Taking stock – the emission levels implied by the pledges to the Copenhagen Accord

Briefing paper, February 2010

ClimateWorks FOUNDATION

European Climate Foundation

Table of Contents

About Project Catalyst

Project Catalyst is an initiative of the ClimateWorks Foundation. ClimateWorks is a global, non-profit philanthropic foundation headquartered in San Francisco, California with a network of affiliated foundations in China, India, the US and the European Union. The ClimateWorks family of organisations focus on the enactment of policies that reduce greenhouse gas emissions through three general policy areas: energy efficiency standards, low-carbon energy supply, and forest conservation/agriculture.

Project Catalyst was launched in May 2008 to provide analytical and policy support for stakeholders engaged in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations on a post-Kyoto international climate agreement. Project Catalyst members have been organised into five working groups: abatement, adaptation, technology, forestry, climate-compatible growth plans, and finance. Each working group has received analytical support from the international consulting firm, McKinsey & Company. Working group members have included a total of about 150 climate negotiators, senior government officials, representatives of multilateral institutions, business executives, and leading experts from over 30 countries.

Project Catalyst and its working groups provide a forum where key participants in the global discussions can informally interact, conduct analyses, jointly problem solve, and contribute ideas and proposals to the formal UNFCCC process. This paper summarises output from Project Catalyst, but the views expressed in this paper have not necessarily been endorsed by all of the members of Project Catalyst nor their governments or organisations. The ClimateWorks Foundation takes sole responsibility for the content of this paper.

For more information on ClimateWorks see www.climateworks.org

For more information on Project Catalyst and additional working papers see: www.project-catalyst.info

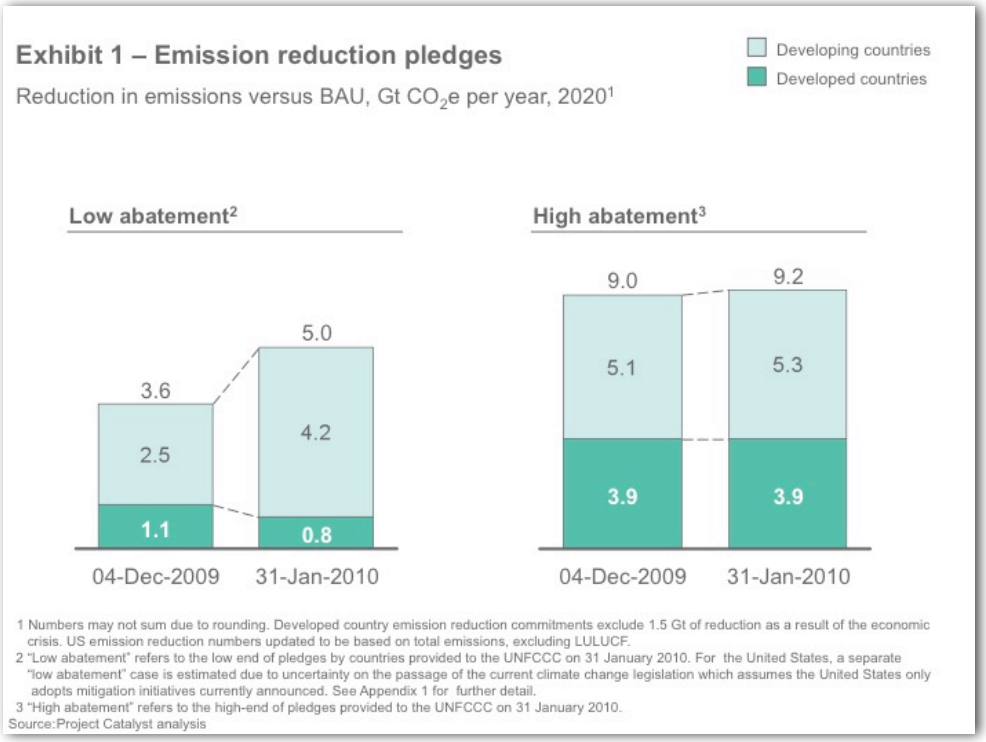
Main Findings

The post-Copenhagen emission reduction pledges submitted on January 31 2010 have increased slightly from those previously pledged to in December last year, but fall at least 5 Gt short of 450 ppm pathway.

Project Catalyst has updated the previous Taking Stock paper (December 7, 2009) with country emission reduction pledges submitted on January 31 2010 as part of the Copenhagen Accord.

This paper analyses the pledges made to the Accord against the achievement of a 450 ppm pathway, that is the path to stabilising greenhouse gasses to 450 parts per million in the atmosphere, yielding roughly a 40-60% chance of limiting global warming to 2°C above pre-industrial levels.

We estimate that the high-end of the current proposals for reduction from all countries would achieve 9.2 Gigatons (Gt) of abatement versus BAU, reducing global emissions to approximately 49 Gt in 2020 and leaving a gap of roughly 5 Gt between the high-case scenario and the 44 Gt limit required to retain the ability to reach a 450 ppm pathway.



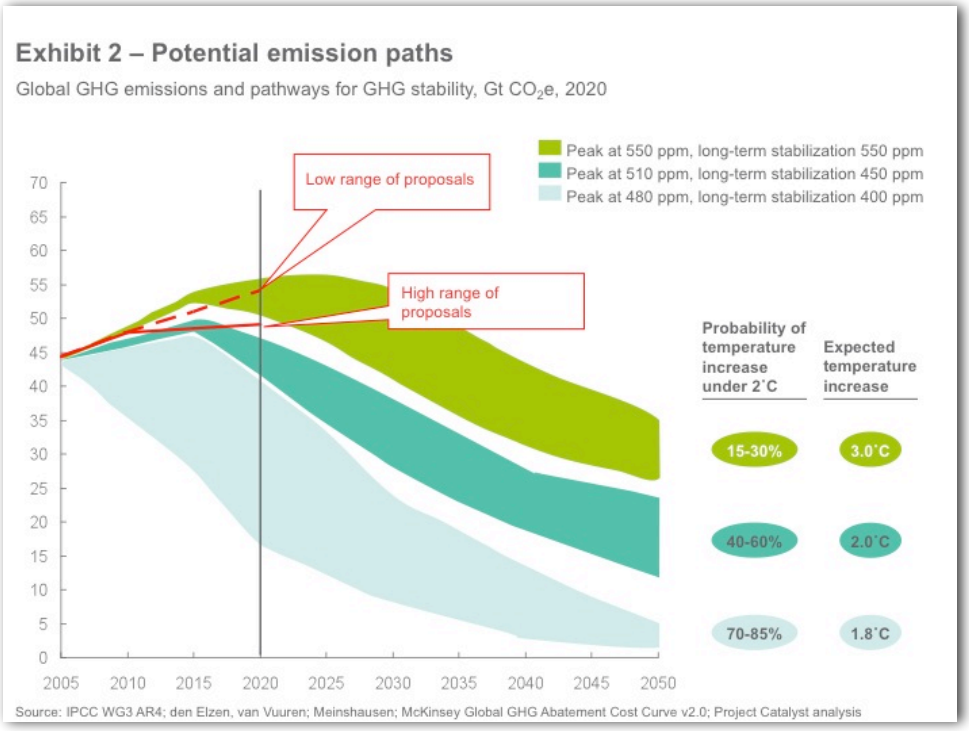
The low-end proposals would achieve total abatement of 5.0 Gt[1], leaving a gap of 9 Gt against a 450 ppm pathway. This shows some slight change from Project Catalyst's previous Taking Stock update (capturing pledges as at December 4, 2009) which found that the low-end and high-end of proposals could achieve 3.6 Gt and 9.0 Gt of abatement respectively (Exhibit 1). Therefore the gap has narrowed slightly in each scenario.

1 The developed country emission reduction estimates exclude 1.4 Gt of reductions as a result of the economic crisis. See Appendix 1 for further detail.

Emission reduction pledges in the low-end scenario have increased due largely to developing countries such as Brazil and Indonesia confirming and/or strengthening previous pledges (more than offsetting the fall in low-abatement pledges from some developed countries such as Russia), whilst the increase in the size of pledges in the high-abatement scenario is due largely to South Africa and Mexico strengthening their reduction pledges (see Appendix 1 for further information).

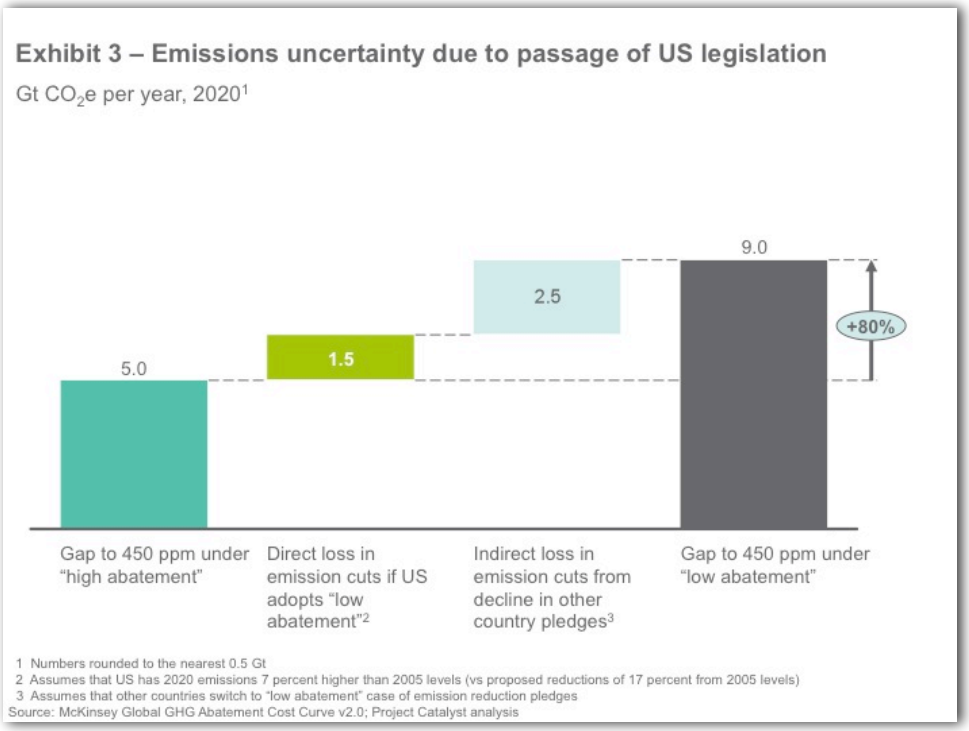
Current high-abatement pledges remain on a pathway to 550 ppm.

Even in the high-abatement scenario of the Copenhagen Accord pledges , this level of emissions is consistent with a 550 ppm pathway and a temperature rise of 3°C or more, which risks severe levels of climate damage. Furthermore, it is very unlikely that it will be possible to catch-up post-2020. Our analysis shows that in order to return to a 450 ppm path after 2020, 30 Gt of abatement would be required in 2030 versus BAU. We estimate that only 19 Gt of abatement would be economically feasible under €60 per tonne. This is because the world will replace and add massive amounts of new capital stock during the next decade – over half of the power supply required for 2020 has yet to be built. If that stock is built using high-carbon technologies, then abating the necessary 30 Gt post-2020 would require the abandonment of large amounts of capital stock before the end of its useful life. This in turn would require massive and rapid investments to replace abandoned high-carbon capital stock, severely damaging the global economy and limiting growth. Thus 'catching up' post-2020 is not a realistic option. One way or another, ambition levels need to be increased before 2020 to avoid the severe long-term social and economic consequences of failing to tackle climate change.



The largest uncertainty in pledges now relates to US action.

The US climate bill, which proposes reductions of roughly 17 percent from US 2005 emissions, has an uncertain outlook. If the bill is not passed, though other measures may be able to deliver some if not all of the US pledge, the lack of comprehensive legislation may fail to trigger contingent pledges from other developed and developing countries, almost halving global reduction pledges.



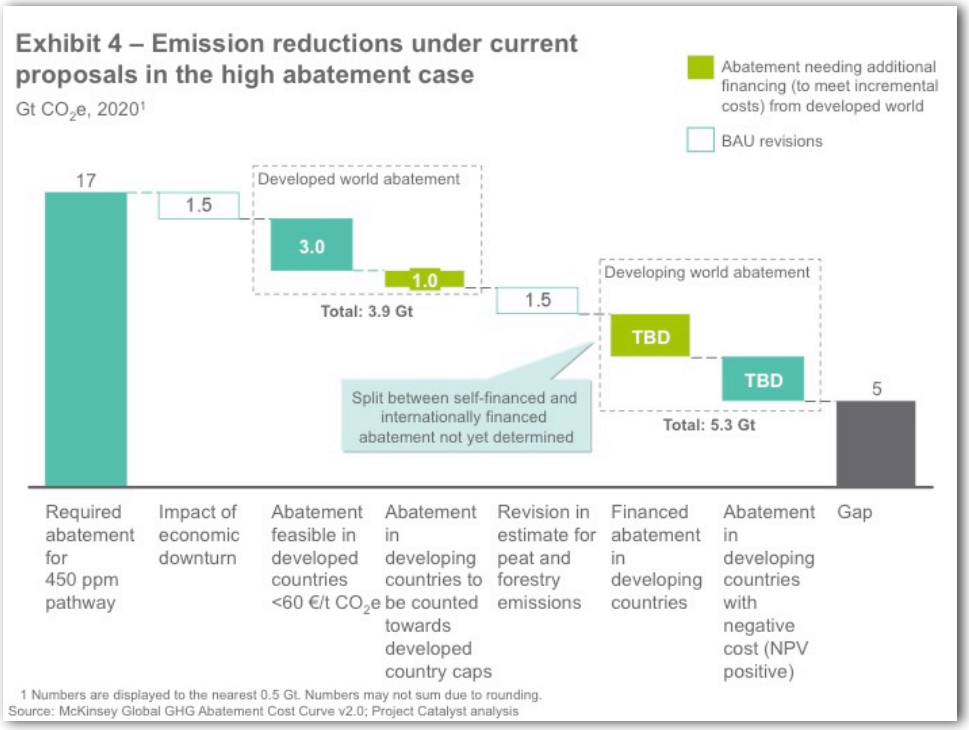
The United States has pending climate change legislation that would lead to emission reductions of 17 percent from its 2005 emission levels by 2020. The passage of this legislation through Congress has important direct and indirect implications on carbon emissions.

Directly, it would lead to sizeable emission reductions given the US is currently the world's second largest emitter of CO2 and largest emitter per capita among major economies. Emission reductions amounting to around 17% may be achievable through other means, such as energy efficiency and regulation via the Clean Air Act, but exactly how this would be done remains unclear and a shortfall may be seen as likely.

Indirectly, it would influence the scale of pledges of other nations. For example, the European Union has committed to unconditional reductions of 20 percent from a 1990 baseline, but pledged to increase this to a 30 percent reduction, provided that other developed countries implement comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities. Should the US legislation fail to pass, there is a very real chance that pledges could fall towards the low-abatement end of promised ranges, which would see the high abatement end of total pledges fall by roughly 4.3 Gt in 2020 (Exhibit 3).

A further uncertainty in pledges is the potential double-counting of offsets, which could affect emission reductions by up to 1 Gt.

Developed country statements regarding climate finance frequently note the important role that carbon markets can play in delivering funding flows for developing country mitigation. In the high abatement scenario, pledges currently generate about 1 Gt of offset demand, with public financing contributing to the roughly 5 Gt emissions reductions from developing countries. There is a risk of potential double-counting of these offset emissions, with tons being included both in developed country reporting as having been paid for and developing country reporting as having been reduced. Such double counting creates a potential risk of around 1 Gt of reductions not being realized (Exhibit 4).



Appendix I – Country proposals

To arrive at a total impact for the pledges currently on the table, we have conducted a detailed bottom-up assessment of the emission reduction of each individual proposal on the table, calculating the resulting emissions after abatement. This assumes that developed countries limit emissions by cap (e.g., EU limiting emissions to 20 per cent below 1990 by 2020) and that developing countries enact domestic legislation that reduce emissions (e.g., Brazil establishing more stringent biofuels penetration targets). To calculate the low abatement scenario we used the low end of pledges provided by countries to the UNFCCC on 31 January 2010. For the United States, a separate "low abatement" case is estimated due to uncertainty on the passage of the current climate change legislation which assumes United States only adopts mitigation initiatives currently announced. The high abatement scenario refers to the high-end of pledges provided to the UNFCCC on 31 January, 2010.

Exhibit 5 – Outcomes from country proposals (low abatement)

Gt CO2e, 2020

	Announced targets/initiatives	Abatement (low case)	Emissions after abatement (low case)		
Country/Region		**Gt**	**Gt**	**vs. 1990[1]**	**vs. 2005[1]**
• EU27	• 20% reduction below 1990 exc. LULUCF	1.2	4.5	-20%	-13%
• Japan	• 0% reduction below 2005 inc. LULUCF	0.0	1.5	0%	0%
• United States	• Various initiatives	0.3	7.6	+24%	+7%
• Canada	• 17% reduction below 2005 inc. LULUCF	0.2	0.6	+8%	-12%
• Australia	• 5% reduction below 2000 inc. LULUCF	0.1	0.5	+14%	-10%
• Russia	• 15% reduction below 1990 inc. LULUCF	0.-0	2.9	-14%	+35%
Country/Region		**Gt**	**Gt**		**vs. BAU**
• China	• 40-45% reduction in carbon intensity; reforestation; energy intensity improvements	1.7	12.2		-13%
• Brazil	• 36.1% reduction vs. BAU	1.0	1.7		-36%
• India	• 20-25% reduction in carbon intensity; National Action Plan on Climate Change	0.3	3.0		-9%
• Mexico	• Special Program on Climate Change	0.1	0.8		-6%
• Indonesia	• 26% reduction vs. BAU	0.7	2.1		-26%
• South Korea	• 30% reduction vs. 2020 BAU	0.2	0.6		-30%
• South Africa	• Feed-in tariffs, energy efficiency strategy	0.1	0.5		-12%
• Other countries		0.5	14.3		
• Transport Air & Sea[2]		0.0	2.1		

1 Excluding LULUCF

2 Includes international aviation and maritime emissions and non-Annex I domestic aviation and maritime emissions. Annex I domestic aviation and maritime emissions are included in country totals

Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

As mentioned in the December 7, 2009 Taking Stock publication, our estimate for 2020 BAU annual global emissions has been revised downwards by approximately 3 Gt from 61 Gt to 58 Gt due to the economic crisis and updated estimates for forestry and anthropogenic peat emissions. The total impact of pledges, that is the abatement in 2020 as implied by current proposals, has then been calculated based on the original Project Catalyst 2020 BAU of 61 Gt, unless the reference scenario in 2020 was given by the country in its pledge. This has the following implications for abatement estimates:

- Developed country targets are benchmarked off historic emission levels and changes in the BAU therefore do not affect abatement targets expressed as percentage

reduction versus 1990 or 2005 levels. This means that emission reduction targets in Gt below 1990 levels remain the same. However, since BAU reductions do contribute to reaching these targets, they reduce the incremental effort required to reach the envisaged emission levels. Therefore, of the total 2.2 Gt of abatement pledged by developed countries in the low abatement scenario, only 0.8 Gt are reflected in Exhibit 1. The remaining 1.4 Gt has already been captured by the impact of the economic downturn on lowering the BAU.

- In developing countries, there is no effect from the economic downturn as the lower BAU emissions only relate to developed countries. However the reduced peat and forestry emissions will lower developing country BAU emissions and therefore do affect abatement targets, as pledges are expressed relative to the BAU. We have nevertheless chosen to calculate the impact of pledged abatement actions based on our original BAU of 61 Gt because no detailed breakdown was available for the BAU revisions – as a consequence, the abatement proposals in developing countries are slightly overstated.

Future research will focus on revising the individual country BAUs to incorporate these changes in emissions due to the economic crisis and forestry and anthropogenic peat emissions.

Exhibit 6 – Outcomes from country proposals (high abatement)

Gt CO2e, 2020

	Announced targets/initiatives	Abatement (high case)	Emissions after abatement (high case)		
Country/Region		**Gt**	**Gt**	**vs. 1990[1]**	**vs. 2005[1]**
• EU27	• 30% reduction below 1990 inc. LULUCF	1.7	4.0	-28%	-22%
• Japan	• 25% reduction below 1990 inc. LULUCF	0.6	1.0	-24%	-29%
• United States[2]	• 17% reduction below 2005 exc. LULUCF	2.0	5.9	-3%	-17%
• Canada	• 17% reduction below 2005 inc. LULUCF	0.2	0.6	+8%	-12%
• Australia	• 15% reduction below 2000 inc. LULUCF	0.2	0.4	-5%	-25%
• Russia	• 25% reduction below 1990 inc. LULUCF	0.3	2.5	-24%	+19%
Country/Region		**Gt**	**Gt**		**vs. BAU**
• China	• 40-45% reduction in carbon intensity; reforestation; energy intensity improvements	1.7	12.2		-13%
• Brazil	• 38.9% reduction vs. 2020 BAU	1.1	1.7		-39%
• India	• 20-25% reduction in carbon intensity; National Action Plan on Climate Change	0.6	2.7		-19%
• Mexico	• 30% reduction vs. 2020 BAU	0.3	0.6		-30%
• Indonesia	• 41% reduction vs. 2020 BAU	1.2	1.7		-41%
• South Korea	• 30% reduction vs. 2020 BAU	0.2	0.6		-30%
• South Africa	• 34% reduction vs. 2020 BAU	0.2	0.4		-34%
• Other countries		0.5	14.2		
• Transport Air & Sea[3]		0.0	2.1		

1 Excluding LULUCF

2 Does not include the 0.7Gt set-aside for forestry under the ACES Act

3 Includes international aviation and maritime emissions and non-Annex I domestic aviation and maritime emissions. Annex I domestic aviation and maritime emissions are included in country totals

Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

Exhibits 5 and 6 show the outcomes of analysis per country, both in absolute terms (Gt) and mapped against either a base year (developed countries) or the original Project Catalyst BAU (developing countries)[2]. 'Other countries' includes Belarus, Croatia, Iceland, Israel, Kazakhstan, Liechtenstein, Maldives, Monaco, New Zealand, Norway, Switzerland, Turkey and Ukraine.

2 Unadjusted baseline emissions for the McKinsey Global GHG Abatement Cost Curve v2.0

Selected country emission targets, Mt CO_2e in 2020

EU27

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	-20%	5,646	4,451
	• High abatement case	-28%	5,646	3,995
	Stated target		**Source**	**Abatement**
Low case	• 2020 emissions reduction target of 20% below 1990 – Excludes LULUCF		UNFCCC submission	1,195
High case	• 2020 emissions reduction target of 30% below 1990 – Includes LULUCF – Conditional on "global action"		UNFCCC submission	1,651

1 1990 emissions source: UNFCCC
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

Japan

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	0%	1,532	1,532
	• High abatement case	-24%	1,532	971
	Stated target		**Source**	**Abatement**
Low case	• No low abatement case offered		UNFCCC submission	0
High case	• 2020 emissions reduction target of 25% below 1990 – Includes LULUCF – Conditional on "ambitious targets" of other major economies		UNFCCC submission	561

1 1990 emissions source: UNFCCC
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

USA

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	+24%	7,841	7,556
	• High abatement case	-3%	7,841	5,878
	Stated target		**Source**	**Abatement**
Low case	• Setting target for cars, LDVs and MDVs to meet combined average emissions of 250 g CO_2/mile		Draft Regulatory Impact Analysis (EPA)	165
	• Tightening appliance standards and expanding their coverage		*Ka-BOOM! The Power of Appliance Standards,* American Council for an Energy-Efficient Economy, July 2009	~70
	• Abatement achieved through economic stimulus bill		American Recovery and Reinvestment Act	~50
High case	• 2020 emissions reduction target of 17% below 2005 – "In the range of 17%, in conformity with anticipated U.S. energy and climate legislation"		UNFCCC submission	1,963

1 1990 emissions source: UNFCCC. Waxman-Marky bill appears to base emission reduction estimates on total emissions, excluding LULUCF.
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

Selected country emission targets, Mt CO_2e in 2020

Canada

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	+8%	831	641
	• High abatement case	+8%	831	641
	Stated target		**Source**	**Abatement**
Low case	• 2020 emissions reduction target of 17% below 2005 – "17%, to be aligned with the final economy-wide emissions target of the United States in enacted legislation."		UNFCCC submission	190
High case	• As above		UNFCCC submission	190

1 1990 emissions source: UNFCCC
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

Australia

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	+14%	551	475
	• High abatement case	-5%	551	394
	Stated target		**Source**	**Abatement**
Low case	• 2020 emissions reduction target of 5 % below 2000 – Includes LULUCF		UNFCCC submission	77
High case	• 2020 emissions reduction target of 25 % below 2000 – Includes LULUCF – Subject to international commitment "on an ambitious global deal capable of stabilising levels of greenhouse gases in the atmosphere at 450 ppm CO2-eq or lower."		UNFCCC submission	157

1 1990 emissions source: UNFCCC
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

Russia

	2020 emissions reduction vs. 1990 (excluding LULUCF)[1]		BAU[2]	Emissions after abatement[3]
Summary	• Low abatement case	-14%	2,865	2,856
	• High abatement case	-24%	2,865	2,520
	Stated target		**Source**	**Abatement**
Low case	• Emissions reduction target of 15% below 1990 – Includes LULUCF – Subject to international action and "appropriate accounting of the potential of Russia's forestry...in meeting the obligations of the anthropogenic emissions reduction"		UNFCCC submission	10
High case	• Emissions reduction target of 25% below 1990 – Includes LULUCF – Same conditions as low abatement case		UNFCCC submission	346

1 1990 emissions source: UNFCCC
2 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis; Includes domestic transport air and sea emissions
3 Excluding LULUCF sinks

Selected country emission targets, Mt CO_2e in 2020

Brazil

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	Low abatement case	-36%	2,703	1,729
	High abatement case	-39%	2,703	1,652

	Stated target	Source	Abatement
Low case	Reduction from BAU of 36.1%	UNFCCC submission	
	Land use: Reduction deforestation in Amazon forest (80%)		564
	Land use: Reduction deforestation in Cerrado (40%)		104
	Agriculture & Livestock: Pastureland restoration		83
	Agriculture & Livestock: Integration pastureland and agricultureland		18
	Agriculture & Livestock: Direct plantation system		16
	Agriculture & Livestock: Biological nitrogen fixation		16
	Energy: Energy efficiency		12
	Energy: Increase on Biofuels use		48
	Energy: Expansion on energy supply by hydropower		79
	Energy: Alternative sources (Small hydro, bioelectricity, wind)		26
	Others: Steel – substitution coal from defeorestation with coal from plantation		8
	Total		974
High case	Reduction from BAU of 38.9%	UNFCCC submission	
	Land use: Reduction deforestation in Amazon forest (80%)		564
	Land use: Reduction deforestation in Cerrado (40%)		104
	Agriculture & Livestock: Pastureland restoration		104
	Agriculture & Livestock: Integration pastureland and agricultureland		22
	Agriculture & Livestock: Direct plantation system		20
	Agriculture & Livestock: Biological nitrogen fixation		20
	Energy: Energy efficiency		15
	Energy: Increase on Biofuels use		60
	Energy: Expansion on energy supply by hydropower		99
	Energy: Alternative sources (Small hydro, bioelectricity, wind)		33
	Others: Steel – substitution coal from defeorestation with coal from plantation		10
	Total		1,051

1 Brazil has quoted a top down 2020 emissions target in its recent communication. The business as usual figure stated by Brazil for 2020 of 2,703 Mt has been included in this analysis in place of the McKinsey Global GHG Abatement Cost Curve v2.0 figure of 3,100 Mt

Selected country emission targets, Mt CO_2e in 2020

India

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	-9%	3,333	3,046
	• High abatement case	-19%	3,333	2,706

	Stated target	Source	Abatement
Low case	• National Solar Mission: Solar power: 20 GW installed capacity by 2020	National Action Plan on Climate Change	42
	• National Solar Mission: Other solar applications (lights, thermal collectors, rooftop PV)	National Action Plan on Climate Change	21
	• Shift to super-critical coal capacity	CEA/MoEF[2]	100
	• Reducing transmission and distribution losses by 12% by 2030	Accelerated Power Development and Reforms Program[2]	84
	• Appliance labeling program: 10% penetration of high-efficiency air conditioners and fridges, and 100% penetration of labeled appliances by 2030	National Action Plan on Climate Change[2]	26
	• Compact fluorescent lamp program: 50% penetration in 2020 and 90% in 2030	National Action Plan on Climate Change[2]	8
	• Agricultural pump efficiency improvement program: efficiency increase of 15% over next 20 years	National Action Plan on Climate Change[2]	6
	Total		**287**
High case	• Actions included above in the low case		287
	• Increasing nuclear capacity to 20 GW by 2020	National Action Plan on Climate Change	240
	– Emission reduction capped at full technical potential		
	• Hydro	National Action Plan on Climate Change	100
	– Adding 15.6 GW capacity by 2012		
	– Creating 50 GW new capacity by 2025–26 (Accelerated Hydro Development Plan)		
	• Reduction in carbon intensity of 20–25% by 2020 compared to 2005 levels[3]		-

1 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis
2 Quantified by Project Catalyst based on targets included in national plans
3 Using the baseline emissions for India as stated in the McKinsey Global GHG Abatement Cost Curve v2.0, this target does not result in any emissions reduction from the BAU. Higher BAU estimates and/or lower GDP estimates may lead to a predicted emission reduction.

Indonesia

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	-26%	2,820	2,087
	• High abatement case	-41%	2,820	1,664

	Stated target	Source	Abatement
Low case	• 26% reduction below BAU by 2020	UNFCCC submission	733
	– Targeting energy mix policy and forestry		
High case	• 41% reduction below BAU by 2020	UNFCCC submission	1,156
	– Targeting energy mix policy and forestry		

1 Source: National Council on Climate Change (NCCC), Indonesia

Selected country emission targets, Mt CO_2e in 2020

Mexico

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	-6%	882	831
	• High abatement case	-30%	882	617

	Stated target	Source	Abatement
Low case	• Special Climate Change Program in 2009 aiming to reduce "achieve a reduction in total annual emissions of 51 million tons of CO2e by 2012, with respect to the business as usual scenario"	UNFCCC submission	51
High case	• 30% reduction from 2020 BAU subject to financial and technological support – "Mexico aims at reducing its GHG emissions up to 30% with respect to the business as usual scenario by 2020, provided the provision of adequate financial and technological support from developed countries as part of a global agreement"	UNFCCC submission	265

1 Mexico has quoted an absolute 2020 emissions target in its PECC (Special Program on Climate Change). The business as usual figure stated by Mexico for 2020 of 882 Mt has been included in this analysis in place of the McKinsey Global GHG Abatement Cost Curve v2.0 figure of 714 Mt

2 The Special Climate Change Program has set emission reduction targets for the year 2012, as shown in the low case. We have quoted these targets directly and have assumed no further abatement between 2012–2020

China

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	-12%	13,889	12,159
	• High abatement case	-12%	13,889	12,159

	Stated target	Source	Abatement
Low case	• Reduce energy intensity by 20% between 2005 and 2010[2]	China's 11th 5-year plan	530
	• Increasing the share of non-fossil fuels in primary energy consumption to about 15% by 2020	President Hu Jintao's UN speech (22/09/09)	1,050
	• Increasing forest coverage by 40 million hectares and forest stock volume by 1.3 million cubic meters by 2020 from 2005	President Hu Jintao's UN speech (22/09/09)	150
	• Reduction in carbon intensity of 40–45% by 2020 compared to 2005 levels[3]	China state council announcement (26/11/09)	–
High case	• Actions included above in the low case		1,730

1 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

2 China is on course to meet its energy intensity target as stated in it's 11th 5 year plan

3 Using the baseline emissions for China as stated in the McKinsey Global GHG Abatement Cost Curve v2.0, this target does not result in further emissions reduction. Higher BAU estimates and/or lower GDP estimates may lead to a predicted emission reduction.

Selected country emission targets, Mt CO_2e in 2020

South Africa

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	-12%	578	510
	• High abatement case	-34%	578	382

	Stated target	Source	Abatement
Low case	• Creating feed-in tariffs and other renewables policies leading to 10 TWh from renewables by 2013	SA energy efficiency strategy (2009)	68
High case	• 2020 emission reduction target of 34% subject to financial, technology and capacity building assistance from developed countries	UNFCCC submission	197

1 Source: McKinsey Global GHG Abatement Cost Curve v2.0; Project Catalyst analysis

South Korea

	2020 emissions reduction vs. BAU		BAU[1]	Emissions after abatement
Summary	• Low abatement case	30%	815	570
	• High abatement case	30%	815	570

	Stated target	Source	Abatement
Low case	• Emission reductions of 30 percent from the 2020 BAU emissions	UNFCCC submission	244
High case	• As above	UNFCCC submission	244

1 South Korea's target of 4% below 2005 results in emissions by 570 Mt based on South Korea's own figure for 2005 emissions (594 Mt). 2020 BAU emissions have been updated to 815 Mt (from 698 Mt in the McKinsey Global GHG Abatement Cost Curve v2.0) to reflect South Korea's view that their target also translates to 30% below BAU.

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