



## Climate Change in the US Government Budget

### Funding for Technology and Other Programmes, and Implications for EU-US Relations

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#### Abstract

With increasing Congressional support for funding climate change technology programmes, as reflected in passage of the Hagel/Pryor amendment to the energy policy bill in June 2005, issues about the climate change budget are becoming more salient. In this Policy Brief, Congressional and Presidential actions on several recent budgets are examined for the four principal areas of the climate change budget: technology, science, international and tax credits. The emphasis is on energy technology in particular, because of its salience in current policy discussions and its relative size in financial terms. Highlights of the findings include the following: Congress imposed substantial (63.3%) *increases* over the administration's climate change technology proposals for 2004 and then small increases for FY2005. For 2006, the administration has proposed *reductions* compared with the Congressionally-enacted levels in the technology component – reductions in both nominal and inflation-adjusted terms (-4.1% and -5.6%, respectively). The administration has also proposed *cuts* for fiscal 2006 in the science and international programmes (-2.9 and -19.0% in real terms). These and other differences in Presidential and Congressional approaches to funding climate change programs provide further evidence that the Presidential-Congressional divide on climate policy is continuing to widen. There is an emerging bi-partisan Congressional coalition in favour of increased spending on a wide range of climate change programmes. This shift will affect EU-US relations on climate change issues for the remainder of the current administration until 2008, and beyond as well.

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## 1. Introduction

US government spending for energy technology and other programmes is an important element of overall US climate change policy. Support for the technology element of climate change policy has become especially salient and controversial in recent years, as the administration has given greater emphasis in its stated policy to subsidies for research and development of technology, and as Congress has taken an increasing interest in the subject. The implementation of such programmes requires resources that must be provided in the annual budget decision-making process. Thus, the patterns and priorities in the allocation of resources for these programmes provide an empirical basis for observing tangible evidence of policy commitments.

Despite their importance, budgeting issues associated with US climate change policies have not previously been subjected to extensive empirical analysis. There are discussions of budget issues, administration policies and Congressional actions during the 1990s available in Anderson (2002), Bryner (2000), and Rosencranz (2002). Those studies, however, do not systematically focus on the patterns and trends in the entire climate change budget, and they do not include the period since the change in administrations in 2001. Other studies, such as those by Bierly & Eden (2005) and the National Commission on Energy Policy (2004) provide detailed data on selected aspects of current and future climate change budgets within the context of policy advocacy.<sup>1</sup>

The best single source of data on climate change budgets is the administration's annual Report to Congress entitled "Federal Climate Change Expenditures", which is required by legislation and which is submitted by the Office of Management and Budget as part of the regular budget cycle.<sup>2</sup> For FY2006, see also Marberger (2005).

The fiscal year begins on 1 October and ends on 30 September. Because of the lead times in the decision process and the lags in the data publication process, the budget submission in any given calendar year contains data for: 'actual' expenditures by the agencies in the recently completed fiscal year, previously 'enacted' expenditures passed by Congress and agreed by the President for the then current fiscal year, and the

administration's 'proposed' expenditures for the forthcoming fiscal year.<sup>3</sup>

## 2. Overview of Recent Administration and Congressional Actions

Table 1 presents summary data on the principal climate change programmes for fiscal years 2004, 2005 and 2006. In that table, there is an important distinction between the programmes in the top three lines, which involve *direct expenditures* by government agencies, and the fourth programme, in which *tax credits* represent foregone revenues. The amounts for the first three programmes are directly controlled by annual appropriations. The amounts for tax credits are estimates made on the basis of existing or anticipated tax laws that create the credits and on the basis of forecasts of the economic activities that entitle producers and/or consumers to the credits. For instance, estimated amounts of the lost revenues from tax credits for the purchase of hybrid fuel automobiles depend on the mandated amount of the credit per vehicle and the estimated number of vehicles sold that will qualify for the credit in the fiscal year. As a result of these differences, a subtotal for the three direct-expenditure programmes has been computed, and the tax credits are presented separately.

As can be seen in the first line of Table 1, the administration's proposed amounts for *technology* were substantially increased by Congress for FY2004 and slightly increased for FY2005 (63.6% and 0.2%, respectively). As for *science* programmes, after large increases over the President's proposal for FY2004, the Congress imposed small decreases on the President's proposals for FY2005. Congressional action on *international* programmes, however, followed the opposite pattern: first Congressional cuts in the President's proposed amounts for FY2004 and then increased them for FY2005.

Table 2 presents the administration's FY2006 proposed amounts in relation to the FY2005 amounts enacted by Congress. The comparisons are expressed in real, constant dollar terms and the associated percentage change terms, as well as the nominal amounts indicated in the budget documents. The administration has proposed cuts of 5.6% for technology programmes, 2.8% for science and 18.7% for international programmes. At the same time, it has estimated an increase of more than 500% in tax credits (estimates that are discussed below in section 4).

<sup>1</sup> For an analysis of the politics, economics and administration of the US government budgeting process more generally, see for instance, Schick (2000). On the procedural and legal details, see especially Congressional Quarterly (2003); US, House of Representatives (2001); US, Congressional Research Service (2003a, 2003b, 2004); and US, Congressional Budget Office (2004).

<sup>2</sup> In the past three years, it has been submitted increasingly early in the budget cycle (August 2003 for FY2004; May 2004 for FY2005; and March 2005 for FY2006). See US Government, Office of Management and Budget (2003, 2004, 2005a).

<sup>3</sup> In this context, 'expenditures' are represented by 'budget authority' in the technical language of the budget process. Because they include obligations for future payments, they are not necessarily precisely equal to disbursements of funds in any given fiscal year.

Table 1. Principal climate change budget programmes, fiscal years 2004, 2005 and 2006 (\$ millions)

Programmes	FY2004 Proposed	FY2004 Enacted	FY2004 Actual	FY2005 Proposed	FY2005 Enacted	FY2006 Proposed
Technology	1759	2878	2868	2982	2989	2865
Science	1747	1996	1976	1956	1918	1892
International*	271	260	252	229	240	198
Subtotal, Net of double counting	3770	5128	5090	5161	5140	4949
Tax Credits	552	0	0	680	83	524
Total	4322	5128	5090	5841	5223	5473

\* In the source documents, 'International' includes some items that are also in 'Technology' and/or 'Science'. The subtotal, which has been computed by the author, excludes the double-counted amounts. The amount of this double counting has been computed by the author as follows: Double-counted Amount = (Subtotal of Technology + Science + International) - (Total [which does not include double counting in original source] - Tax Credits). The double counting has been \$6-7 million per year.

Sources: Compiled by the author from US Government, Office of Management and Budget, *Federal Climate Change Expenditures: Report to Congress* [FY 2004] (August 2003); *Federal Climate Change Expenditures: Report to Congress* [FY 2005] (May 2004); *Federal Climate Change Expenditures: Report to Congress* [FY 2006] (March 2005); Table 1 in each source.

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Table 2. Comparisons of administration proposals for FY2006 with FY2005 Congressionally-enacted amounts (\$ millions)

Programmes	Proposed changes (nominal amount current dollars)	Proposed changes (constant FY2005 dollars)**	Proposed changes (inflation-adjusted percentage change)
Technology	-124	-167	-5.6%
Science	-26	-54	-2.8%
International*	-42	-45	-18.7%
Subtotal, Net of double counting	-191	-265	-5.2%
Tax Credits	441	433	521.9%
Total	250	168	3.2%

\* In the source documents, 'International' includes some items that are also in 'Technology' and/or 'Science'. See Table 1 for further information.

\*\* Assumes 1.5% inflation, which is the estimate of the Congressional Budget Office for the GDP price index change for FY2006 compared with FY2005.

Sources: Compiled by the author from US Government, Office of Management and Budget, *Federal Climate Change Expenditures: Report to Congress* [FY 2006] (March 2005); Table 1 (downloaded on 23 June 2005 from: [http://www.whitehouse.gov/omb/fy06\\_climate\\_chg\\_rpt.pdf](http://www.whitehouse.gov/omb/fy06_climate_chg_rpt.pdf)). Real constant dollar changes computed by the author using 1.5% forecast GDP price index change from Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2006 to 2015*, January 2005, Table E-1 (downloaded from <http://www.cbo.gov/showdoc.cfm?index=6060&sequence=10#tableE-1> on 27 March 2005).

### 3. Technology

In Table 3, the data for technology programmes reveal differences in Presidential and Congressional priorities for the allocation of funds for particular energy sources and R&D projects among technology programmes. For instance, for FY2005 Congress cut \$53 million from the President's proposed amounts for fossil fuel efficiency and sequestration ('clean coal' programmes) but increased the amount requested for nuclear by \$81 million. Meanwhile, for the same fiscal year the Congress made only marginal changes in the President's requests for energy conservation and renewable energy sources – decreasing the former by \$8 million and increasing the latter by \$5 million.

The President's technology programme proposals for FY2006, as compared with the previous year's Congressionally-enacted amounts, are displayed in Table 4. In constant dollar, inflation-adjusted terms, the proposals call for reductions of 3.9% and 8.2%, respectively, in energy conservation and renewable energy programmes. At the same time they call for increases of 2.8 to 5.9% in fossil, hydrogen and nuclear programmes. Particularly noteworthy are the proposed cuts of 26.9% for programmes outside the Energy Department, including the Environmental Protection Agency, Department of Agriculture and other executive branch agencies.

Table 3. Climate change technology programmes (\$ millions)

Programmes	FY2004 Proposed	FY2004 Enacted	FY2004 Actual	FY2005 Proposed	FY2005 Enacted	FY2006 Proposed
Energy conservation	876	878	868	876	868	847
Renewable energy	444	375	352	375	380	354
Subtotal: cons. + renew.	1320	1253	1220	1251	1248	1201
Fossil Fuels – eff. & seq.	184	464	455	541	388	405
Fusion, sequestration, hydrogen	47	337	333	362	371	399
Nuclear	[12]*	292	309	313	394	416
Subtotal: fossil+fusion+nuc.	243	1093	1097	1216	1153	1220
Other Energy Dept.	70	62	73	90	104	85
Energy Department Subtotal	1633	2408	2390	2557	2505	2506
Other departments	126	470	478	425	484	359
Total	1759	2878	2868	2982	2989	2865

\* This amount appears not to be comparable to amounts on the same line for subsequent years.

Sources: Compiled by the author from US Government, Office of Management and Budget, *Federal Climate Change Expenditures: Report to Congress* [FY 2004] (August 2003); *Federal Climate Change Expenditures: Report to Congress* [FY 2005] (May 2004); *Federal Climate Change Expenditures: Report to Congress* [FY 2006] (March 2005); Table 4 in each source. Downloaded on 23 June 2005 from:  
[http://www.whitehouse.gov/omb/legislative/fy04\\_climate\\_chg\\_rpt.pdf](http://www.whitehouse.gov/omb/legislative/fy04_climate_chg_rpt.pdf)  
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[http://www.whitehouse.gov/omb/fy06\\_climate\\_chg\\_rpt.pdf](http://www.whitehouse.gov/omb/fy06_climate_chg_rpt.pdf).

Table 4. Administration's proposed changes in technology programmes for FY2006 (\$ millions)

Programmes	Proposed changes (nominal amount current dollars)	Proposed changes (constant FY2005 dollars)*	Proposed changes (inflation-adjusted percentage change)
Energy conservation	-21	-34	-3.9%
Renewable energy	-26	-31	-8.2%
Subtotal: cons. + renew.	-47	-65	-5.2%
Fossil Fuels – eff. & seq.	17	11	2.8%
Fusion, sequestration, hydrogen	28	22	5.9%
Nuclear	22	16	4.0%
Subtotal: fossil+fusion+nuc.	67	49	4.2%
Other Energy Dept.	-19	-20	-19.5%
Energy Department Subtotal	1	-37	-1.5%
Other departments	-125	-130	-26.9%
Total	-124	-167	-5.6%

\* Assumes 1.5% inflation, which is the estimate of the Congressional Budget Office for the GDP price index change for FY2006 compared with FY2005.

Sources: Compiled by the author from US Government, Office of Management and Budget, *Federal Climate Change Expenditures: Report to Congress* [FY 2006] (March 2005); Table 4. Downloaded on 23 June 2005 from: [http://www.whitehouse.gov/omb/fy06\\_climate\\_chg\\_rpt.pdf](http://www.whitehouse.gov/omb/fy06_climate_chg_rpt.pdf). Real constant dollar changes computed by the author using 1.5% forecast GDP price index change from Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2006 to 2015*, January 2005, Table E-1, downloaded from <http://www.cbo.gov/showdoc.cfm?index=6060&sequence=10#tableE-1> on 27 March 2005.

#### 4. Tax Credits

As Table 5 indicates, the administration's estimated tax credits for energy efficiency have remained at similar levels for several years (about \$500-\$700 million). For FY2006, increased credits for the purchase of hybrid vehicles constitute the biggest change, as sales of such vehicles continued to increase. The administration anticipated a total of \$260 million for such credits, and an overall total of \$524 million for solar, wind, biomass and combined heat & power programmes.

However, these are only estimates, and they have been substantially higher than the amounts estimated by Congress and the amounts actually spent, at least in the years for which there are data in Table 5. The unreliability of the estimates is partly a result of changing provisions in the tax laws. With the prospect of continuing uncertainties and changes in tax legislation, this is likely to remain a relatively unpredictable component of the climate change budget.

Table 5. Climate change tax credit programmes – Administration's proposed amounts (\$ millions)

	FY2004	FY2005	FY2006
Homes			
Residential solar	7	12	11
Transportation			
Hybrid & fuel cell vehicles	154	79	260
Industry			
Wind, biomass, land-fill gas	292	435	144
Industry			
Cogeneration heat & power	99	154	109
Total	552	680	524

Sources: Compiled by the author from US Government, Office of Management and Budget, *Federal Climate Change Expenditures : Report to Congress* [FY 2004] (August 2003); *Federal Climate Change Expenditures : Report to Congress* [FY 2005] (May 2004); *Federal Climate Change Expenditures: Report to Congress* [FY 2006] (March 2005); Table 6 in each source. Documents were downloaded on 23 June 2005 from:  
[http://www.whitehouse.gov/omb/legislative/fy04\\_climate\\_chg\\_rpt.pdf](http://www.whitehouse.gov/omb/legislative/fy04_climate_chg_rpt.pdf)  
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#### 5. Conclusion: Diverging Presidential and Congressional Priorities – and the Implications for the EU

Congress preferred greater expenditures than the President requested for climate change *technology* programmes in both FY2004 and FY2005. In view of the Senate's passage of the Hagel/Pryor amendment to the energy policy bill in June 2005 – an amendment that calls for an expansion of climate change technology programmes – it is likely that the gap between Congressional and Presidential priorities will increase during the next few years. For FY2006, in particular, the administration is proposing to reduce funding of technology programmes by 5.6% below FY2005 Congressionally-enacted levels in inflation-adjusted terms. Differences in Presidential and Congressional priorities for the allocation of funds for particular energy sources and R&D projects among technology programmes are also evident.

Despite a stated desire to reduce uncertainties about climate change through scientific research, the administration is also proposing to reduce the funding of climate *science* programmes, and it is proposing to reduce *international* programmes as well. These proposals for reductions occur, of course, in the context of budget constraints arising from the large budget deficits of recent years. However, the

budget proposals *for the government as a whole* for FY2006 provide for real, inflation-adjusted *increases* in total government outlays and in discretionary outlays (not including expenditures for the wars in Afghanistan and Iraq).

Thus, while the administration is proposing a path of reduced government expenditures for climate change technology, science and international programmes, the Congress is on a path of increasing expenditures. The increasing Congressional support for more action to address climate change and the natural political appeal of subsidies will likely further isolate the administration from the new climate change consensus in the US.

These changes in the US will affect EU-US relations on climate change issues, and the effects will be felt for the remainder of the current administration's time in office until early 2009, and after that as well. In particular, increases in US expenditures on climate change programmes because of Congressional actions will have the effect of fostering transnational cooperative relations between key members of Congress and other participants in the pro-mitigation US coalition, on the one hand, and their EU counterparts, on the other. Furthermore, there will be more widespread recognition among multinational firms with interests in the US and EU that the carbon-constrained era has begun and

poses new opportunities and challenges for them. Finally, US government pressures on other governments and the EU to increase their funding of climate change programmes in technology, science and international assistance may increase.

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