

Appendix B

National Climate Change Technology Initiative Priorities Investment Portfolio for Fiscal Years 2005 and 2006, with Budget Request Information for Fiscal Year 2007, U.S. Climate Change Technology Program

CCTP continues to prioritize its multi-agency portfolio of Federally funded climate change technology R&D, consistent with the goals and objectives of the President's National Climate Change Technology Initiative (NCCTI). NCCTI priorities are defined as discrete research, development, demonstration, or deployment activities that address technological challenges, which, if solved, could advance technologies with the potential to dramatically reduce, avoid, or sequester greenhouse gas emissions. Activities are identified from within the larger CCTP portfolio as shown on Table B-1, are for Budget Authority as Enacted for Fiscal Years 2005 and 2006, and for the Administration's Budget Request for Fiscal Year 2007 by agency.

**Table B-1 National Climate Change Technology Initiative Priorities
FY 2005 to FY 2007 Budgets and Requests
(Funding, \$ Millions)¹**

AGENCY/ PROGRAM/ ACTIVITY	FY 2005 ACTUAL BUDGET AUTHORITY	FY 2006 ENACTED BUDGET AUTHORITY	FY 2007 PROPOSED BUDGET AUTHORITY	NCCTI PRIORITY ACTIVITIES DESCRIPTION
Department of Energy				
Energy Efficiency and Renewable Energy				
Hydrogen Storage	22.4	26.6	34.6	Addresses key challenge to advancing a hydrogen-based transportation system, which could substitute for oil and dramatically reduce GHG emissions. A major technological breakthrough is needed to be able to store enough hydrogen on board a fuel cell vehicle to provide a driving range comparable to today's vehicles.
Low Wind Speed Technology	9.9	5.0	19.1	Currently, wind power is only cost competitive in areas of high-wind speeds, which are relatively sparse and not near major load centers. Improving technologies to make wind power competitive in low-wind speed areas could expand this GHG-free power producer and displace (or reduce future need for) coal- and gas-fired electricity generation. Includes R&D on deepwater off-shore systems.
Solid State Lighting	13.8	19.3	19.3	Such lighting has the potential to double the efficiency of conventional lighting. Deployment could reduce GHG emissions and slow the growth of future base load electricity generation capacity, which will largely use coal.

¹ This table is consistent with the FY 2007 "Federal Climate Change Expenditures Report to Congress" prepared by the Office of Management and Budget <http://www.whitehouse.gov/omb/> and published in April 2006. Minor differences are due to rounding.

AGENCY/ PROGRAM/ ACTIVITY	FY 2005 ACTUAL BUDGET AUTHORITY	FY 2006 ENACTED BUDGET AUTHORITY	FY 2007 PROPOSED BUDGET AUTHORITY	NCCTI PRIORITY ACTIVITIES DESCRIPTION
Department of Energy				
Energy Efficiency and Renewable Energy				
Cellulosic Biomass (Biochemical Platform R&D)	11.1	10.4	32.8	The research focuses on converting complex cellulosic carbohydrates of biomass into simple sugars. Ultimately, this could lead to use of “waste” biomass to produce power, chemicals, and fuel, such as ethanol. Cellulosic biofuels can displace fossil fuel products and have the potential to be nearly “carbon neutral” by cyclically capturing and releasing carbon dioxide, the main GHG, to the atmosphere.
Transportation Fuel Cell Systems	7.5	1.1	7.5	This activity works to incorporate fuel cells into vehicles—converting hydrogen into electricity and water vapor—directly displacing the burning of fossil fuels in vehicles.
EERE Sub-total	64.7	62.4	113.3	
Nuclear Energy				
Nuclear Hydrogen Initiative	8.7	24.8	18.7	This program aims to develop technologies that will apply heat available from advanced nuclear energy systems, in combination with power production, to produce hydrogen at a cost that is competitive with other alternative transportation fuels. Although it is but one of many hydrogen production methods, nuclear energy provides an emissions-free way to produce large amounts of hydrogen.
Advanced Fuel Cycle/Advanced Burner Reactor	0.0	5.0	25.0	Advances in nuclear fuel recycling can make nuclear power, which emits no GHG emissions, more attractive. The Advanced Burner Reactor (ABR) is a component of a multifaceted research program aimed at recycling spent nuclear fuel; reducing waste; promoting non-proliferation; and enabling the expansion of nuclear power—a GHG-free energy source. With ABR technology, the only waste to be placed in a repository is of a less challenging content, absent long-lived radioactive isotopes and other transuranics. One Yucca Mountain size repository would be able to accommodate the waste from many reactor-years of operation—a content that would fill as many as 21 equal repositories taking all that spent fuel directly.
NE Sub-total	8.7	29.8	43.7	

AGENCY/ PROGRAM/ ACTIVITY	FY 2005 ACTUAL BUDGET AUTHORITY	FY 2006 ENACTED BUDGET AUTHORITY	FY 2007 PROPOSED BUDGET AUTHORITY	NCCTI PRIORITY ACTIVITIES DESCRIPTION
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Department of Energy

Fossil Energy

Sequestration	44.3	66.3	78.2	The continued use of fossil fuels, particularly coal, to generate electricity may be important to maintain both a diversified fuel mix and ensure adequate energy supplies at a reasonable price. A successful carbon sequestration research and development effort could allow the continued use of economical fossil fuels, while also limiting GHG emissions to the atmosphere.
Integrated Gasification Combined Cycle (IGCC)	44.6	55.9	55.6	Instead of burning coal, IGCC technology gasifies coal in such a way so as to enable the more efficient conversion of coal and other carbon-based feedstocks into electricity and other useful products, providing the potential for over 50 percent reduction in CO ₂ emissions, compared to today's more conventional combustion technologies. It also facilitates capture and sequestration processes.
FE Subtotal	89.0	122.2	133.8	

Climate Change Technology Program Direction	– ²	0.0	1.0	The CCTP is the multi-agency planning and coordination activity, led by DOE, that carries out the President's climate change technology initiative and implements relevant climate change provisions of the Energy Policy Act of 2005. CCTP provides strategic direction, planning, analysis and multi-agency coordination for the participating Federal R&D agencies.
Total – DOE	162.4	214.4	291.8	

Environmental Protection Agency

Methane Partnership Initiatives	9.0	10.0	13.0	Includes EPA's domestic partnership programs with industry, as well as the international Methane to Markets Partnership. These programs encourage development and deployment of technologies to reduce methane emissions and make a substantial contribution to achievement of the President's GHG-intensity reduction goal.
Climate Leaders	2.0	2.0	2.0	Climate Leaders is a set of flagship voluntary industry-government partnerships that encourage private entities to develop and implement long-term, comprehensive climate strategies, and set GHG emission reduction goals.
Total – EPA	11.0	12.0	15.0	
TOTAL – NCCTI³	173.4	226.4	306.8	

² In FY 2005, \$1.5M was enacted for CCTP Program Direction within DOE's EERE Program Direction account.

³ Totals may not add due to rounding. All Agency data are as of April 2006.

