

Climate Action Tracker

Paris Agreement turning point

Wave of net zero targets reduces warming estimate to 2.1°C in 2100

All eyes on 2030 targets

December 2020

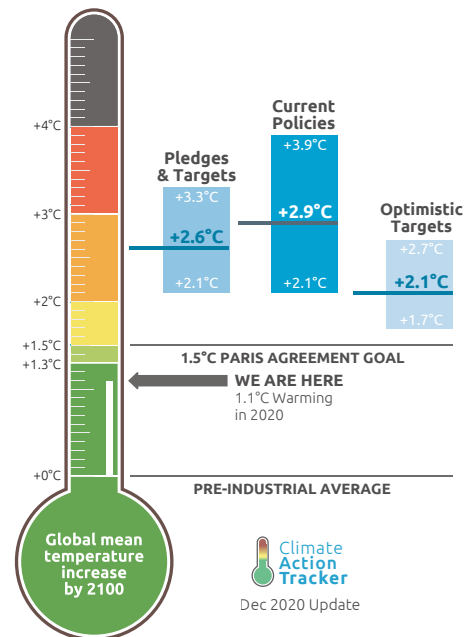


Summary

The recent wave of net zero targets has put the Paris Agreement's 1.5°C within striking distance.

The Climate Action Tracker (CAT) has calculated that global warming by 2100 could be as low as 2.1°C as a result of all the net zero pledges announced as of November 2020.

Included in our new modelling is the announcement by China in September 2020 that it intends to reach carbon neutrality before 2060, which reduces the CAT end of century warming estimate by 0.2 to 0.3°C alone. Assuming carbon neutrality in the USA by 2050, as proposed by President-Elect Biden, would reduce warming by another 0.1°C. South Africa, Japan, South Korea and Canada have also recently announced net-zero targets. In total, 127 countries responsible for around 63% of emissions are considering or have adopted net zero targets.



While 2050 net zero targets are commendable, governments must now adopt stronger 2030 targets (nationally determined contributions or NDCs) to deliver on their net zero goals, and close the remaining emissions gap to 1.5°C. The end of 2020 deadline to submit new and updated NDCs is fast approaching. These strengthened NDCs are critical to ensuring governments can meet their mid-century net zero targets. Governments must also develop detailed implementation plans to support these targets.

However, there remains **little positive movement by governments to improve their 2030 NDC targets since Paris in 2015.** As of November 2020, no large emitter had submitted a substantially updated NDC since the adoption of the Paris Agreement. **Moreover, governments' current policies put them on a warming trajectory of 0.8°C higher than our optimistic net zero target assessment.**

It is clear the **Paris Agreement is driving climate action.** On the eve of its five-year anniversary, a survey of past Climate Action Tracker assessments shows that the temperature estimates for end-of-century warming have been falling for both the targets and real-world emissions projections.

End of century warming estimates for real-world emissions have fallen by 0.7°C in the last five years. Our temperature estimate of real-world action based on all adopted national policies ('current policies' scenario) has substantially decreased by 0.7°C from 3.6°C in 2015 in to 2.9°C today. Implementation of new policies, increased use of renewable energy, a downturn in the use of coal and lower economic growth assumptions (both prior to and because of the pandemic) are responsible for the lion's share of the drop.

End of century warming estimates for targets have fallen by 0.5°C due to the new net zero targets and in total by 1.4°C through Paris pledges. The Climate Action Tracker began analysing the effect of targets and pledges on warming in 2009. At that time, our estimate stood at 3.5°C. The first major improvement in this estimate occurred in the lead-up to the Paris summit in 2015, as governments began announcing their intended contributions (INDCs). By the time, the Paris Agreement was adopted, the CAT temperature estimate fell significantly to 2.7°C. Our current temperature estimate as of November 2020 is 2.6°C.

In the years between Paris and now, the estimate rose in the aftermath of the USA and Russia abandoning targets, then fell again, along with real world emission trends.



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1 How far have we come since Paris?

Five years after the adoption of the Paris Agreement in 2015, the transition to a zero emissions society has clearly begun. The Climate Action Tracker's analysis of real-world action (our 'current policies' scenario) shows a discernible drop in our estimates of future global greenhouse gas emissions and associated temperature increase by the end of the century since 2015 (Figure 1).

In 2015, we estimated real-world action would result in 3.6°C of global warming by 2100, with a considerable margin of error due to the uncertainties of the climate system. Our latest assessment found that the world in 2020 is on a path to 2.9°C of warming, a drop of 0.7°C from our 2015 estimate (Climate Action Tracker, 2020). The implementation of adopted policies, increased use of renewable energy, a downturn in the use of coal and lower economic growth assumptions are the main drivers of this decline, and the temporary economic downturn due to the COVID-19 pandemic also contributes to a small degree. Real-world action is still far from meeting the Paris Agreement's long-term temperature goal of limiting warming to 1.5°C.

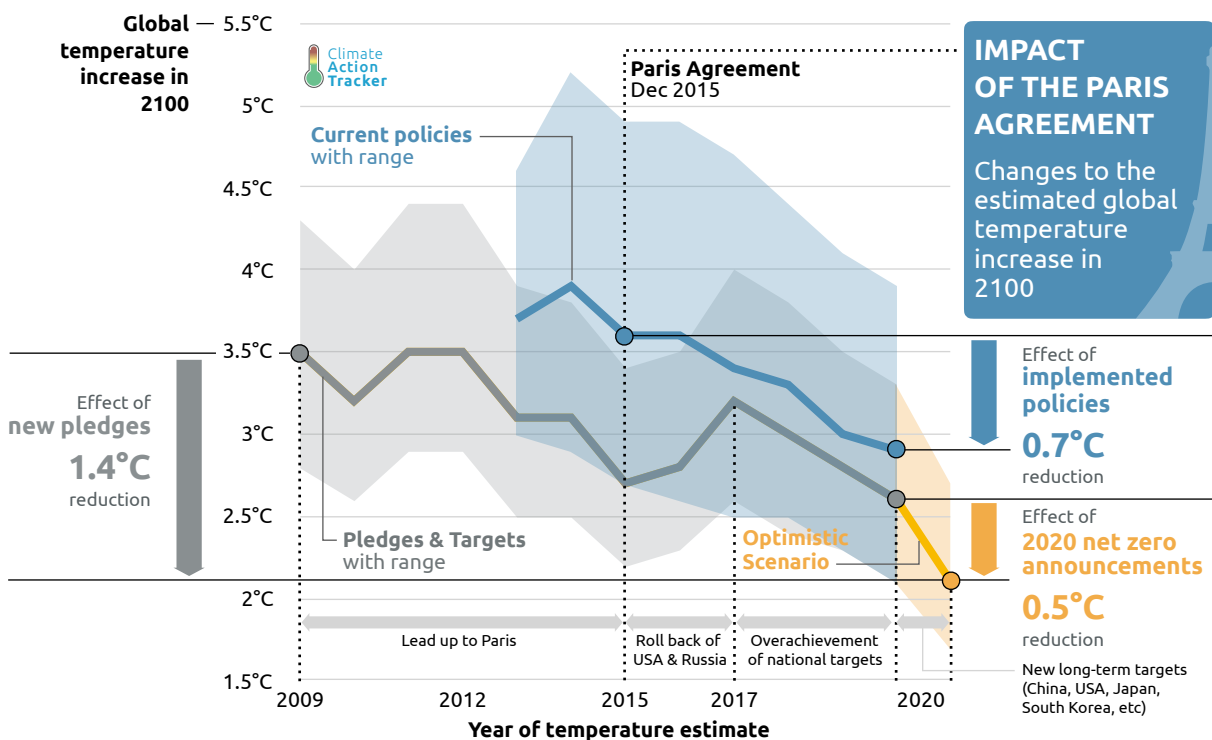


Figure 1. Impact of the Paris Agreement on the estimated global temperature increase in 2100. Figure shows the estimates of the Climate Action Tracker from 2009-2020 for “pledges and targets” and “current policies”.¹

In its preparation phase, the Paris Agreement had a significant impact on national greenhouse gas reduction targets. Targets and pledges put forward under the 2009 Copenhagen Accord / 2010 Cancun Agreements, the first set of agreements where all governments presented pledges for greenhouse gas reductions, would have led to 3.5°C of warming by the end of the century. The level of these commitments was significantly inadequate for the then agreed warming limit of below 2°C.

In the run-up to the Paris Agreement, the CAT's temperature estimate improved significantly as an increasing number of countries presented their “nationally determined contributions” (NDCs) for the new climate agreement, most significantly when the USA and China submitted their pledges together. When the Paris Agreement was adopted, our thermometer stood at 2.7°C, a significant improvement of 0.8°C from our 2009 estimate (see Figure 1).

¹ The Climate Action Tracker is continuously updating and refining its methodology. As a result, the temperature estimates in this figure cannot solely be attributed to target improvements or real-world action; however, the figure does show the overall progression of our estimates.

There has been little movement on targets, *in the right direction*, since Paris. On the contrary, under the Trump Administration, the USA announced its intention to withdraw from the Agreement on 1 June 2017, a decision that took effect in November 2020, and its earlier long-term target was no longer valid. We also no longer included the long-term target that Russia had made as part of the G20 (it was not mentioned in Russia's national processes). As a result, our temperature estimate for NDCs actually increased between 2015-2017.

Since 2017, the temperature estimate has dropped slowly; however this decline is not due to new or stronger NDCs (as there have been very few), but rather because the CAT takes a country's real-world emissions estimate in 2030 in instances where the country's target is so weak and divorced from their real-world emissions trajectory that to include the inflated target would be to overestimate end of century warming. As a result, the targets' temperature estimate follows a similar trajectory to our real-world 'climate policies' projection and reflects the rapid cost decline of renewables and implementation of policies. Our current temperature estimate for governments' targets and pledges, as of November 2020, is 2.6°C.²

2 This estimate is 0.1°C lower than our September 2020 due to improvements in our methodology and updated older long-term targets used in our assessment.

A wave of net zero emissions targets puts Paris 1.5°C temperature limit within striking distance

Under the Paris Agreement, governments agreed to achieve net zero greenhouse gas emissions in the second half of the century [Article 4.1].³ The IPCC Special Report on 1.5°C found that to stand a good chance of limiting global warming to 1.5°C, global CO₂ and other GHG emissions must reach net zero by 2050 and 2070 (IPCC, 2018), respectively. The sooner CO₂ emissions cross zero, the sooner global temperature will stop rising.

At the time the Paris Agreement was adopted, only a very few countries had net zero emissions reduction targets. In the five years since Paris, an increasing number of countries have adopted this target, with a wave of net zero target announcements from major emitters in recent months.

Several European countries, including the UK, and small island states were amongst the first to commit to net zero emissions, followed by the EU with its proposal to enshrine the goal of net zero GHG emissions by 2050 in law in March 2020 (European Commission, 2020). In September 2020, China pledged its aim to achieve carbon neutrality before 2060 (Xinhua, 2020), followed by net zero announcements from South Africa, Japan, South Korea and Canada (Cha, 2020; Government of Canada, 2020; Lies, 2020; Republic of South Africa, 2020). 127 countries have now made such announcements, together responsible for around 63% of global emissions. This figure takes into account the US, where President-elect Joe Biden has promised carbon neutrality by 2050 (Biden & Sanders, 2020). Without the USA, it would be 126 countries and 51% of emissions (see Figure 2).

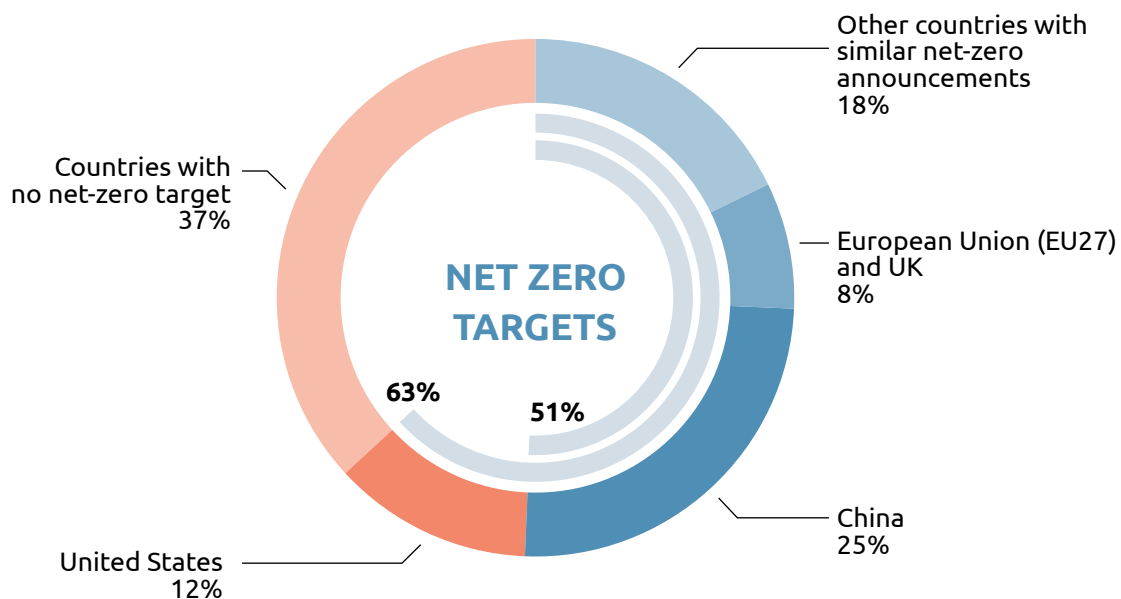


Figure 2. Share of GHG emissions covered by countries that have announced net zero emission targets (agreed in law, as part of an initiative, or under discussion). Compilation based on ECIU (2020) as of 23 November 2020 complemented by CAT analysis. Emissions data for 2017 taken from EDGAR emissions database (EDGAR, 2019).

The Climate Action Tracker estimates that if all 127 governments with net zero targets (agreed or under discussion) were to achieve these goals (our “optimistic target” scenario), our temperature estimate for 2100 would be as low as 2.1°C, bringing the 1.5°C temperature limit of the Paris Agreement within reach.⁴ If we exclude from the calculation net zero targets where the status is unclear or where it can only be traced to a subscription to a net zero initiative (but still including the USA), the temperature estimate by 2100 increases to 2.14°C. Excluding the USA leads to 2.24°C.

³ The idea to include a global net zero target in the Paris Agreement was put forward in the run up to COP 21, for instance in Haïtes, Yamin & Höhne (2013).

⁴ See the Annex for a list of countries and respective assumptions.

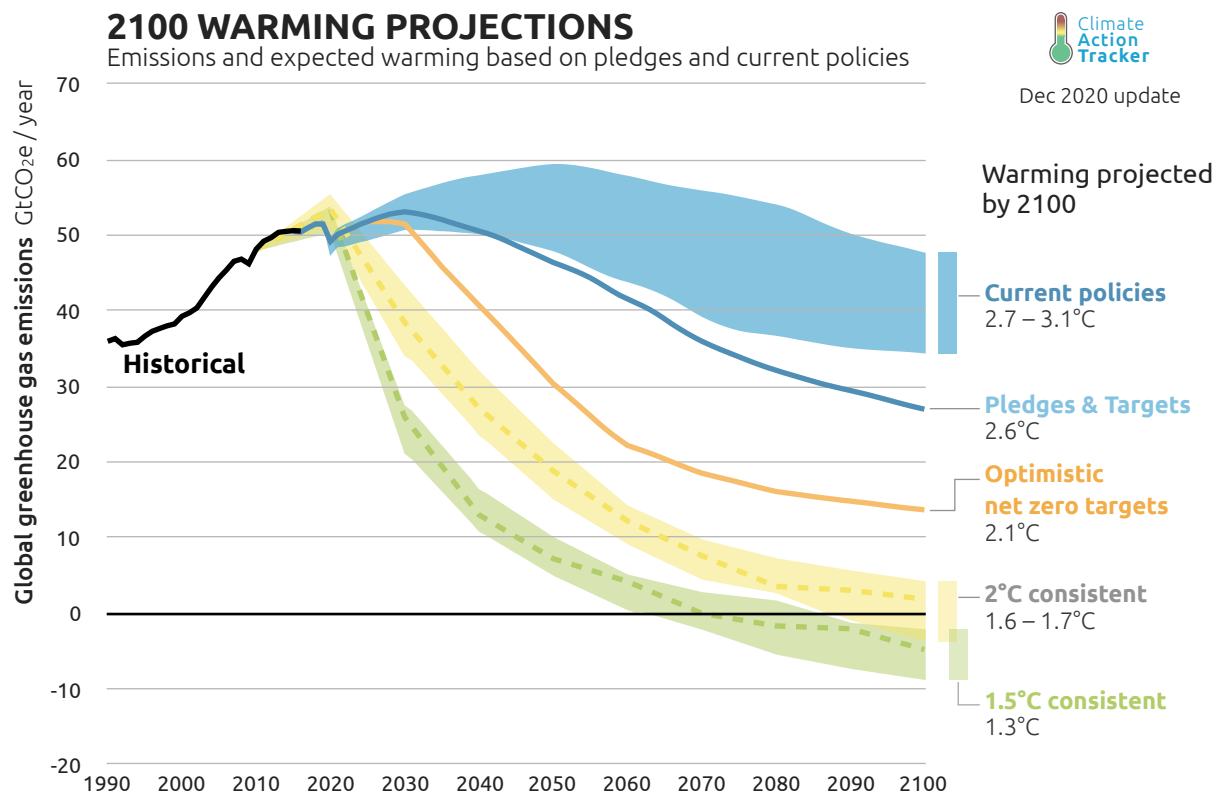


Figure 3. Global greenhouse gas emission pathways for CAT estimates of current policies, current pledges and targets and an optimistic scenario based on 127 net zero targets in comparison to 2°C and 1.5°C consistent pathways.

There is considerable uncertainty of our ‘optimistic target’ scenario temperature of 2.1°C, due to the uncertainty in carbon-cycle and climate modelling. The 2.1°C estimate is the “best guess” given the uncertainties, there is 50% chance that it is below 2.1°C and a 50% chance that it is above. We provide an uncertainty range based on the likelihood of the estimate of 1.7°C to 2.7°C: There is a 84% chance that it is below 2.7°C and a 16% chance that it is below 1.7°C. Often a “likely” probability of 66% is used when it comes to the long-term temperature limit of the Paris agreement (also for the 1.5°C and 2°C pathways in Figure 3). The temperature outcome of our optimistic target scenario is “likely” to be (with a probability of 66%) below 2.3°C.

If such a large share of current emissions were to reach zero by 2050, why does the temperature estimate remain still so far away from 1.5°C? First, the countries without a net zero target (responsible for the remaining 37% of global emissions) are assumed to follow their current emissions trajectory. To limit warming to 1.5°C, these emissions would also have to reduce to zero eventually. Technology spill over from countries that do have net zero commitments may speed up emissions reductions in other countries and lower warming further, but we do not consider these effects here.

Second, we assume that once countries reach their net zero targets, they do not make additional efforts to move to significant net negative emissions. However, all 1.5°C compatible scenarios include some sort of carbon dioxide removal from the atmosphere in the second half of the century and assume that emissions become net negative after the net zero line is reached (IPCC, 2018). As a rough order of magnitude, net negative emissions after 2050 can double the temperature effect. For example, if the USA were to follow a net negative trajectory after 2050, the temperature impact of its target would move from 0.1°C to 0.2°C.

The net zero targets differ in their treatment of land sector emissions and the greenhouse gases they cover (see Annex for details). Some net zero targets do not cover all greenhouse gases, and some are unclear in their coverage. We assumed that China and the United States aim to bring all GHGs to net zero by 2050 and 2060, respectively. Announcements and discussions after the targets were announced suggest that the targets cover all GHG emissions, even if the original formulations

of the targets are not clear about their scope. If they intend instead to achieve net zero CO₂ emissions, this would increase the global temperature increase and push the 1.5°C target further out of reach.

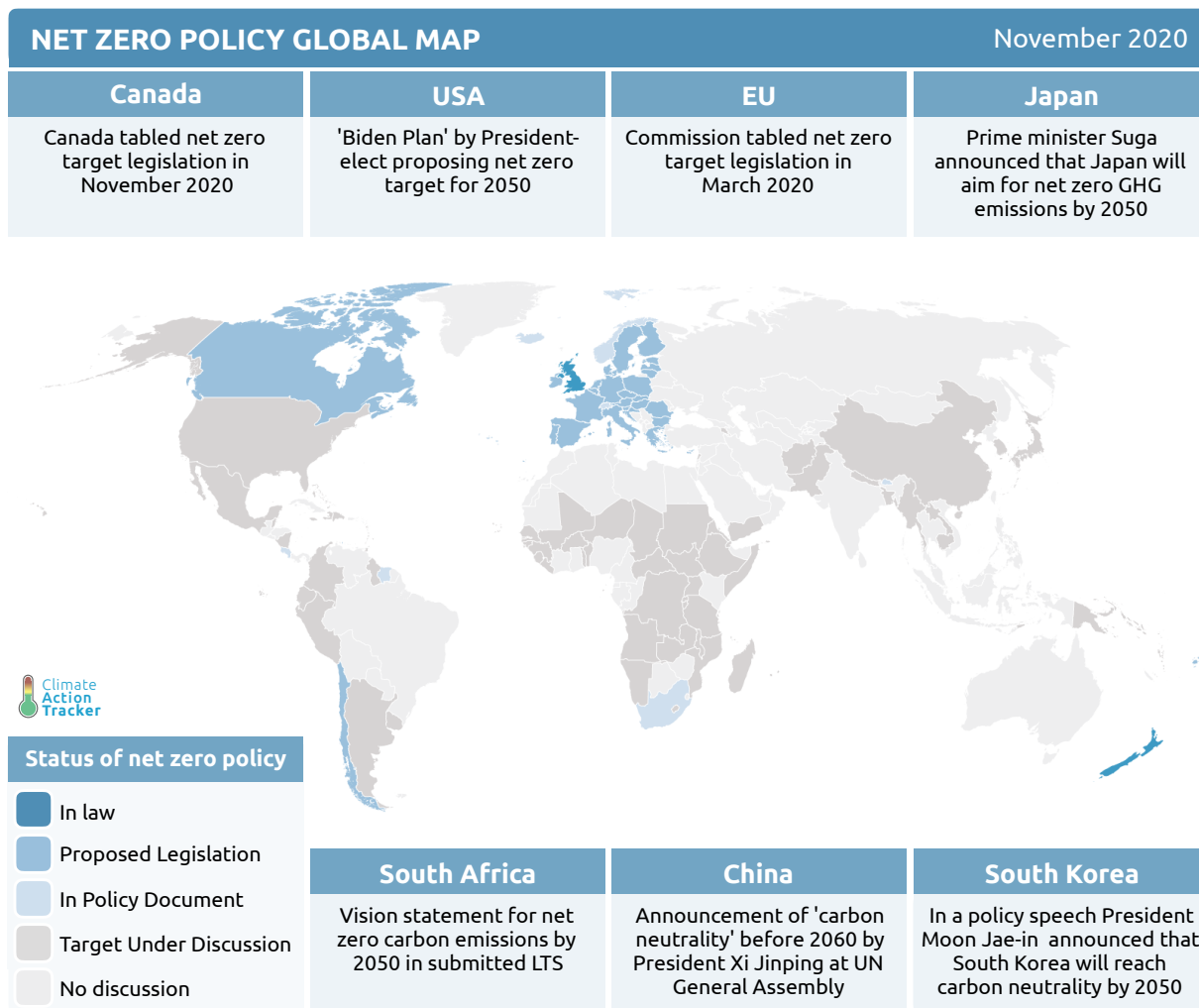


Figure 4: Net zero targets announced by 127 countries worldwide as of November 2020. Compilation based on ECIU (2020) as of 23 November 2020 complemented by CAT analysis.

3 Governments must now align 2030 targets to meet net zero goals

Setting net zero targets is an important step, and an influential signal. However, strengthening the 2030 NDC targets and accelerating policy implementation are critical to ensuring those long-term goals can be met. Steeper emissions reductions over the next five to ten years will be essential. In other words: pathways matter. Many NDCs are not compatible with the 1.5°C temperature goal and are not in line with moving to net zero by 2050.

Even with a small dip due to the COVID-19 pandemic, we expect global GHG emissions to continue rising until 2030. Global emissions would have to be cut in half to be in line with trajectories compatible with the 1.5°C limit. The emissions gap remains enormous (Figure 5).

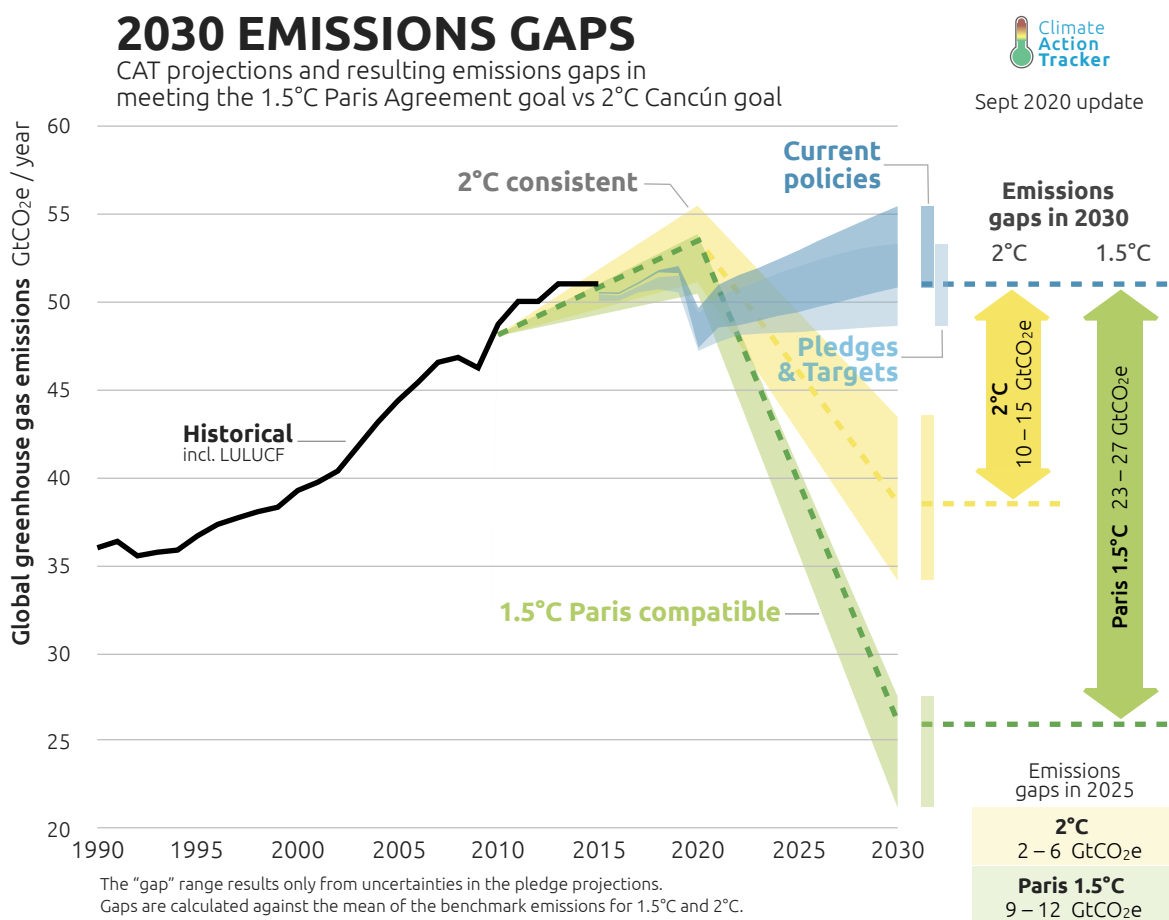


Figure 5: 2030 emissions gap between NDC targets and levels consistent with 1.5°C (Climate Action Tracker, 2020).

So far, no single large emitter has strengthened its NDC target since Paris.⁵ A month remains before the end of 2020, a year in which countries were expected to submit their updated and improved NDCs. To keep the long-term temperature goal of the Paris Agreement within reach, all countries need to submit and implement new and more ambitious NDCs for the 2030 timeframe.

⁵ Argentina submitted a revised NDC in 2016; however, it only increased its mitigation ambition by 1%. Japan resubmitted its NDC unchanged in March 2020 and Russia's new NDC, submitted in November 2020, will not alter deliver real-world climate action. See the CAT's Climate Target Update Tracker for details available at: <https://climateactiontracker.org/climate-target-update-tracker>.



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We had to make several assumptions to assess the impact of net zero targets on the global temperature increase by 2100. These relate to (1) the emissions covered by the various targets, (2) land-use, land-use change and forestry (LULUCF) emissions by 2050, (3) the trajectory of non-CO₂ emissions and (4) the importance of 2030 targets.

Table 1 provides an overview of all 12 net zero targets assessed in detail for countries covered in the CAT. Table 2 lists all 127 net zero targets included in the modelling runs for the CAT's temperature estimate in December 2020.

Emissions covered: net zero CO₂ versus net zero GHG

While most countries have set net zero GHG targets, South Africa and South Korea explicitly committed to net zero CO₂ emissions. New Zealand committed to net zero GHG emissions, with the exception of methane (CH₄) from agriculture and waste. The scope of the Chinese, Japanese and US net zero target remain somewhat unclear. While President Xi Jinping spoke of “carbon neutrality” when he addressed the UN Assembly, national experts indicate this target could cover all GHG emissions. Prime minister Suga of Japan has used the terms “carbon neutral” and “net zero GHG emissions” interchangeably; and president-elect Biden has used both “net zero GHG emissions” and “net zero carbon emissions”. Based on communications with in-country experts, we assume that these three large emitters pledged net zero GHG emissions.

We have changed our understanding of China's net zero target since President Xi Jinping addressed the UN General Assembly in September 2020. In our press release following Jinping's announcement,⁶ we assumed that China had committed to net zero CO₂ emissions before 2060. As more information on the target has come out (Jiankun, 2020), we now understand the target to mean net zero GHG emissions.

LULUCF

Net zero emissions imply that residual emissions can be balanced with removals, e.g. from LULUCF. We estimated the level of the LULUCF sink in the net zero target year for each country. Where available, we used national projections until 2050. If only projections until 2030 were available, we assumed 2050 values to be equal to the 2030 value.

When no national projections were available, we assumed that future LULUCF emissions are equal to an historical average, based on most recent data. In our assessments of South Korea and Japan, whose LULUCF emissions have declined in the past decade, this approach led to a sink we considered unrealistically large. For those two countries, we extended the ten-year historical trend to 2030 and assumed that the 2050 value was equal to the 2030 value.

Non-CO₂ emission projections

South Korea and South Africa have committed to net zero carbon emissions by 2050. We assumed that non-CO₂ emissions will decline at a linear rate between 2030 and 2070 (South Korea) or 2080 (South Africa). The IPCC SR1.5 found that pathways leading to a temperature increase of 1.5 °C above pre-industrial levels reach net zero GHG emissions between 2060 and 2080 (IPCC, 2018). We assumed that developed and developing countries reach net zero non-CO₂ emissions by 2070 and 2080, respectively.

Further, as we assume that countries with a net zero carbon target will use their LULUCF sink to balance our residual CO₂ emissions by 2050, non-CO₂ emissions must go to zero in order to achieve

⁶ Available at: <https://climateactiontracker.org/press/china-carbon-neutral-before-2060-would-lower-warming-projections-by-around-2-to-3-tenths-of-a-degree/>.

net zero GHG emissions. Alternatively (and more likely), countries will invest in additional carbon dioxide removals.

To determine the amount of non-CO₂ emissions by 2030, we would ideally have used the breakdown as stated in the NDC. However, this information exists for neither South Africa nor South Korea, so we used the breakdown as projected by the current policy projection for 2030.

Importance of 2030 targets in the emission trajectory to net zero

The lower the 2030 value in the emissions trajectory, the lower global temperature increase will be. We assumed that countries achieve their most recent NDC target for 2030. Where countries have committed to an NDC range, we assumed the highest value.

Japan and South Africa are expected to overachieve their NDC targets. In this case, we have taken the maximum post-COVID current policy projection as the 2030 value.

The United States formally withdrew from the Paris Agreement in November 2020 and therefore no longer has an NDC target. We have taken the upper end of the USA post-COVID current policy projection in 2025 as the base year and assume that all GHG emissions will decline at a linear rate to net zero between 2025 and 2050, with all power sector CO₂ emissions already reaching zero by 2025 as proposed in the Biden Plan (Biden & Sanders, 2020).

With the exception of Norway and Chile, none of the countries we analysed have submitted a stronger NDC target to the UNFCCC⁷. If countries commit to and achieve more ambitious NDC targets by 2030, global temperature increase could be further limited.

Table 1: List of 12 net zero targets assessed in detail for countries covered in the Climate Action Tracker (CAT)

Country	Type of net zero target	Target year	Assumption on LULUCF	Assumptions on GHG emissions excluding LULUCF
China	Net zero GHGs	2060	We used a ten-year historical average based on GHG inventory data from 2004 to 2014. The average of LULUCF emissions in those years is -783Mt, which we assumed as a value for 2050 and 2060. This estimate is consistent with the projections of Tsinghua University (Jiankun, 2020), which show a sink of 780Mt in those years.	We apply a linear interpolation of all GHG emission between 2030 and 2050 to balance LULUCF sinks in 2050. We use the average of the NDC non-fossil fuel and the NDC peaking pledge in 2030 as the starting point.
United States	Net zero GHGs	2050	We extrapolated the trend of 1990-2018 to 2050, which resulted in a sink of -643 MtCO ₂ e in 2050.	We assume that power sector emissions fall linearly between 2025 and 2035, when these fall to zero, and apply a linear interpolation of all remaining GHG emissions between 2025 and 2050 to balance LULUCF sinks in 2050. We use the upper limited of the Post-COVID Current Policy Projection in 2025 as the starting point for both trajectories.
Canada	Net zero GHGs	2050	We used the 2030 projection from the 4th Biennial Report for the 2050 estimate and assumed emissions to be -10 MtCO ₂ e (Environment and Climate Change Canada, 2020).	We assumed a linear decline in total GHGs between 2030 and 2050 to balance LULUCF emissions in 2050.

⁷ See the CAT's Climate Target Update Tracker for details available at: <https://climateactiontracker.org/climate-target-update-tracker>.

Country	Type of net zero target	Target year	Assumption on LULUCF	Assumptions on GHG emissions excluding LULUCF
Chile	Net zero GHGs	2050	We used national projections for 2050 presented in the updated NDC and Climate Neutrality Plan of 2020 and assumed LULUCF emissions to be -61 MtCO ₂ e (Ministerio de Energia del Gobierno de Chile, 2020).	We used national projections for all GHG emission 2050 presented in the updated NDC and Climate Neutrality Plan of 2020 to balance LULUCF sinks in 2050 (Ministerio de Energia del Gobierno de Chile, 2020).
Costa Rica	Net zero GHGs	2050	We used national projections for 2050, as provided for in the 2018 Decarbonization Strategy and assumed LULUCF emissions to be -6Mt by 2050 (Gobierno de Costa Rica, 2019).	We used national projections for 2050, as provided for in the 2018 Decarbonization Strategy, to balance LULUCF sinks in 2050 (Gobierno de Costa Rica, 2019). We use the upper limited of the NDC in 2030 as the starting point.
EU	Net zero GHGs	2050	The EU's projection for its 1.5LIFE scenario is a sink of 464 MtCO ₂ in 2050 (European Commission, 2018)	We used the EU's own projections for 2050 excluding LULUCF, from the 1.5LIFE scenario (European Commission, 2018).
Japan	Net zero GHGs	2050	We extrapolated the 2009-2018 trend to 2030 resulting in -35 MtCO ₂ e and assumed that the sink will be at 2030 levels by 2050.	We applied a linear interpolation of all GHG emission between 2030 and 2050 to balance LULUCF sinks in 2050. We used the upper limit of the Post-COVID Current Policy Projection in 2030 as the starting point.
South Korea	Net zero GHGs	2050	We extrapolated the 2008-2017 trend to 2030 resulting in -17 MtCO ₂ e and assumed that the sink will be at 2030 levels by 2050.	We applied a linear interpolation of all GHG emission between 2030 and 2050 to balance LULUCF sinks in 2050. We assumed that non-CO ₂ emissions will decrease at a linear rate to zero by 2070. We used the upper limit of the NDC in 2030 as the starting point.
South Africa	Net zero CO ₂	2050	We used a ten-year historical average based on national inventory data from 2005-2015 resulting in -16 MtCO ₂ e.	We assumed that CO ₂ emissions will decline at a linear rate between 2030 and 2050 to balance LULUCF sinks in 2050. We assume that non-CO ₂ emissions will decline at a linear rate between 2030 and 2080 in line with the IPCC SR1.5 pathways. We use the upper limit of the Post-COVID Current Policy Projection in 2030 as the starting point.
Switzerland	Net zero GHGs	2050	We used the "with existing measures" projection for 2030 from the 4th Biennial Report (emissions of 1 MtCO ₂ /yr) and assumed the same value for 2050 (Schweizerische Eidgenossenschaft, 2020)	We assumed a linear decline in total GHGs between 2030 and 2050 to balance LULUCF emissions in 2050.
New Zealand	Net zero GHG, with the exception of CH ₄ from agriculture and waste	2050	We used national projection for 2050 (Ministry for the Environment of New Zealand, 2020), harmonised to historical data, giving a sink in 2050 of 31 MtCO ₂ .	We assume that GHG emissions excluding methane from agriculture and waste and LULUCF follow a linear decline from 2030 to 2050, to balance LULUCF removals in 2050. We take the upper end of New Zealand's target for biogenic methane (47% reduction from 2017 levels).
Norway	GHGs reduce by 90-95%, compared to 1990. We assumed that LULUCF emissions are included in this target.	2050	We used a projection from NIBIO, which gives a sink in 2050 of 20 MtCO ₂ (Søgaard et al., 2019).	We assume a linear decline in GHG emissions excluding LULUCF between 2030 and 2050, such that total emissions in 2050 including LULUCF are 95% below 1990 levels.

Table 2: List of all net zero targets included in the modelling runs for the global aggregation based on the ECIU (2020) as of 23 November 2020 complemented by CAT analysis for 12 CAT countries in Table 1.

*Note: All Member States of the EU27 and the United Kingdom are included in the modelling runs through EU28, not individually.

Country	Status	Target year	#1 - Modelling run incl. net zero targets of all 127 countries	#2 – Modelling run incl. net zero targets of 12 CAT countries incl. USA	#3 – Modelling run incl. net zero targets of 11 CAT countries excl. USA
Afghanistan	Under Discussion	2050	Yes	No	No
Angola	Under Discussion	2050	Yes	No	No
Antigua and Barbuda	Under Discussion	2050	Yes	No	No
Argentina	Under Discussion	2050	Yes	No	No
Armenia	Under Discussion	2050	Yes	No	No
Austria*	In Policy Document	2040	No	No	No
Bahamas (the)	Under Discussion	2050	Yes	No	No
Bangladesh	Under Discussion	2050	Yes	No	No
Barbados	Under Discussion	2050	Yes	No	No
Belgium*	Under Discussion	2050	No	No	No
Belize	Under Discussion	2050	Yes	No	No
Benin	Under Discussion	2050	Yes	No	No
Bhutan	In Policy Document		Yes	No	No
Bulgaria*	Under Discussion	2050	No	No	No
Burkina Faso	Under Discussion	2050	Yes	No	No
Burundi	Under Discussion	2050	Yes	No	No
Cabo Verde	Under Discussion	2050	Yes	No	No
Cambodia	Under Discussion	2050	Yes	No	No
Canada	Proposed legislation	2050	Yes	Yes	Yes
Central African Republic (the)	Under Discussion	2050	Yes	No	No
Chad	Under Discussion	2050	Yes	No	No
Chile	Proposed Legislation	2050	Yes	Yes	Yes
China	Under Discussion (announcement by head of state)	2060	Yes	Yes	Yes
Colombia	Under Discussion	2050	Yes	No	No

Country	Status	Target year	#1 - Modelling run incl. net zero targets of all 127 countries	#2 – Modelling run incl. net zero targets of 12 CAT countries incl. USA	#3 – Modelling run incl. net zero targets of 11 CAT countries excl. USA
Comoros (the)	Under Discussion	2050	Yes	No	No
Congo (the Democratic Republic of the)	Under Discussion	2050	Yes	No	No
Cook Islands (the)	Under Discussion	2050	Yes	No	No
Costa Rica	In Policy Document	2050	Yes	Yes	Yes
Croatia*	Under Discussion	2050	No	No	No
Cyprus*	Under Discussion	2050	No	No	No
Czechia*	Under Discussion	2050	No	No	No
Denmark*	In Law	2050	No	No	No
Djibouti	Under Discussion	2050	Yes	No	No
Dominica	Under Discussion	2050	Yes	No	No
Dominican Republic (the)	Under Discussion	2050	Yes	No	No
Ecuador	Under Discussion	2050	Yes	No	No
Eritrea	Under Discussion	2050	Yes	No	No
Estonia*	Under Discussion	2050	No	No	No
Ethiopia	Under Discussion	2050	Yes	No	No
European Union	Proposed Legislation	2050	Yes	Yes	Yes
Fiji	Proposed Legislation	2050	Yes	No	No
Finland*	In Policy Document	2035	No	No	No
France*	In Law	2050	No	No	No
Gambia (the)	Under Discussion	2050	Yes	No	No
Germany*	In Policy Document	2050	No	No	No
Greece*	Under Discussion	2050	No	No	No
Grenada	Under Discussion	2050	Yes	No	No
Guinea	Under Discussion	2050	Yes	No	No
Guinea-Bissau	Under Discussion	2050	Yes	No	No
Guyana	Under Discussion	2050	Yes	No	No
Haiti	Under Discussion	2050	Yes	No	No

Country	Status	Target year	#1 - Modelling run incl. net zero targets of all 127 countries	#2 – Modelling run incl. net zero targets of 12 CAT countries incl. USA	#3 – Modelling run incl. net zero targets of 11 CAT countries excl. USA
Hungary*	In Law	2050	No	No	No
Iceland	In Policy Document	2040	Yes	No	No
Ireland*	In Policy Document	2050	No	No	No
Italy*	Under Discussion	2050	No	No	No
Jamaica	Under Discussion	2050	Yes	No	No
Japan	Under Discussion (announcement by head of state)	2050	Yes	Yes	Yes
Kiribati	Under Discussion	2050	Yes	No	No
Korea (the Republic of)	Under Discussion (announcement by head of state)	2050	Yes	Yes	Yes
Lao People's Democratic Republic (the)	Under Discussion	2050	Yes	No	No
Latvia*	Under Discussion	2050	No	No	No
Lebanon	Under Discussion	2050	Yes	No	No
Lesotho	Under Discussion	2050	Yes	No	No
Liberia	Under Discussion	2050	Yes	No	No
Lithuania*	Under Discussion	2050	No	No	No
Luxembourg*	Under Discussion	2050	No	No	No
Madagascar	Under Discussion	2050	Yes	No	No
Malawi	Under Discussion	2050	Yes	No	No
Maldives	Under Discussion	2050	Yes	No	No
Mali	Under Discussion	2050	Yes	No	No
Malta*	Under Discussion	2050	No	No	No
Marshall Islands (the)	In Policy Document	2050	Yes	No	No
Mauritania	Under Discussion	2050	Yes	No	No
Mauritius	Under Discussion	2050	Yes	No	No
Mexico	Under Discussion	2050	Yes	No	No
Micronesia (Federated States of)	Under Discussion	2050	Yes	No	No

Country	Status	Target year	#1 - Modelling run incl. net zero targets of all 127 countries	#2 – Modelling run incl. net zero targets of 12 CAT countries incl. USA	#3 – Modelling run incl. net zero targets of 11 CAT countries excl. USA
Monaco	Under Discussion	2050	Yes	No	No
Mozambique	Under Discussion	2050	Yes	No	No
Myanmar	Under Discussion	2050	Yes	No	No
Namibia	Under Discussion	2050	Yes	No	No
Nauru	Under Discussion	2050	Yes	No	No
Nepal	Under Discussion	2050	Yes	No	No
Netherlands (the)*	Under Discussion	2050	No	No	No
New Zealand	In Law	2050	Yes	Yes	Yes
Nicaragua	Under Discussion	2050	Yes	No	No
Niger (the)	Under Discussion	2050	Yes	No	No
Niue	Under Discussion	2050	Yes	No	No
Norway	In Policy Document	2050	Yes	Yes	Yes
Pakistan	Under Discussion	2050	Yes	No	No
Palau	Under Discussion	2050	Yes	No	No
Papua New Guinea	Under Discussion	2050	Yes	No	No
Peru	Under Discussion	2050	Yes	No	No
Portugal*	In Policy Document	2050	No	No	No
Romania*	Under Discussion	2050	No	No	No
Rwanda	Under Discussion	2050	Yes	No	No
Saint Kitts and Nevis	Under Discussion	2050	Yes	No	No
Saint Lucia	Under Discussion	2050	Yes	No	No
Saint Vincent and the Grenadines	Under Discussion	2050	Yes	No	No
Samoa	Under Discussion	2050	Yes	No	No
Sao Tome and Principe	Under Discussion	2050	Yes	No	No
Senegal	Under Discussion	2050	Yes	No	No
Seychelles	Under Discussion	2050	Yes	No	No
Sierra Leone	Under Discussion	2050	Yes	No	No

Country	Status	Target year	#1 - Modelling run incl. net zero targets of all 127 countries	#2 – Modelling run incl. net zero targets of 12 CAT countries incl. USA	#3 – Modelling run incl. net zero targets of 11 CAT countries excl. USA
Slovakia*	Under Discussion	2050	No	No	No
Slovenia*	In Policy Document	2050	No	No	No
Solomon Islands	Under Discussion	2050	Yes	No	No
Somalia	Under Discussion	2050	Yes	No	No
South Africa	In Policy Document	2050	Yes	Yes	Yes
South Sudan	Under Discussion	2050	Yes	No	No
Spain*	Proposed Legislation	2050	No	No	No
Sudan (the)	Under Discussion	2050	Yes	No	No
Suriname	In Policy Document		Yes	No	No
Sweden*	In Law	2045	No	No	No
Switzerland	In Policy Document	2050	Yes	Yes	Yes
Tanzania, United Republic of	Under Discussion	2050	Yes	No	No
Timor-Leste	Under Discussion	2050	Yes	No	No
Togo	Under Discussion	2050	Yes	No	No
Tonga	Under Discussion	2050	Yes	No	No
Trinidad and Tobago	Under Discussion	2050	Yes	No	No
Tuvalu	Under Discussion	2050	Yes	No	No
Uganda	Under Discussion	2050	Yes	No	No
United Kingdom of Great Britain and Northern Ireland (the)*	In Law	2050	No	No	No
United States of America (the)	Under Discussion ('Biden Plan' by President-Elect)	2050	Yes	Yes	No
Uruguay	Under Discussion	2030	Yes	No	No
Vanuatu	Under Discussion	2050	Yes	No	No
Yemen	Under Discussion	2050	Yes	No	No
Zambia	Under Discussion	2050	Yes	No	No



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The Climate Action Tracker (CAT) is an independent scientific analysis produced by two research organisations tracking climate action since 2009. We track progress towards the globally agreed aim of holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C.

climateactiontracker.org



Climate Analytics is a non-profit climate science and policy institute based in Berlin, Germany with offices in New York, USA, Lomé, Togo and Perth, Australia, which brings together interdisciplinary expertise in the scientific and policy aspects of climate change. Climate Analytics aims to synthesise and advance scientific knowledge in the area of climate, and by linking scientific and policy analysis provide state-of-the-art solutions to global and national climate change policy challenges.

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NewClimate Institute is a non-profit institute established in 2014. NewClimate Institute supports research and implementation of action against climate change around the globe, covering the topics international climate negotiations, tracking climate action, climate and development, climate finance and carbon market mechanisms. NewClimate Institute aims at connecting up-to-date research with the real world decision making processes.

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