

Paris Agreement in force, but no increase in climate action

Climate Action Tracker Update

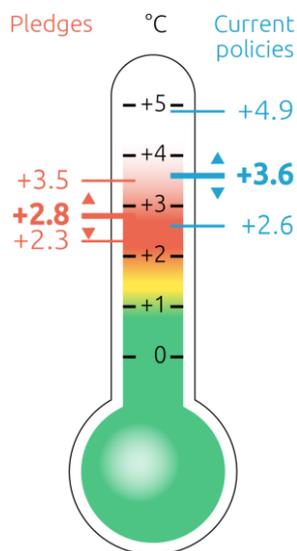
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November 2016



Summary

One year after the adoption of the Paris Agreement, national climate policies have made little progress, and the road ahead looks even less clear after the results of the US Presidential elections.

- Based on its latest assessment of climate pledges and policies, as of 1 November 2016, the Climate Action Tracker estimates that if governments were to fully implement their Nationally Determined Contributions (NDCs¹) **global warming in 2100 of 2.8°C above pre-industrial would result** (i.e. there is a likely chance of holding warming below 3.1°C). The small increase from 2.7°C (CAT, Paris update) to 2.8°C is largely due to changes in updated historical emissions and projections, not due to actual changes in the NDCs.
- A substantial gap remains between NDC emissions and the benchmark emissions pathway consistent with the Paris Agreement's long-term temperature goal. The CAT estimates the size of the gap at 14–17 GtCO₂e by 2025 and 21–24 GtCO₂e by 2030.
- The CAT has not detected sufficient positive movement in government policy over the last year that would have an effect on our estimates. As a consequence our COP21 Paris projections for **current policies remain the same at 3.6°C of warming by 2100**. If governments were to achieve their NDCs, warming would be reduced by around 0.5 to 1.1°C to the median estimate above of 2.8°C.
- In recent weeks, the CAT has updated 25 country assessments, totalling 69% of global emissions. The majority of the NDCs are still not in line with a fair contribution to meet the Paris Agreement's long-term temperature goal. Of the 31 government NDCs assessed by the CAT, we rate 14 as Inadequate, and 12 as Medium—against a 2°C benchmark. They are clearly even further away from the Paris Agreement's stronger 1.5°C limit. Only five are rated Sufficient.

¹ In the term NDC we also include, throughout this briefing, the "Intended" Nationally Determined Contributions of governments who have not yet ratified the Paris Agreement. We project the global effects beyond the NDC timeframes assuming policies of similar strength are implemented through to the end of the century.

- **If US President-elect Donald Trump were to put in motion the policies announced during his presidential campaign, his government could cost the US years of climate policy progress.** Our current assessment shows that plans like the Clean Power Plan and the Climate Action Plans are essential to put the US onto a pathway towards meeting their nationally determined contribution made under the Paris Agreement and in line with the world avoiding the worst impacts of climate change. President-elect Trump has announced he will not implement new federal climate policies; this would go in the opposite direction of where we need to go. Our assessment also shows that the USA's currently implemented policies are not sufficient, and that more needs to be done. Even if some States pursue further climate actions, impacts are likely going to be smaller than for federal policies.
- **The European Union's 2030 target**, rather than accelerating climate action, represents a slight slowdown at a time when the rate of action needs to be increasing—essentially at least tripling over this period—to meet the EU's own long-term 2050 emission reduction goals, as well as the Paris Agreement temperature goal.
- **China** is on track to peak its carbon dioxide emissions between 2025 and 2030, which is an important element of its NDC commitment under the Paris Agreement. However, the absence of comparable measures, or commitments, on other greenhouse gases from industry and agriculture means its total greenhouse gas emissions could continue to increase until at least 2030.
- **Developments in India** are amongst the most important underway globally. Given its state of development, India could have been expected to increase its coal-fired power use for decades. Instead, there appears to be a transition underway with an extremely rapid growth in renewable energy installations, which has begun to displace planned coal at a scale that has surprised many analysts.
- Aside from the increased uncertainty over US climate policy, the current laggards are:
 - **South Korea**, which has abandoned its 2020 target and is intending on building new coal;
 - **Russia**, the world's third largest emitter, which has one of the weakest climate plans submitted by any government, anywhere; and
 - **Saudi Arabia**, whose climate plans are highly uncertain, since it has not yet revealed the baseline corresponding to its INDC target.
- At the global level, 2016 was marked by two new agreements on emissions:
 - In Kigali last month, governments at the **Montreal Protocol meeting adopted the Kigali Amendment** that aims to phase out the 80–85% of HCF emissions by the 2040's. Including this might draw down temperatures by a limited amount from our current 2.8°C estimate of warming by 2100 in the NDC scenario. How much of the agreed reductions in HFCs are additional to the total greenhouse gas emission reduction in the NDCs is the subject of active analysis and the Climate Action Tracker aims to quantify this further and publish results in an upcoming update.
 - After years of negotiations, the **ICAO recently agreed** on GHG emissions standards for new aircrafts to be mandatory from 2028 and a market based measure phasing in a requirement over the period 2021 to 2035 for countries to offset the increase in international aviation emissions after 2020 (first voluntarily and later bindingly from 2027 onwards). Given the uncertainties in relation to where offset units will come from and their additionality, the structural relation with NDCs under the Paris Agreement, the fact that a large part of global emissions (e.g. emission levels in 2020) are in principle excluded as only growth after 2020 is covered, it is virtually impossible to quantify any global warming benefit of these measures at this stage.

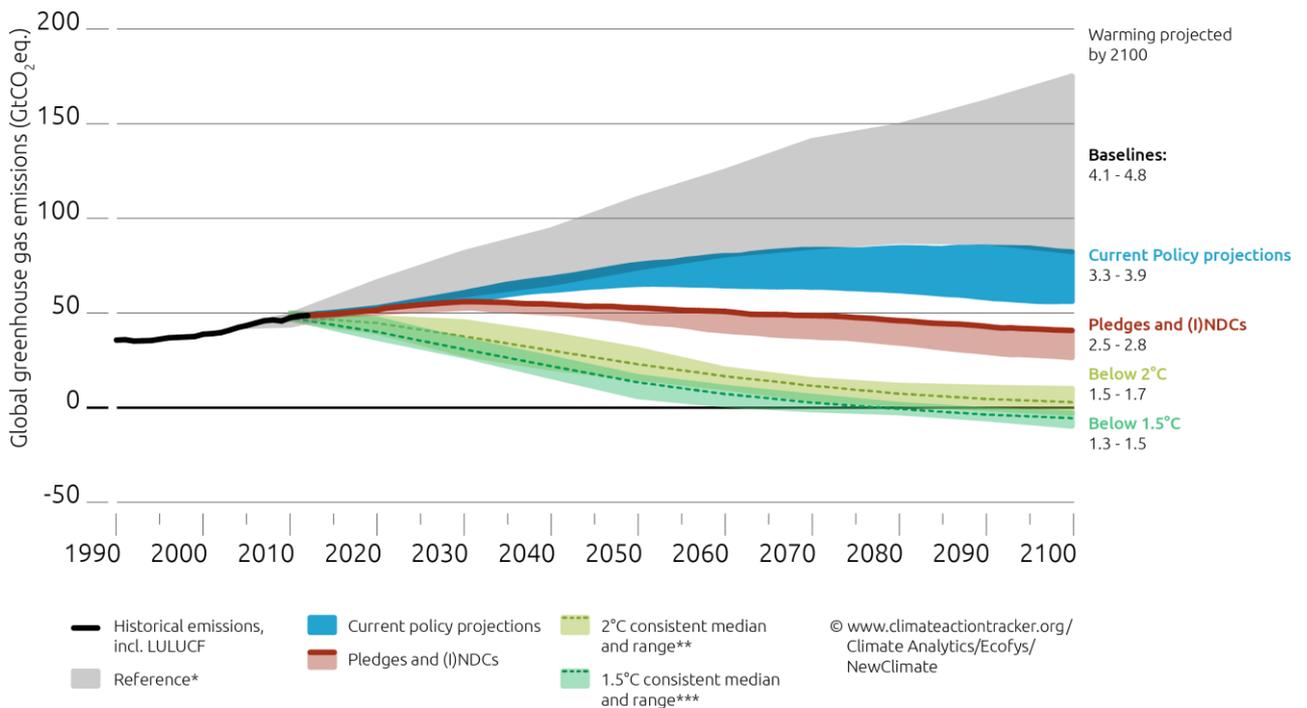
Evaluating progress towards the Paris Agreement long-term temperature goal

On 12 December 2015, the plenary halls at Le Bourget on the outskirts of Paris erupted in standing ovations, marking the adoption of the Paris Agreement by 195 governments. The Agreement opened for signature on 22 April 2016 at a high-level ceremony convened by UN Secretary-General Ban Ki-moon. 175 parties (174 countries and the European Union) signed the Paris Agreement that day, “the largest number of countries ever to sign an international agreement on a single day.”²

The remarkable success of the Paris Agreement continued when, less than a year after its adoption, the two thresholds needed to trigger the entry into force were met; on 4 November the Agreement officially entered into force. As of 8 November, the Agreement has been signed by 193 Parties and ratified by 103 (including 22 CAT countries), covering more than 73% of global emissions (see Annex I | Paris Agreement ratification status CAT countries for more details).

But how does current ambition stack up against the Paris Agreement’s long-term temperature goal to hold global average temperature increase to “well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels”? To meet the Paris temperature goal, emissions of greenhouse gases need to be rapidly reduced in the coming years and decades, and brought to zero shortly after mid-century, as specified in Article 4 of the Agreement.

The Climate Action Tracker (CAT) evaluates progress towards this global goal by quantifying the aggregate effects of current policies and the pledges and NDC’s put forward by governments, and compares these with the emissions levels consistent over time with both the Paris compatible 1.5°C limit and the earlier 2°C warming limit.



* 5%-95% percentile of AR5 WGIII scenarios in concentration category 7, containing 64% of the baseline scenarios assessed by the IPCC
 ** Greater than 66% chance of staying within 2°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.
 *** Greater than or equal to 50% chance of staying below 1.5°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.

Figure 1 Expected temperature rise from emissions projections based on NDC commitments and current policies

² <http://www.cop21.gouv.fr/en/a-record-over-160-countries-expected-to-sign-the-paris-agreement-in-new-york-on-22-april-2016/>

For this evaluation we updated our analysis of past and current emissions (one new reporting year), newly implemented policies, emissions under NDCs and under current policies for 25 countries. These detailed [country updates are available on our website](#). A summary of these country analyses is provided in the Annex III | Country assessment summaries.

Current emissions reductions targets put forward through NDCs assessed by the CAT, if fully implemented, are projected to lead to a global warming of around 2.8°C (a full range of 2.3-3.5°C, which means there is a likely chance of holding warming below 3.1°C³) by 2100.

This estimate is 0.1°C higher than our estimate 12 months ago primarily due to updates in historical emissions data and projections, not due to actual changes in NDCs. The temperature increase calculated from NDCs represents a 0.5 to 1.1°C improvement compared to current policies. However, pledges still fall substantially short of what is needed to achieve the Paris Agreement's long-term temperature limit.

Current climate policies are not in line with climate pledges; currently implemented policies translate into a warming of 3.6°C (3.3°C and 3.9°C, medians of low and high end of policy projections) by 2100. This indicates that the vast majority of governments have not yet implemented policies sufficient to meet their NDC and will need to develop and implement the necessary legislation and policies to do so. On the global, aggregated level we cannot detect a difference compared with last year, when we also estimated a warming of 3.6°C.

Emissions Gap in 2025 and 2030

In addition to the global temperature outcomes of policies and pledges, the CAT also assesses the expected absolute emissions in 2020, 2025, and 2030 and compares these with benchmark emissions consistent with benchmark pathways in line with the temperature goal in the Paris Agreement.

We base our assessment on the emissions scenarios currently available in the scientific literature, mindful of the assumptions and limitations underlying these studies. The scenarios limit warming below 1.5°C by 2100 with ≥50% probability, and below 2°C in the 21st century with about an 80% probability. We use these scenarios as indicative of the Paris Agreement's long-term temperature goal, but note these scenarios should not be seen as a definitive interpretation of the Paris Agreement.

A new and more diverse set of scenarios that limit warming to 1.5°C or below are now being developed by the scientific community and will become available in the open literature in the first half of 2017. The CAT will update its Paris Agreement benchmark scenarios in 2017 to reflect the most recent available scientific literature (more details at [CAT Rating System Update](#) (Climate Action Tracker)). The CAT also presents results in relation to a pathway consistent with limiting warming to 2°C with likely (≥66%) probability, for comparative purposes.

³ Uncertainty range based on the probability distribution generated by the carbon-cycle/climate model (MAGICC) when it takes into account uncertainties in our knowledge of climate sensitivity, the carbon cycle, and effects of greenhouse gases, aerosols, and other factors that are used to calculate the temperatures.

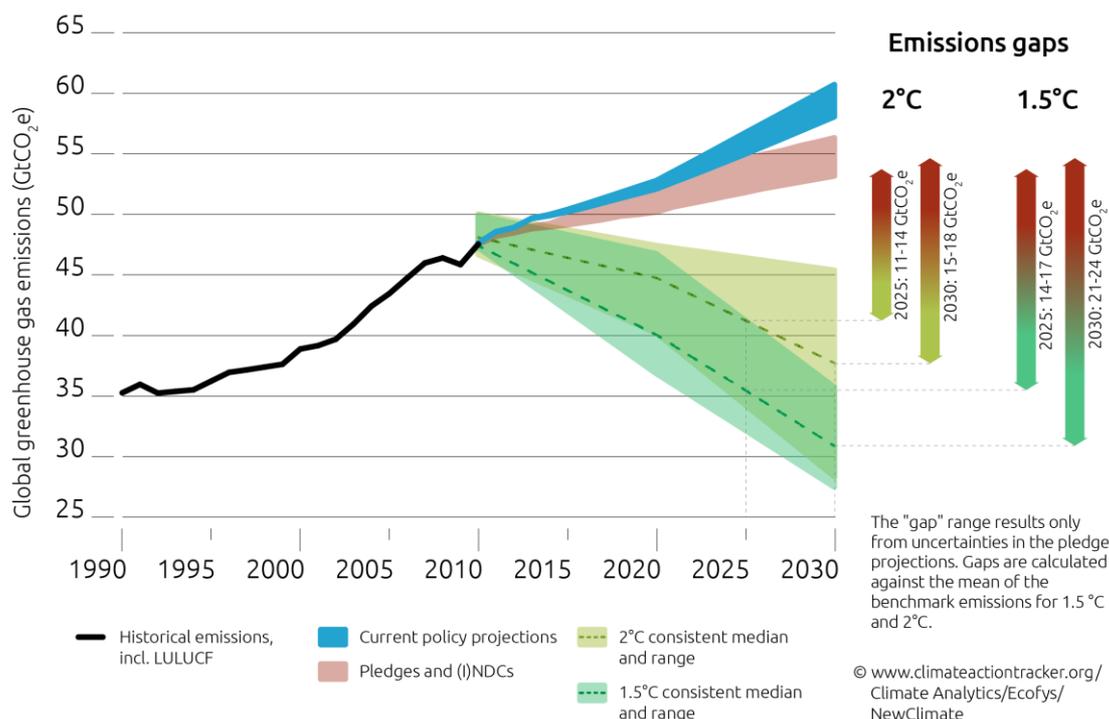


Figure 2 Emissions gap in 2025 and 2030 between pathways in line with 1.5°C and 2°C and emissions projections based on NDC commitments. The current policies emissions projection is also shown for comparison.

The benchmark emissions and the policy projections are given in Table 1. The benchmark emissions from a 1.5°C compatible pathway are 38 GtCO₂e in 2025 and 32 GtCO₂e in 2030. Comparing these with the emissions from the pledges submitted by 1 November 2016, which results in total global emissions of 52–55 GtCO₂e in 2025 and 53–56 GtCO₂e in 2030 the CAT calculates a gap 14–17 GtCO₂e in 2025 and 21–24 GtCO₂e in 2030.

The benchmark emissions from a 2°C compatible pathway are higher (41 GtCO₂e in 2025 and 38 GtCO₂e for 2030), and comparing these to the global emissions from the pledges quoted above, the gap ranges between 11–14 GtCO₂e for 2025 and 15–18 GtCO₂e in 2030.

Currently implemented policies are not strong enough to achieve the pledges governments have made under the Paris Agreement framework and are estimated to result in emissions (given in Table 1) that are 3–5 GtCO₂e higher than the pledge pathway emissions in the benchmark years. Therefore, the gaps between current policy projections and the 1.5°C and 2°C benchmarks are higher, namely 17–19 GtCO₂e in 2025 and 26–29 GtCO₂e in 2030 for a 1.5°C compatible pathway and 14–17 GtCO₂e in 2025 and 17–20 GtCO₂e in 2030 for a 2°C compatible pathway.

The UNEP Emission Gap Report 2016 provides emission benchmarks for pathways that limit end-of-century warming to 1.5°C and 2°C, with greater than 50% and 66% chance, respectively. Since its 2015 edition, the UNEP Emissions Gap Report is drawing these benchmarks from scenarios that start globally coordinated emissions reductions after 2020 only.

The Climate Action Tracker uses a different assumption for its 1.5°C scenario. This scenario starts globally coordinated mitigation action in 2010 and assumes that some mitigation before 2020 can still be achieved. Because of the difference in starting date of mitigation, the 2025 and 2030 benchmarks derived from these two different sets of scenarios also differ.

Because the Climate Action Tracker 1.5°C scenario still allows for emissions reductions by 2020, its emission benchmarks for 2025 and 2030 are lower than those reported in the UNEP Emissions Gap Report 2016, and its reported emissions gap numbers comparably larger. As time progresses, it will become clear which emissions reductions have been achieved by 2020, and the emissions benchmarks, as well as the 2025 and 2030 emissions gap numbers, can be updated subsequently.

Table 1: Current policy projections and pledges (incl. NDCs) compared with global emission benchmark ranges consistent with limiting warming to 1.5 and 2°C above pre-industrial. The details of the calculation of the benchmark emissions are given on the [Climate Analytics website, Benchmark Report Table 2 and Table 3.](#)

<i>Emissions in Policy Case (GtCO_{2e})</i>	2025	2030
Pledges including NDCs⁴	52–55	53–56
Below 1.5°C by 2100 compatible pathway⁵	38 (35–40) ⁶	32 (29–36) ⁶
Emission gap for 1.5°C compatible pathway⁷	14–17	21–24
Below 2°C compatible pathway⁸	39–43 ⁹ (37–45) ¹⁰	36–40 ⁹ (32–44) ¹⁰
Emission gap for 2°C compatible pathway	11–14	15–18
Current Policy Projections¹¹	55–57	58–61

Progress compared to last temperature update

- With the update of the historical data (including the release of new reported data by Annex I Parties' CRF2016) and projected emissions data, the emissions consequences of pledges changed considerably for certain countries, namely: the USA and Russia. For instance, Russia's emissions are now estimated to have been about 400 MtCO_{2e} (12%) higher in its base year 1990 than was previously provided.
- Updated projections of the LULUCF sector emissions for some countries changed our calculation of projected emissions and pledges for these countries. For instance, with the current projections, the USA's and Indonesia's emissions target increased by 5% and 12% in 2030, respectively, while Brazil's target decreased by 12% by 2030, in comparison to last year's estimates.
- Last year, we considered China's 2020 pledge emissions levels as provided in its National Communication dated from November 2012. However, emissions levels in line with currently implemented policies are much lower, which indicates that emissions will not grow that steeply. We have therefore adjusted their 2020 pledge to match the current policy projections, which means a decrease of 750Mt in 2020.
- **Overall, taking into account the new pledges and updates, the estimated global emission level in 2030 under NDCs increased by 1–2 GtCO_{2e} and the cumulative emissions globally by 2100 under the NDCs increased by 350 GtCO_{2e} (8%) compared to last year, mainly due to the large regional increase in Asia and the Middle East.**

⁴ Includes INDCs submitted by 06 November 2016

⁵ 2020 "Pledge Gap" closed - least cost-action from 2010 that leads to 1.5°C compatible emissions in 2020 - limits warming below 2°C in the 21st century and has at least a 50% chance of returning warming to below 1.5°C by 2100. Assumes negative emissions technology is available.

⁶ 20th to 80th percentile range of scenarios. As higher emissions in the near term have to be compensated by deeper reductions later, following 80th percentile benchmarks over the near term would need to be followed by 20th percentile benchmarks in the second half of the century.

⁷ 2020 "Pledge Gap" closed - least cost-action from 2010 that leads to 1.5°C compatible emissions in 2020 - limits warming below 2°C in the 21st century and has at least a 50% chance of returning warming to below 1.5°C by 2100. Assumes negative emissions technology is available.

⁸ 2020 "Pledge Gap" closed - least cost-action from 2010 that leads to 2°C compatible emissions in 2020.

⁹ Low end represents median of scenarios that assume negative emission technology is not available in the 21st century and high end represents median of scenarios that assume it is.

¹⁰ 20th to 80th percentile range of scenarios. Low end represents low end of scenarios that assume negative emission technology is not available in the 21st century and high end represents high end of scenarios that assume it is.

¹¹ Range results from different projection scenarios, uncertainties in policy effectiveness, and assumptions regarding the completeness of policy implementation in the underlying country analyses.

2016 Agreements on global emissions

At the 28th Meeting of Parties to the Montreal Protocol on 15 October 2016 in Kigali, Rwanda, the Kigali Amendment was adopted.

The Amendment aims to phase out the 80-85% of HFC emissions by the late 2040's. HFCs are used in industrial processes and cooling appliances, brought in to replace ozone-depleting substances, but have a very strong global warming effect per unit of emissions. Developed countries have accepted the earliest phase-out timeline, followed by China, India and the rest of the world.

The current temperature projections of the Climate Action Tracker already assume a very limited growth of HFCs throughout the century, but not the 80-85% reductions by the late 2040s adopted in the Kigali Amendment. Including this might draw down temperatures by a limited amount from the current 2.8°C estimate of warming by 2100 in the NDC scenario. The question remains around how much of the agreed reductions in HFCs are additional to the total greenhouse-gas emission reduction in the NDCs. The Climate Action Tracker aims to quantify this further and will publish the results.

On the international aviation emissions front, after years of negotiations, members of the ICAO recently agreed on a proposal for the first-ever GHG emissions standard for new aircrafts to be mandatory from 2028 (ICCT, 2016), and an even more recent proposal of a market based measure requiring countries to offset most of their international emissions increase after 2020 (first voluntarily and later bindingly from 2027 onwards). In principle, airlines could be required to acquire offsetting emissions units from authorised sources to compensate for the growth of emissions after 2020. The Environmental Defense Fund has estimated that about 65% of the emissions growth above 2020 levels would be covered in the first phase, nearly 80% in Phase 2 (2027–2035) (Petsonk, 2016).

It is, however, important to note the word “increase”: the offsetting is thus not foreseen for current emissions (Tollefson, 2016). It is only the increase in emissions above levels reached by 2020 which should be compensated by offsets: at present, emissions are growing at 5.3% per annum. Questions remain about the accounting of the offsetting and have sparked controversy und uncertainty (Fern, 2016). Overall, these recent developments under ICAO are seen by many as a necessary but highly insufficient step to align the sector with the Paris Agreement long-term temperature limit.

Given the uncertainties in relation to where offset units will come from and their additionality and relation to NDCs, the fact that a large part of global emissions (emission levels applying in 2020) are in principle not covered and that only growth after 2020 is covered it is virtually impossible to quantify the global warming benefit of these measures at this stage. A first order estimate is that the measures adopted appear unlikely to significantly reduce presently projected cumulative GHG emissions, and hence decrease global warming, under either current policies or NDCs.

Summary of Climate Action Tracker Update 2016

Most of the NDCs are not in line with a fair contribution to meeting the Paris Agreement long-term temperature goal.

The CAT rating system assesses the adequacy of emissions reductions targets against a 2°C benchmark. To evaluate the compatibility of targets with the stronger Paris Agreement long-term temperature limit, a methodological update of the [CAT rating system](#) is under way and will be online early 2017. Under the current rating system, the NDCs of 31 countries (covering 80% of current global emissions) were assessed, with the following results:

- Fourteen (14) of the assessed NDCs are rated as inadequate, meaning that they are not in line with holding warming below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.
- Twelve (12) of the assessed NDCs are rated as medium, which is within the upper, least ambitious end of what could be considered as fair: if all countries put forward a similar level of ambition, warming would exceed 2°C. Of the 12 countries rated “medium”, 3 countries are at the border to being rated insufficient: The European Union, China and

the USA. At least these three are likely to be rated inadequate for the stronger limit of 1.5°C.

- Only five (5) of the assessed NDCs are rated as sufficient against the 2°C benchmark. Four of the five are just at the border to medium and risk moving to medium under a 1.5°C scenario. These countries are Bhutan, Costa Rica, Morocco and The Gambia.

In 2016, the CAT updated the assessment for 25 countries. See Annex III for a summary overview of the findings.

Annex I | Paris Agreement ratification status CAT countries

Table 2 The list of CAT countries that ratified the Paris agreement is taken from the [United Nations Treaty Collection page](#).

Country	INDC Submission date	PA ratification date	% global emissions ¹²	% global population
Argentina	1-Oct-15	21-Sep-16	0.64%	0.59%
Australia	11-Aug-15		1.21%	0.33%
Brazil	28-Sep-15	21-Sep-16	2.13%	2.84%
Canada	15-May-15	5-Oct-16	1.53%	0.50%
Chile	29-Sep-15		0.22%	0.25%
China	30-Jun-15	3-Sep-16	24.03%	19.76%
Ethiopia	10-Jun-15		0.20%	1.27%
European Union¹³	6-Mar-15	5-Oct-16	10.78%	7.35%
Gabon	1-Apr-15	2-Nov-16	0.01%	0.02%
Gambia	28-Sep-15	7-Nov-16	0.00%	0.02%
India	1-Oct-15	2-Oct-16	6.38%	17.52%
Indonesia	24-Sep-15	31-Oct-16	1.60%	3.50%
Japan	17-Jul-15	7-Nov-16	2.88%	1.85%
Kazakhstan	28-Sep-15		0.63%	0.23%
Korea; Republic of	30-Jun-15	3-Nov-16	1.42%	0.70%
Mexico	30-Mar-15	21-Sep-16	1.42%	1.71%
Morocco	5-Jun-15	21-Sep-16	0.15%	0.46%
New zealand	12-Jul-15	4-Oct-16	0.17%	0.06%
Norway	27-Mar-15	20-Jun-16	0.11%	0.07%
Peru	28-Sep-15	25-Jul-16	0.18%	0.43%
Philippines	1-Oct-15		0.34%	1.36%
Russian Federation	1-Apr-15		4.89%	2.09%
Saudi Arabia	10-Nov-15	3-Nov-16	1.26%	0.40%
Singapore	3-Jul-15	21-Sep-16	0.06%	0.07%
South Africa	25-Sep-15	1-Nov-16	1.24%	0.75%
Switzerland	27-Feb-15		0.12%	0.11%
Turkey	30-Sep-15		0.89%	1.05%
Ukraine	30-Sep-15	19-Sep-16	0.82%	0.67%
United Arab Emirates	22-Oct-15	21-Sep-16	0.44%	0.12%
United States of America	31-Mar-15	3-Sep-16	15.54%	4.54%

¹² These are not equivalent to the emissions percentages used for Article 21 of the Paris Agreement. For that purpose the UNFCCC published a table containing information on the most up-to-date total and percentage of greenhouse gas emissions communicated by Parties to the Convention in their national communications, greenhouse gas inventory reports, biennial reports or biennial update reports, as of 12 December 2015. In contrast, for CAT we use CRF data to ensure base year consistency.

¹³ Countries of the European Union that have ratified the Agreement: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden.

Annex II | Our approach to projecting temperature changes from emissions pledges and policies

The CAT's approach aims to define a long-term current policy pathway that represents an equal relative level of effort continuing throughout the century. To quantify the level of effort, the CAT compares the 2020–2030 emissions reduction effort to the AR5 emissions scenario database. A long-term emissions pathway that is consistent with the same level of effort is then constructed from the same AR5 emissions scenario database (the details can be found at the [Global Pathways page](#) of the Climate Action Tracker website).

We estimate what the warming would be by 2100, if the mitigation action through to 2030 were matched by an equal level of effort throughout the rest of this century. In our “pledges and NDCs pathway” we take into account any formal and informal pledges from countries for the post-2030 period. These include 2050 targets for big emitters like the EU, USA, Russia, Japan, and Canada.

The CAT estimates ‘median’ warming temperatures in 2100 with a 50% chance that the calculated temperature would be exceeded if the given emissions pathway were followed. The ‘median’ temperature estimate is based on the probability distribution generated by the climate model (MAGICC), which combines the pathways of 600 climate models and takes into account uncertainties in our knowledge of climate sensitivity, the carbon cycle, and effect of greenhouse gases, aerosols, and other factors that are used to calculate the temperatures.

Lower and higher temperature estimates, provided in parenthesis next to the median estimate, result from two different pledge scenarios including and excluding the conditional pledges, respectively. For example, our emissions pathway in the pledge scenario gives a 50% chance of a 2.8°C increase in 2100. However, a best case scenario, taking into account the conditional pledges could result in an expected warming of 2.5°C.

Annex III | Country assessment summaries

Argentina | Inadequate



On December 2015, Argentina's new President Mauricio Macri was sworn into office, and gave encouraging signs that the new administration considers climate change a top priority for his country. Argentina recently adopted policies like the 'Biofuels Law' and the new 'Renewable Energy Law,' and ratified the Paris Agreement in September 2016 – all very positive signs. Nevertheless, more action will be needed as, under current policies, emissions from all sectors (excluding LULUCF) are projected to grow significantly by over 50% above 2010 levels by 2030. While current policies now meet the unconditional INDC, both the unconditional and conditional INDC targets submitted by the former government in 2015 remain—and are rated by the CAT - 'Inadequate'. A revised version of Argentina's NDC is expected under the President Macri's new government, and it will need to be significantly more ambitious to fairly reflect Argentina's capabilities.

Australia | Inadequate



Under present policy settings, Australia's emissions are set to substantially increase to more than 21% above 2005 levels by 2030, equivalent to an increase of around 52% above 1990 levels. The latest economic and greenhouse gas emissions data analysed by the Climate Action Tracker (CAT) confirms earlier assessments by the CAT and many other analysts that Australia's current policies will fall well short of meeting its proposed Paris Agreement target of an emissions reduction of (including LULUCF) 26–28% below 2005 levels by 2030. The Emissions Reduction Fund (ERF)—the so-called "centrepiece" of the Australian Government's policy suite to reduce emissions—does not set Australia on a path that would meet its targets. Without accelerating climate action and additional policies, Australia will miss its 2030 target by a large margin, a conclusion supported by other analysts

Of particular concern is the reversal of a declining trend in CO₂ emissions from coal-fired power stations following the removal of the carbon pricing system, with its nascent transition towards an emissions trading scheme, and related legislation, in the middle of 2014. As a consequence, emissions from electricity production, which had been covered by the scheme, are rising again while the Federal Government continues to create political uncertainty on the future of renewable energy. The Federal Government has questioned the efficacy of renewable energy and called for one state (South Australia) that had recently closed its last coal-fired power station to reopen it. To meet its inadequate 2030 emissions targets, Australian emissions need to decrease by an average annual rate of 1.9% per cent until 2030; instead, with current policies, they are set to increase by an average rate of around 1.2% a year, dramatically illustrating the dichotomy between climate rhetoric and climate action.

Brazil | Medium



Brazil, as home of the largest part of the Amazon rainforest, and one of the world's ten largest emitters, has huge importance for the global climate situation. Yet according to our analysis, Brazil's emissions reduction targets are at the least ambitious end of a fair contribution to global mitigation, and are not consistent with meeting the Paris Agreement's long-term temperature goal unless other countries make much deeper reductions and comparably greater effort. With currently implemented measures, Brazil is set to meet its 2025 target, but would need to make more effort to reach the target emissions levels for 2030. Our analysis shows that due to increasing energy demand and an implementation lag that affects climate policy in Brazil, emissions in most sectors are expected to continue rising until at least 2030.

Canada | Inadequate



NDC is rated "inadequate." Under its current policies, Canada will miss both its 2020 pledge and its 2030 NDC targets by a wide margin. Taking into account policies implemented before September 2015, we estimate that Canada's GHG emissions (excluding LULUCF) to increase 23–30% above 1990 levels by 2020. By 2030, emissions are projected to increase by 26–44% above 1990 levels (an increase from 2005 levels by 1–7% and

3–18% in 2020 and 2030 respectively). In October 2016, the new Canadian Government announced a national mandatory carbon-pricing plan that, if enacted, would represent a major step towards policies that could change this adverse outlook. However, more details are required to be able to quantify the impact of the carbon-pricing plan on meeting the NDC goals.

Chile | Inadequate



Chile's Intended Nationally Determined Contribution (INDC), including both conditional and unconditional intensity-based emissions reduction targets, is rated as "inadequate" by the CAT. Our analysis shows that Chile's proposed targets are far from an emissions pathway consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. A fair and equitable emissions pathway would require Chile's emissions to stabilise and decrease over time. However, under both INDC targets, Chile's emissions will continue to increase by 38-75% by 2030, compared to 2010 levels. While Chile's current policies are likely to limit emissions to its unconditional INDC target, an increasing number of ambitious policy interventions will be needed to limit emissions to its conditional INDC target.

China | Medium with an inadequate carbon intensity target

The most recent data show reductions in coal use in China for the third year in a row.



China is on track to peak its carbon dioxide emissions between 2025 and 2030, which is an important element of its NDC commitment under the Paris Agreement. However, the absence of comparable measures, or commitments, on other greenhouse gases means that total greenhouse gas emissions could continue to increase until at least 2030. Although China's policies and actions appear set to achieve the CO₂ goal in its Nationally Determined Contribution (NDC), as well as its national targets, the NDC itself is not yet ambitious enough to limit warming to below 2°C let alone the 1.5° limit in the Paris Agreement, unless other countries make much deeper reductions and comparably greater effort than China.

Ethiopia | Sufficient



Intended National Determined Contribution (INDC) is one of the few the Climate Action Tracker rates as "sufficient." While Ethiopia hasn't yet ratified the Paris Agreement, its resulting NDC, if it fully reflects the INDC, would lead to a reduction of at least 64% below the Ethiopian business-as-usual (BAU) scenario by 2030, where emissions including LULUCF are projected to reach 400 MtCO₂e. The corresponding GHG emissions reduction target for 2030, excluding LULUCF, is 40% below BAU, or 185 MtCO₂e, which is the emissions level used to rate the emissions reduction target. Full implementation of the INDC implementation is conditional on finance, technology transfer and capacity building support under the framework of Ethiopia's Climate Resilient Green Economy Strategy (CRGE) strategy, which is integrated in its national development plan GTP II (Second Growth and Transformation Plan).

EU | Medium



The overall 40% reduction in GHG emissions by 2030 from 1990 levels proposed in the EU's NDC is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. Currently implemented policies are projected to reduce the EU's domestic emissions by between 34–40% below 1990 levels and thus put the EU on a trajectory close to meeting its 2030 target. Indeed, the European Union's 2030 target represents a slight slowdown in the rate of climate action compared to the preceding quarter-century at exactly the time when there needs to be an acceleration - to at least three times the historical rate of reduction - if decarbonisation by mid-century is to be achieved. However, the failure to increase the effectiveness of the EU Emissions Trading Scheme (EU ETS), and the slowdown in the development of renewable sources of energy, threaten the achievement of the 2030 target. In addition, there are increasing concerns over the accounting of land-use, land-use change and forestry activities which could be used to limit action on reducing emissions from the consumption of fossil fuels and other industrial greenhouse gas emissions, in a similar way in which Australia and New Zealand have essentially avoided substantial action.

India | Medium



The rapid growth in renewable energy in India, combined with sustained reductions in coal imports and increasing challenges to the viability of new coal-fired power plant construction—with ultra-mega coal projects cancelled—gives an indication of the transformation that is beginning in India's energy supply sector. With every sign that China is now beginning to reduce its coal and carbon dioxide emissions, developments in India are amongst the most important underway globally. Given its state of development, India could have been expected to increase its coal-fired power use for decades. However, there appears to be a transition underway with an extremely rapid growth in renewable energy installations, which has begun to displace planned coal at a scale that has surprised many analysts. India's Nationally Determined Contribution (NDC) under the Paris Agreement (PA) does not yet reflect these developments. With the currently targeted 175 GW of renewable power capacity to be reached by 2022, India is already set to overachieve its emissions intensity target. The likely continued expansion of renewables after 2022, for which no targets have yet been set, would result in India also overshooting its 2030 non-fossil capacity target. Thus India's Paris Agreement NDC commitment is weaker than actions resulting from current policies. Neither the NDC nor current policies are ambitious enough to limit warming to below 2°C, let alone the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.

Indonesia | Medium



Indonesia's emissions from both deforestation and coal are set to increase rapidly over the period to 2030. In contrast, to be consistent with the Paris Agreement temperature goal the emissions should be stabilising, if not beginning to decline, by that time. On deforestation, Indonesia is the only main deforesting country where a strong increase in deforestation emissions can be expected in the period to 2030. Present trends indicate that a loss of 25% of the current forest area by 2030 can be expected under present policy settings. There is an apparent double standard in relation to climate policy where, on the one hand, renewables are being pushed to play a stronger role in the energy mix, but on the other hand a large and growing role for coal is being locked in, leading to continually rising emissions. The National Energy Plan, for example, requires 30% of total primary energy to come from coal by 2030, an unnecessary constraint on developing a low carbon economy. Ongoing and planned construction of new coal-fired power plants to meet rapidly increasing electricity demand appears likely to bind the country to this carbon-intensive technology for many decades. Under present policy settings, we project a 70% increase in emissions above 2010 level by 2030 from energy and industry sectors. We rate Indonesia's INDC as "medium" as it is at the least ambitious end of what would be a fair contribution, and is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.

Japan | Inadequate



We rate Japan's INDC target of 26% below 2013 emission levels (18% below 1990 levels) by 2030 as "inadequate": if all countries were to adopt this level of ambition, global warming would likely exceed 3–4°C in the 21st century. This is in stark contrast to Japan's claim that its INDC is in line with a 2°C pathway. Our assessment also concludes that Japan is very unlikely to reach its inadequate INDC target with the policies it already has in place, only achieving a 4–11% reduction from 1990 levels excluding LULUCF. Japan's proposed Kyoto Protocol-like accounting of sinks (land use change and forestry) reduces its effective emissions reduction target by about 3% compared to 1990 levels.

Kazakhstan | Medium



Kazakhstan is a country heavily invested in fossil fuels: around 20% of Kazakhstan's GDP is dependent on oil revenues (World Bank, 2016), around 60% of exports are oil products, and almost all electricity is generated from fossil fuels. While Kazakhstan recognises the need to transition into a greener future, currently implemented policies are not yet sufficient to meet its targets and would lead to emissions of 331 MtCO₂e by 2020 (a 12% reduction below 1990 levels) and 424 MtCO₂e by 2030 (a 13% increase above 1990 levels).

Mexico | Medium



We rate Mexico “medium”. Mexico has pledged to reduce its GHG emissions by 22% below baseline in 2030, equivalent to an increase of emissions by 56% above 1990 levels. The NDC also includes targets on black carbon and targets that are conditional on elements of international cooperation and support. Mexico’s targets are not consistent with limiting warming to below 2°C, let alone with the Paris Agreement’s stronger 1.5°C limit. However, there are a number of recent policy developments which are first steps in the right direction to start bringing emissions in line with these targets.

Morocco | Sufficient



While Morocco’s unconditional NDC begins to slow the growth of emissions, Morocco conditionally proposes to go much further, namely to stop its emissions growth and implement an ambitious target of 42% renewable electricity generation by 2020, and of 52% by 2030. We rate Morocco’s NDC as ‘sufficient,’ as it is doing its “fair share” of global efforts to hold warming below 2°C.

Nepal | Not rated



Nepal’s Nationally Determined Contribution (NDC), submitted in October 2016, is more ambitious than its Intended Nationally Determined Contribution (INDC) submitted earlier this year. While the INDC contained a list of ten targets, Nepal has added four more targets to its NDC. These targets include plans to increase renewable energy production which shows Nepal’s intent to move to a low carbon development pathway. The NDC does not include any overall greenhouse gas (GHG) emission reduction targets. We could not quantify the overall impact of Nepal’s targets on GHG emissions and therefore we could not rate the NDC. That said, the NDC contains ambitious targets, expected to result in emissions reductions compared to the current policy projections, which lie in the “sufficient” range.

New Zealand | Inadequate



Emissions from all sectors (except transport) are projected to continue growing at least until 2030. Implemented policies have an impact of less than 10% in emissions reductions compared to the ‘without measures’ national scenario, with expected emissions levels being far from New Zealand’s emissions targets for both 2020 and 2030. The NZ Emissions Trading System has not significantly influenced domestic emissions or business decisions. However, the government intends to make use of its “creative accounting” rules for the forestry sector, which if applicable, would result in it artificially achieving its 2020 reduction targets without any improvement in mitigation policies or real reductions in emissions.

Norway | Medium



In June 2016 the Norwegian government approved the goal of achieving climate neutrality by 2030 through “the EU emissions trading market, international cooperation on emissions reductions, emissions trading and project-based cooperation” (“Komiteens tilråding,” 2016). Even though this goal is to be achieved through a mix of efforts domestically and abroad, Climate and Energy Minister Vidar Helgesen recognised that Norway “must be prepared to take the majority of cuts at home” (Ministry of Climate and Environment, 2016). Currently implemented policies are projected in an increase in emissions by 2% in 2030 in comparison to the 1990 levels.

Philippines | Medium



The Philippines’ emissions pathway towards 2030, as proposed in its Intended Nationally Determined Contribution (INDC), could be rated “sufficient,” however the high uncertainty in its envisioned emissions pathway leads to a “medium” rating. The Philippines’ reference – or business as usual (BAU) - scenario, against which the target is measured, has not yet been published and the government has shared no details explaining how the NDC target relates to the LULUCF sector, nor how this will be quantified. Recent statements from the President of the Philippines regarding his country’s position on the Paris Agreement (King, 2016b), as well as previous announcements on increasing coal-fired power capacity, add

significantly to the uncertainty as to whether the government intends to take substantial action in adopting the policy changes required to meet its INDC target. This lack of details on how the target will be achieved and the role that the LULUCF sector will play in it, leaves the option open for achieving the target by increasing carbon sinks (LULUCF) which is not compatible with what is needed -or fair- to keep global warming below 2°C. Current policies indicate a rapid and ongoing increase in greenhouse gas emissions, which appear inconsistent with meeting the INDC goals.

Russia | Inadequate



Russia's INDC greenhouse gas emission reduction target lies significantly above emissions that would result from current policies. This target is one of the weakest put forward by any government, anywhere. Russia's emissions targets are, according to our analysis, "inadequate" under all interpretations of a "fair" approach to hold below the Paris Agreement's temperature limit and Russia would need to substantially strengthen them to be considered "sufficient." The Russian Federation is the world's third largest emitter, and one of the most important fossil fuel producers. As a consequence, Russia has large mitigation potential, and should play a major role in international climate policy.

Saudi Arabia | Inadequate



Saudi Arabia's envisioned emissions pathway towards 2030 is highly unclear, since it has not yet revealed the baseline corresponding to its Intended Nationally Determined Contribution (INDC) target. According to its INDC Saudi Arabia seeks to reduce its annual emissions by up to 130 MtCO_{2e} in 2030 through measures that have co-benefits in pursuing economic diversification from oil, while contributing to greenhouse gas abatement and adaptation to climate change. Achievement of this goal is not conditional on international financial support, but is contingent on the continuation of economic growth, and "a robust contribution from oil export revenues to the national economy." Saudi Arabia may choose to adjust its INDC between 2016 and 2020 if the Paris agreement creates an "abnormal burden" on its economy. Saudi Arabia chose not to sign the Paris Agreement, instead intending to join the Agreement in a "timely manner" (WRI, 2016).

Singapore | Inadequate



Singapore's NDC emissions target is very weak compared to currently implemented policies, which, according to our analysis, will lead to emissions in 2030 of 60 MtCO_{2e}—a 123% increase above 1994 levels. Yet, even without any additional policies Singapore will overachieve its NDC target of a 36% reduction of emissions intensity below 2005 levels by 2030, reaching a more than 40% reduction this year. We rate Singapore's 2030 Nationally Determined Contribution (NDC) target as "inadequate" under all interpretations of a "fair" approach in line with holding warming below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. Singapore's mitigation target for 2030 should be substantially strengthened to reflect the country high economic capability in order to be rated as "sufficient."

South Korea | Inadequate



In 2016, South Korea's revised Green Growth Act replaced its previous 2020 Copenhagen pledge with its 2030 Intended Nationally Determined Contribution (INDC) target. Given that its 2020 pledge was more ambitious—aiming for a similar emissions level ten years earlier—the INDC actually represents a weakening of South Korea's climate plans. However, under current policies, South Korea is unlikely to meet its INDC target, which the CAT rates "inadequate." We project that the growth rate of South Korea's emissions will slow from 4% per year in the period 1990–2012 to 0.3–0.4% in the period 2012–2030. However, to reach the INDC target, emissions need to peak and start declining. To achieve this, more stringent policies are required.

Switzerland | Medium



Switzerland is conducting a consultation phase (Vernehmlassung) until the end of November 2016 around its ratification of the Paris Agreement, the revision of the CO₂ law and its proposal to connect the emissions trading system with that of the European Union (Bundesrat, 2016). The proposal reflects the INDC target and suggests that, in 2030, national emissions

should be at least 30% below 1990 levels; a maximum of 20% of the abatement task could be reached through the use of flexible mechanisms under the Kyoto Protocol (e.g. Certified Emission Reductions and Emission Reduction Units). We rate Switzerland's INDC "medium," meaning that Switzerland's climate plans are at the least ambitious end of what would be a fair contribution. This means it is not consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit, unless other countries make much deeper reductions and comparably greater effort.

Ukraine | Inadequate



Ukraine's Nationally Determined Contribution (NDC) includes a target of reducing GHG emissions, including land use, land use change and forestry (LULUCF) by at least 40% below 1990 levels by 2030 (equivalent to 40% below 1990 levels excl. LULUCF). Ukraine has not yet defined which LULUCF accounting method it will adopt. Its NDC states that an approach to including LULUCF in its climate change mitigation structure "will be defined as soon as technical opportunities emerge, but no later than 2020." Clarity on which accounting method it plans to adopt would be in the interests of transparency.

USA | Medium



The United States needs to fully implement the Clean Power Plan and the Climate Action Plan if it is to meet the top end of its 2025 NDC emissions reduction commitment of 26-28% below 2005 levels including LULUCF (19-24% below 2005 excluding LULUCF, which translates to 6-12% below 1990 excluding LULUCF). Current policies in the US would only reduce emissions by 6% by 2025 below 2005 levels (5% above 1990 levels). The NDC commitment itself is not yet consistent with limiting warming to below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. The recent upward revision of net forest sink projections negatively affects the stringency of the NDC on energy and industry-related emissions, reducing the emissions reductions required to meet the target by 4-5 %-points. It is very important that the US Administration secures full implementation of the Clean Power Plan and fully implements its Climate Action Plan policies to reach its proposed targets, which fall short of what is required.

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The Climate Action Tracker is an independent science-based assessment that tracks the emission commitments and actions of countries. It is a joint project of the following organisations:

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