and adopt innovative climate and energy solutions	www.worldwildlife.org/climate/projects/climate_savers.cfm

A.7 MISCELLANEOUS RESEARCH

Various laboratories and institutes are conducting research that addresses energy conservation, reduction of GHGs, the introduction of new technologies, and understanding of the carbon cycle and its effect on the environment. In the U.S., key research efforts are underway at Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Princeton University, and other institutions as outlined in Table A-14.

Table A-14. Miscellaneous Research (U.S.)

Research	Purpose	Website
The Ocean Biogeochemical Processes Group (OBPG) at E.O. Lawrence Berkeley National Laboratory	To investigate the ocean's carbon cycle (such as how it will change in response to increased CO ₂ in the atmosphere, and how to feasibly, effectively, and economic use the oceans to sequester CO ₂) through various research projects	http://www-ocean.lbl.gov/
Climate and Carbon Modeling Group at Lawrence Livermore National Laboratory	To perform simulation models of the key processes that affect the atmosphere, oceans, and biosphere in an effort to understand the mechanisms of global environmental and climate change	http://eed.llnl.gov/cccm/

Table A-14. Miscellaneous Research (U.S.)

Research	Purpose	Website
The Greenhouse Gas Registry Program	To report and track GHG emissions through voluntary reporting and establish an emissions trading market	www.ert.net/ghg/index.html
Carbon Management and Sequestration Program	To research technologies which have the potential to capture, utilize, and store CO ₂ from stationary sources	http://fee.mit.edu/programs/cms
Ocean Chemistry of Greenhouse Gases	To further work in the area of ocean chemistry and GHGs including experiments on deep-sea release of liquid CO ₂	www.mbari.org/ghgases/