

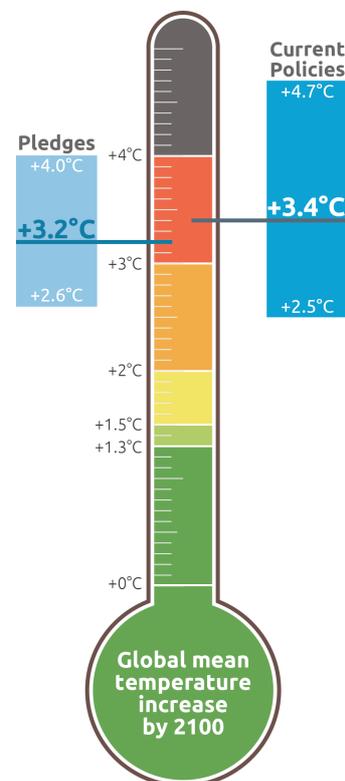
## Improvement in warming outlook as India and China move ahead, but Paris Agreement gap still looms large

November 2017

### Summary

The Climate Action Tracker has updated its estimates of global progress towards the Paris Agreement goals, with some positive and negative findings:

- Significant improvement on climate action globally, despite US rollbacks**
  - 0.2°C improvement in climate action since 2016, reducing projected warming by 2100 to 3.4°C.** For the first time since the Climate Action Tracker (CAT) began in 2009, the CAT has identified a significant improvement in implementing climate policy action over the past year, most significantly in China and India.
  - Current policies are projected to reduce emissions by 1.7 GtCO<sub>2</sub>e in 2030 compared to estimates in 2016. The size of the gap between current policy pathways and the Paris Agreement-compatible benchmark is estimated to be 24–27 GtCO<sub>2</sub>e in 2030.
  - Factoring in planned, but not yet implemented, policies and a continuation of recent developments, projected emissions would be even 4.1 GtCO<sub>2</sub>e lower in 2030 compared to last year, leading to a warming estimate of 3.1°C.
- CO<sub>2</sub> emissions have flattened in the last few years, but it is too soon to call a peaking of global GHG emissions, which needs to happen by around 2020 to meet the Paris Agreement's warming limits.**
  - Although some large emitters, including China, the EU and India have either reduced—or slowed—their GHG emissions growth rate, currently implemented policies are expected to result in a further growth of global GHG emissions by about 9–13% between 2020–2030.
- Due substantially to President Trump's announced intention to withdraw from the Paris Agreement, there has been a significant deterioration in the effect of Paris Agreement commitments (NDCs)—by about 0.3°C.**
  - Following a US withdrawal, if all other governments fully implemented their Nationally Determined Contributions (NDCs or pledges) there would be a median global **temperature increase of 3.2°C (3.16°C) above pre-industrial levels in 2100, compared to 2.8°C (2.84°C)** estimated in 2016. The 2017 NDC warming estimate, in probabilistic terms, represents a likely (66% or greater) chance of being 3.5°C or below.
  - This increase in warming is mostly due to the US's intention to withdraw from the Paris Agreement: we dropped the US NDC and its long-term (2050) pledge from the CAT global pathways.
  - Compared to our 2016 assessment, there has been an increase—of 1.1 GtCO<sub>2</sub>e—in the emissions gap between the NDCs and the emissions pathway consistent with the Paris



Agreement's long-term global warming goal. The CAT estimates the size of the emissions gap to be 22–26 GtCO<sub>2</sub>e in 2030.

**2100 WARMING PROJECTIONS**

	2016	2017	Change
CURRENT POLICIES	3.6°C	3.4°C	-0.2°C
PLEDGES	2.84°C	3.16°C	+0.32°C

- **The majority of NDCs are not in line with a fair contribution to meet the Paris Agreement's long-term warming limit:**
  - 24 governments have set insufficient targets; of these, 16 governments have implemented policies that will not even result in achievement of their targets.
  - Only seven governments have implemented 1.5°C or 2°C compatible targets and of these, four are not backed up by sufficient policy action
  - The CAT assessment covers 32 countries, which are collectively responsible for about 80% of global GHG emissions.

## Contents

Introduction .....	3
Evaluating progress towards the Paris Agreement’s 1.5°C warming limit .....	4
Emissions gap in 2025 and 2030 .....	5
Progress on peaking emissions by 2020.....	7
Policy developments and impact on 2030 emissions since last update .....	8
NDC implementation status .....	11
Annex 1 CAT estimates for emissions under current policies versus 2016 update .....	14
Annex 2 CAT Rating System.....	15
Annex 3 Rating of current policies and NDCs .....	16
References.....	17
Authors.....	18

## Introduction

2017 marks a tumultuous year on climate action: in June, President Trump announced that the US, the world’s second largest emitter, intends to withdraw from the Paris Agreement, raising concerns about whether the Agreement would be able to deliver. Other governments, as well as a multitude of non-state and sub-national actors have reacted to this announcement by reaffirming their commitment to the full implementation of the climate deal.

How are we progressing towards the Paris Agreement’s 1.5°C warming limit, almost two years after its adoption?

To meet the Paris Agreement’s long-term temperature goal, to hold global average temperature increase “well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels,” global emissions of greenhouse gases (GHGs) need to peak around 2020 and be rapidly reduced in the coming years, and brought to zero shortly after the middle of this century, as specified in Article 4 of the Agreement.

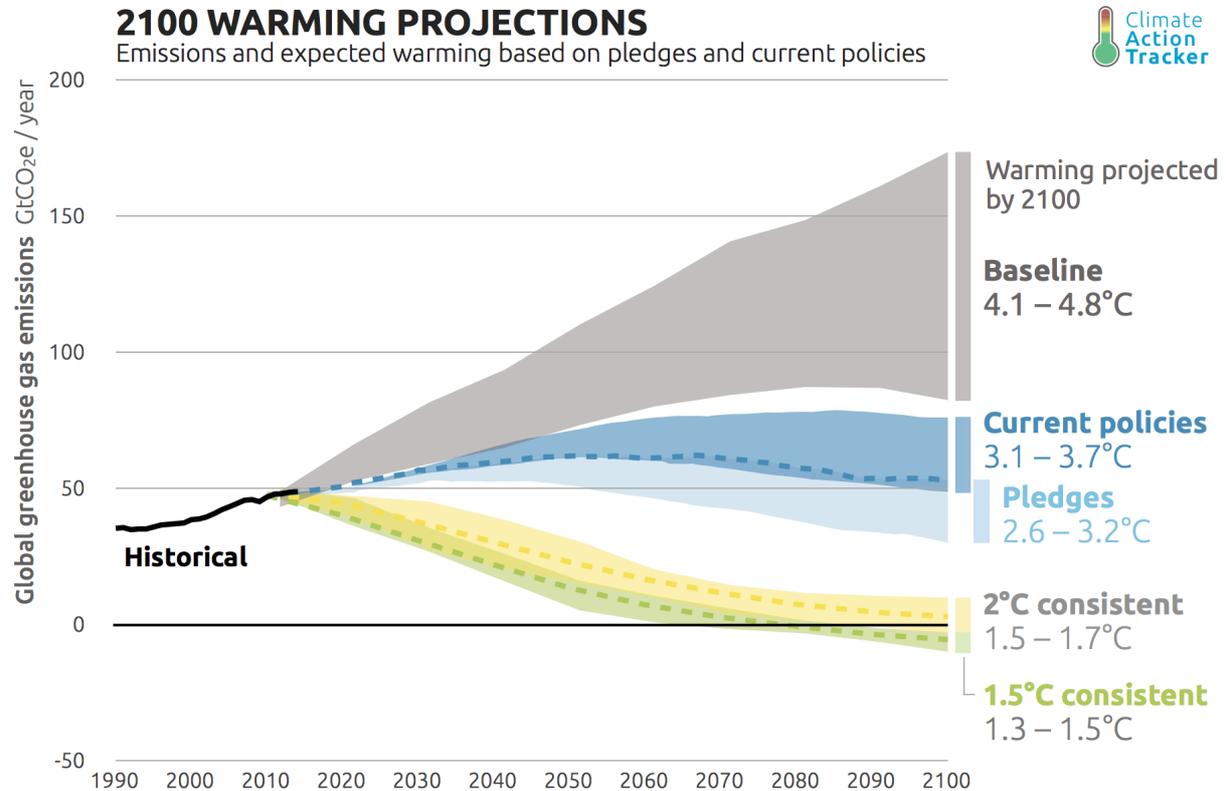
The Climate Action Tracker (CAT) evaluates progress towards this global goal by quantifying the aggregate effects of current policies (i.e. policies that are already implemented) on global GHG emissions, and the commitments put forward by governments in the Nationally Determined Contributions (NDCs), under the Paris Agreement. The CAT then compares these with the emissions levels consistent with both the Paris-compatible 1.5°C limit and the earlier 2°C temperature increase limit at different time periods (2025 and 2030).<sup>1</sup>

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<sup>1</sup> A new and more diverse set of scenarios that limit warming to 1.5°C or below are being developed by the scientific community and feed into the upcoming IPCC Special Report on 1.5°C (October 2018). The underlying peer-reviewed papers and data are expected to become publicly available in the first half of 2018. Using such data, the CAT will update its Paris Agreement benchmark scenarios in 2018 to reflect the most recent available scientific literature.

## Evaluating progress towards the Paris Agreement's 1.5°C warming limit

The CAT estimates that if governments were to fully implement their Nationally Determined Contributions (NDCs), global temperature increase would reach 3.2°C (3.16°C) in 2100 (range of 2.6–4.0°C due to uncertainty in carbon-cycle and climate modelling), a deterioration of around 0.3°C since 2016. This means that in aggregate, government pledges are completely inconsistent with the Paris Agreement. The “central” (median) estimate of 3.2°C is consistent with a likely (66% or greater chance) of a global average temperature increase below 3.5°C in 2100.



**Figure 1: Global greenhouse gas emissions under different scenarios and related global temperature increase above pre-industrial levels by 2100.**

Of the 32 countries the CAT assesses, as of 7 November 2017 only Argentina and Morocco have revised their NDC to include a more ambitious target since 2015. However, our temperature increase estimate compared to 2016 did not fall; instead, it rose by 0.3°C.<sup>2</sup> The reasons for this outcome are:

- **US Paris Agreement exit:** given [his Statement on the Paris Climate Accord](#) in June, where President Trump stated that “as of today, the United States will cease all implementation of the non-binding Paris Accord [which] includes ending the implementation of the nationally determined contribution,” the CAT no longer considers the US NDC and long-term target in its pledge estimate. This explains over half of the difference of this year’s estimate of temperature increase compared to last year.
- **Removal of Russia’s long-term target:** Russia was a member of the G8 in 2009, when the group announced a long-term target for all members of cutting GHG emissions by at least 50% below 1990 levels by 2050 at the L’Aquila Summit. However, as there has been no clear progress since 2009 on integrating this target into national policy, we have removed this long-term commitment from our emissions estimate for Russia.

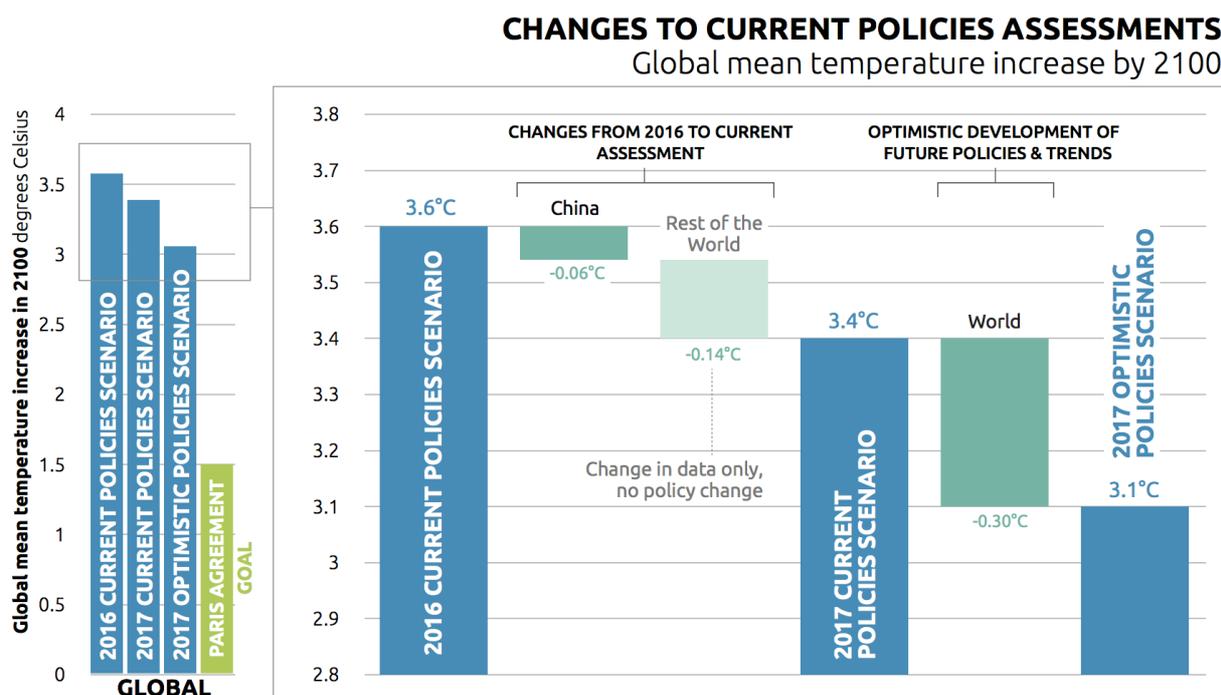
<sup>2</sup> Note the estimate rose from 2.8°C rounded to 3.2°C rounded. However the unrounded difference is 0.32°C, which is 0.3°C rounded.

- Other small changes result as usual from updated historical emissions and projections, not due to actual changes in NDCs.

Climate policies are improving but are not yet in line with climate pledges: currently implemented policies translate into a temperature increase of 3.4°C (low and high end of policy projections resulting in median warming of 3.1°C and 3.7°C, respectively) in 2100—almost 2°C above the Paris Agreement’s 1.5°C warming limit.

However, compared to 2016, we see a 0.2°C improvement in the current policy estimate of global temperature increase as visualised in Figure 2. This is primarily due to the positive developments in China, as explained further in *Policy developments and impact on 2030 emissions since last update (page 8)* these improvements overcompensate for the negative developments in the US. This is the first time in the history of the Climate Action Tracker (which began assessing countries in 2009) that we see a significant improvement in the temperature increase from one year to the next due to changes in climate policies.

In addition to the current policies scenario, we also ran an “optimistic” scenario which factors in planned, but not yet implemented, policies and a continuation of recent developments. These plans include additional policies in the pipeline, for example India’s Draft Electricity Plan, and raise expectations that the recent positive trend might continue into the future. Under the optimistic assumption that countries will continue to meet such expectations, the median warming estimate is 3.1°C (likely below 3.3°C).



**Figure 2: Impact of country developments on projected global mean temperature increase by 2100, in comparison to last year’s estimate, plus an “optimistic” scenario which factors in planned, but not yet implemented, policies and a continuation of recent developments.** Note that the optimistic scenario shows the projection of temperature increase at the lowest end of the policy scenario range, whereas the central scenarios show the mean of the range.

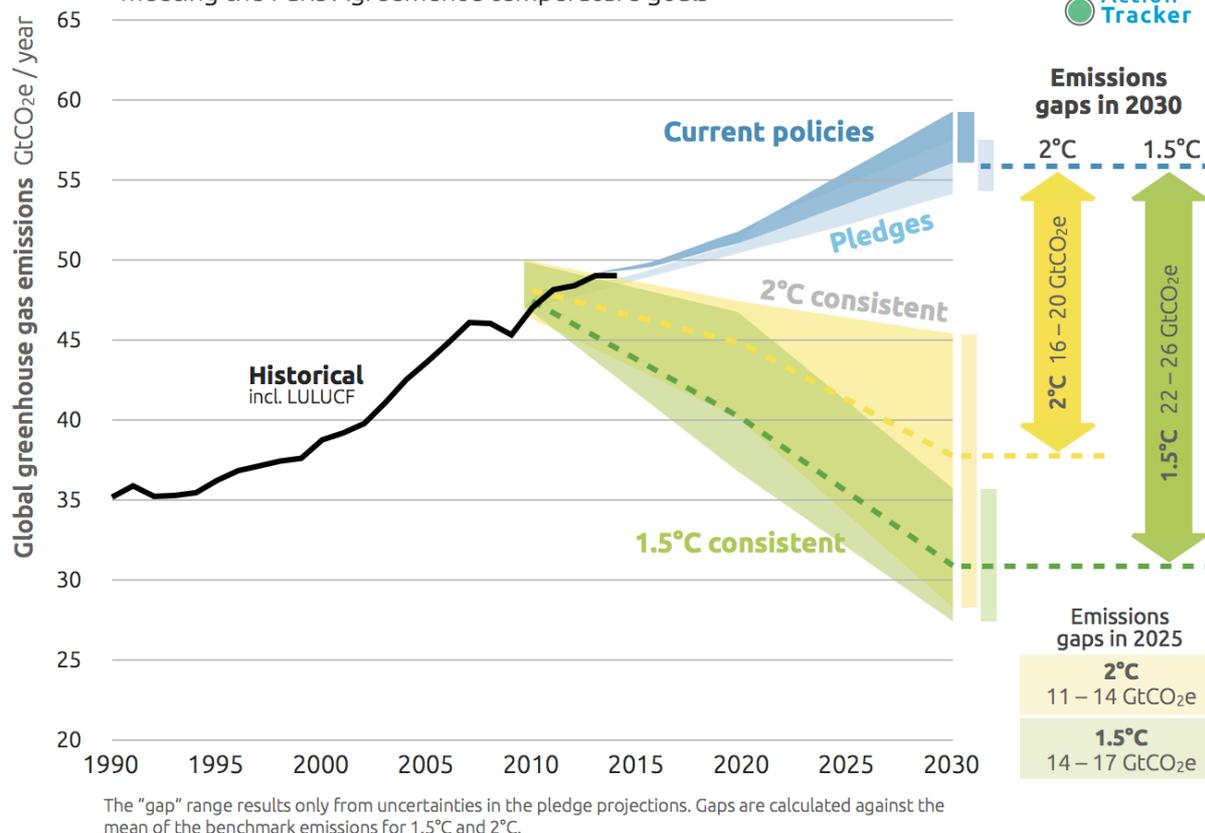
### Emissions gap in 2025 and 2030

In addition to the temperature increase outcomes of policies and pledges, the CAT also assesses the expected absolute emissions in two milestone years: 2025, and 2030 and compares these with benchmark emissions pathways that are in line with the temperature increase goal of the Paris Agreement.

The benchmark emissions and the policy projections are given in Table 1 and shown in Figure 3.

## 2030 EMISSIONS GAPS

CAT 2017 projections and resulting emissions gaps in meeting the Paris Agreement's temperature goals



**Figure 3: Emissions gap (GtCO<sub>2</sub>e), based on CAT global pathways from current policy projections and pledges, and 2°C and 1.5°C benchmarks.**

Encouragingly, the emissions level resulting from currently implemented policies improved in our latest assessment compared to the CAT's [2016 temperature warming update](#) (compare with *Policy developments and impact on 2030 emissions since last update*), thereby narrowing the 2030 emissions gap by 1.7 GtCO<sub>2</sub>e, and in the "optimistic" case by as much as 4.1 GtCO<sub>2</sub>e. However, currently implemented policies are not yet strong enough to achieve the pledges that governments have made under the Paris Agreement. These policies are estimated to result in emissions levels that are 1–2 GtCO<sub>2</sub>e higher than the pledge pathway emissions last year in the benchmark years (see Table 1). On an individual country level, the implementation status of an NDC, as indicated by the capability of currently implemented policies to meet the targeted NDC emission level, is discussed further in the *NDC implementation status* section below.

The CAT estimates from our May 2017 update was used as input into the UNEP Emissions Gap Report 2017. The gap estimate in this briefing is an update of our May analysis.<sup>3</sup> Because the Climate Action Tracker's 1.5°C scenario still allows for emissions reductions by 2020, our emission benchmarks for 2025 and 2030 are lower than those reported in the most recent UNEP Emissions Gap Report, and our 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.

<sup>3</sup> Since its 2015 edition, the UNEP Emissions Gap Report is drawing on 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 starting globally coordinated mitigation action in 2010 and assuming that some mitigation before 2020 can still be achieved.

**Table 1: Emissions gap (Gt CO<sub>2</sub>e), based on CAT global pathways from current policy projections and pledges, and 2°C and 1.5°C benchmarks.**

GtCO <sub>2</sub> e Scenario	2025		2030	
	Low	High	Low	High
Current policies	54	55	56	59
Pledges	52	55	54	58
2°C Benchmark	41		38	
2°C Gap (Pledge)	11	14	16	20
1.5°C Benchmark	38		32	
1.5°C Gap (Pledge)	14	17	22	26
1.5°C Gap (Current policies)	16	17	24	27

## Progress on peaking emissions by 2020

The Paris Agreement long-term goals require global greenhouse gas emissions to peak as soon as possible. It is therefore an important question whether this can be achieved by 2020.

The European Union and the US have continued their trend of decreasing GHG emissions, with emissions falling by over 10% and 2% since 2010, respectively. Encouragingly, they appear to be joined by China, which has substantially slowed the growth of its GHG emissions compared to the first decade of this century: after a 110% increase between 2000 and 2010, the growth between 2010 and 2015 was only 16%.

The situation is different when considering only *energy-related CO<sub>2</sub>* emissions or *all greenhouse gas* emissions. Global *energy-related CO<sub>2</sub>* emissions were stable in the period 2014–2016.<sup>4</sup> This is a very promising development. Based on CAT data, we cannot yet conclude whether energy-related CO<sub>2</sub> emissions have peaked, or whether they will begin to increase again.

The developments in *all greenhouse gas* emissions from the world's largest emitters as analysed in CAT's current policy projections are expected to continue and will lead to slower *all GHG* emissions growth in the period to 2030 than previously expected. However, we cannot yet speak of a peaking of *all GHG* emissions for the following reasons:

- The CAT estimates a high and a low range of emissions under current policies for its 32 countries that account for 80% of global emissions. CAT projections indicate that GHG emissions may soon begin to rise again. In 17 out of 32 countries<sup>5</sup> analysed in the CAT, emissions are projected to grow more than 20% between 2020 and 2030. For global GHG emissions, we estimate a growth of about 9-13% for the period 2020-2030 (0.9-1.3% per year) for the low and high end of our current policy projections. Both projections are consistent with emissions growth still projected in some countries.
- Although recent policy changes in China and India are likely to lead to slower growth than previously expected, GHG emissions in those countries are still projected to grow 7% and 51% respectively between 2020 and 2030 (mean current policy projection CAT). A similar trend is expected for other countries that have contributed less to global emissions in the past, but that are currently experiencing fast emissions growth, e.g. Indonesia, Saudi Arabia, and Turkey. In the absence of further policies, emissions growth in those countries may offset the slowdown of emissions in the bigger emitters.

<sup>4</sup> <https://www.iea.org/newsroom/news/2017/march/iea-finds-co2-emissions-flat-for-third-straight-year-even-as-global-economy-grew.html>

<sup>5</sup> The 17 CAT countries in which we expect a significant rise in emissions to 2030 are Argentina, Bhutan, Chile, Ethiopia, Gambia, Indonesia, India, Kazakhstan, Mexico, Morocco, Nepal, Peru, Philippines, Saudi Arabia, Turkey, Ukraine, United Arab Emirates.

- An increase is still expected in greenhouse gas emissions from sectors other than energy, e.g. from agriculture, due to increased activity and only limited emissions-reduction policies.

## Policy developments and impact on 2030 emissions since last update

Over the last year, governments have made substantial steps in improving climate policies: for example, many are now actively moving away from coal (e.g. UK, Italy and, increasingly, also China and India), given that renewable energy is becoming ever cheaper; electric mobility is gaining momentum.

Our current policy projections for 2030 are 1.7 GtCO<sub>2</sub>e lower than last year, resulting from downward changes in emissions projections of the majority of the countries we assess (Figure 4 and Table 2 in the Annex). The largest changes related to policy implementation stem from China, India and Canada.

Under the optimistic assumption that this positive trend continues, our global emissions estimate for 2030 would decrease instead by 4.1 GtCO<sub>2</sub>e in 2030. Under this scenario, we assume Canada and India implement their planned policies, South Korea implements its announced policies and all other countries move to the lower end of their current policy projections.

The impact of these positive policy developments far outweighs the impact of negative developments over the last year. Nevertheless, given the need for a fast, global transformation and peaking emissions as soon as possible to get on track for the Paris Agreement’s temperature increase goal, any weakening of climate action is still a significant backwards step.

Particularly worrying is the inaction and even reversal of climate policy in some developed countries, such as Australia and the US, which, given their comparably high responsibilities and capabilities to mitigate GHG emissions, should take the lead in combating climate change.

### CHANGES TO CURRENT POLICIES ASSESSMENTS GHG emissions in 2030 excl. LULUCF

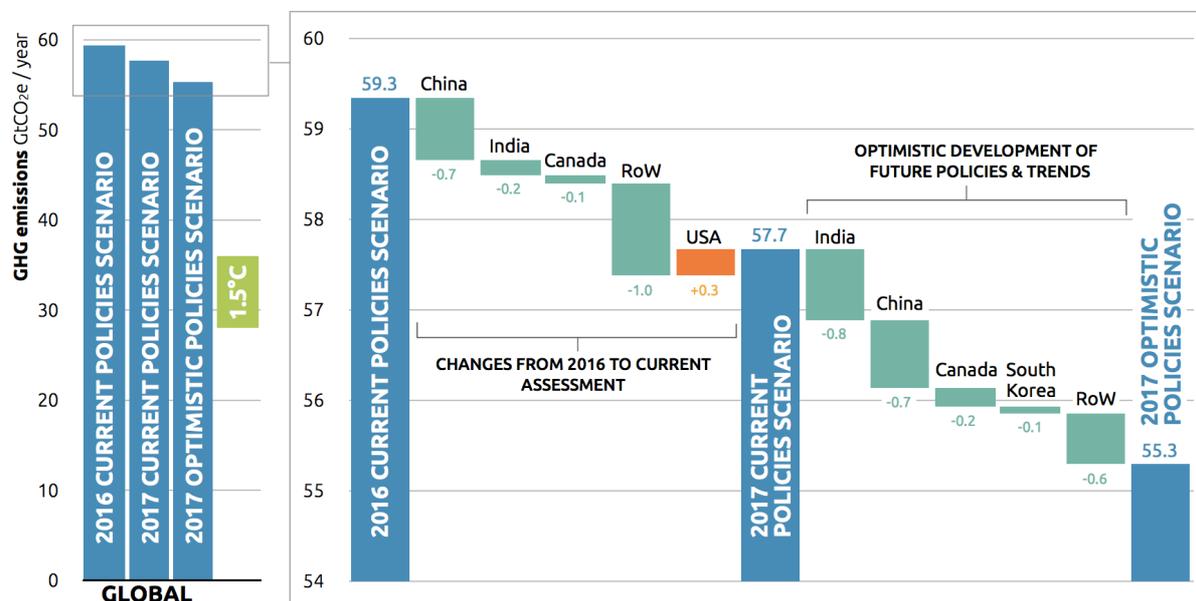


Figure 4: Impact of country developments on global emissions (excl. LULUCF) since last year, plus an “optimistic” scenario which factors in planned, but not yet implemented, policies and a continuation of recent developments.

Below, we explain in more detail the differences in our current policy emissions estimates compared to last year for those countries with relevant changes in implemented policies. In addition, Table 2 in the Appendix gives a comprehensive overview of the changes in the assessment for all countries since last year, including countries such as South Africa, Chile, Argentina, Mexico and Indonesia,

where changes were due to updated data or methodological changes, rather than changes in policy implementation.

## CHINA

CO<sub>2</sub> emissions in China are projected to peak within the next five years, if they have not already done so. Since 2013, coal consumption has decreased, and energy-related CO<sub>2</sub> emissions have stagnated since 2014. Renewable energy is widely supported and beginning to crowd out coal.

The government recently cancelled plans for just over 100 coal-fired power plants totalling 120 GW capacity (Boren, 2017), which would have emitted roughly 0.75 GtCO<sub>2</sub> annually.<sup>6</sup> Some of the cancelled plants were already under construction.

The fast growth of renewable energy—and slowing energy demand—has made the capacity additions obsolete. At the same time, renewable energy targets were increased yet again, to keep up with the rapid development on the ground (NEA, 2017).

China is set to overachieve its contribution to the Paris Agreement by a wide margin. On average, China's total GHG emissions are 0.7 GtCO<sub>2</sub>e lower in 2030 compared to our previous estimate from November 2016; with continued coal abatement (the bottom of our current policy range) it could even be 1.4 GtCO<sub>2</sub>e lower.

## INDIA

In December 2016, India published its Draft Electricity Plan. It projects that despite the increasing electricity demand, no new coal-fired power plants, apart from those that are already under construction, would be needed after 2022 (Central Electricity Authority, 2016). 50 GW of coal capacity is under construction, emitting roughly 0.3 GtCO<sub>2</sub>e a year—if built.<sup>7</sup>

If India fully implements the Draft Electricity Plan, national emissions in 2030 would be around 0.9 GtCO<sub>2</sub>e lower than last year's estimate of implemented policies, and would move India closer to the "1.5°C compatible" CAT rating category. India is expected to achieve its NDC with implemented policies, without having to take further action.

## CANADA

Since our last assessment, new policies have been implemented, including an emissions trading system in Ontario, Alberta's Climate Leadership Plan, British Columbia's Clean Energy Act and Quebec's Eco performance program for industry. These new policies are responsible for the vast majority of the decrease in projected emissions under implemented policies of about 0.1 GtCO<sub>2</sub>e in 2030. Since our last update, the historical data has also been revised; this contributed to a relatively minor portion of the emissions decrease.

The government has also proposed a new climate policy framework, the "Pan-Canadian Framework on Clean Growth and Climate Change." This will reduce projections by another 0.2 GtCO<sub>2</sub>e in 2030, assuming full implementation. Canada's carbon pricing plan holds a central importance in this framework. If the plan is implemented, Canada is likely to overachieve its NDC.

## SOUTH KOREA

In June 2017, the new administration, led by President Moon Jae-in, announced that it would shut down ten existing coal-fired plants, build no new coal-fired power plants, and not seek to extend the life of its nuclear plants. The President also wants to increase the share of renewable electricity generation in 2030 to 20%, building on the 2024 target of 10%. These efforts are somewhat tempered by announcements of a considerable increase in gas-fired generation. Still, we estimate that, if implemented, they would lead to emission reductions of around 0.07 to 0.08 GtCO<sub>2</sub>e (or 9–11%) below the current policy projection level in 2030, moving South Korea close to its domestic

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<sup>6</sup> Assuming 80% load and 900 gCO<sub>2</sub>/kWh

<sup>7</sup> Assuming 80% load and 900 gCO<sub>2</sub>/kWh

NDC target level. However, we note that this NDC level itself is not yet strong enough to achieve the Paris Agreement goal.

## SWITZERLAND

In a referendum in May 2017, Switzerland adopted its Energy Law with ambitious targets regarding the development of renewable sources of energy (Schweizerische Eidgenossenschaft, 2016). The resulting emissions reduction in the power sector will be limited, as it already relies on low-carbon sources of energy. A much bigger impact on emissions is likely to result from the requirement imposed on the regional authorities to introduce stricter standards for the buildings sector, complemented by additional financing for increasing energy efficiency in this sector. Should the intermediate emissions reduction goal not be achieved, the Swiss Energy Strategy 2050 requires increasing the carbon tax.

As a result, the Swiss target of halving its 1990 emissions by 2030 has been rated “Insufficient,” However the Energy Law might allow it to overachieve this target.

## USA

Significant and highly adverse rollbacks of climate policy are underway at the federal level in the US. With his Executive Order on “energy independence” in March 2017 (The White House, 2017), President Trump rescinded the Obama Administration’s Climate Action Plan, which was never fully implemented, and was critical to achieving the US NDC. Following up on the order, in October 2017, the EPA proposed to repeal the Clean Power Plan. The Trump Administration is also considering a new import tariff on solar panels, while Secretary of Energy Rick Perry has proposed a measure to prolong the life of coal plants scheduled for “premature retirement” through a payment for their grid “resiliency” attributes (Perry, 2017).

Overall, the CAT estimates for US emissions compared to last year have increased by 0.3 GtCO<sub>2</sub>e in 2030. The repeal of the Clean Power Plan increases the CAT’s projections under current policies by 0.4 GtCO<sub>2</sub>e in 2030, and is partially offset by slower than expected economic growth and development of renewable energy independently of policies. Despite these developments, the energy revolution in the US continues for now, with more renewables installed in 2016 than ever before, and record levels of renewable electricity production in early 2017 (EIA, 2017).

States, cities, and organisations have played a strong role in climate action before and are now increasingly stepping up to fill the gap in federal climate action: California will extend its cap-and-trade system through 2030, and nine north-eastern and mid-Atlantic states have agreed on a proposal to lower their cap on carbon emissions from electricity generation by 3% per year. New analysis suggests that the full implementation of currently recorded and quantified non-federal climate commitments could already take the US halfway towards meeting its NDC commitments (Kuramochi *et al.*, 2017).

## BRAZIL

While economic recession has resulted in slower than expected emissions growth in Brazil’s energy and industry sectors, recent developments in energy infrastructure planning and the reversal of deforestation policies are evidence of a worsening of Brazil’s national climate policy implementation. Budget cuts of 50% to the Environment Ministry and other areas raise issues of concern around the Government’s ability to monitor deforestation adequately, as evidenced in the increasing deforestation levels observed since 2016.

Most recent projections for emissions in the forestry sector are substantially higher than earlier estimates, overall increasing the CAT’s total estimate by 0.2 GtCO<sub>2</sub> in 2030 compared to last year including LULUCF (not shown in Figure 4, which is excl. LULUCF).

Given that since our last assessment Brazil has implemented no new policies, instead reversing some policies already implemented in the LULUCF sector, the current policy emissions projections for Brazil are no longer in line with the achievement of the NDC targets.

## AUSTRALIA

The federal government of Australia recently decided not to accept the recommendations of the Finkel-review (commissioned by Federal and State governments) to adopt a Clean Energy Target. Policy uncertainty is increasing again, as the Federal Government recently proposed an alternative instrument (National Emissions Guarantee, NEG) as recommended by the recently established Energy Security Board (2017) that lacks details and underlying analysis. It is based on an electricity emissions pathway that is proportional to the overall NDC emissions pathway, which is widely recognised as not consistent with the Paris Agreement (Hare *et al.*, 2017).

Additional suggested elements as recommended by the Energy Security Board such as the inclusion of domestic and international offsets, and the possibility of delaying emissions reductions, further increase the risk of slowing down investments in renewable energy and the risk of locking-in carbon intensive fossil fuel infrastructure (coal and gas) (Jotzo and Mazouz, 2017).

Australia's current policies fall far short of the emissions reductions required to meet the "Insufficient" 2030 target put forward in its NDC. Australia's greenhouse gas emissions are rising—confirming the trend of increasing greenhouse gas emissions since the carbon pricing scheme and other policies were repealed in 2014.

## EUROPEAN UNION

The EU has not yet effectively responded to the 1.5°C limit in the Paris Agreement, which goes beyond the former 2°C goal. Efforts in climate policy are underway but are not leading yet to effective implementation of mitigation actions.

In 2015 and 2016 the European Commission initiated a number of reforms to increase the efficiency of its existing climate policies, including the post-2020 reform of the EU ETS, which would reduce the oversupply of emissions allowances, thereby increasing both the allowances' price and the effectiveness of the instrument (European Commission, 2015). In addition, new emissions standards for the major pollutants from large coal-fired power plants could have a substantial impact on emissions by requiring substantial retrofits for 82% of plants until 2021. The addition total cost of retrofitting estimated at €5.8 billion (DNV GL-Energy, 2017), raises the possibility of plant closures and thus reduced emissions.

Actions by individual member states seem promising. The most recent example is the decision of the new Dutch government, which in its coalition agreement decided to phase out coal by 2030 (Reuters, 2017), joining Austria, Finland, Italy, Portugal, Sweden and the United Kingdom. In addition, in the last few months the French and the British governments have announced plans to ban the sale of combustion cars by 2040 (WEF, 2017). However, other member states, for example Poland and Germany, continue to rely heavily on coal fired power generation, and particularly in Germany opposition to swift electrification of the transport sector is strong.

Clear alignment of member states on the direction in all sectors is essential to get the EU as a total on track to a Paris compatible pathway.

### **NDC implementation status**

The CAT rates government climate action compared to the efforts needed to reach the Paris Agreement's 1.5°C long-term temperature increase limit. Our six rating categories are used to help highlight the adequacy and fairness of governments' targets to mitigate climate change.

These categories are: Role model, 1.5°C Paris Agreement Compatible, 2°C Compatible, Insufficient, Highly Insufficient and Critically Insufficient. The implication of each rating in terms of a "fair" contribution to meeting the temperature increase objective of the Paris Agreement is laid out in Annex 2.

The CAT's [September 2017 Briefing](#) focussed on rating NDCs, i.e. *what governments propose to do*. However, a target-based rating system does not give an indication of *what governments are actually*

*doing* to meet these targets through the implementation of policies. This briefing therefore applies the CAT's rating system to both, implemented climate policies and NDCs (Figure 5),<sup>8</sup> grouping them into four categories. This is shown in further detail in Annex 3.

The vast majority of the countries assessed have not committed to an emissions target that is compatible with their fair share of the 1.5°C long-term Paris Agreement goal. Seven countries have set insufficient targets, which they can reach without implementing new policies. For example, Russia's targeted emissions level in 2030 lies significantly above current policy projections, and is 26–33% above total GHG emissions excl. LULUCF in 2014.

In addition, 17 governments have implemented policies that will not even result in achievement of their insufficient targets. For instance, South Korea's pledge is rated "Highly Insufficient," but its current policies are rated "Critically Insufficient." Should South Korea implement the announced changes to its electricity generation mix, as described above, its policies would still be rated "Critically Insufficient," and additional action would still be needed for South Korea to meet its own targets.

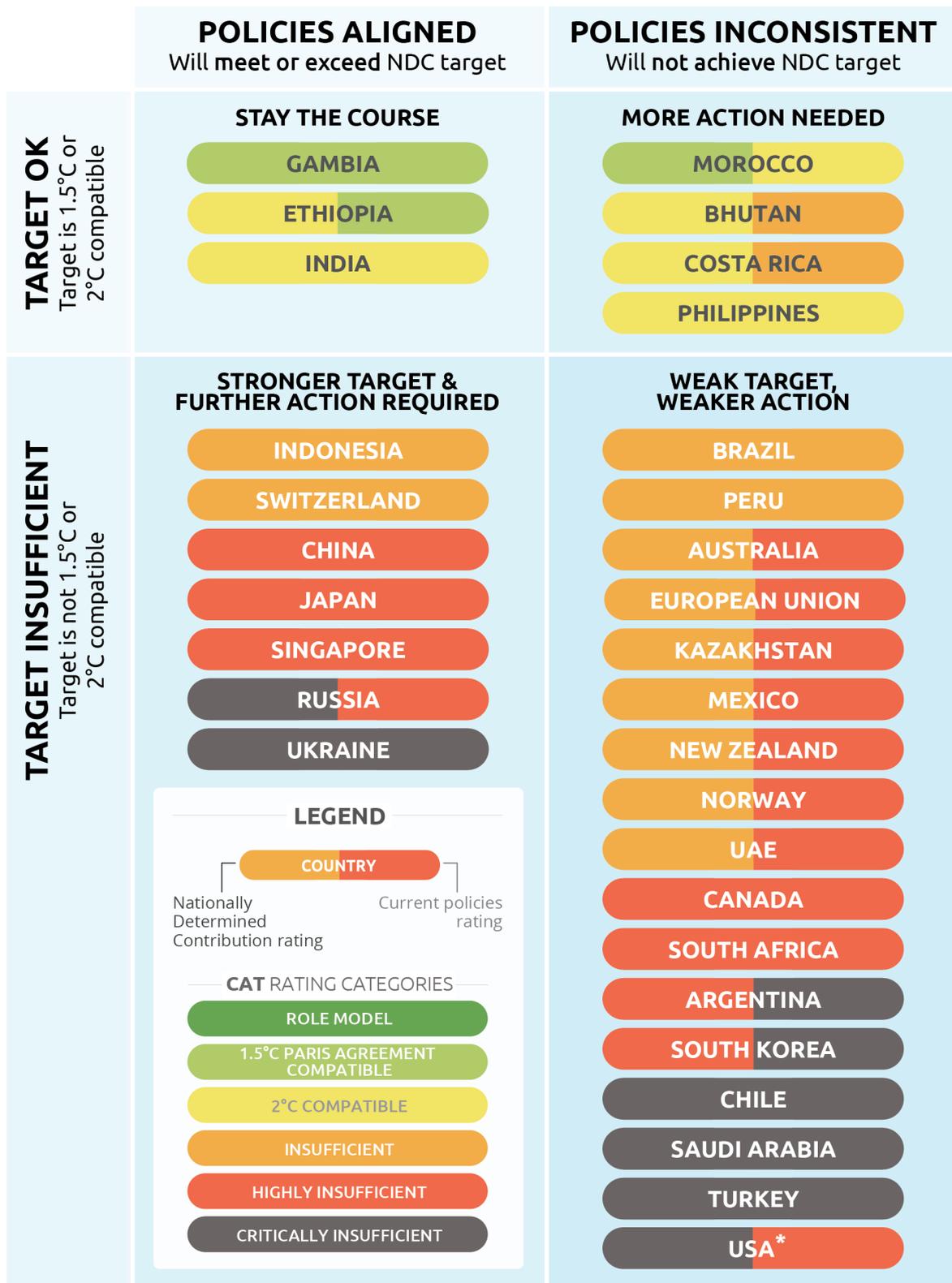
On the other hand, four governments have implemented 2°C or 1.5°C compatible targets, but do not back them up with sufficient policy action meet them. By setting such targets, these countries have taken an ambitious step forward, and they now need to quickly implement new policies to actually achieve it.

While Morocco's commitment ranks the highest—it is the only pledge rated "1.5°C Paris Agreement Compatible"—its policies are currently rated "2°C Compatible." In addition, three governments—Ethiopia, the Gambia and India—have 1.5°C or 2°C compatible targets and are on track to achieve them by currently implemented policies. The most notable country of this group is India: under its currently implemented policies, it will over-achieve its NDC target. Its NDC is therefore weaker than actions resulting from current policies and would be ripe for improvement.

The CAT notes that a gap between the emissions levels targeted by the pledge compared to the levels under current policies does not necessarily imply that the NDC target will not be achieved; countries will be able to meet a shortfall by purchasing emission reductions internationally.

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8 The CAT rating is based on the concept of effort sharing, which distributes the necessary global mitigation efforts to countries based on their historical responsibility, capability, and other principles. The outcomes of the effort sharing analysis are "emissions allowances" per country, rather than domestic emission level requirements. According to this concept, the "fair share" contribution could also be met by providing support to countries with a lower responsibility or capability, or by purchasing good emission reduction credits from other countries. Also, the effort sharing concept does not consider mitigation potentials or sectoral requirements to meet global warming goals. The comparison of policy scenarios against effort sharing results thus has methodological limitations. We have included it here to indicate how implemented policies in each country compare to the "fair share" level of climate action.



\* The CAT rating for the US is “Critically insufficient”, based on the Trump Administration’s intent to withdraw from the Paris Agreement. Implemented policies are insufficient to meet the NDC target.

**Figure 5: Pledge ratings and implementation status.**

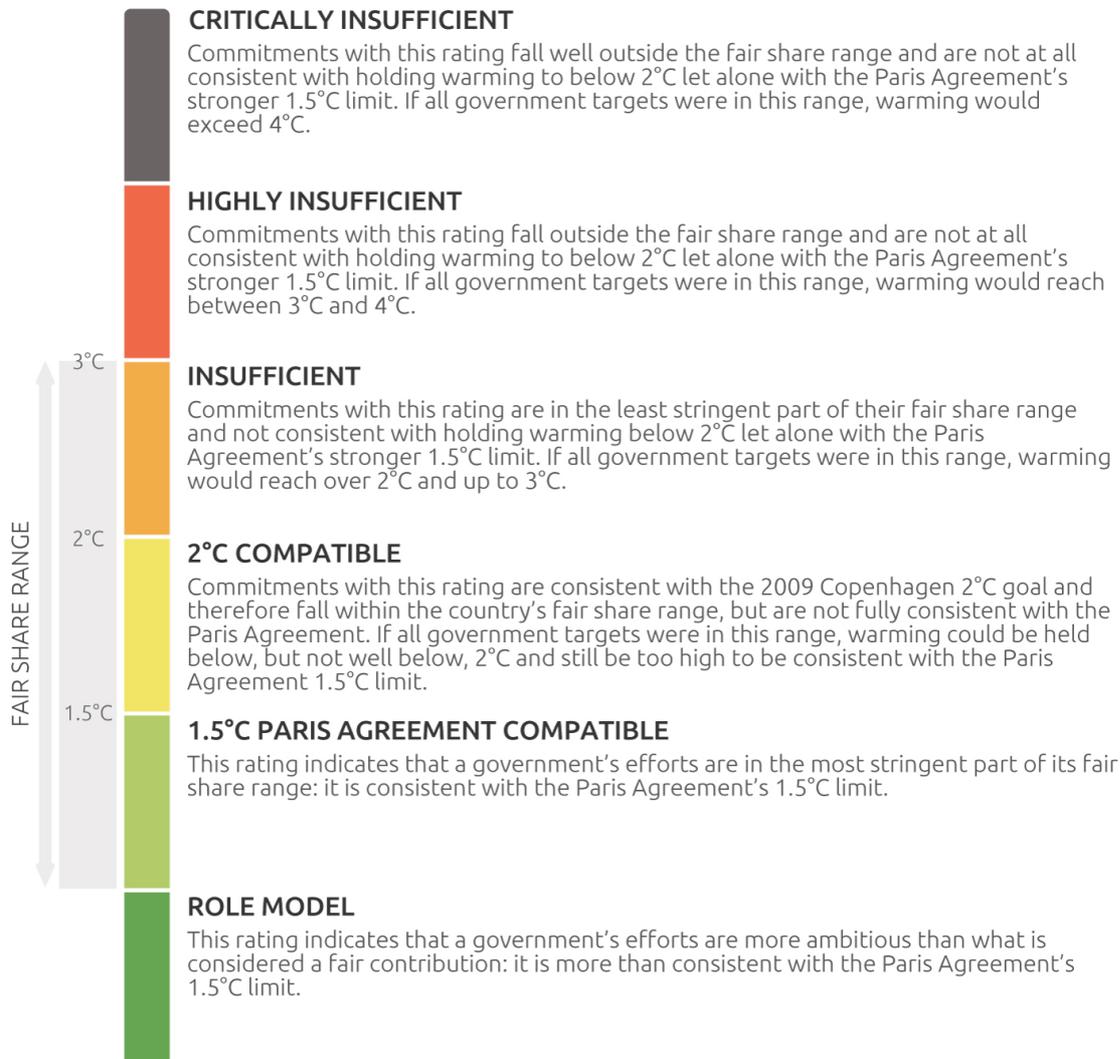
## Annex 1 CAT estimates for emissions under current policies versus 2016 update

Table 2: Overview of impacts of changes on 2030 emissions since the CAT update in November 2016

Country	Change in 2030 emissions projections (vs 2016 estimate) (MtCO <sub>2</sub> e, excl. LULUCF)	Significant change of policy or action	Significant change in economic or other assumptions	Comment
China	-700 to -1400	Yes	No	Assumed significantly less coal consumption due to faster than expected increase of renewable energy and lower coal use
South Africa	-273	No	Yes	Assumed lower economic growth than previously because of recession and stagnation of emissions in recent years. Moved to more recent emissions projections.
India	-79 to -255	Yes	No	Faster than expected increase of renewable energy and respective lower coal use, update of renewable energy targets (wind and solar).
Russia	-244 to -320	No	Yes	Downward change of historical inventory data.
Turkey	-33 to -148	No	No	Updated source: New National Communication (NC6) from 2016.
Canada	-80 to -106	Yes	No	Implementation of various policies (Ontario emissions trading and Alberta's Leadership Plan) and minor changes in historical data.
Australia	-26 to -70	No	Yes	Change in data source: the current policy projections are now based on the lower and higher emissions sensitivity scenarios from Australia's December 2016 emissions projections. Previously, projections were based on Australia's 2nd biennial report, and own calculations.
Brazil	-61	Yes	No	For the LULUCF pathway, the quantification is based on the latest national projections, which report much higher LULUCF emissions projections than in previous assessments (not included in second column).
United Arab Emirates	-57 to -73	Yes	Yes	Correction of historical data, fossil fuel subsidy reform now included.
Argentina	-50 to -51	No	No	Change in data source: Use 2 <sup>nd</sup> Biennial Update Report (Government of Argentina, 2017) for historical data, which is lower than previously used data set from 3 <sup>rd</sup> National Communication (Secretariat of Environment and Sustainable Development, 2015).
Japan	-41 to -51	No	Yes	Update of nuclear capacity restarts
Mexico	-6 to -51	No	Yes	Change of data sources: historical data now uses Mexico's Biennial Update Report (previously 5th national communication) BAU scenario from the NDC as a starting point for current policy projections is lower than the previously used projections (5th National Communication)
Peru	0 to -10	No	No	Additional data source included: upper bound is an updated version of the previously used BAU, the lower bound represents impact of policies currently in place according to Peru's Third National Communication based on potentials published in the Technical Note on the NDC.
Costa Rica	-3	No	Yes	Change in data source: Now uses 1st Biennial Update Report (Ministerio de Ambiente y Energía, 2015), which is slightly lower than previous assessment (combination of (CEPAL, 2011; MINAET, 2011).
Morocco	0 to -3	No	No	Change in data source: Now uses 1 <sup>st</sup> Biennial Update Report (Government of Morocco, 2016b), previously 3 <sup>rd</sup> National Communication (Government of Morocco, 2016a)
European Union	-39 to 19	No	No	Removal of international aviation from the projections to keep it consistent with targets and projections used for other countries.
Chile	16 to 21	No	Yes	Change in data source: Use (Línea Base 2013, PIB medio) (Government of Chile, 2014) and adjust to reflect policy progress. Previously used more ambitious Energías Renovables No Convencionales (ERNC) scenario.
Indonesia	101 to 177	No	Yes	Change in data source: Analysis previously based on older scenario with less underlying assumptions available. Now uses (APEREC, 2016) and adjusts energy split to reflect implemented policies adequately. No longer meets its conditional pledge. Unconditional pledge continues to be met.
US	287	Yes (negative)	No	Complete stop of Clean Power Plan on the one hand, slower economic growth and increased renewables on the other hand.

Note: The data for the following countries has not been updated since 2016, given there has been no change in climate policy implementation with direct impacts on our projections: Bhutan, Switzerland, Ethiopia, The Gambia, Kazakhstan, South Korea, Norway, Nepal, New Zealand, Philippines, Saudi Arabia, Singapore, Ukraine.

## Annex 2 CAT Rating System



## Annex 3 Rating of current policies and NDCs<sup>9</sup>

	NDC rating		Current policy rating
<b>The Gambia</b>	1.5°C Paris Agreement Compatible	-	1.5°C Paris Agreement Compatible
<b>Morocco</b>	1.5°C Paris Agreement Compatible	-	2°C Compatible
<b>Ethiopia</b>	2°C Compatible	-	1.5°C Paris Agreement Compatible
<b>India</b>	2°C Compatible	-	2°C Compatible
<b>Philippines</b>	2°C Compatible	-	2°C Compatible
<b>Bhutan</b>	2°C Compatible	-	Insufficient
<b>Costa Rica</b>	2°C Compatible	-	Insufficient
<b>Brazil</b>	Insufficient	-	Insufficient
<b>Indonesia</b>	Insufficient	-	Insufficient
<b>Peru</b>	Insufficient	-	Insufficient
<b>Switzerland</b>	Insufficient	-	Insufficient
<b>Australia</b>	Insufficient	-	Highly Insufficient
<b>EU</b>	Insufficient	-	Highly Insufficient
<b>Kazakhstan</b>	Insufficient	-	Highly Insufficient
<b>Mexico</b>	Insufficient	-	Highly Insufficient
<b>New Zealand</b>	Insufficient	-	Highly Insufficient
<b>Norway</b>	Insufficient	-	Highly Insufficient
<b>UAE</b>	Insufficient	-	Highly Insufficient
<b>Canada</b>	Highly Insufficient	-	Highly Insufficient
<b>China</b>	Highly Insufficient	-	Highly Insufficient
<b>Japan</b>	Highly Insufficient	-	Highly Insufficient
<b>Singapore</b>	Highly Insufficient	-	Highly Insufficient
<b>South Africa</b>	Highly Insufficient	-	Highly Insufficient
<b>Argentina</b>	Highly Insufficient	-	Critically Insufficient
<b>South Korea</b>	Highly Insufficient	-	Critically Insufficient
<b>Russia</b>	Critically Insufficient	-	Highly Insufficient
<b>US</b>	Critically Insufficient	-	Highly Insufficient
<b>Chile</b>	Critically Insufficient	-	Critically Insufficient
<b>Saudi Arabia</b>	Critically Insufficient	-	Critically Insufficient
<b>Turkey</b>	Critically Insufficient	-	Critically Insufficient
<b>Ukraine</b>	Critically Insufficient	-	Critically Insufficient
<b>Nepal</b>	Not rated	-	1.5°C Paris Agreement Compatible

<sup>9</sup> A "Role model" rating would also be categorised as a 1.5°C or 2°C compatible target, however no countries are rated as such in the current assessment.

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## Authors



### **NewClimate Institute**

Hanna Fekete  
Lisa Luna  
Sebastian Sterl  
Frederic Hans  
Sofia Gonzales  
Niklas Höhne



### **Ecofys**

Lindee Wong  
Yvonne Deng  
Goher Ur Rehman Mir  
Yannick Monschauer  
Tom Berg  
Kornelis Blok



### **Climate Analytics**

Jasmin Cantzler  
Uğur Ural  
Paola Yanguas Parra  
Michiel Schaeffer  
Bill Hare  
Andrzej Ancygier

**Editing** Cindy Baxter

**Graphic Design** Matt Beer



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[www.climateanalytics.org](http://www.climateanalytics.org)

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[www.ecofys.com](http://www.ecofys.com)

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