POST-2012 CLIMATE POLICY

Common Metrics: Comparing Countries' Climate Pledges

To enable a better understanding of the mitigation pledges offered under the Copenhagen Accord and the Cancún Agreements, this analysis converts the 2020 pledges of eleven major economies into four common metrics: percent change in greenhouse gas emissions from 1990; percent change from 2005; percent change from "business as usual"; and percent change in emissions intensity from 2005.

Introduction

More than 80 countries listed climate mitigation pledges for 2020 under the Copenhagen Accord. The Cancún Agreements anchored these pledges within the UN Framework Convention on Climate Change (UNFCCC).[1]

Unlike the mitigation targets taken by developed countries under the UNFCCC and the Kyoto Protocol—fixed reductions in emissions from an agreed base year—the new mitigation pledges take a variety of forms. Under both the Copenhagen and the Cancún agreements, developed countries agreed to undertake quantified economy-wide emission reduction targets, but with no agreed base year. Developing countries, on the other hand, agreed to undertake "nationally appropriate mitigation actions," with the specific form left to each country's discretion.

Consequently, countries have expressed their mitigation efforts using different metrics. The targets of developed countries, for instance, assume different base years. Developing countries, meanwhile, have put forward many different types of pledges (the major emerging economies describe their actions either as reductions below "business as usual" or as reductions in emissions intensity from a given base year). Beyond this variety in form, many of the pledges have conditions attached. For example, the United States' pledge is conditional on domestic legislation, while Mexico's is conditional on receiving financial and technological assistance. In some cases, parties have pledged a target range, rather than a fixed number. For instance, the European Union (EU-27) has pledged a target of 20 percent below 1990 levels by 2020, deepening to 30 percent provided there is a global, comprehensive international agreement. (See **Appendix 1** for the pledges of select major economies.)

To better understand countries' pledges, it is helpful to be able to compare them side by side employing the same metrics. This analysis does that by converting the pledges of certain major economies across the four most commonly used metrics:

- Percent change in emissions from 1990 levels;
- Percent change in emissions from 2005 levels;
- Percent change in emissions from "business as usual"; and
- Percent change in emissions intensity from 2005 to 2020.

Table 1 summarizes the results.

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Table 1: How the pledges compare

	Percent change in emissions in 2020			Percent change in emissions intensity (2005–2020)
	From 1990 levels	From 2005 levels	From BAU 2020 levels	
Australia (low end of pledge)	20%	-15%	-26%	-43%
Australia (high end of pledge)	-5%	-33%	-42%	-55%
Brazil (low end of pledge)	49%	-29%	-36%	-62%
Brazil (high end of pledge)	42%	-32%	-39%	-64%
Canada	8%	-17%	-15%	-40%
China (low end of pledge)	274%	78%	9%	-40%
China (high end of pledge)	247%	65%	1%	-45%
EU-27 (low end of pledge)	-20%	-15%	-10%	-39%*
EU-27 (high end of pledge)	-30%	-26%	-21%	-46%*
India (low end of pledge)	215%	80%	26%	-20%
India (high end of pledge)	200%	72%	20%	-25%
Japan	-25%	-36%	-30%	-44%
Mexico	33%	-4%	-30%	-38%
Russian Federation (low end of pledge)	-15%	29%	25%	-20%
Russian Federation (high end of pledge)	-25%	14%	10%	-30%
South Korea	55%	-16%	-30%	-50%
United States	-4%	-17%	-18%	-41%

*Percent change in emissions intensity is for OECD Europe since data for GDP in 2020 for EU-27 are not available. For more details, see methodology section.

In order to provide a common basis for comparison, the analysis employs the same set of internationally available data sources for all countries (with the exception of the European Union, as explained in the methodology section below). These data sources—and the methodologies and assumptions behind them—differ from those used by the countries in determining their pledges. As a result, specific figures presented here may differ from those cited by the countries in question. The analysis is not meant to accurately project countries' emission reductions, but rather is an assessment of the relative scale of mitigation effort pledged by major economies, when compared across four common metrics. It does not reflect metrics such as population, per capita income and mitigation cost—or other national circumstances that may be relevant to an assessment of comparative effort.[2] Other studies take some of these factors into account in comparing the pledges of major economies.[3]

Absolute change in emissions

Consistent with the UNFCCC and the Kyoto Protocol, developed countries[4] have made pledges in the form of absolute reduction targets. With such pledges, the choice of base year has significant implications for the apparent "comparability" of that target relative to other countries' targets. In both the UNFCCC and the Kyoto Protocol, parties agreed to a 1990 base year (with exceptions for certain gases and countries). Countries that have achieved significant emission reductions since 1990 generally prefer continuing with a 1990 baseline to reflect progress already made. Countries whose emissions have continued to grow may prefer a more current baseline

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to put greater emphasis on future reductions rather than past emissions performance.

Change in emissions from 1990

Japan, the Russian Federation and the European Union pledge their emission targets compared to 1990 levels, while the United States, Canada and Australia use more recent base years (see **Appendix 1**). When all the developed country pledges are reflected against a 1990 baseline, all show a reduction except Australia (in the case of the low end of its pledge) and Canada (**Figure 1**). The United States shows a slight reduction from 1990 levels. When developing country pledges are represented as absolute changes in emissions from 1990, all show an increase. China and India show the largest increases, and Mexico the smallest.

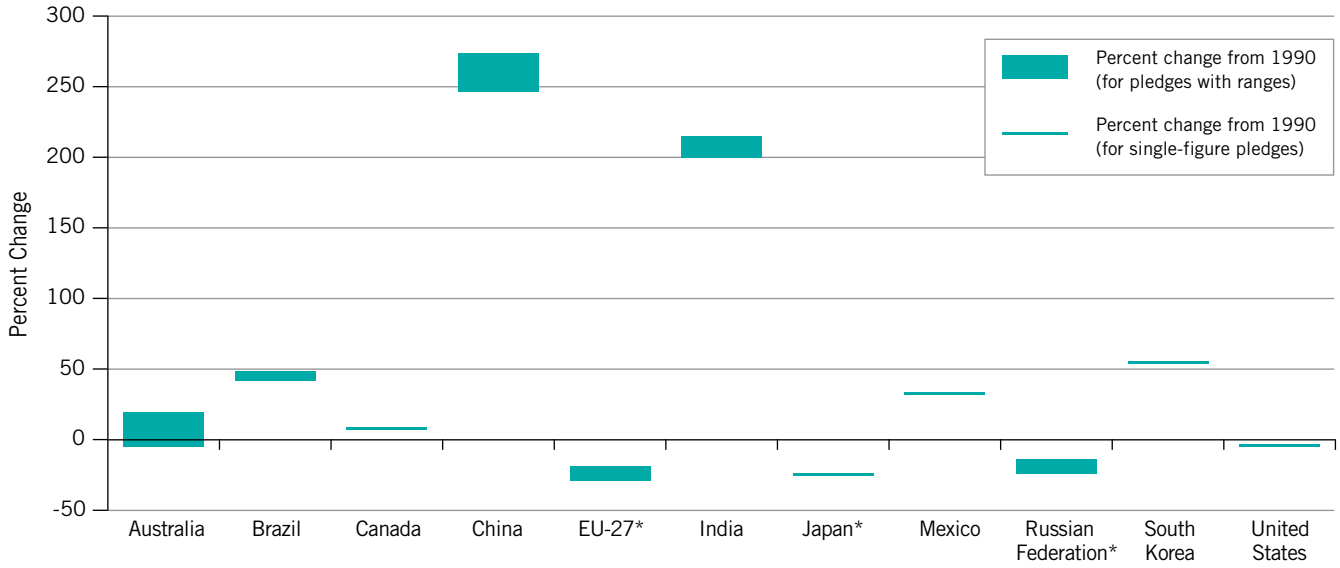
Change in emissions from 2005

When the pledges are expressed as emission changes from 2005, absolute reductions are seen in all developed countries except the Russian Federation. Japan and Australia (high end of pledge) show reductions of 30 percent or more (**Figure 2**).

The Russian Federation's emissions peaked in 1990 and then dropped dramatically due to the collapse of the Soviet Union. As a result, while its target as pledged against a 1990 base year shows a reduction, it shows an increase when compared to 2005 levels. In the case of the United States, the pledge shows a slight decrease in emissions when compared to 1990 but a substantially bigger reduction when compared to 2005 levels. Canada shows a reduction from a 2005 base year, whereas it shows an increase relative to 1990. Australia, when compared to a 1990 base year (high end of its pledge), shows minimal reductions, while it shows reductions greater than 30 percent when compared to a 2005 base year. The European Union's pledge shows a decrease of 15 percent to 26 percent below 2005 levels, smaller than its pledged reduction from 1990 levels.

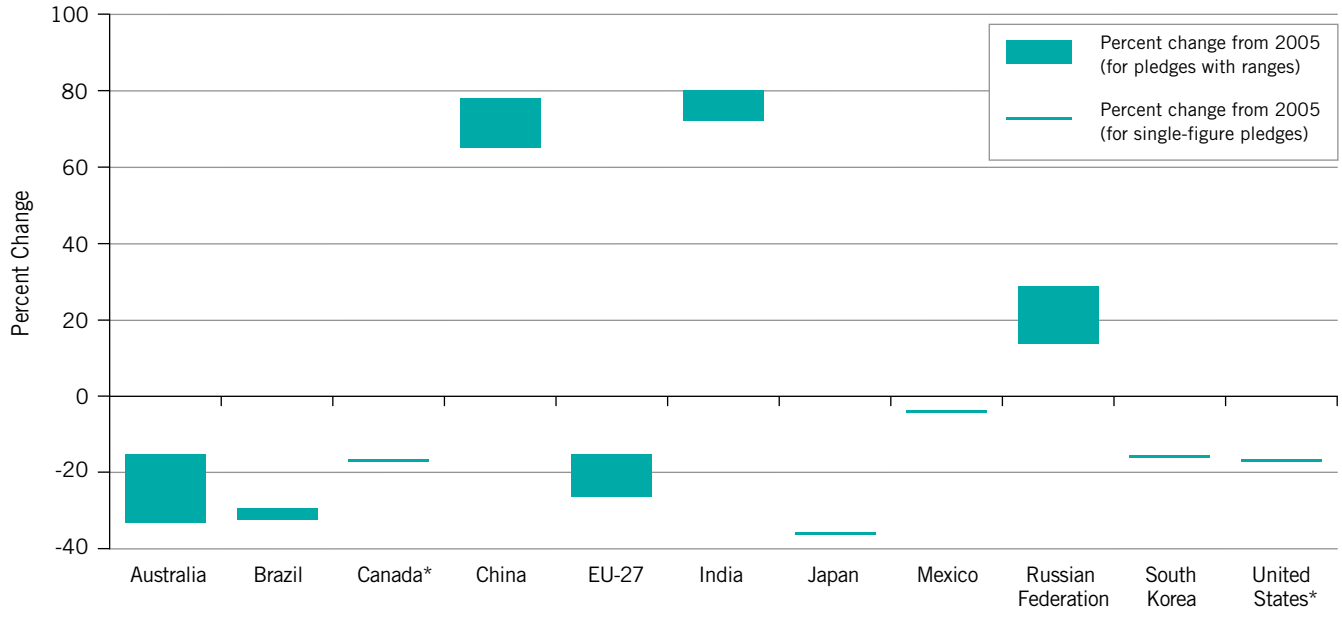
Among the developing countries, Mexico, Brazil and South Korea's pledges show absolute reductions from their 2005 levels. Brazil has the most substantial reductions and is comparable to the most stringent pledges of developed countries, about 30 percent.[5] South Korea's [6] and Mexico's pledges are equivalent to 16 percent and 4 percent below 2005 levels, respectively. China shows an increase of 65 percent to 78 percent compared to its 2005 levels, while India shows an increase of 72 percent to 80 percent.

Figure 1: Percent change in absolute emissions from 1990 levels in 2020



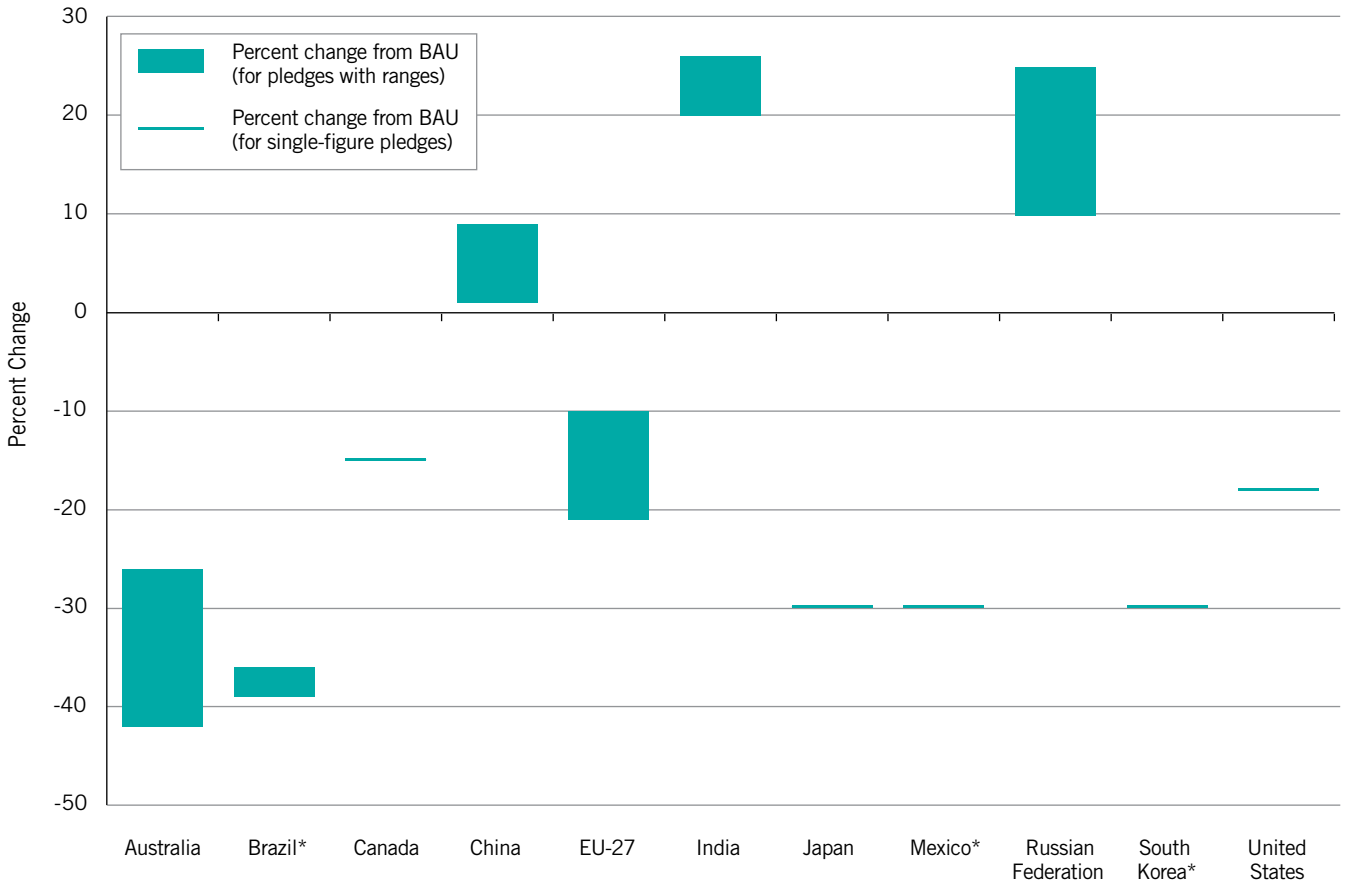
* Countries whose pledges take the form of absolute economy-wide targets with a 1990 baseline.

Figure 2: Percent change in absolute emissions from 2005 levels in 2020



* Countries whose pledges take the form of absolute economy-wide targets with a 2005 baseline.

Figure 3: Percent change in emissions from "business as usual" in 2020



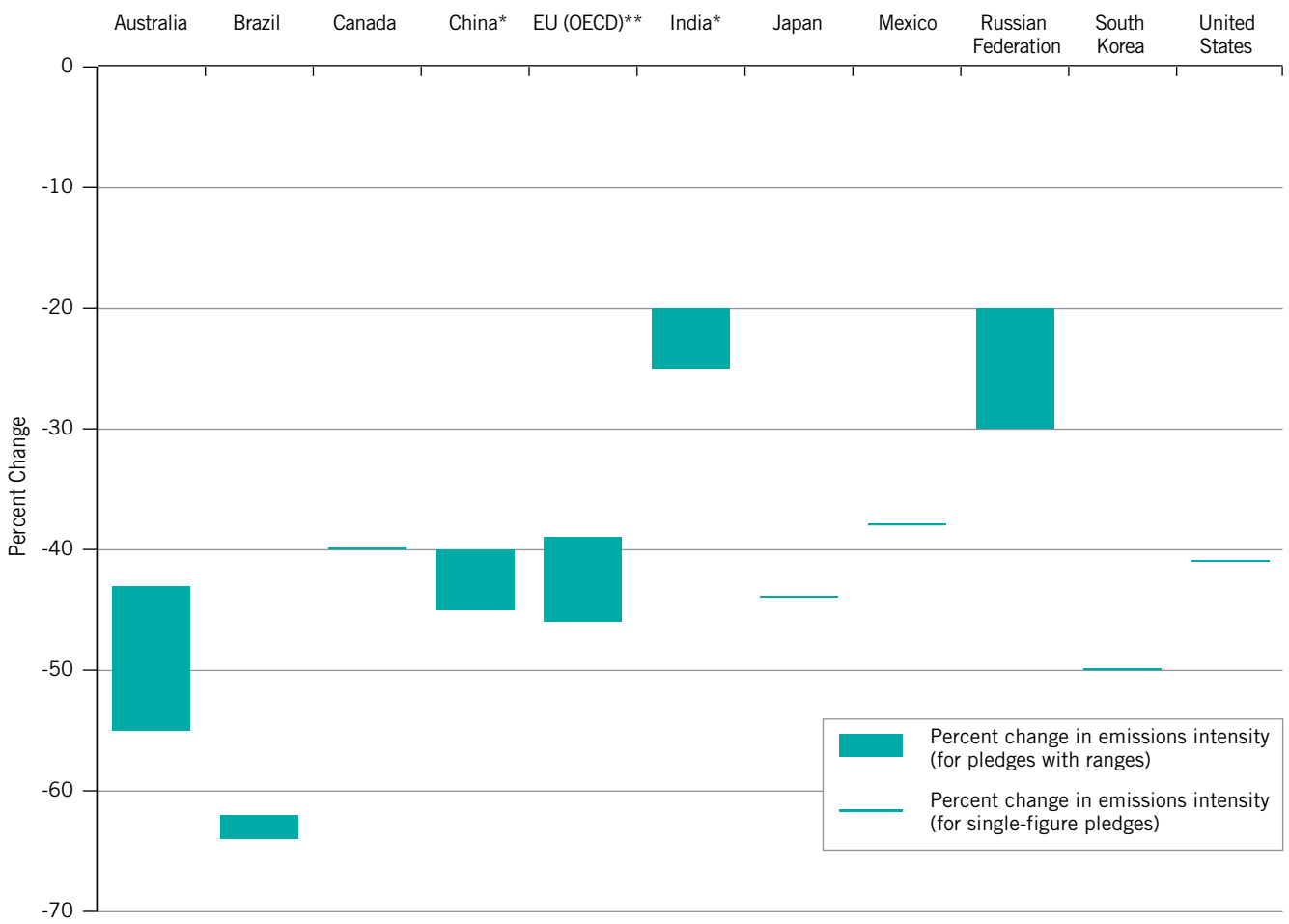
* Countries whose pledges take the form of a reduction from business as usual (BAU) in 2020.

Change in emissions from business as usual[7]

Some countries have pledged to reduce their emissions below "business as usual" (BAU) levels projected for 2020. Any BAU scenario for a given country is based on a host of uncertain factors such as economic and population growth, energy availability and cost, and technological innovation, and whether it assumes existing policies only or planned policies as well. Individual countries employ different approaches in constructing their BAU scenarios and in many cases the assumptions behind them have not been made explicit. To provide a common basis for comparison, the analysis relies on BAU projections from internationally available data sources, rather than those generated by individual countries (for more details, see methodology section).

The pledges of all countries except for India, China and the Russian Federation represent a reduction from projected BAU emissions (**Figure 3**). The reductions are more than 40 percent for Australia (high end of the pledge), and 30 percent for Japan. The EU shows reductions in the range of 10 percent to 21 percent below BAU. Canada shows a reduction of 15 percent below BAU, and the United States 18 percent. Both Mexico's and South Korea's pledges are expressed as reductions from BAU and are 30 percent each. Brazil's pledge is also expressed as reductions from BAU and has a target range of 36 percent to 39 percent. The figures for China show an increase of 1 percent to 9 percent from BAU. India's pledge translates to an increase of 20 percent to 26 percent above BAU. The Russian Federation shows an increase of 10 percent to 25 percent.

Figure 4: Percent change in emissions intensity (2005-2020)



Note: For all countries except China and India, emission figures are economy-wide and include both CO_2 and non-CO_2 gases. China's and India's pledges are represented here as described by those countries: China's (a 40-45 percent reduction) encompasses CO_2 only and India's (a 20-25 percent reduction) does not include agricultural emissions. If computed on an economy-wide basis with all gases, the calculated reduction in emissions intensity is 45-49 percent for China and 31-34 percent for India.

* Countries whose pledges take the form of a reduction in emissions intensity from 2005 to 2020.

** Figure represents change in emissions intensity for OECD Europe since GDP data for EU-27 in 2020 are not available from EIA 2010. For more details, see methodology section.

Change in emissions intensity

A decrease in emissions intensity (emissions per GDP) is generally regarded as an indicator of the decoupling of economy and emissions. A change in emissions intensity can reflect changes in a country's emissions and/or its GDP. As with BAU-based pledges, any assessment based on emissions intensity must rely on projections—in this case, of both emissions and GDP. Both India and China express their pledges as reductions in intensity—India's pledge is a reduction in emissions intensity of 20 percent to 25 percent, while China's is a reduction in CO_2 intensity of 40 percent to 45 percent.[8] When the pledges of all countries are computed as changes in emissions intensity, most show decreases ranging between 40 percent and 50 percent, with Brazil and Australia showing the largest reductions (**Figure 4**). Brazil's reduction in emissions intensity is greater than 60 percent

Table 2: Percent change in GDP and emissions from 2005-2020

Country	Percent change in GDP (2005–2020)	Percent change in emissions (2005–2020) if pledges are met
Australia	50%	-15% to -33%
Brazil	88%	-29% to -32%
Canada	38%	-17%
China*	221%	+78% to +65%
EU (OECD)**	29%	-21% to -31%
India*	160%	+80% to +72%
Japan	15%	-36%
Mexico	54%	-4%
Russian Federation	62%	+29% to +14%
South Korea	67%	-16%
United States	40%	-17%

*See endnote 8

**For OECD Europe since GDP data for EU-27 in 2020 are not available from EIA IEO 2010. For more details, see methodology section.

while Australia shows reductions in emissions intensity of 55 percent (high end of the pledge). For Australia, while its GDP grows 50 percent (**Table 2**), its emissions decrease by 33 percent (high end of the pledge). Similarly in the case of Brazil, GDP grows by 88 percent while emissions decrease by 32 percent. For OECD Europe, emissions intensity declines 39 percent to 46 percent as GDP grows by 29 percent. The Russian Federation and India have the lowest reductions in emissions intensity. The Russian Federation shows a reduction of 20 percent to 30 percent, with its GDP projected to grow 62 percent and its emissions projected to rise 14 percent to 29 percent. South Korea's pledge translates to an emissions intensity reduction of 50 percent, with its GDP growing 67 percent and its emissions declining by 16 percent.

Further research

This analysis provides some perspective on how countries' pledges compare against one another when using neutral, internationally available data sources. As countries strengthen or update their emission inventories, and as they clarify assumptions behind their pledges—for instance, how they project BAU emissions or future GDP—the pledges can more easily be compared on the basis of domestic data sources. Ongoing analysis also is needed to track and assess countries' progress in implementing their pledges.

Methodology

The analysis focuses on 11 major economies, namely Australia, Brazil, Canada, China, European Union, India, Japan, Russian Federation, Mexico, South Korea, and the United States.[9] Based on the Cancún pledges of the major economies, the metrics used in this analysis are: percent change from 1990 levels, percent change from 2005 levels, percent change from business as usual (BAU) levels in 2020, and percent change in emissions intensity from 2005-2020. Some countries have more than one pledge and some have expressed their pledge as conditional on various factors like receiving financing and technological support or a comprehensive global agreement.

For all countries, emissions data were compiled for energy-related CO_2 emissions, methane (CH_4), nitrous oxide (N_2O), high global-warming-potential (GWP) gases, and emissions from cement production for the years 1990, 2005 and 2020. The primary data source used for energy-related carbon dioxide (CO_2) emissions was U.S. Energy Information Administration's (EIA) International Energy Outlook 2010 (IEO 2010) except in the case of the EU (see below). The EIA's IEO was chosen over other internationally available data sources as it includes both historic[10] and projected energy-related CO_2 emissions, and projected GDP, for the greatest number of major economies.

Data for emissions of CH_4, N_2O and high GWP gases were taken from "EPA 2006, Global Anthropogenic Non-CO_2 Greenhouse Gas Emissions: 1990–2020". This includes the direct

non-CO_2 greenhouse gases covered by the United Nations Framework Convention on Climate Change (UNFCCC): CH_4, N_2O, and the high GWP gases. The high GWP gases include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Gases covered by the Montreal Protocol are not included. The EPA 2006 data set is used since it is the most comprehensive set available. However, some more recent studies show that emissions of non-CO_2 gases might have been underestimated for some countries, and this must be kept in mind when interpreting the results of this analysis.

Industrial process emissions from the cement industry are included in the analysis since it is one of the largest and growing sources of GHG emissions, and historic data are available. Data for historic emissions from cement production are from Carbon Dioxide Information Analysis Center (CDIAC) 2010, and projected emissions for cement were calculated using Compound Annual Growth Rate (CAGR) for Gross Domestic Product (GDP) 2007-2020 (i.e., it is assumed that cement emissions will grow at the same rate as overall GDP).

GDP data expressed in 2005 dollars (historic and projected) were taken from EIA's IEO 2010. EIA IEO 2010 data for Australia/New Zealand are used as a proxy for Australia.

For the EU, energy-related CO_2 emissions data is taken from the International Energy Agency's "CO_2 Emissions from Fuel Combustion 2010 Highlights" (historic) and from IEA's World Energy Outlook 2010 (projected). This is because the EIA IEO 2010 has data only for OECD Europe[11] and not for EU-27. Similarly, GDP projections are available only from EIA IEO 2010 and only for OECD Europe; as a result, figures for percent change from 1990, percent change from 2005, and percent change from BAU are with regard to the EU-27, while the figure for change in emissions intensity is for OECD Europe. (Appendix 2 compares results of the analysis between EIA IEO 2010 and IEA/WEO 2010 data sources).

For Annex I parties to the Kyoto Protocol, the study assumes that the Assigned Amount Units (AAUs) are forfeited and no banking of AAUs is allowed. This study makes no assumptions about what percentage of a country's effort is met through carbon offsets.

For all countries except Brazil, the analysis excludes emissions from land use, land use change and forestry (LULUCF) and assumes the net impact of LULUCF emissions to be zero. LULUCF emissions are not included for other countries due to the lack of availability of reliable data, especially at country level and for projected LULUCF emissions.

Emissions from the forestry sector are included only in the case of Brazil. This is due to the fact that emissions from deforestation and degradation comprise about 60 percent of Brazil's emissions. Data for forestry emissions in Brazil are from Conservation International's OSIRIS database and projected emissions were calculated assuming the deforestation rate to be consistent through 2020.

For all countries except China and India, the analysis assumes that pledges are for economy-wide reductions and includes emissions from energy-related CO_2, emissions from cement production and non-CO_2 GHGs. China's pledge is to "endeavor to lower its carbon dioxide emissions per unit of GDP by 40-45 percent by 2020 compared to the 2005 level, increase the share of non-fossil fuels in primary energy consumption to around 15 percent by 2020 and increase forest coverage by 40 million hectares and forest stock volume by 1.3 billion cubic meters by 2020 from the 2005 levels." Although it is unclear whether or not China's CO_2 intensity pledge is met as a result of its increase in the share of non-fossil fuel energy consumption, the analysis assumes this to be the case. The analysis includes only energy-related CO_2 emissions and emissions from cement production for China and does not include reductions in non-CO_2 emissions since its pledge is for CO_2 intensity and not GHG intensity.

India's pledge is expressed as "emissions intensity" and does not include emissions from the agriculture sector. The analysis includes only energy-related CO_2 emissions and emissions from the cement sector and assumes that most of the non-CO_2 emissions are from the agricultural sector in India and thus does not include any non-CO_2 emissions data.

Appendix 1: Pledges by major economies under the Cancún Agreements

Country	Pledge	Conditions
Australia	5-15-25% below 2000 levels	Australia will reduce its greenhouse gas (GHG) emissions by 25% on 2000 levels by 2020 if the world agrees to an ambitious global deal capable of stabilizing levels of GHGs in the atmosphere at 450ppm CO_2-eq or lower. Australia will unconditionally reduce its emissions by 5% below 2000 levels by 2020, and by up to 15% by 2020 if there is a global agreement which falls short of securing atmospheric stabilization at 450ppm CO_2-eq and under which major developing economies commit to substantially restrain emissions and advanced economies take on commitments comparable to Australia's.
Brazil	36.1–38.9% below business as usual (BAU) by 2020	Domestic actions voluntary in nature and will be implemented in accordance with the principles and provisions of the UNFCCC, particularly Articles 4.1, 4.7, 10.2(a), 12.1(b) and 12.4. The use of CDM is not excluded.
Canada	17% below 2005 levels	To be aligned with the final economy-wide emissions target of the United States in enacted legislation.
China	40–45% CO_2 intensity reduction below 2005 levels by 2020	Autonomous domestic actions voluntary in nature, and will be implemented in accordance with the principles and provisions of the UNFCCC, particularly Article 4.7.
European Union	20–30% below 1990 levels	An independent quantified economy-wide emission reduction target of a 20% emission reduction by 2020 compared with 1990 levels. As part of a global and comprehensive agreement for the period beyond 2012, the EU reiterates its conditional offer to move to a 30% reduction by 2020 compared to 1990 levels, provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities.
India	20–25% emissions intensity reduction below 2005 levels by 2020 (excludes agriculture)	Domestic actions voluntary in nature, and will not have a legally binding character. Actions will be implemented in accordance with the provisions of the relevant national legislations and policies as well as the principles and provisions of the UNFCCC, particularly Article 4.7.
Japan	25% below 1990 levels	Premised on the establishment of a fair and effective international framework in which all major economies participate and on agreement by those economies on ambitious targets.
Mexico	Up to 30% reduction below BAU by 2020	Subject to the provision of adequate financial and technological support from developed countries as part of a global agreement.
Russian Federation	15–25% below 1990 levels	The range of the GHG emission reductions will depend on the following conditions: • Appropriate accounting of the potential of Russia's forestry in frame of contribution in meeting the obligations of the anthropogenic emissions reduction • Undertaking by all major emitters the legally binding obligations to reduce GHG emissions.
South Korea	30% below BAU by 2020	
United States	In the range of 17% below 2005 levels	In the range of 17%, in conformity with anticipated U.S. energy and climate legislation, recognizing that the final target will be reported to the Secretariat in light of enacted legislation. The pathway set forth in pending legislation would entail a 30% reduction in 2025 and a 42% reduction in 2030, in line with the goal to reduce emissions 83% by 2050.

Appendix 2: Comparison of results using IEA and EIA data sources

To illustrate how results may vary depending on the data sources employed, Table 3 shows how countries' pledges compare using two different internationally available sets of data for energy-related CO_2 emissions: International Energy Agency's "Carbon Dioxide Emissions from Fuel Combustion 2010" and the World Energy Outlook 2010; and Energy Information Administration's "International Energy Outlook 2010". Only six of the eleven major economies are compared due to limited date from IEA/WEO data sets. The biggest differences between results are seen in the case of percent change from BAU. This is because the BAU scenarios of IEA and EIA make different assumptions about countries' future economic, population and emissions growth. For example, India's pledge translates to a 3 percent increase to a 2 percent reduction from BAU when using IEA data, while showing an increase of 26 percent to 20 percent when using EIA data (IEA projects emissions growth of 98 percent; EIA projects 47 percent growth).

Table 3: Comparing results using different data sources

	Percent change from 1990		Percent change from 2005		Percent change from BAU 2020		Percent change in emissions intensity	
	IEA 2010	EIA 2010	IEA 2010	EIA 2010	IEA 2010	EIA 2010	IEA 2010	EIA 2010
China[1] (low end)	255%	274%	77%	78%	-5%	9%	**-40%**	**-40%**
China[1] (high end)	230%	247%	65%	65%	-12%	1%	**-45%**	**-45%**
EU[2] (low end)	**-20%**	**-20%**	-15%	-21%	-10%	-18%	-39%	-39%
EU[2] (high end)	**-30%**	**-30%**	-26%	-31%	-21%	-28%	-46%	-47%
India[1] (low end)	205%	215%	80%	80%	3%	26%	**-20%**	**-20%**
India[1] (high end)	191%	200%	71%	72%	-2%	20%	**-25%**	**-25%**
Japan	**-25%**	**-25%**	-34%	-36%	-26%	-30%	-42%	-44%
Russian Federation (low end)	**-15%**	**-15%**	28%	29%	16%	25%	-21%	-20%
Russia Federation (high end)	**-25%**	**-25%**	13%	14%	3%	10%	-30%	-30%
United States	-4%	-4%	**-17%**	**-17%**	-15%	-18%	-41%	-41%

Notes: Numbers in bold indicate a country's pledge. GHG emissions data for "IEA 2010" were compiled using energy-related CO_2 emissions data from IEA 2010 and WEO 2010, EPA 2006 for non-CO_2 gases and CDIAC 2010 for cement emissions. For "EIA 2010", data were compiled using energy-related CO_2 emissions data from EIA IEO 2010, EPA 2006 for non-CO_2 gases and CDIAC 2010 for cement emissions.

[1] China's and India's official pledges expressed as change in emissions intensity (40–45 percent and 20–25 percent) are represented here and do not take into account non-CO_2 gases.

[2] Figures for EIA 2010 are for OECD Europe and for IEA 2010 are for EU-27. Change in emissions intensity is for OECD Europe for both IEA and EIA data sets.

Endnotes

[1] In the Agreements (Decision 1/CP.16), Parties "took note" of the quantified emission reduction targets by developed countries in an INF document (FCCC/SB/2011/INF.1) and "took note" of nationally appropriate mitigation actions of developing countries in a separate INF document (FCCC/AWGLCA/2011/INF.1).

[2] For more details, see "Comparability of Developed Country Mitigation Efforts", Post-2012 Climate Policy Brief, Pew Center, 2009.

[3] Department of Climate Change and Energy Efficiency, 2011. "International Pledges on Climate Change Action: The Future". Australia; Jotzo, F., 2010. "Comparing the Copenhagen Emission Targets". Crawford School of Economics and Government, Australian National University; McKibbin, W.J., Morris, A. and Wilcoxen, P.J., 2010. "Comparing Climate Commitments: A Model-Based Analysis of the Copenhagen Accord". Brookings Institution

[4] Some developing countries such as Antigua and Barbuda, and Moldova also have expressed their Cancún pledges as absolute reductions.

[5] In this analysis, forestry emissions are included only for Brazil since about 60 percent of Brazil's emissions were from the forestry sector in 2005. For more details, see methodology section.

[6] The official pledge by South Korea says that their pledge of 30 percent below BAU is equivalent to 4 percent below 2005 levels (http://www.greengrowth.go.kr/english/en_subpolicy/en_greenhouse/en_greenhouse.cms). This analysis shows a 16 percent reduction in 2005 because the BAU scenario in this analysis projects a lower rate of growth in emissions between 2005 and 2020 compared to the official numbers from the government of Korea (20% vs 36%).

[7] BAU scenarios used in this analysis are compiled through various data sources including the EIA (or IEA in the case of EU-27), EPA, CDIAC and the OSIRIS database. For more details, see methodology section.

[8] The analysis interprets India's pledge of 20-25 percent reduction in emissions intensity as including only energy-related CO_2 emissions and cement emissions (for more details, see methodology section). When BAU emissions from non-CO_2 gases are added to the pledged reductions, India's emissions are projected to grow between 72 percent to 80 percent in 2020 (Table 2). Similarly for China, the analysis interprets its pledge as only including energy-related CO_2 emissions and cement emissions. When BAU emissions from non-CO_2 gases are included to its pledged reductions, China's emissions are projected to grow between 65 percent to 78 percent in 2020 (Table 2).

[9] Indonesia and South Africa are not included in this analysis since neither EIA nor IEA have complete data sets for them.

[10] Energy-related CO_2 emissions for the year 1990 were taken from IEO 2009 since IEO 2010 does not have 1990 data.

[11] OECD Europe includes the EU-15, Czech Republic, Hungary, Iceland, Norway, Poland, Slovak Republic, Switzerland and Turkey (nineteen of the EU-27 member states plus Norway, Switzerland, Turkey and Iceland).

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This is one in a series of policy briefs examining post-2012 international climate policy. The Pew Center on Global Climate Change was established by the Pew Charitable Trust to bring a new cooperative approach and critical scientific, economic, and technological expertise to the global climate change debate. We inform this debate through wide-ranging analyses that add new facts and perspectives in four areas: policy (domestic and international), economics, environment, and solutions.

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