ANALYZING THE 2030 EMISSIONS GAP
DRAFT VERSION

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Centre for Climate and Energy Economics
Ref: Steffen Dockweiler

Summary
This analysis quantifies the 119 Intended Nationally Determined Contributions (INDCs) submitted to the UNFCCC Secretariat by the 1st of October 2015. The main findings are that:

- Combined mitigation efforts of submitted INDCs **reduce global greenhouse gas emissions in 2030 by around 7 $GtCO_2e$** compared to current policy projections.
- Mitigation efforts of INDCs are insufficient for keeping global average surface temperatures below 2°C. The **emissions gap between the INDC scenario and the 2°C scenario is around 12 $GtCO_2e$ in 2030.** This implies post-2030 annual emission reductions rates of between 4 and 6 pct.
- **INDCs postpone the depletion of the global carbon budget by around 5 years.** INDCs exhaust the carbon budget by 2047.
- Including surplus emission allowances, **hot air, will increase the global gap in 2030 by around 1 $GtCO_2e$**.
- Differences in accounting rules for emissions and removals from **Land-Use, Land-Use Change and Forestry (LULUCF) can increase the 2030 gap by around 0.8 to 3.4 $GtCO_2e$**.

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Background

At the 20th session of the Conference of Parties (COP20) in December 2014 in Lima, parties to the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Lima Call for Climate Action. This meant that parties acknowledged a gap between mitigation pledges and the necessary emission levels needed to limit the increase in global average surface temperature to below 2˚C by 2100. The Lima Call for Climate Action also meant that parties reaffirmed the Warsaw decision to communicate Intended Nationally Determined Contributions (INDCs) well in advance of COP21 in Paris, November 2015.

This analysis quantify global greenhouse gas (GHG) emissions up to 2030 assuming all INDCs submitted to the UNFCCC secretariat by October 1st are implemented. The analysis then compares this level of emissions to the emissions pathway consistent with limiting global warming to below 2˚C. By doing so an emissions gap is revealed, defined as the difference in GHG emissions between the INDC emissions pathway and the 2˚C emissions pathway.

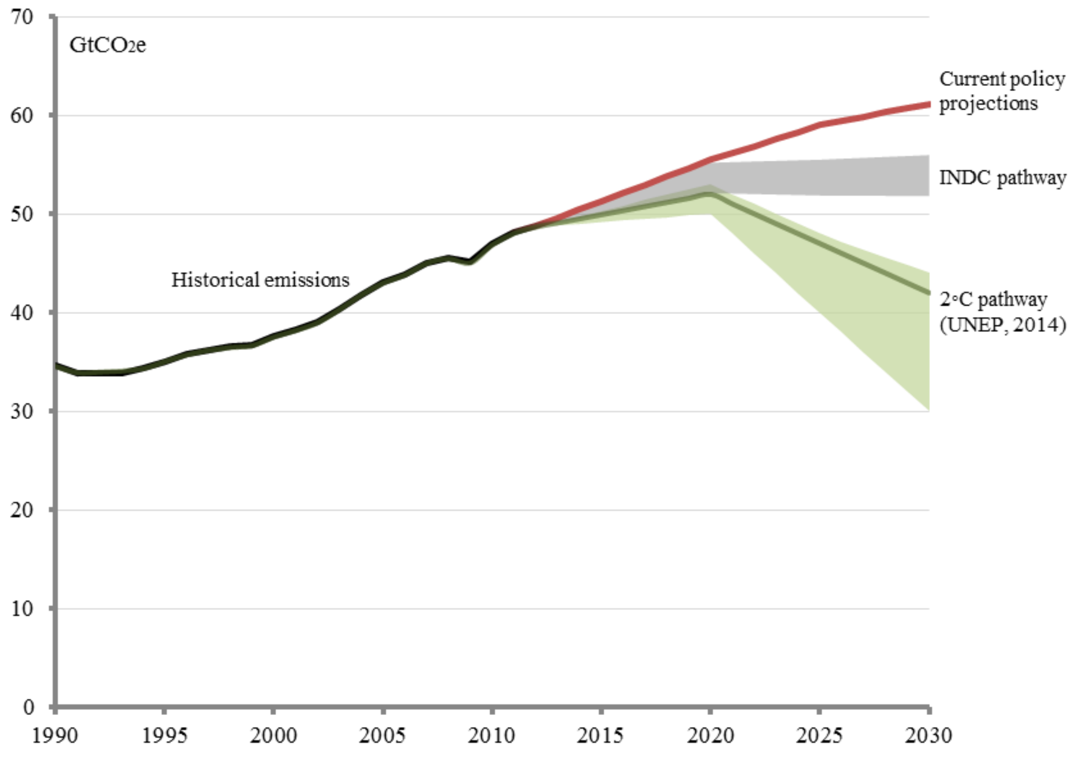
The analysis is divided in the following sections: First, analysis on the 2030 emissions gap is presented, and a short comparison with similar studies is done. Second, methodology and key assumptions are presented, followed by a description of the scenarios considered.

The 2030 emissions gap

Taken together, the submitted INDCs as of 1st of October 2015 reduce the global GHG emission level by around 7.3 $GtCO_2e$ compared to current policy projected levels. This means global emissions in 2030 will be around 53.9 $GtCO_2e$ [51.8 to 56.0 $GtCO_2e$][1]. UNEP estimates that emissions in 2030 should be around 42 $GtCO_2e$ to be consistent with limiting global temperature increase to below 2˚C (UNEP, 2014). This leaves a gap of around 12 $GtCO_2e$ [9.9 to 14 $GtCO_2e$][2]. Current policy projections put global GHG emissions at around 61 GtCO2e by 2030. INDCs thus close up to nearly 50 pct. of the emissions gap between current policy projections and the 2˚C pathway [26.5 to 48.3 pct.], as seen in figure 1. It is evident that parties' INDCs are reducing global GHG emissions compared to the current policy projections, but also that the reduction is not sufficient to stay below 2˚C. In annex 2 the INDC scenario is compared with current policy projections and the 2˚C pathway in more detail for the years considered: 2020, 2025 and 2030.

If parties that did not submit an INDC by the 1st of October were to follow the same level of ambition as in the ones submitted, the world would reduce the global GHG emissions by up to 8.5 $GtCO_2e$ by 2030[3]. This would leave a gap of around 10.8 $GtCO_2e$.

Figure 1: Global GHG emissions in the period 1990 to 2030 under three scenarios: current policy projections (red curve), INDC pathway (green box) and 2◦C pathway (green box, dark green is median).



[1] Brackets refer to the 95 pct. confidence interval, and will do so in the rest of the analysis.
[2] To compare the initial gap between current policy projections and the 2˚C pathway is around 19 $GtCO_2e$.
[3] Parties submitting an INDC represented around 85 pct. of world GHG emissions in 2012. These INDCs reduce 2030 world emissions by around 7.3 $GtCO_2e$. Scaling up this number, assuming same ambition from the remaining 15 pct. yields 8.5 $GtCO_2e$.

Global emission levels of between 51.8 and 56.0 $GtCO_2e$ by 2030 (i.e. the 95 pct. confidence interval of the central estimate presented above the figure) would mean that post-2030 reduction rates should be very high. The IPCC calculates that if global emissions are at this level by 2030, annual reduction rates between 2030 and 2050 required to meet the 2°C target by 2100 would need to be around 4 to 6 pct. Furthermore, emissions at this level would require that zero or low-carbon energy shares would need to increase, in the same period, by 160 to 240 pct. (IPCC, 2014a).

DEA do not itself calculate what the 2030 emissions level under the INDC scenario will mean in terms of the global average temperature by 2100. A rough calculation on how much of the carbon budget is used in the INDC scenario is attempted: The budget is around 1000 GtC for the period 2012-2100, which translated to around 3670 $GtCO_2e$. The world already emitted around 1890 $GtCO_2e$ by 2011, meaning the actual budget is 1780 $GtCO_2e$. Following current policy projections implies that the world will exhaust its carbon budget by 2042. Implementing INDCs gives us an extra five years, meaning that we exhaust the budget by 2047[4].

High and low ambition scenarios

The above estimate of the emissions gap in 2030 is calculated by combining the five scenarios introduced earlier. Each of the scenarios are further sub-divided into a high ambition scenario and a low ambition scenario. The results of these two variants of the INDC scenario are presented in table 2:

Table 1: The 2030 emission level and emissions gap comparing low and high INDC ambition.

Scenario	2030 world emissions	2030 emissions gap
Low ambition	56.5 [54.4 to 58.5]	14.5 [range: 12.4 to 16.5]
High ambition	51.3 [49.7 to 52.9]	9.3 [range: 7.7 to 10.9]

If the world follows a lenient, low ambition approach to implementing INDCs into mitigation action the emissions gap could be reduced by as little as 4.5 $GtCO_2e$ by 2030 (thus, leaving a significant gap of 14.5 $GtCO_2e$). In this scenario emission allowances above current projected policies are allowed, and parties are only to follow their least ambitious reduction path as laid out in INDCs. On the other hand if all parties follow strict, high ambition approaches to implementing INDCs, the world could reduce the gap by as much as 10 $GtCO_2e$ by 2030 (thus, leaving a gap of only 9.3 $GtCO_2e$). This would require that all parties follow the upper limit of their mitigation targets, and that all conditional contributions were implemented. Even in this case the mitigation effort by parties is not enough to bring down the emissions gap to zero by 2030. Figure 5 in annex 3 depicts the trajectory of the two scenarios.

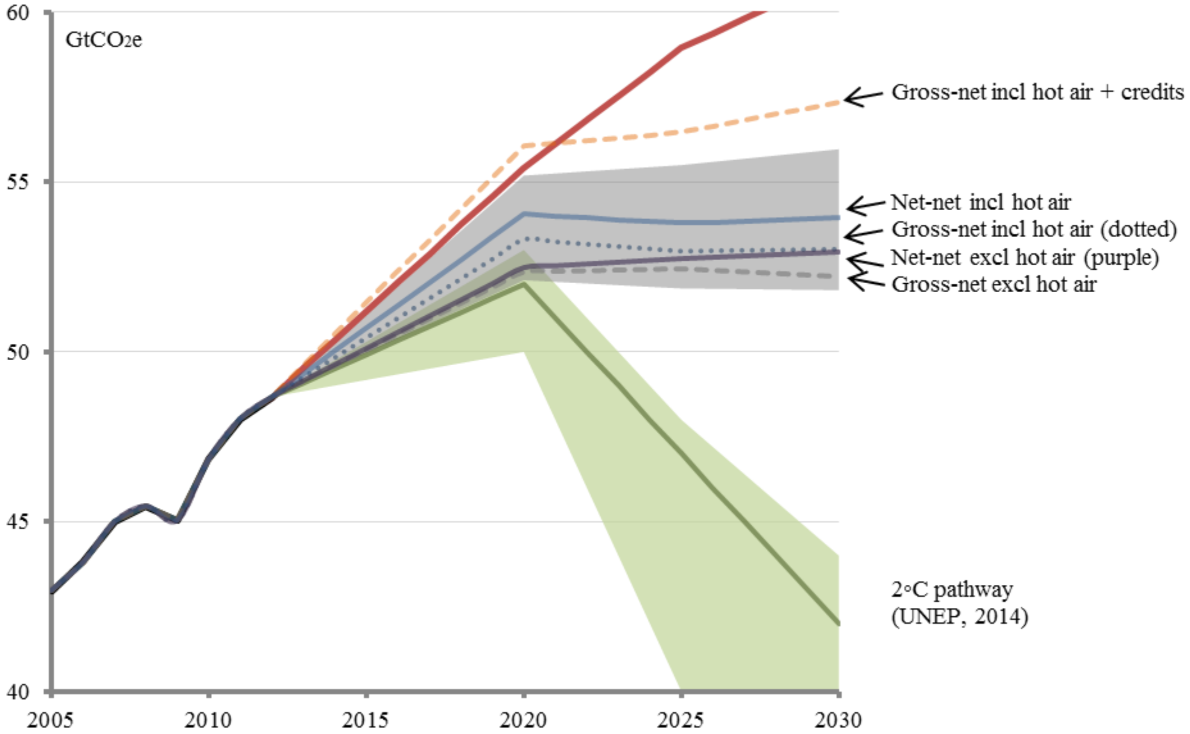
Hot air and LULUCF accounting rules

It becomes clear from the analysis above, that estimates of the 2030 emissions gap are quite uncertain, considering the large range in confidence intervals. The issue is that the five scenarios used to analyze the emissions level in 2030 differ in their approach to LULUCF accounting and hot air inclusion. Differences in how to account for LULUCF emissions and re-

[4] Simple linear extrapolation has been assumed between the analysed target years: 2020, 2025 and 2030. Global GHG emissions post-2030 are in the INDC scenario assumed to decline by 1 pct. annually in the period 2030-2035, and by 1.5 pct. in the period 2035-2040, and finally by 2 pct. annually after 2040. Since global emission estimates presented here include emissions from sources other than carbon dioxide, e.g. methane and nitrous oxide, expressed as CO_2e, we do not reduce the global carbon budget.

movals can increase the gap around 0.8 $GtCO_2e$. On top of that, including hot air can increase the gap further by 0.9 $GtCO_2e$. The use of LULUCF removals as credits limiting the reduction effort needed, can increase the gap by up to 3.4 $GtCO_2e$ by 2030, but this is only if every party converts all uptakes by LULUCF to credits every year[5]. In figure 2 the five scenarios are depicted (zooming in on figure 1) together with the INDC pathway (gray box). It is important mention here that the calculations shown here only look at on year, e.g. 2030, and not the cumulative effect of a surplus of hot air or LULUCF credits.

Figure 2: Overview of the five INDC scenarios. The three dotted lines are all using the gross-net approach to LULUCF accounting, while the full lines are using net-net. The red full line is current policy projections.

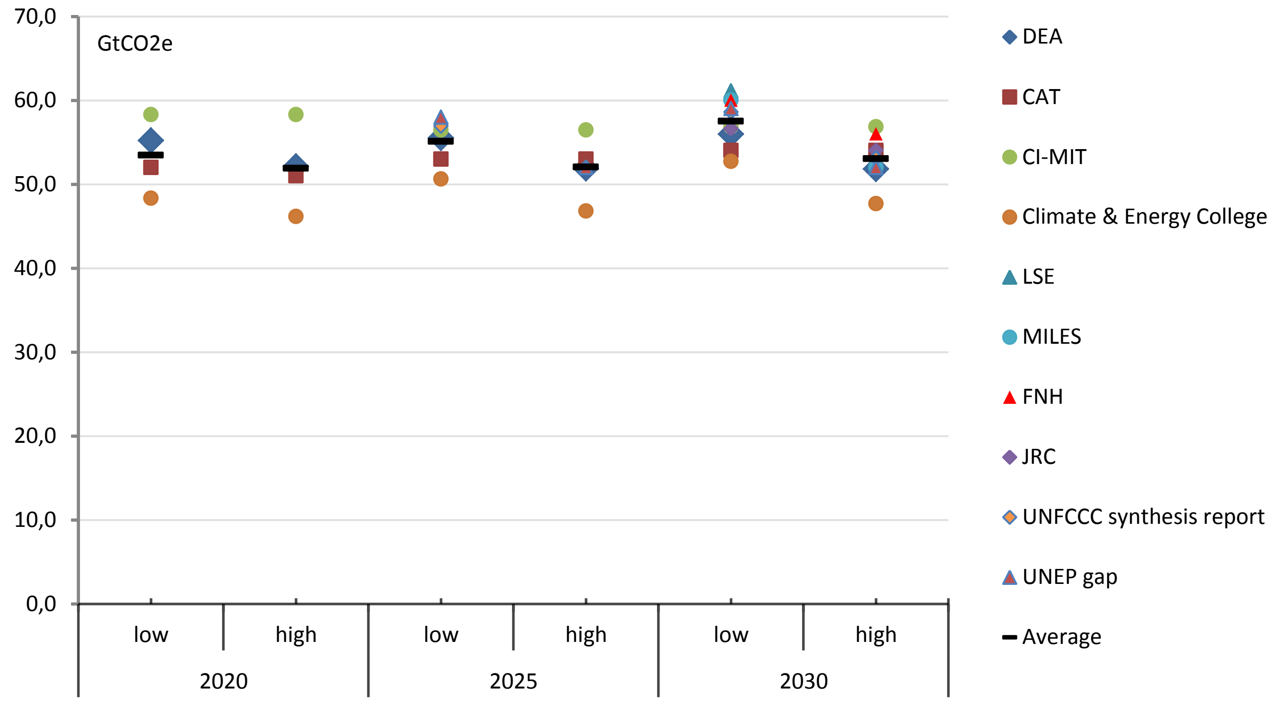


[5] This estimate is quite extreme, and should not be taken to be an exact value. The fact is that projections of future LULUCF emissions/removals are extremely uncertain and to add to this DEA has been harmonizing projected values to historical values, which can create inconsistencies.

Comparison with similar analyses

In Figure 3 global GHG emissions in 2020, 2025 and 2030 from the above analysis (blue quadrant) are compared to studies by the independent Climate Action Tracker (CAT, 2015), Climate Interactive (CI-MIT, 2015), Australian-German Climate & Energy College (CEC, 2015), London School of Economics (LSE, 2015), the MILES project (MILES, 2015), Foundation Nicolas Hulot (FNH, 2015), Joint Research Centre (JRC, 2015), the UNFCCC Synthesis Report (UNFCCC, 2015c) and the UNEP gap report 2015 (UNEP, 2015). These studies also present estimates of the global emissions under a INDC pathway, with varying but similar assumptions to the present study. If all INDCs are implemented to their full extent, including conditional ones, global GHG emissions will be further reduced compared to the low ambition scenario, as seen in figure 3[6].

Figure 3: Comparing global GHG emissions between studies.



In general the results from Climate & Energy College are somewhat more optimistic than the rest of the studies (orange dots). DEA results are in the middle (blue quadrant), close to the average of all studies. More pessimistic is the results of Climate Interactive (green circle), being the highest estimate of global GHG emissions in all years, although in 2030 together with LSE. DEA results are validated by being very close to the average in all years and both the low/high ambition scenario variants, as seen in figure 3.

Taken together, the studies put global GHG emissions in 2030 at between 53 and 57 $GtCO_2e$ in the least ambitious case, and between 48 and 57 in the most ambitious case. The average of the most ambitious scenario is 53 $GtCO_2e$, meaning that there is an average gap of around 11 $GtCO_2e$ in 2030.

[6] Climate Interactive do not provide a high/low ambition pathway for their INDC scenario.

Methodology and key assumptions

Mitigation pledges included:

This analysis includes Copenhagen pledges for 2020 that are quantifiable and submitted to the UNFCCC in the aftermath of COP15 (UNFCCC, 2014). Furthermore, INDCs submitted to the UNFCCC secretariat by the 1st of October are included for the period 2020-2030 (UNFCCC, 2015a). 119 parties to the UNFCCC had submitted an INDC by the 1st of October, covering around 85 pct. of global emissions in 2012[7]. 9 of these were unquantifiable since they were not modelled in the global model used to quantify INDCs[8], 5 were unquantifiable because of lacking up front information (UFI) in the INDC submission text[9]. Please see annex I for mitigation targets by country.

INDCs vary significantly in what they include – some focus mainly on mitigation others mainly on adaptation, some include detailed information on both issues. In this analysis we only focus on the mitigation component of INDCs – to be able to quantify emission levels in 2030. Where INDCs are expressed with a reduction range, the upper limit is included in what we refer to as a High ambition variant of the INDC scenario and the lower limit as a Low ambition variant. Unconditional targets are included in the Low ambition variant of the INDC scenario, and conditional targets in the High ambition variant. Some INDCs only include a mitigation target for 2025, or 2035. For these we rely on linear extrapolation from either a Copenhagen pledge or from current policy projections as the situation may vary. For parties with no INDC, current policy projections are assumed.

Emissions/removals from Land-Use, Land-Use Change and Forestry (LULUCF) are included but since accounting rules vary significantly, and because many parties have not specified how to include these emissions/removals, a set of INDC scenarios have been created. Emissions above current policy projections, often referred to as hot air, will result from certain parties' INDCs. Here we also create a set of INDC scenarios to see the effect of this. Please see the "Scenarios considered" section for more information.

Gases covered:

The model used for quantifying mitigation pledges is the DEA's global carbon market model, COMPARE (DEA, 2015). The model covers global GHG emissions in the period 2015-2050, with a five year interval. All the Kyoto Protocol gases from first commitment period are covered: Carbon dioxide (CO_2), Nitrous oxide (N_2O), Methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Nitrogen trifluoride (NF_3) and black carbon emissions are not covered. For this specific analysis we express GHG emissions using 100-year global warming potentials from the IPCC's Second Assessment Report (1995).

Historical and projected emission data sources:

For historical emissions including emissions/removals from LULUCF, two main sources are utilized depending on data availability: For annex-I countries we rely on the UNFCCC Common Reporting Format database (UNFCCC, 2015b) and for non-annex countries we rely on World Resources Institute's Climate Data Explorer, CAIT (WRI, 2015). The COMPARE

[7] Calculated using WRI's CAIT historical emissions database.
[8] These parties included: Andorra, Kiribati, Liechtenstein, Marshall Islands, Monaco, Papua New Guinea, Samoa, Solomon Islands and Vanuatu.
[9] These parties included: Armenia, Cabo Verde, Gabon, Guinea Bissau and Swaziland.

model has been used to project levels of LULUCF emissions for the years 2020-2030. These projections rely on the International Institute of Applied Systems Analysis (IIASA)'s models G4M and GLOBIOM, and have been harmonized to historical values by DEA. Historical and projected international bunker emissions are derived from the COMPARE model[10]. These emissions are not regulated in the INDC pathway scenario. Current policy projections are made using the POLES model, PBL's TIMER and IMAGE models, and IIASA's GLOBIOM and G4M models. Emissions from peat-lands are assumed constant for all years, and have been estimated using the IPCC average (IPCC, 2014c).

Emissions from regional aggregates:

COMPARE, like all other global models, have aggregated smaller countries together in regional aggregates. This has implications for the quantification of 2030 emission levels for parties' being part of a regional aggregate. The issue is that not all countries submitted an INDC by the 1st of October, meaning that some parties will have the same emissions level in the INDC pathway scenario as the current implemented policy scenario. But COMPARE does not have estimates of projected current policy emissions for each separate party in the regional aggregates. By using the 2012 country share of regional aggregate emissions we can estimate projected current policy emissions for each party in each regional aggregate[11], although with a high degree of uncertainty. The uncertainty results from differences in emissions growth between parties in regional aggregates, but one has to keep in mind that regional aggregates represent only around 20 pct. of overall emissions of COMPARE.

Estimating the 2030 emissions gap:

To estimate the emissions gap we first sum up the effect of all INDCs submitted by the 1st of October 2015 to get global emissions by 2030. This level is then compared to a scenario consistent with limiting global warming to below 2˚C by 2100. The chosen 2˚C scenario is the one applied by United Nations Environmental Program's Emissions Gap Report 2014, estimated from the IPCC AR5 scenario database. This scenario and the above methodology are chosen to be able to contribute to the forthcoming Emissions Gap Report of 2015. It is important to mention that limiting global GHG emissions to a certain level by 2030 is not necessarily consistent with limiting global warming to 2˚C by 2100, since this will also depend on the level of annual emissions between 2020 and 2030. The relevant measure is the global carbon budget, estimated to be around 485 GtC in the period 2012-2100 (IPCC, 2013).

[10] I.e. emissions from international maritime and international aviation.

[11] Nearly all countries aggregated to regions in COMPARE are non-annex countries, meaning that we rely on WRI's CAIT emissions database for 2012 historical emissions share.

Scenarios considered
In this section we present an overview of the scenarios considered in this analysis. They differ mainly in how emissions/removals from LULUCF are accounted for and if emissions above current policy projections are allowed (hot air). An overview of the five scenarios considered is presented in table 1:

Table 2: Overview of the difference in the INDC scenarios considered.

Scenario	LULUCF accounting	Hot air allowed
INDC – S1	Gross-net	No
INDC – S2	Gross-net	Yes
INDC – S3	Gross-net + Credits	Yes
INDC – S4	Net-net	No
INDC – S5	Net-net	Yes

There are several ways to include LULUCF emissions/removals, but for simplicity we here assume the following:

- **Gross-net**: Refers to gross-net accounting on the target year. In practice we assume that LULUCF emissions/removals are not a part of the mitigation target when we calculate the emissions level in 2030. Projected LULUCF emissions/removals are simply added to the calculated 2030 emissions level to get the emissions level including emissions/removals from the LULUCF sectors. Note that countries with mitigation targets based on Business as Usual (BAU) projections including emissions/removals from LULUCF are included using net-net accounting on the official BAU.

- **Gross-net + Credits**: Same as above, but assumes that all countries that have net-removals from LULUCF sectors in the target year converts these into credits and uses them to reach their mitigation target[12].

- **Net-net**: Refers to net-net accounting on the base year, e.g. for EU: 1990. In practice we assume that LULUCF emissions/removals are included in the base year on which the mitigation target is calculated against.

The scenarios do not individually represent best-guess estimates of global emissions by 2030. Rather, they show the effect of how different methods to include emissions/removals from LULUCF and hot air affect the global estimate. Combining the five scenarios yield valuable information on what range emissions will be at by 2030 since they combine the different outcomes of several accounting methods.

[12] This is considered an extreme scenario in the sense that every party converting every uptake by LULUCF to credits is highly unlikely.

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Annex 1: Mitigation targets of parties

Table 3: Overview of the INDCs submitted by the 1st of October 2015. Countries marked in red are not included.

Party	GHG Emission Reduction Target	Target year	Base year
Switzerland	-50%	by 2030	below 1990
European Union	At least -40% domestic	by 2030	below 1990
Norway	At least -40%	by 2030	below 1990
Mexico	-22% (conditional: -36%)	by 2030	below BAU
United States	-26% to -28%	by 2025	below 2005
Russia	-25% to -30%	by 2030	below 1990
Gabon	-50%	by 2025	below BAU
Liechtenstein	-40%	by 2030	below 1990
Andorra	-37%	by 2030	below BAU
Canada	-30%	by 2030	below 2005
Morocco	-13% (conditional: -32%)	by 2030	below BAU
Ethiopia	Net emissions 145 Mt CO2-eq or lower	by 2030	Fixed Level Target
Republic of Serbia	-9.8%	by 2030	below 1990
Iceland	-40%	by 2030	below 1990
China	Peaking CO_2 around 2030; 60-65% CO_2 emission intensity reduction; 20% non-fossil fuels in primary energy consumption & increase the forest stock volume.	by 2030	below 2005
Republic of Korea	-37%	by 2030	below BAU
Singapore	-36% emission intensity; Peaking emissions by around 2030	by 2030	below 2005
New Zealand	-30%	by 2030	below 2005
Japan	-26.0%	by 2030	below 2013
Marshall Islands	-32% (indicative -45% by 2030)	by 2025	below 2010
Kenya	Conditional: -30%	by 2030	below BAU
Monaco	-50%	by 2030	below 1990
Republic of Macedonia	-30% CO2 (conditional: -36%)	by 2030	below BAU
Trinidad and Tobago	Public transport emissions -30%; (conditional: 3 sectors -15%)	by 2030	below BAU
Australia	-26% to -28%	by 2030	below 2005
Democratic Republic of the Congo	Conditional: -17%	by 2030	below BAU
Dominican Republic	Conditional: -25%	by 2030	below 2010
Colombia	-20% (conditional: -30%)	by 2030	below BAU
Tunisia	-13% emission intensity (conditional: -41%)	by 2030	below 2010
Comoros	Conditional: -84%	by 2030	below BAU
Equatorial Guinea	Conditional: -20%	by 2030	below 2010
Montenegro	-30%	by 2030	below 1990
Ghana	-15% (conditional: -45%)	by 2030	below BAU
Albania	-11.5% CO2	by 2030	below BAU
Madagascar	Conditional: -14%	by 2030	below BAU

Indonesia	-29% (conditional: -41%)	by 2030	below BAU
Mongolia	Conditional: -14%	by 2030	below BAU
Eritrea	-39.2% (conditional: -80.6%)	by 2030	below BAU
Bangladesh	3 sectors -5% (conditional: -15%)	by 2030	below BAU
Seychelles	Conditional: -21.4% (-29.0% by 2030)	by 2025	below BAU
Georgia	-15% (conditional: -25%)	by 2030	below BAU
Belarus	-28%	by 2030	below 1990
South Africa	398 - 614 Mt CO2-eq	2025 - 2030	Trajectory Target
Republic of Moldova	-64% to -67% (conditional: -78%)	by 2030	below 1990
Kiribati	-12.8% (conditional: -61.8%)	by 2030	below BAU
Senegal	-4% by 2020; -7% by 2025 & -6% by 2030 (conditional: 10%, 23% & 31%)	by 2030	below BAU
Central African Re-public	Conditional: -5%	by 2030	below BAU
Brazil	-37% (-43% indicative by 2030)	by 2025	below 2005
Mauritius	Conditional: -30%	by 2030	below BAU
Myanmar	Conditional actions only	by 2030	
Maldives	-10% (conditional: -24%)	by 2030	below BAU
Kazakhstan	-15% (conditional: -25%)	by 2030	below 1990
Peru	-20% (conditional: -30%)	by 2030	below BAU
Guyana	Conditional: -52 Mt CO2-eq CO2	by 2025	below BAU
Burkina Faso	-6.6% (conditional: -18.2%)	by 2030	below BAU
Chile	30% CO2 intensity reduction (conditional: 35% to 45%)	by 2030	below 2007
Vanuatu	Renewable (non-GHG) target	by 2030	Non-GHG
Mali	Conditional: agriculture -29%; energy -31% & LUCF -21%	by 2030	below BAU
Armenia	Conditional: aggregate emissions 633 Mt CO2-eq	2015 - 2030	Fixed Level Tar-get
Niger	-3.5% (conditional: -34.6%)	by 2030	below BAU
Kyrgyzstan	-11.49% to -13.75% (conditional: -29.00% to -30.89%)	by 2030	below BAU
Uruguay	Nine sector-specific emissions intensity reduction targets (conditional & unconditional)	by 2030	below 2010
Namibia	Conditional: -89%	by 2030	below BAU
Zambia	-25% (conditional: -47%)	by 2030	below 2010
Swaziland	Conditional actions only	2020 - 2030	
Tanzania	-10% to -20%	by 2030	below BAU
Azerbaijan	-35%	by 2030	below 1990
Republic of Congo	Conditional: -48%	by 2025	below BAU
Dominica	Conditional: -17.9% by 2020; -39.2% by 2025 & -44.7% by 2030	by 2030	below 2014
Israel	Per capita emissions 7.7 t CO2-eq (8.8 t CO2-eq per capita by 2025)	by 2030	Fixed Level Tar-get
Guatemala	-11.2% (conditional: -22.6%)	by 2030	below BAU
Sao Tome and Principe	Conditional: -24%	by 2030	below 2005

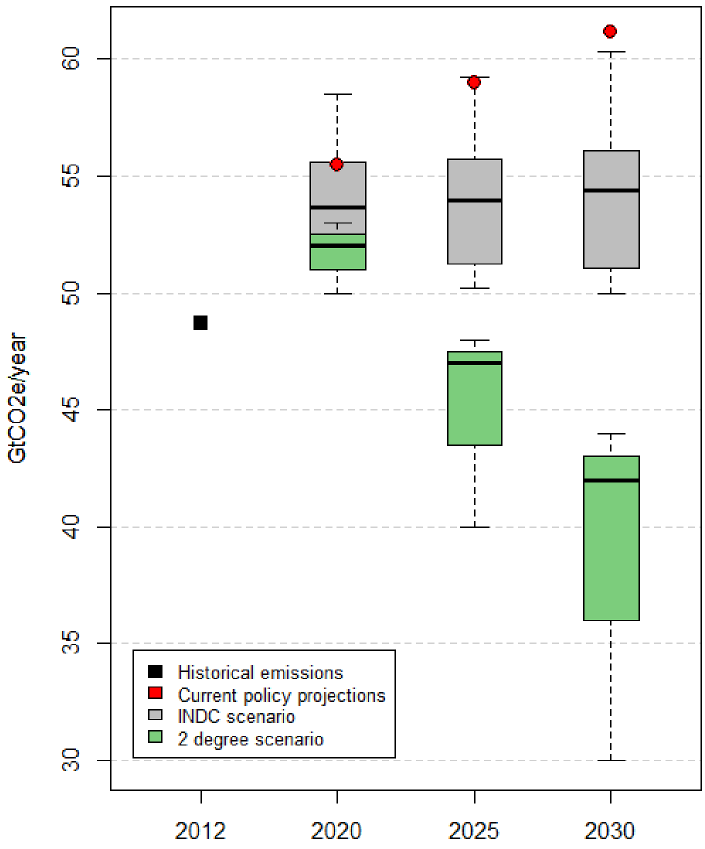
Haiti	-5% (conditional: -26%)	by 2030	below BAU
Ukraine	-40%	by 2030	below 1990
Lebanon	-15% (conditional: -30%)	by 2030	below BAU
Burundi	-3% (conditional: -20%)	by 2030	below BAU
Djibouti	-40% (conditional: -60%)	by 2030	below BAU
Benin	Conditional: -21.4%	by 2030	below BAU
Cote D'Ivoire	-28%	by 2030	below BAU
Guinea Bissau	Conditional actions only	2020 - 30	
Mauritania	Conditional: -22.3%	by 2030	below BAU
Viet Nam	-8% (conditional: -25%); -20% emissions intensity (conditional: 30%)	by 2030	below BAU below 2010
Barbados	-23% (-21% by 2025)	by 2030	below 2008
Grenada	-30% (-40% indicative by 2030)	by 2025	below 2010
Cabo Verde	30% electricity from RE (conditional: 100%)	by 2025	Non-GHG
Jordan	-1.5% (conditional: -14%)	by 2030	below BAU
Solomon Islands	-12% by 2025 & -30% by 2030 (conditional: -27% & -45%)	by 2030	below 2015
Turkmenistan	Conditional: peaking emissions	by 2030	Trajectory Target
Zimbabwe	Conditional: -33%	by 2030	below BAU
Costa Rica	Net emissions 9.374 Mt CO2-eq	by 2030	Fixed Level Target
Bhutan	Carbon neutral; gross CO2 emissions 6.3 Mt CO2-eq or lower	by 2030	Fixed Level Target
Cambodia	Conditional: -27%	by 2030	below BAU
Rwanda	Conditional actions only	by 2030	
Lesotho	-10% (conditional: -35%)	by 2030	below BAU
Tajikistan	-10% to -20% (conditional: -25% to -35%)	by 2030	below 1990
Liberia	Conditional: -10%	by 2030	below BAU
Gambia	Conditional actions only	2021 - 2025	
Papua New Guinea	Non-GHG Actions and Targets	by 2030	Non-GHG
Togo	-11.14% (conditional: -31.14%)	by 2030	below BAU
Turkey	Up to -21%	by 2030	below BAU
San Marino	-20%	by 2030	below 2005
Samoa	Renewable (non-GHG) target	by 2025	Non-GHG
Cameroon	Conditional: -32%	by 2035	below BAU
Philippines	Conditional: -70%	by 2030	below BAU
Lao PDR	Conditional forestry & RE actions, quantified emissions reductions	2015 - 2030	below BAU
Malawi	Conditional & unconditional actions	by 2030	
Thailand	-20% (conditional: -25%)	by 2030	below BAU
Guinea	Conditional: -57 Mt CO2-eq	2016 - 2030	below BAU
Honduras	Conditional: -15%	by 2030	below BAU
Sierra Leone	7.58 Mt CO2-eq maintained	by 2035	Fixed Level Target
Chad	-18.2% (conditional: -71%)	by 2030	below BAU
Botswana	-15%	by 2030	below 2010
Paraguay	-10% (conditional: -20%)	by 2030	below BAU

Algeria	-7% (conditional: -22%)	by 2030	below BAU
Belize	Conditional: -24 Mt CO2-eq	2014 - 2033	below BAU
India	Conditional: 33% to 35% emissions intensity reduction; 40% non-fossil fuel electricity; Increase carbon sink volume	by 2030	below 2005
Ecuador	-20.4% to -25% (conditional: -37.5% to -45.8%)	by 2025	below BAU
Mozambique	Conditional actions: -76.5 Mt CO2-eq	2020 - 2030	
Argentina	-15% (conditional: -30%)	by 2030	below BAU

Annex 2: Confidence intervals of global GHG emission estimates

In figure 4 the 95 pct. confidence interval of the INDC scenario (gray box) is compared to the UNEP 2˚C pathway (green box). The red dots are current policy projections and the black box is global GHG emissions in 2012.

Figure 4: Global GHG emissions in 2012, 2020, 2025 and 2030, under three scenarios. The box indicates the 1st and 3rd quartile of the underlying distribution, and the dotted whiskers the entire range.



Annex 3: Emissions projections of low and high ambition INDC scenarios

Figure 5 depicts the two variants of the INDC pathway from 2012 to 2030. The two variant of the INDC scenario are significantly different from one another, given that their 95 pct. confidence intervals do not overlap in this period.

Figure 5: Global GHG emissions 1990-2030 under 4 scenarios: Current policy projections, low ambition INDCs, high ambition INDCs and the 2˚C scenario.