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Analysis of the Bush Climate Change Strategy

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Main results:

- US Emissions, already the highest in the world, would rise by another 20% (6% to 37%) from today's levels by 2012.
- By 2012, US Emissions would be allowed to rise to 38% (22% to 57%) above 1990 levels, which is 45% (29% to 64%) higher than the initial Kyoto targets.
- Compared to business-as-usual scenarios, Bush's plan would allow up to 1'800 MtCeq *more* emissions over the coming decade.
- The -18% proposed emission intensity cut below today's levels translates into a -8.9% to +10% (!) change of emission intensities in comparison to business-as-usual scenarios.
- Stabilization of GHG concentrations at safe levels is impossible with Bush's "New Approach".

Note: these results are obtained by using the International Energy Outlook (2001) BAU-scenarios (see figures 5 to 10). Using GDP projections in the "Economic Report of the President" (2002) yields results below the given mid-range (see figures 1 to 4).

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Disclaimer

As a note of caution, the reader should be informed that all quantitative results in this analysis are of preliminary nature, given some as yet unkown details about Bush's climate policy plan and differing economic growth projections. Furthermore, it might seem that there are inconsistencies between figures 1 to 4 (below) on the one hand and figures 5 to 10,on the other. This is due to the fact that figures 1 to 4 are based on economic growth projections as published in the Economic Report of the President (2002), whereas the later section (figures 5 to 10) uses the CO2 and GDP projections from the International Energy Outlook from the US Department of Energy, which has the advantage of presenting three different scenarios, a low, medium and high one.

1. Introduction

The following report analyses the Bush Administration's Climate Change Strategy in terms of limits (or lack thereof) to US greenhouse gas emissions. The Strategy was announced by President Bush on 14th February 2002. This "new approach" includes an emission intensity reduction target of -18%. The quantitative details of this plan which have been released are more or less confined to the following[1]:

1. Setting a voluntary goal of reducing the emission intensity of the US economy from today's levels, 183 metric tons of GHG emissions per million dollars GDP, to 151 tons/$US1 million by the year 2012, …
2. Achieving 100 MtC emission reductions in the year 2012 with "more than 500 MtC in cumulative savings over the entire decade".
3. Arguing that this is "comparable to the average progress that nations participating in the Kyoto Protocol are required to achieve."

By using the given emission intensity targets[2] (1) to model potential emission limitations under various future scenarios, this report shows that the announcement about potentially positive effects of the plan are unfounded.

Five of the most outstanding deficiencies of Bush's Climate Change Strategy are highlighted in section 2, followed by comparisons of the Bush plan's effect with historical data (section 3) and future "business as usual" scenarios (section 4). A set of figures to illustrate the effects of Bush's Strategy are given in an Appendix.

[1] Announcements about Bush's Climate Change Strategy did for example not yet explicitly reveal *which* greenhouse gases will be controlled. As can be deferred from the emission intensity numbers, though (183 MMTC/million $, 2001 dollars), it seems likely the Strategy includes the Kyoto 'basket' of the 6 greenhouse gases CO2, CH4, N2O, HFCs, PFCs and SF6; our calculations are based on these 6 gases included in the Kyoto Protocol. A different 'basket of gases' could affect this reports' findings, although probably not in a major way.

[2] GDP in 2001 prices has been used in this analysis to incorporate the target of 151 metric tonnes carbon equivalent emissions. Thus, some GDP data has been adjusted from 1996 or 1997 $ to 2001 $ for the purpose of this analysis.

2. Five Reasons why Bush's Climate Change Strategy is "Fatally Flawed"

1. EMISSIONS SOAR

By only looking at emissions intensity (emissions/GDP), the plan ensures that **US greenhouse gas emissions will rise dramatically**; according to our estimates, and based on the latest US government projections of GDP growth, they would be **allowed to rise to about 38% (22% to 57%) ABOVE 1990 levels by 2010, which is 45% (29% to 65%) above the initial Kyoto targets**. *(See figures 8, 9 and 10*) Using the economic forecast by the President in its "economic Report" (2002), emissions are likely to increase 29% above 1990 levels and 36% above the initial Kyoto targets *(see figures 1 and 2)*

2. NO BETTER THAN BUSINESS AS USUAL

The Bush plan will result in a level of increase in greenhouse gas emissions which **falls well within the range of 'business as usual' projections,** i.e., the plan will have very little if any effect on emissions. In the past five years, official US government statistics show that the emission intensity decreased substantially more than what is required by the Bush plan. President Bush's assertion today that this is 'comparable with the Average Progress that Nations Participating in the Kyoto Protocol are Required to Achieve' is **patent nonsense.** *(See figures 8 to 10, Table 1 and 2, as well as figure 3)*

3. "STRATEGY TO CHANGE THE CLIMATE"

Far from a plan with which the US can 'lead the world', this plan heads in exactly the opposite direction that the rest of the world is pursuing via the Kyoto Protocol. **The plan does not even attempt to stabilize US emissions**, in contravention of its obligations under the United Nations Framework Convention on Climate Change, to which the USA is a Party, and which President Bush said on 14th February that he will honour.
In other words, the Bush plan doesn't even achieve the President's own goal defined last Spring. In his 11 June 2001 speech, Bush mentioned criteria for the new US approach to reduce greenhouse gas emissions: **"Our approach must be consistent with the long-term goal of stabilizing greenhouse gas concentrations in the atmosphere."** Clearly, a cumulative growth of 2'800 (1'000 to 4'600) million tons of GHG emissions over the next decade above current emission levels, is not at all consistent with the stabilisation of GHG concentrations at safe levels (see table 2).

4. NOT MANDATORY

The plan is entirely voluntary, and will therefore be unlikely to achieve anything at all. Governments' recognition of the necessity of binding targets in 1995 was what led to the Kyoto Protocol in the first place. Furthermore, it is not clear what sort of a reporting, monitoring and verification regime will be put in place.

5. NOT ACCEPTING RESPONSIBILITY

President Bush's statement that 'It would be unfair -- indeed, counterproductive -- to condemn developing nations to slow growth or no growth by insisting that they take on impractical and unrealistic greenhouse gas targets' is at best ironic, since the whole international climate regime, which including the UN Framework Convention on Climate Change and the Kyoto Protocol are founded on the principle of 'common but differentiated responsibilities'. This means that the industrialised countries have to shoulder the majority of the burden of tackling climate change initially, because a) they caused most of the problem; and b) they have the ability to pay.

This is why developing countries do not have emissions reduction targets in the first commitment period of the Kyoto Protocol to 2012. **But this very fact is one of the major reasons Bush has advanced as to why Kyoto is fatally flawed, and the only one insisting that developing countries take on reduction targets in the near term is the Bush Administration itself!**

3. How do the targets of the Bush plan compare to historical data?

The Bush plan is based on an emission intensity target, setting the goal of reducing emission intensity of the US economy by 18% by 2012. At present, the emissions intensity of the US economy is about 183 tons of carbon emitted per US$1 million of Gross Domestic Product (GDP). The emissions intensity of the US economy decreased during the decade of the 1990s by about 16.5%, while absolute emissions grew by about 14.8%. Therefore, the Bush plan appears to be something of an improvement.

→ Unfortunately, the Bush plan is not in fact an improvement compared with the second half of the last decade, where emission intensity in fact dropped by a rate of about 25.3 percent per decade, (and still, emissions rose by 5.1%). In other words, the 'business as usual' trend in the second half of the 90s is more progressive than the 18% in a decade proposed by Bush. (*see Table 1 and figures 5-7*).

Changes in GHG intensity per decade	Average 1990-2000	average 1996-2000 per decade	Proposed Cutting by Bush
CO2	-15.2%	-23.6%	
CH4	-27.6%	-32.9%	
N2O	-22.3%	-40.3%	
HFC,PFC,SF6	21.3%	7.8%	
GHG sum	-16.5%	-25.3%	-18%

Table 1. Historic Changes in GHG intensity (=emissions per GDP) in comparison to Bush's Climate Plan proposal for the coming ten years. Note, that the proposed cut in intensity by 18% for the coming ten years is slightly higher than what has been observed over the past decade as a whole (-16.5%). However, in recent years the drop of GHG intensity was already been substantially higher (-25.3%) with an average of -25.3% derived from the latest four years 1996-2000). Sources: FCCC/SBI/2001/13

4. How do the targets of the Bush plan compare to Business As Usual projections?

In the following section, Bush's Climate Change Strategy is compared to a low, medium and high "business as usual" (BAU) scenario, reflecting low, medium and high GDP and emission growth where no additional climate policy measures are undertaken. The BAU-scenarios have been drawn from the International Energy Outlook of the US Department of Energy (IEO, 2001) for GDP and CO2-Emission projections, and complemented by data on non-CO2 emissions from the US Environmental Investigation Agency (EPA, 2001).

President Bush said yesterday that his Climate Change Strategy would result in emission reductions of up to 100 MtC/year in 2012 below business as usual trend projections. Here we show that the **Bush plan will actually allow higher emissions than the predicted (medium) reference case by the by EPA and Department of Energy** in last years' International Energy Outlook.

As in the case of medium economic growth (IEO Ref), high economic growth (IEO High) would result in the Bush intensity target allowing significantly higher greenhouse gas emissions than predicted as business-as-usual (see e.g. figures 5-7).

As this analysis shows, the Bush plan might have a positive effect compared with business as usual when economic growth is slowing down and GDP-growth is low. The paradoxical feature of Bush's emission intensity target is that emissions would only be limited in a recession.

The conclusion here is that business as usual would result in lower emissions than the Bush plan, except in period of low growth or in a recession. (see table 2 and figures 5-7).

		Business as usual International Energy Outlook Scenario			Reducing Emissions (Ranking)
		Low	Reference	High	
1. Cumulative GHG-Emissions from 2002-2012	a) „business as usual"	+22,666	+23,114	+23,711	2nd
	b) Bush	+21,885	+23,627	+25,544	3rd
	c) Kyoto	+18,099	+18,099	+18,099	1st
2. Cumulative Reductions/ Emissions below/above BAU	a) „business as usual"	-	-	-	2nd
	b) Bush	-781	+513	+1,832	3rd
	c) Kyoto	-4,567	-5,015	-5,613	1st
3. Cumulative Reductions/Emissions below/above 2001 levels	a) „business as usual"	+1,821	+2,268	+2,866	2nd
	b) Bush	+1,039	+2,781	+4,698	3rd
	c) Kyoto	-2,747	-2,747	-2,747	1st

Table 2 - Comparison of "business-as-usual", the Bush Climate Strategy and the initial Kyoto targets for the US (-7%). Emissions (+) and emission reductions (-) are given in MMTC (million metric tonnes of carbon equivalent). "Business as usual" scenarios for CO2 and GDP are taken from the International Energy Outlook (2001) and EPA (2001) (non-CO2 emissions). It becomes obvious, that option b) "following the Bush Climate Change Strategy" would results in net-highest emissions across all scenarios (see ranking).

Appendix with figures[3]

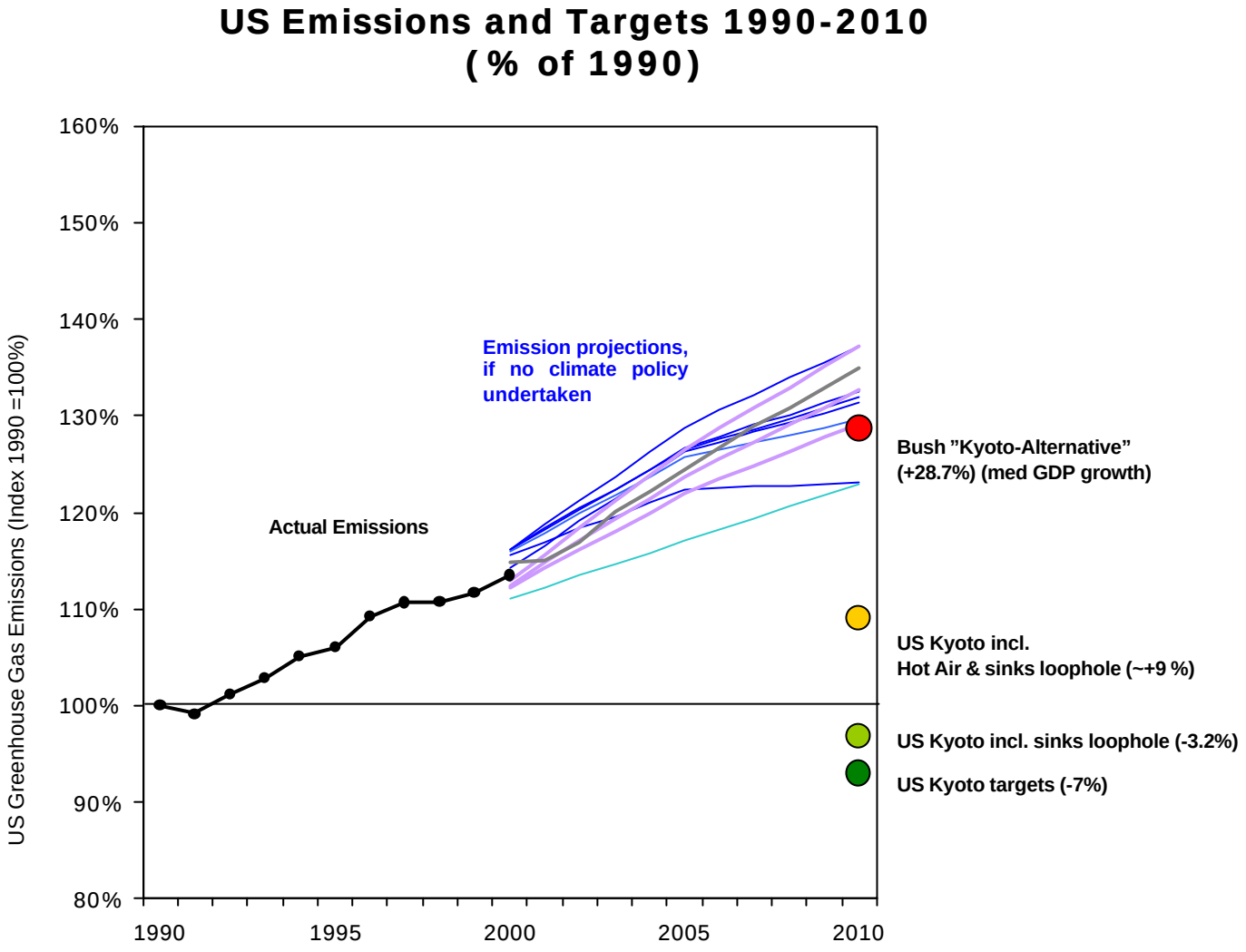


Figure 1 – The Bush plan would lead to negligible emission reductions below business-as-usual emissions using the GDP-growth projections in the "Economic Report of the President" (2002). Under these projections Bush's Climate Policy Plan would allow about 29% more greenhouse gas emissions in 2010 compared to 1990[4].

[3] All figures are own illustrations.

[4] Note that different emission allowances are obtained for different BAU-scenarios, i.e. cp. figure 9, where the medium range IEO scenario has been used and the percentage increase of 38% above 1990 is given for 2012, not for as the 28% above 1990 in 2010(!), as in this figure 1.

US Emissions and Targets 1990-2010 (absolute)

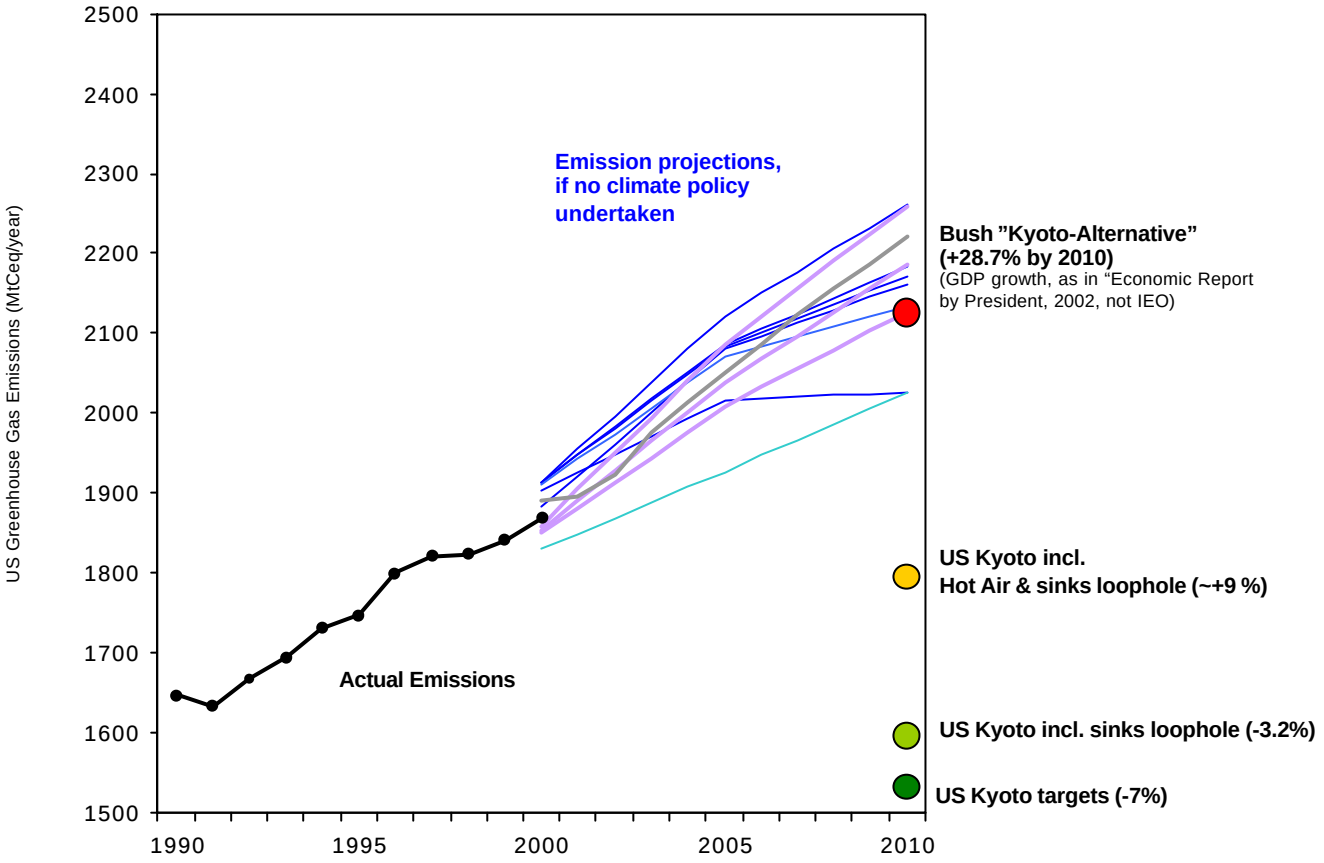


Figure 2 – As figure 1, but given in absolute emissions (MtC/year = million tonnes of carbon per year)

Additional Sources for Figures 1 to 4: US GDP growth according to the Economic Report of the President (2002) projections, page 53, (3.1%/year) from 2001 to 2010.
Actual Emissions: FCCC/SBI/2001/13, available at www.unfccc.int
Emission projections: 1) (Dark blue thin lines): IPCC SRES scenarios A1F, A1T, A1B, A2, B1 and B2 as implemented by IMAGE 2.2 for the US for CO2, CH4 and N2O; HFC, PFC and SF6 as given by EPA (2001) "Non-CO2 Greenhouse Gas Emission from Developed Countries 1990-2010", available at www.epa.gov/ghginfo/pdfs/r1/fulldocument.pdf
(Grey thick line): CO2-emission projections from Annual Energy Outlook (2002), available at http://www.eia.doe.gov/oiaf/aeo/supplement/index.html, and EPA (2001) "Non-CO2 Greenhouse Gas Emission from Developed Countries 1990-2010",
(Turquoise thin line): Emission projection "with implemented measures" by US as given in 2nd National communications (UNFCCC, 1997), available at www.unfccc.int
(Pink thick lines): CO2-Emission projections from International Energy Outlook (2001), available at http://www.eia.doe.gov/oiaf/ieo/appendixes.html; non-CO2 Emission projections from EPA (2001) "Non-CO2 Greenhouse Gas Emission from Developed Countries 1990-2010", available at www.epa.gov/ghginfo/pdfs/r1/fulldocument.pdf
Kyoto-targets 2008-2012: Own calculations based primarily on inventory data and national communications submitted to UNFCCC, available at www.unfccc.int

Absolute GHG Emissions US, EU and Japan

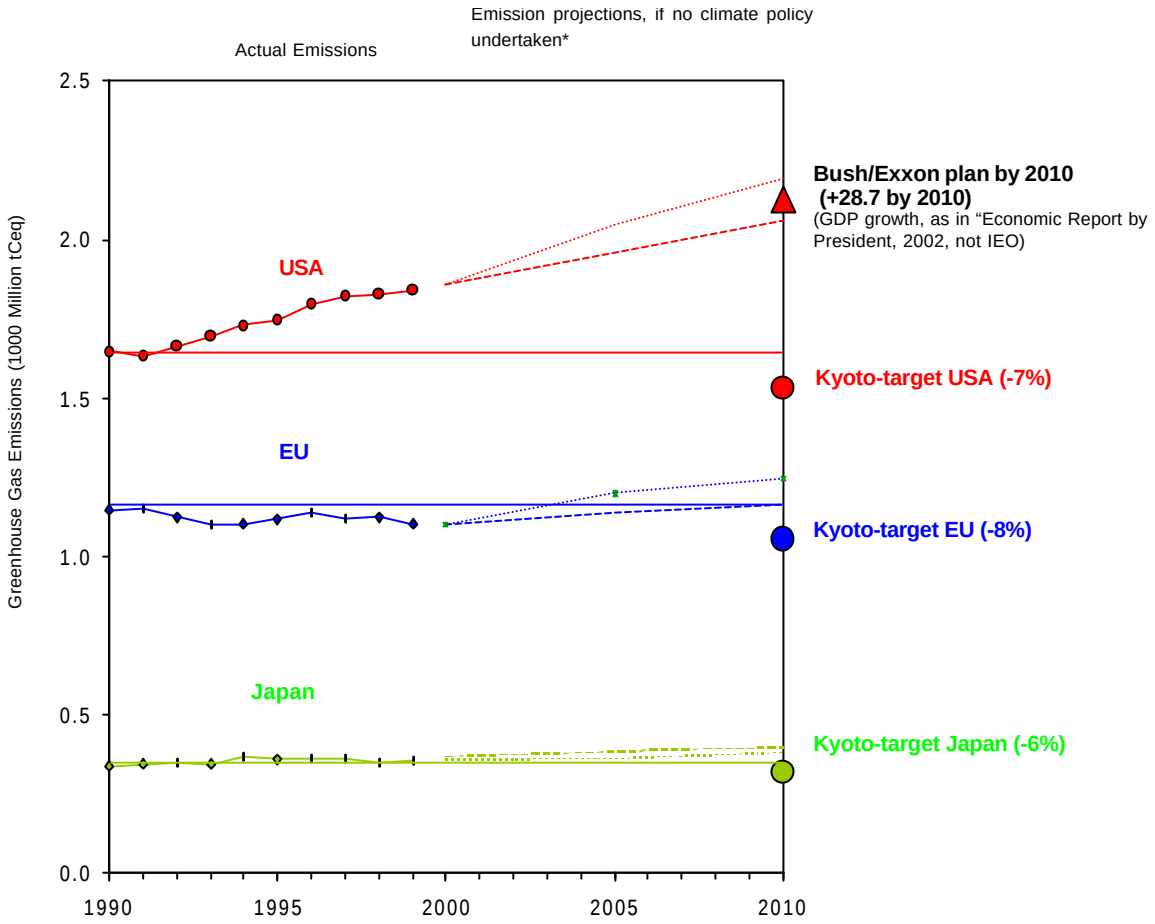


Figure 3 - Absolute GHG emissions. The US is the single largest emitter of greenhouse gases (~ 1'860 MtC/year in 2000) ahead of the EU (~1'100 MtC/year) and Japan (~350 MtC/year).

Source: Actual Emissions: FCCC/SBI/2001/13 at www.unfccc.int;
Emission Projections I (dotted): AEO (2002) Annual Energy Outlook, EIA, for CO2 and EPA (2001) "Non-CO2 Greenhouse Gas Emissions from Developed Countries: 1990-2010" for non-CO2 gases: CH4, N2O, HFCs, PFCs and SF6.
Emission Projections II (dashed): Parties own projections from their 2nd National Communications to the UNFCCC (1997).

Per capita GHG emissions US, EU and Japan

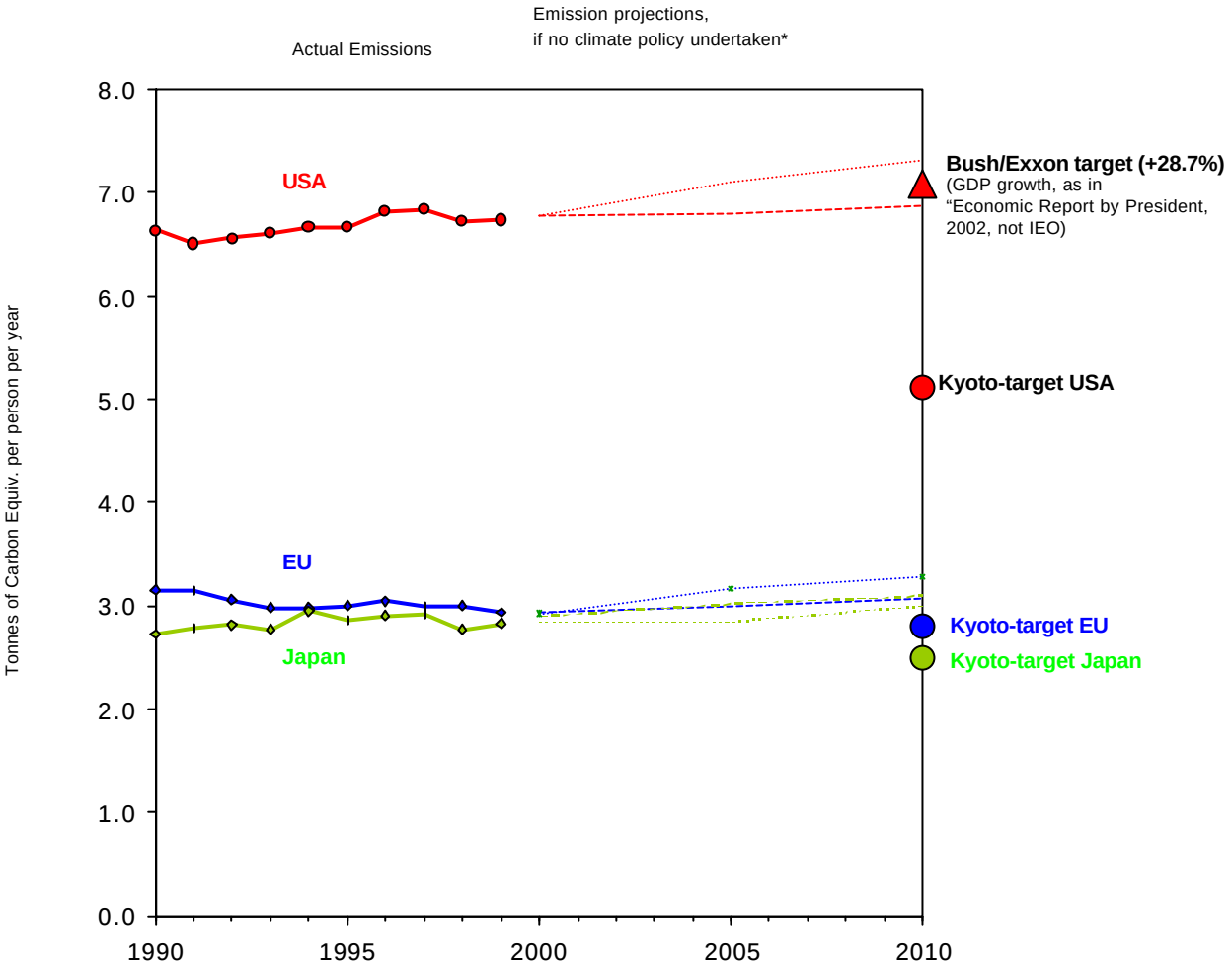
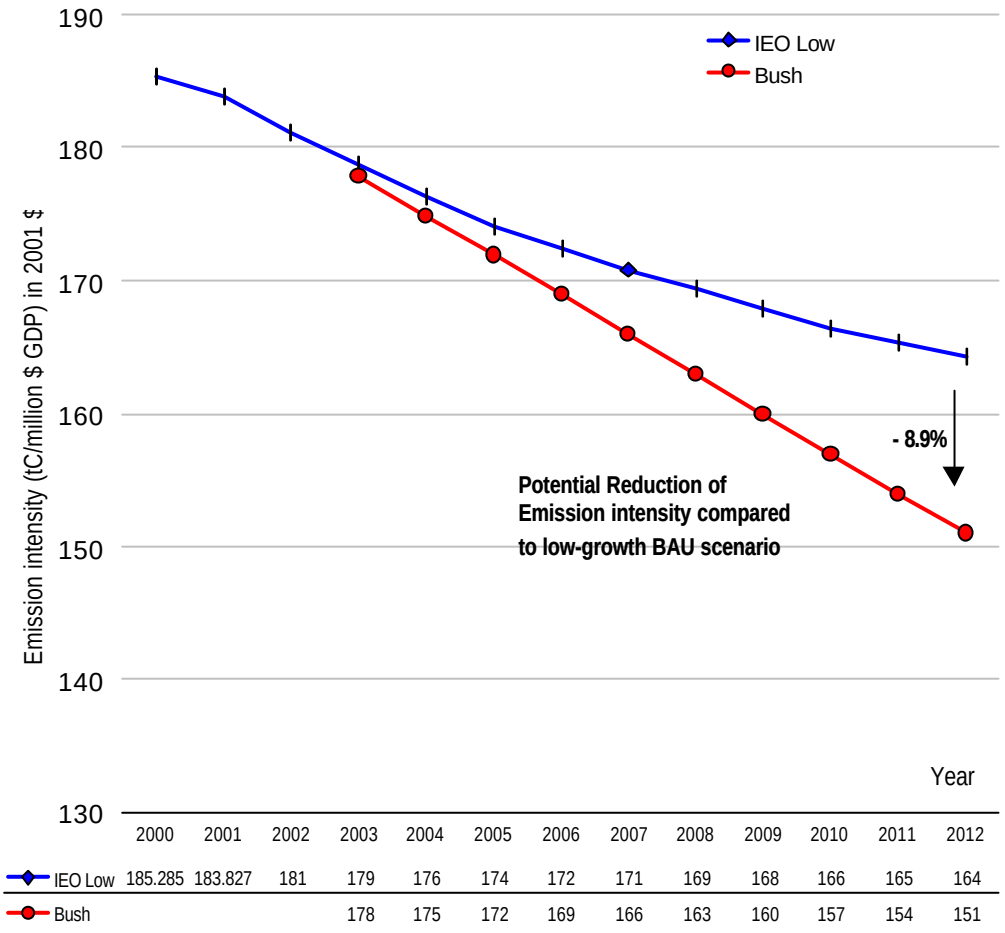


Figure 4 – Per capita GHG emissions. The US per capita emissions with around 6.7tC/year per capita far outweigh the average EU and Japanese per capita emissions (around 3 MtC/year).

Source: Population growth 1990-2000: EUROSTAT Yearbook 2001; 2000-2010: IEO International Energy Outlook (2001) Reference Scenario. Actual Emissions and projections as in Figure 3)

US Emission Intensity 2000-2012, Bush plan vs. "low" business-as-usual



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IEO Low	185.285	183.827	181	179	176	174	172	171	169	168	166	165	164
Bush				178	175	172	169	166	163	160	157	154	151

Figure 5 – Emission intensity of the US economy under a low-growth BAU scenario (IEO low). The Bush plan would require, if enforced at all, emission intensity decreases by -8.9% additional to what would happen anyway under the low-growth scenario. Emission intensities for the Bush plan and the BAU scenario given in data-table (tC/million $ GDP[5]).

[5] As in the following figures: GDP in 2001 Dollars.

US Emission Intensity 2000-2012, Bush plan vs. "medium" business-as-usual

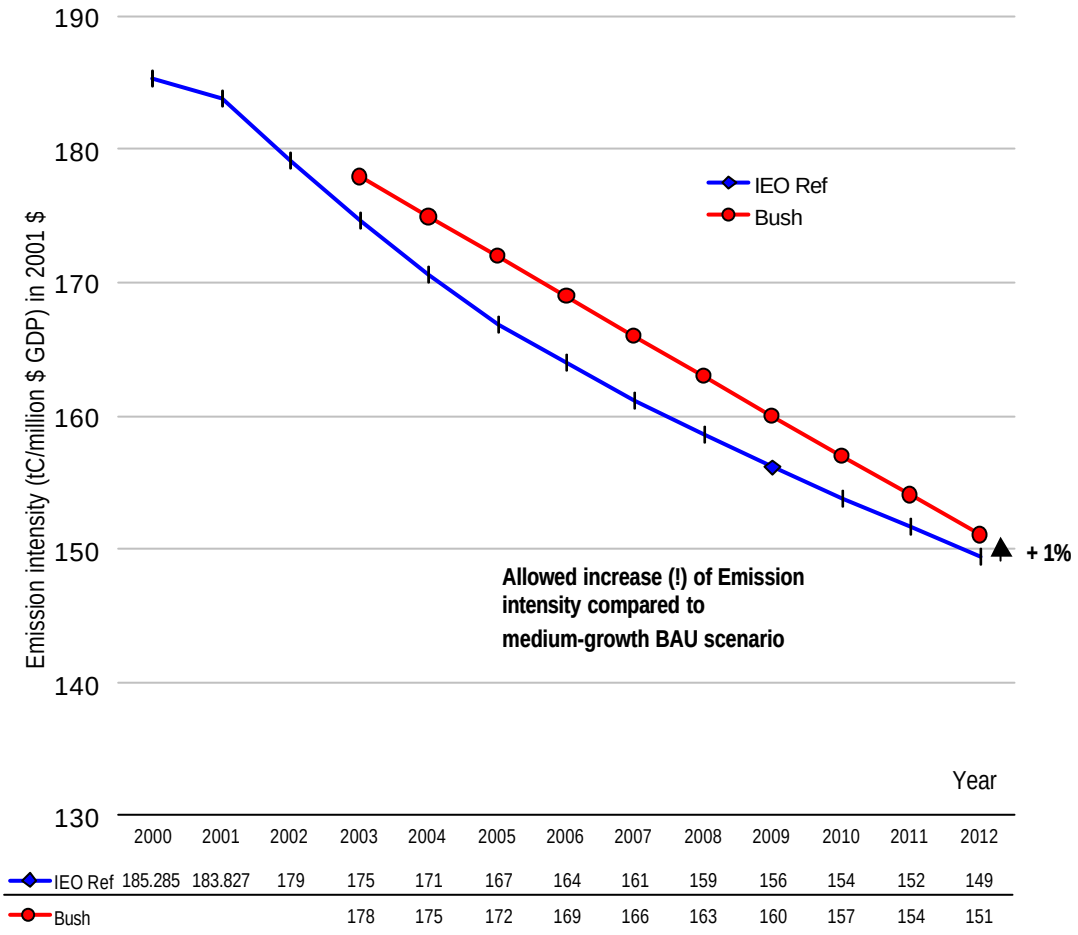


Figure 6 – Emission intensity of the US economy under a medium-growth BAU scenario (IEO Ref). The Bush plan would not require any decreases in emission intensity below what would happen anyway under the medium-growth BAU scenario. Emission intensities for the Bush plan and the BAU scenario given in data-table (tC/million $ GDP).

US Emission Intensity 2000-2012, Bush plan vs. "high" business-as-usual

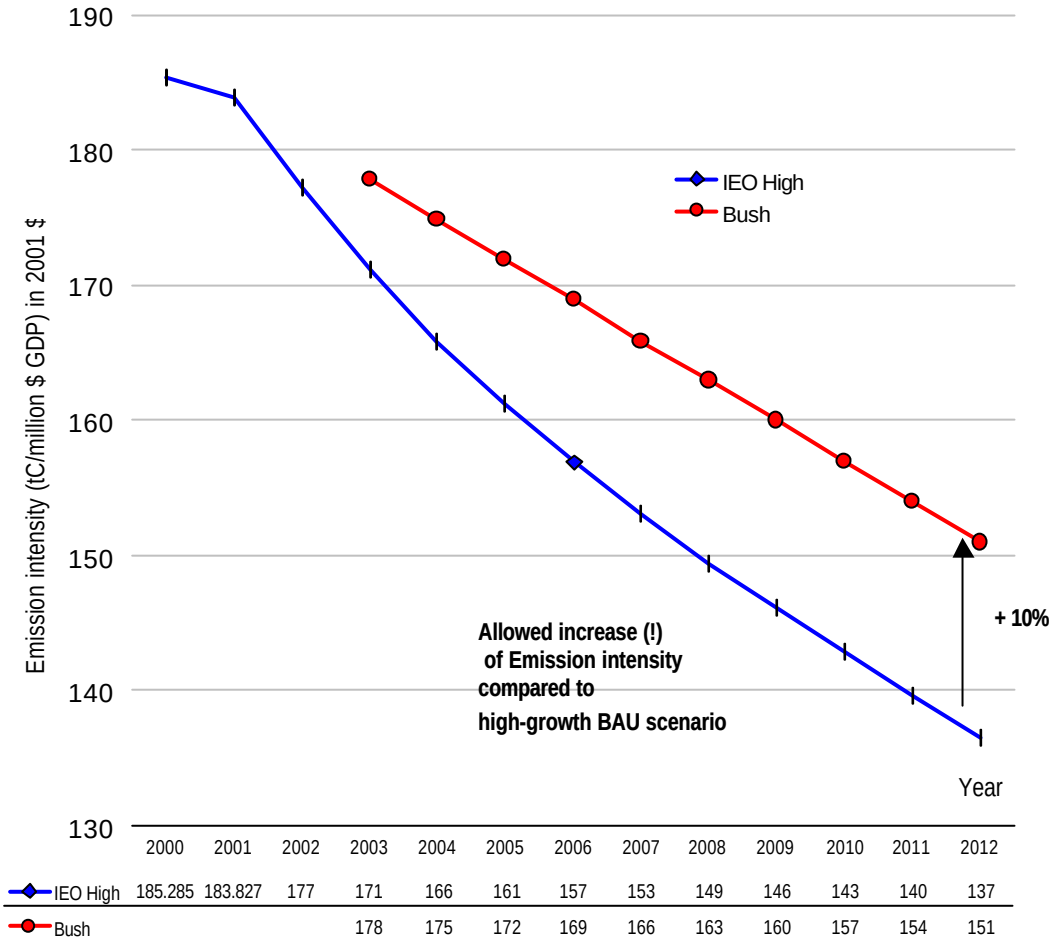
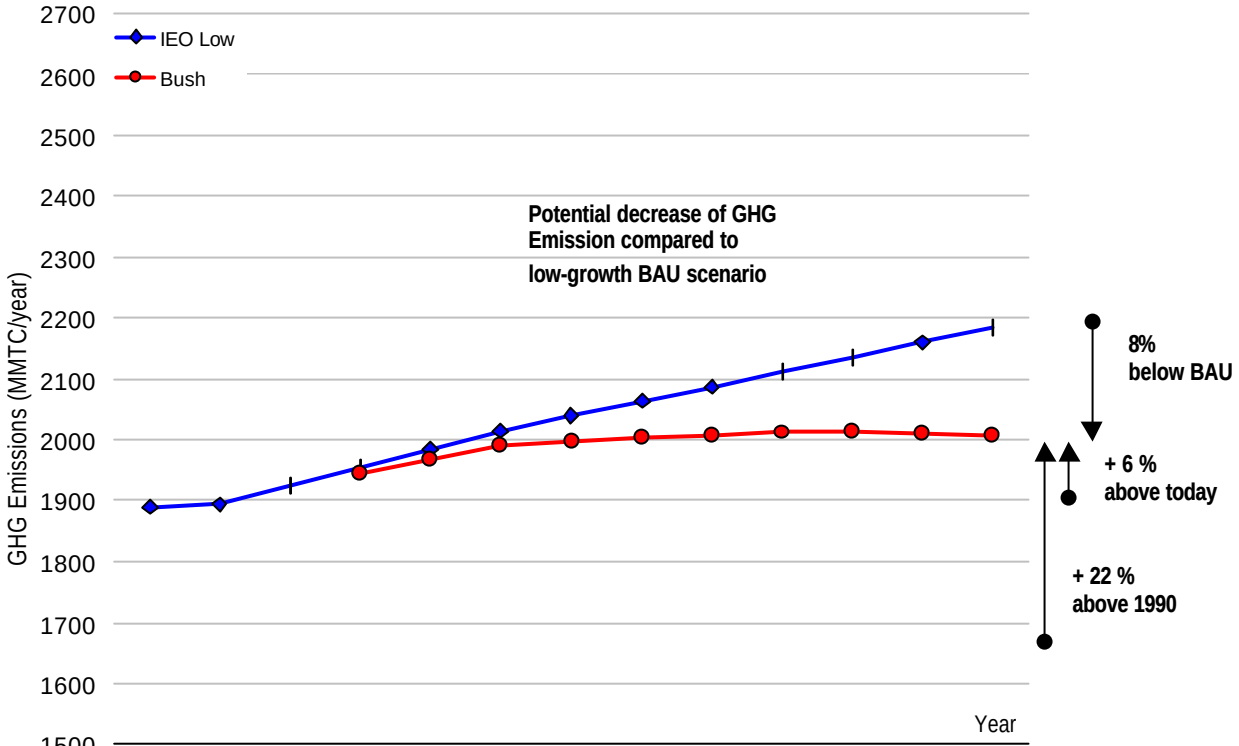


Figure 7 – Emission intensity of the US economy under a high-growth BAU scenario (IEO High). The Bush plan would not require any decreases in emission intensity below what would happen anyway under the high-growth BAU scenario. In contrary, the Bush plan would allow an increase of 10% in emission intensities above BAU-levels. Emission intensities for the Bush plan and the BAU scenario given in data-table (tC/million $ GDP).

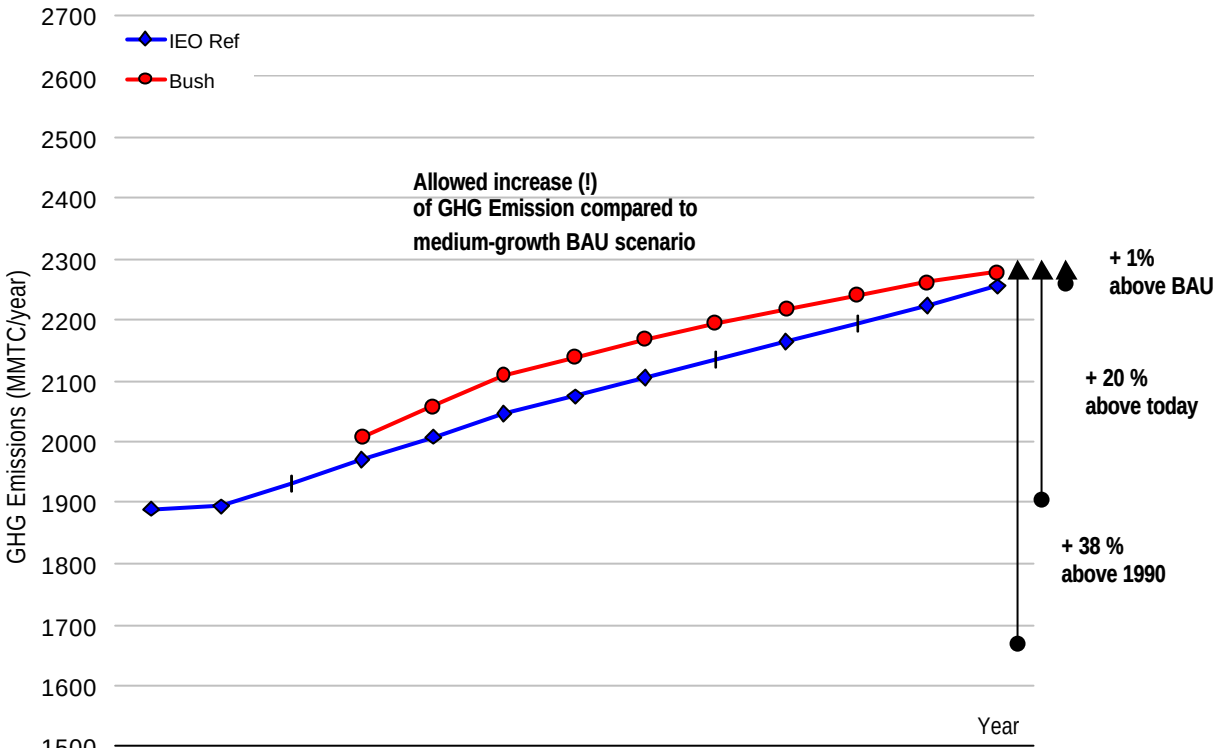
US GHG Emissions 2000-2012, Bush plan vs. low business-as-usual



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IEO Low	1891	1895	1,925	1,955	1,985	2,016	2,040	2,064	2,088	2,112	2,136	2,160	2,184
Bush				1,946	1,969	1,990	1,998	2,004	2,009	2,013	2,015	2,012	2,007
Diff				-9	-17	-26	-42	-59	-78	-99	-121	-149	-178
Diff 2002				51	74	95	103	109	114	118	120	117	112

Figure 8 – GHG Emissions in the US under a low-growth BAU scenario (IEO Low) and the Bush plan. Compared to 1990 emission levels, emissions are allowed to increase by 22% under the Bush plan. Compared to 2001 levels, the allowed increase is 6%. Compared to the low-growth BAU scenario, emissions would have to be reduced by 8% in 2012. Absolute Emissions for the low-growth BAU scenario (IEO low), the Bush plan ("Bush") and the yearly difference between the two ("Diff") is given in the data-table. Furthermore, the difference in emissions to today's levels ("Diff 2002") is given (MtC/year). Aggregate numbers for the last two rows are contained in Table 2.

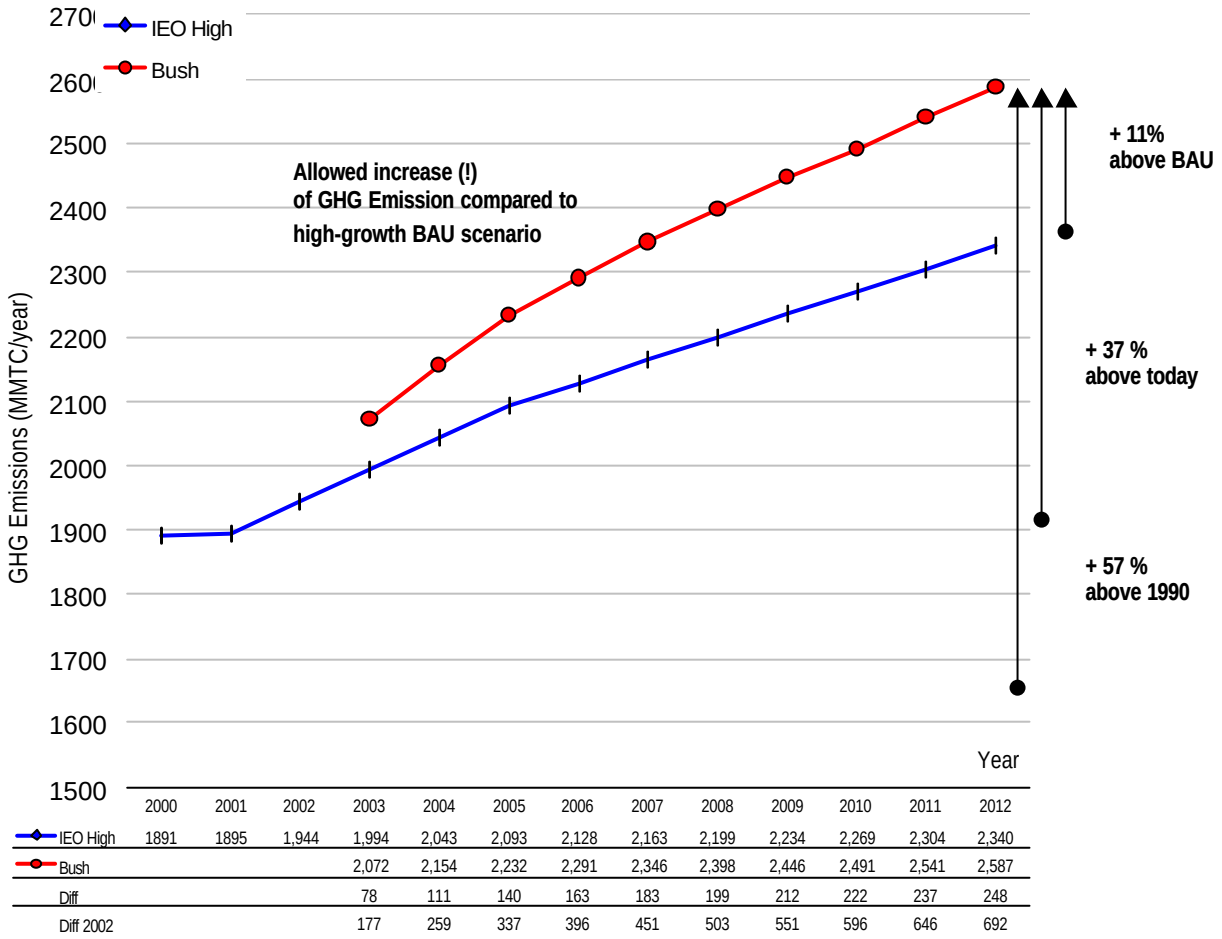
US GHG Emissions 2000-2012, Bush plan vs. "medium" business-as-usual



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IEO Ref	1891	1895	1,933	1,970	2,008	2,046	2,076	2,105	2,135	2,165	2,195	2,225	2,255
Bush				2,007	2,059	2,107	2,139	2,168	2,195	2,219	2,241	2,261	2,279
Diff				37	51	62	63	63	59	54	46	36	24
Diff 2002				112	164	212	244	273	300	324	346	366	384

Figure 9 – GHG Emissions in the US under a medium-growth BAU scenario (IEO Ref) and the Bush plan. Compared to 1990 emission levels, emissions are allowed to increase by 38% under the Bush plan. Compared to 2001 levels, the allowed increase is 20%. Compared to the medium-growth BAU scenario, emissions would be allowed to be increased above BAU levels by up to 1% in 2012. Absolute Emissions for the medium-growth BAU scenario (IEO Ref), the Bush plan ("Bush") and the yearly difference between the two ("Diff") is given in the data-table. Furthermore, the difference in emissions to today's levels ("Diff 2002") is given (MtC/year). Aggregate numbers for the last two rows are contained in Table 2.

US GHG Emissions 2000-2012, Bush plan vs. "high" business-as-usual



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
IEO High	1891	1895	1,944	1,994	2,043	2,093	2,128	2,163	2,199	2,234	2,269	2,304	2,340
Bush				2,072	2,154	2,232	2,291	2,346	2,398	2,446	2,491	2,541	2,587
Diff				78	111	140	163	183	199	212	222	237	248
Diff 2002				177	259	337	396	451	503	551	596	646	692

Figure 10 – GHG Emissions in the US under a high-growth BAU scenario (IEO High) and the Bush plan. Compared to 1990 emission levels, emissions are allowed to increase by 57% under the Bush plan. Compared to 2001 levels, the allowed increase is 37%. Compared to the high-growth BAU scenario, emissions would be allowed to be increased above BAU levels by up to 11% in 2012. Absolute Emissions for the high-growth BAU scenario (IEO High), the Bush plan ("Bush") and the yearly difference between the two ("Diff") is given in the data-table. Furthermore, the difference in emissions to today's levels ("Diff 2002") is given (MtC/year). Aggregate numbers for the last two rows are contained in Table 2.

References and Data Sources:

EPA (2002). Non-CO2 Greenhouse Gas Emissions from Developed Countries: 1990-2010. Washington, EPA - Environmental Protection Agency. available online at http://www.epa.gov/ghginfo.

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