

As the climate crisis worsens, the warming outlook stagnates

Climate Action Tracker

Warming Projections Global Update

November 2024



Summary

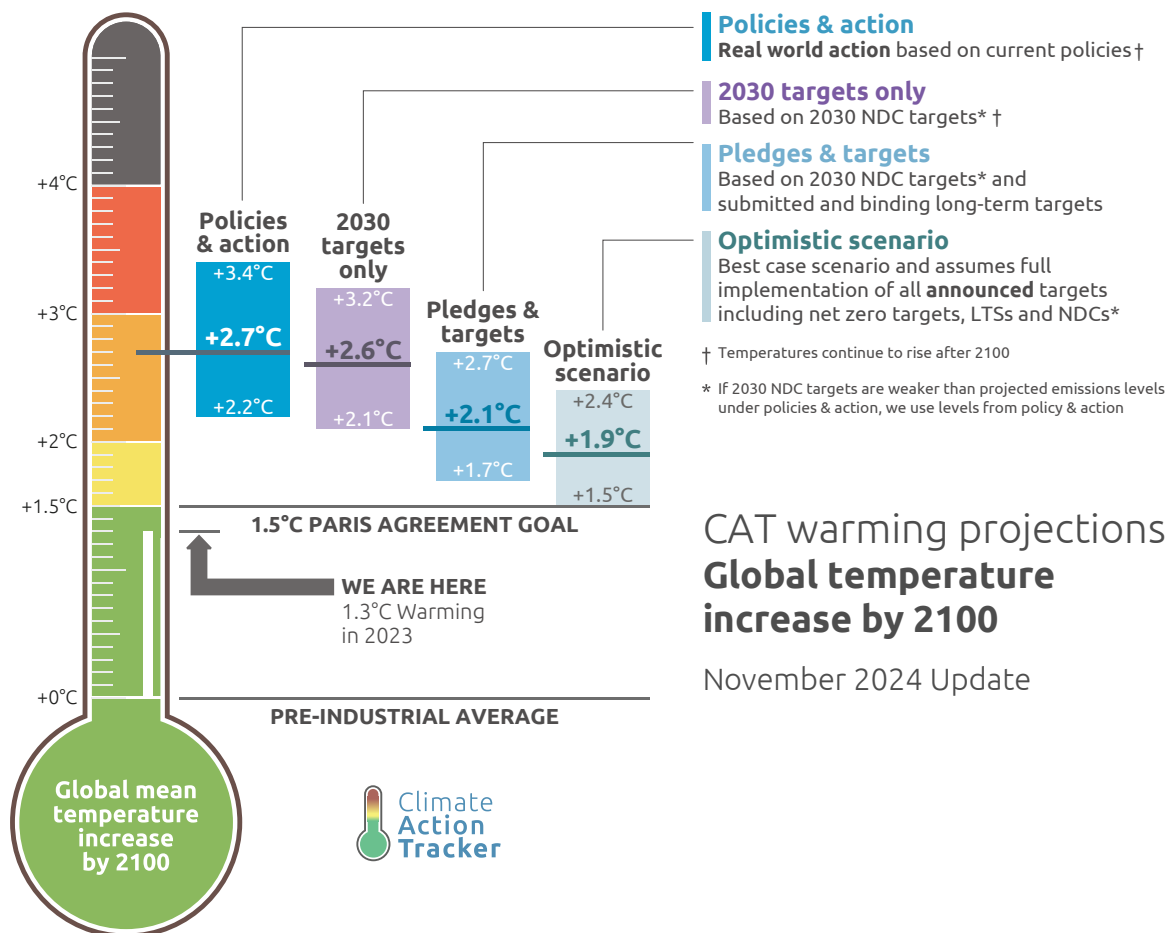
Despite an escalating climate crisis marked by unprecedented wildfires, storms, floods, and droughts, our annual global temperature update shows global warming projections for 2100 have not improved since 2021, with the aggregate effect of current policies setting the world on a path toward 2.7°C of warming. This three-year standstill underscores a critical disconnect between the reality of climate change and the urgency that governments are giving to the policies needed to reduce the greenhouse gases emissions driving global warming at a rate of close to 0.3°C per decade.

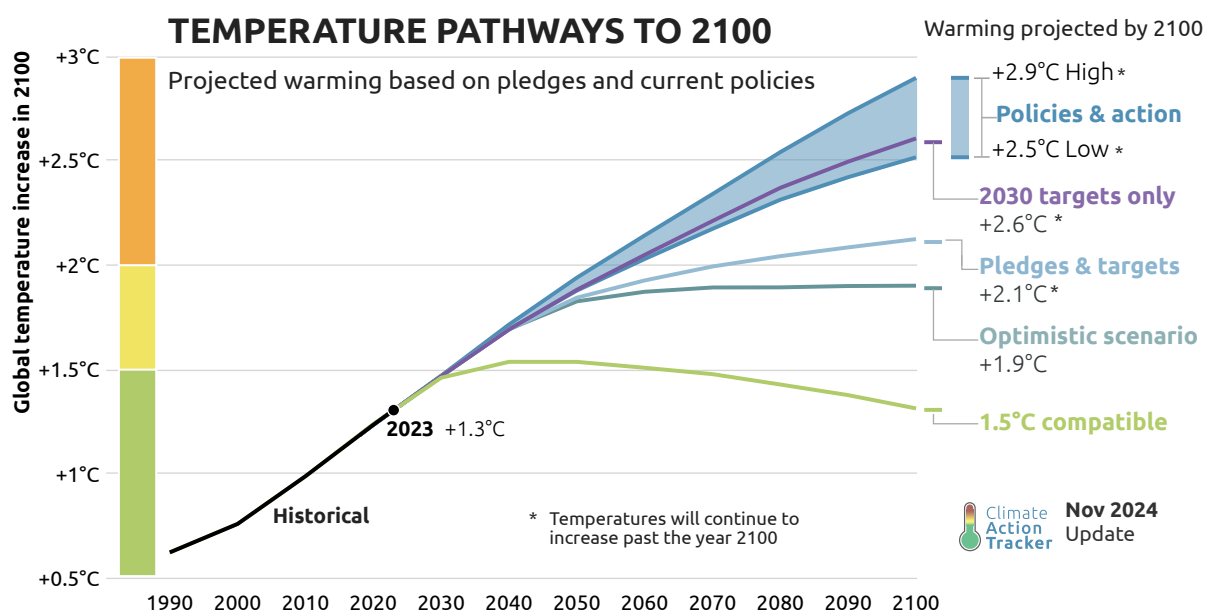
Mixed signals from the political space are cancelling each other out and clearly hindering progress in climate action.

On the positive side, **renewable energy and electric vehicle deployment reported record-breaking progress**: energy investments in clean energy are now double those for fossil fuels, particularly oil and gas, for the first time, while investment in clean manufacturing capacity is growing rapidly.

On the negative side, **fossil fuel subsidies remain at an all-time high and funding for fossil fuel-prolonging projects quadrupled between 2021 and 2022**. Unsurprisingly, this means that our emission projections expect an emissions peak by the end of the decade, but lack the steep decline necessary in that period to reach the Paris Agreement goal.

Although it seems like we have reached a standstill over the last three years, the truth is that there is a lot of action happening, but unfortunately, not all in the right direction. **The exponential growth of renewable energy now allows a faster decline after 2030, despite the increasing emissions so far.**





In terms of the ambition of climate targets, 2024 has been a year marked by minimal progress, with almost no new national climate targets (NDCs) or net zero pledges even though governments have agreed to (urgently) strengthen their 2030 targets and to align them with the 1.5°C goal of the Paris Agreement. **As a result, our warming projections have actually increased slightly under both the 2030 targets and the optimistic scenarios, from 2.5°C to 2.6°C and from 1.8°C to 1.9°C, respectively.**

While the 'optimistic scenario' has gradually become more reliable with higher levels of transparency, much uncertainty remains on how governments define their longer-term net zero targets and how they will implement them. Also noting that these global temperature estimates have a 50/50 chance of limiting warming to the indicated temperature. So, while the optimistic scenario leads to 1.9°C by 2100, it means it is "likely" to be below 2.0°C, but still well above 1.5°C.

Even more ominously, **the current policy warming of 2.7° is a median estimate with a 50% chance of being higher or lower, and our knowledge of the climate system tells us that there is a 33% chance of it being 3.0°C or higher and a 10% chance of being 3.6°C or higher in 2100.**

The election of Donald Trump as President would impact the projected temperature levels that we present here, but it is uncertain to what extent. It could add 0.04 °C of warming by 2100 to our current policy estimate of 2.7°C (assuming the rollback of policies is limited to the United States) to a few tenths of a degree to our optimistic scenario of 1.9°C (assuming the US net zero target is permanently removed). This would be very damaging to the prospects of limiting warming to 1.5°C. The more extensive the policy rollback beyond the United States, the greater the risk.

As governments prepare to set their sights on 2035 targets, it is essential to go beyond incremental improvements. **Much stronger 2030 targets, combined with rapid policy implementation, are needed now to keep the 1.5°C goal within reach. Failure to align 2030 targets and action with stronger 2035 targets would make those 2035 targets lack credibility,** in the same way that many net zero targets lack credibility because of the lack of alignment between current policies and 2030 targets.

In 2015, in Paris, the CAT estimated that current policies would lead to 3.6°C of warming at the end of the century and submitted NDCs to 2.7°C. Six years later, by 2021, this had dropped to 2.7°C warming under current policies and 2.1°C under NDCs. However, due to contradictory trends, projections have remained unchanged over the last three years, underscoring an urgent need to enhance national and global climate efforts.

Meanwhile our global temperature projections remain on an upward trajectory, with warming expected to continue even beyond 2100 under all but the most optimistic scenario. We are clearly failing to bend the curve. **As the world edges closer to these dangerous climate thresholds, the need for immediate, stronger action to reverse this trend becomes ever more urgent.**

We have come to a critical point and COP29 must be a turning point.

If countries fail to substantially increase the ambition of their current 2030 targets and action in 2025, limiting peak global warming to 1.5°C will be ever more difficult and the long-term average human induced global warming increase will breach 1.5°C in the early 2030s. **Human induced warming in 2023 was already 1.3°C and the world is warming at about 0.3°C per decade due to greenhouse gas emissions.**

Failure to act quickly now would likely lead to a multidecadal, high overshoot of this limit, even if followed by strong post 2030 action. **Such a situation would require large-scale permanent removal of CO₂ from the atmosphere in the order of several hundred billion tonnes of greenhouse gas emissions within this century.**

COP29 must be an enabling COP, delivering concrete outcomes to translate the pledges made last year into real-world, real-economy results.



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Locked in: Temperature projections stagnate despite rising climate disasters

As every region in the world witnesses increasingly severe impacts of climate change — from rampant wildfires to devastating storms, floods, and prolonged droughts — our latest temperature update reveals an alarming stagnation. **Our global temperature projections for the end of the century have remained unchanged for three years, highlighting a crucial disconnect between the destructive reality of climate impacts and the implementation of policies meant to mitigate them.**

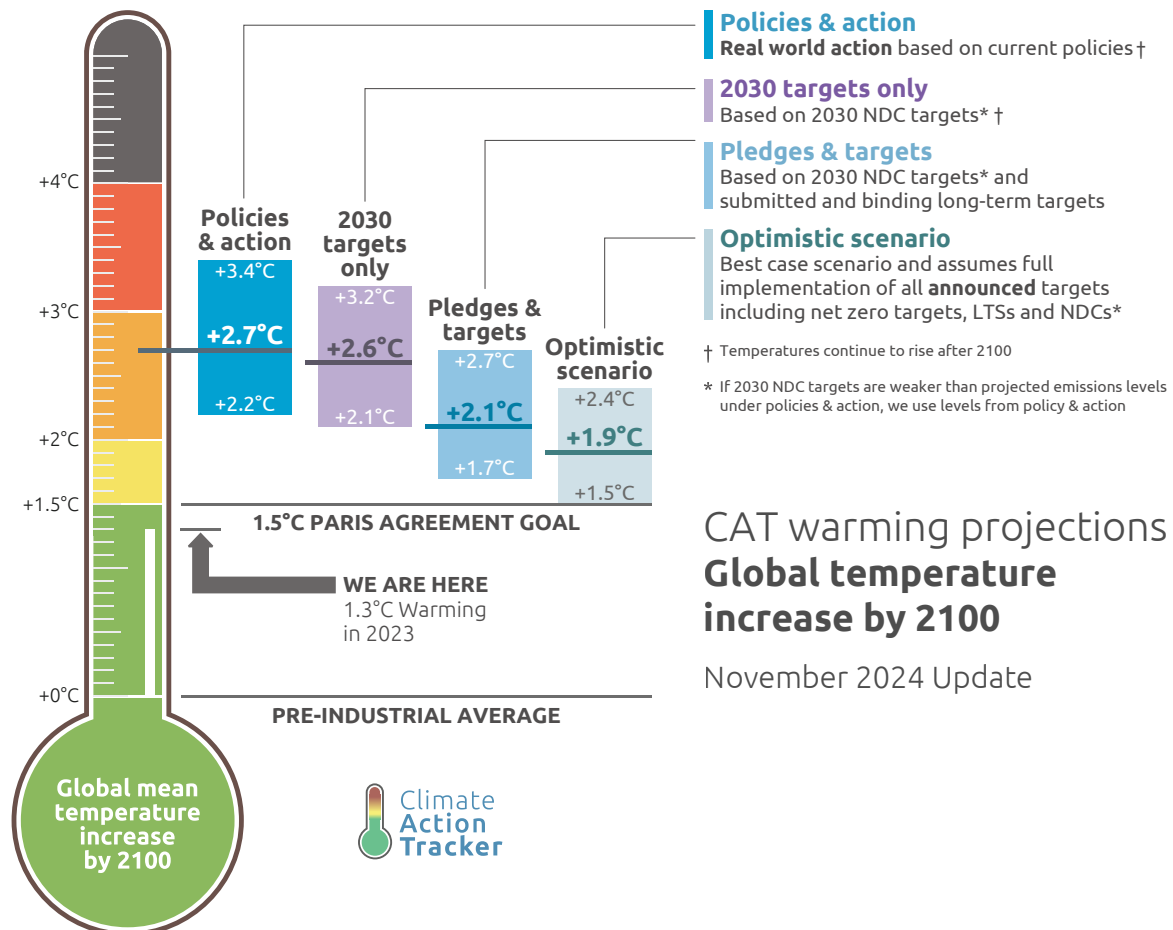


Figure 1 CAT thermometer with warming projections for 2100.

Our analysis shows no shift in projected temperature pathways under our **current policies scenario**, with global warming on track to reach 2.7°C by the end of the century—the same since 2021. Policy development and implementation takes time and whether governments are able to achieve (or beat) their 2030 and upcoming 2035 targets will depend on decisions taken today. Our warming estimates show that current policies lag 0.1°C behind **2030 targets scenario**, and 0.6°C behind our **pledges and targets scenario** (which includes current net zero targets too). Without swift, bold action, we are not just missing the mark—we are fuelling the crisis further.

Although it seems like we have reached a standstill in terms of our warming outlook over the last three years, the truth is that a lot of action is happening in the background, but unfortunately, not all in the right direction.

On the positive side, renewable energy and electric vehicle deployment reported record-breaking progress and energy investments in clean energy are now double those for fossil fuels, particularly oil and gas, for the first time, while investment in clean manufacturing capacity is growing rapidly.

On the negative side, fossil fuel subsidies **remain at record high levels** and funding for fossil fuel-prolonging projects **quadrupled in a single year** (between 2021 and 2022). While renewable energy is expanding rapidly, its positive climate impact is being offset by the growth of fossil fuel subsidies, which continue to anchor fossil fuel use in the global economy.

The rapid growth of renewable energy today allows a faster decline *after 2030*, despite increasing emissions so far (see Figure 2). While we estimate each year higher emission for the 2020s, our most recent pathways show a much faster decline *after 2030*, due to the exponential and faster growth of renewables.

These two opposing trends are cancelling each other out and clearly hindering progress in climate action. For the trend in renewables to truly make a difference, they need to displace fossil fuels, not simply coexist with them. So far, these trends translate into emissions projections peaking and plateauing by the end of the decade, but lack the steep decline necessary in that period to reach the Paris Agreement goal.

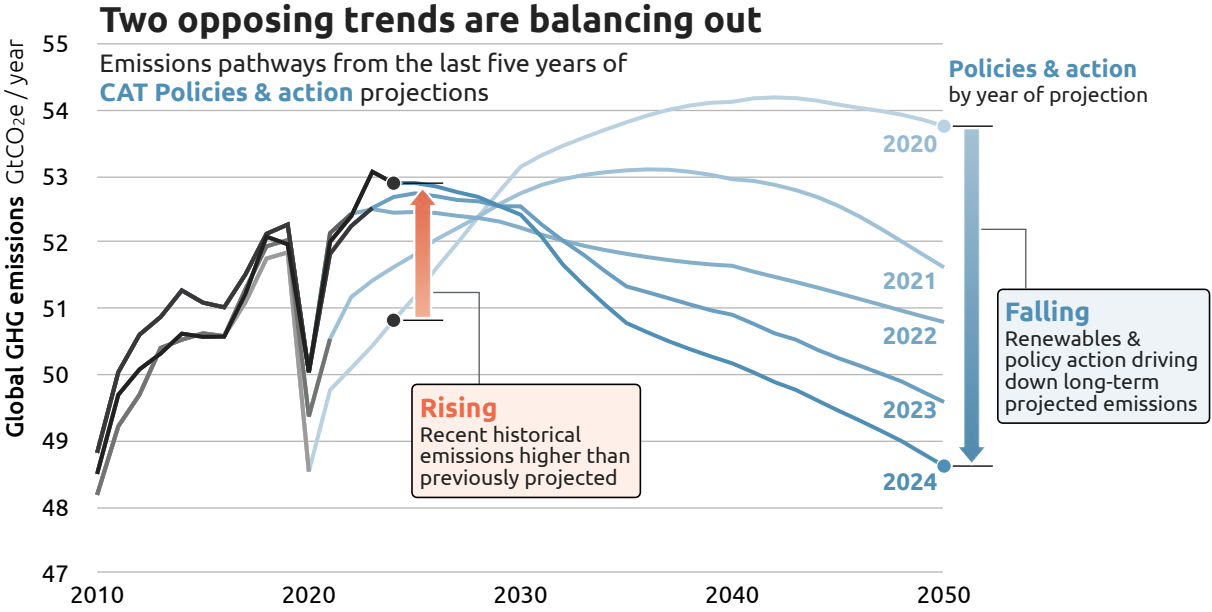


Figure 2: Two opposing trends are balancing each other out: while renewables and policy action are driving down emissions, those emissions are at a higher level than projected.

In terms of the ambition of climate targets, 2024 has been a year marked by minimal progress, with almost no new national climate targets (NDCs) nor net zero pledges even though governments have repeatedly agreed to strengthen their 2030 targets and to align them with a trajectory to net zero. Our projections for warming have actually increased slightly under the **2030 targets scenario**¹: we estimate that end of century warming will reach 2.6°C, 0.1°C higher than last year’s estimates. The change this year is mainly driven by a revision of our estimates of China’s peaking target: although recent projections suggest that China’s emissions will peak before 2025, they will do so at a higher level than anticipated, driven by an all-time high in 2023 emissions (our latest historical year).

This highlights the importance of setting absolute, economy-wide, emission reduction trajectory targets and set a clear and transparent climate target for 2030 and 2035. Peaking targets, carbon intensity targets, and non-fossil energy share targets that are relative to economic growth or energy system developments, could allow countries to meet their NDC commitments while increasing emissions level. Countries should avoid setting flexible and ambiguous targets, if we want to stay below 1.5°C.

If we broaden the scope to also consider binding² long term and net zero targets (the **‘pledges and targets’ scenario**), we estimate these targets will limit end of century warming to 2.1°C, an estimate unchanged since 2021. This is an alarming stagnation, at a time when it is clearer than ever that every 0.1°C matters.

Warming predictions under our **optimistic scenario**, which includes the full implementation of net zero target announcements along with the binding long-term targets, have now also increased from 1.8°C to 1.9°C. Once again, major policy developments are not the driving factor. Instead, the change is influenced by the recalculations of China’s carbon neutrality target, specifically, the

1 This scenario does not include weak 2030 targets (i.e. a target that a country can easily meet now based on its current policy action), instead we take the level of emissions anticipated under those policies.
2 We consider targets to be binding if they have been adopted in domestic legislation or submitted, with sufficient clarity, in long-term strategies to the UNFCCC. We exclude older submissions if we deem that the country has abandoned its target. See Annex I for details.

share of emissions that will come from the forestry and land use sector. China has expressed its plans to expand carbon sinks but provides no specific modelling details of these sinks over time, which leaves the door open to different interpretations of how China plans to achieve its carbon neutrality goal.

It is worth highlighting that these global warming estimates have a 50:50 chance of limiting warming to the indicated temperature. So, while the optimistic scenario leads to 1.9°C by 2100, it means it is “likely” to be below 2.0°C, but still well above 1.5°C.

What does the US election results mean for global warming?

The election of Donald Trump as President would impact the projected warming levels that we present here, but it is uncertain to what extent. Future US future are likely to be higher than currently foreseen but will continue to decrease even in the worst case which would be the repeal of the Inflation Reduction Act (IRA). Our first order minimum estimate is that emission projections that would include Trump’s plans to dismantle policies³ could further add a 0.04°C of warming by 2100 to our current policy estimate of 2.7°C.

A larger effect (but not one we quantified) could be the spillover if other countries now slow and/or stop action because the US may leave the Paris Agreement and climate finance from it is not available. This depends on whether countries continue to pursue climate action in the light of cheap renewables and whether other leaders like EU, China, Brazil and others step up and remain united.

If the US, the world’s second-largest emitter, were to permanently walk away from its commitment to reach net zero emissions by 2050, our optimistic scenario (currently at 1.9°C) could increase by a few tenths of a degree, which would be much more significant. At the same time, with current policies becoming less ambitious, reaching net zero by 2050 will become ever more difficult. But we are not there yet, at least half of the country (cities, states and private companies) remain committed to a net zero target and that should remain the driving force.

3 Scenario defined by the implementation of the Energy Innovation Project 2025 and dropping the Inflation Reduction Act (IRA)

Nearly a decade ago, in 2015, governments around the world committed to limiting global warming to 1.5°C and achieving net zero greenhouse gas emissions in the second half of the century. In line with these objectives, all countries have submitted NDCs and long-term targets which should embody their “highest possible ambition”.

The outcomes of the Global Stocktake (GST) in 2023 recognised that progress has been made towards the Paris Agreement goals, reaching near-universal breadth climate action. However, as also shown in our analysis and in Figure 2, **these efforts are insufficient, and the world is not on track to meet the long-term temperature goals of the Paris Agreement.**

In 2015, the CAT estimated that current policies would lead to 3.6°C of warming at the end of the century; with submitted targets (NDCs) pointing to 2.7°C. Six years later, in 2021, progress had brought these numbers down: warming under current policies was projected at 2.7°C, and the combined impact of 2030 NDCs and long-term targets suggested a potential 2.1°C outcome. **However, despite ever-starker warnings from the IPCC, collective ambition has not increased, and these projections have remained unchanged for the last three years.**

While that initial progress marked a clear success in the years following the Paris Agreement, momentum has stalled since COVID-19, underscoring an urgent need to revitalise global climate efforts. The Paris Agreement’s ratcheting-up mechanism, designed to drive ever-greater ambition, is not only failing to accelerate action at the pace required but has seemingly plateaued at a critical moment.

As governments prepare to set their sights on 2035 targets, it is essential to go beyond incremental improvements. Much stronger 2030 targets, combined with rapid policy implementation, are needed now to keep the 1.5°C goal within reach. The clock is ticking, and without an immediate shift back to ambitious action, the gains made since Paris risk becoming a high-water mark rather than the foundation for deeper cuts in emissions.

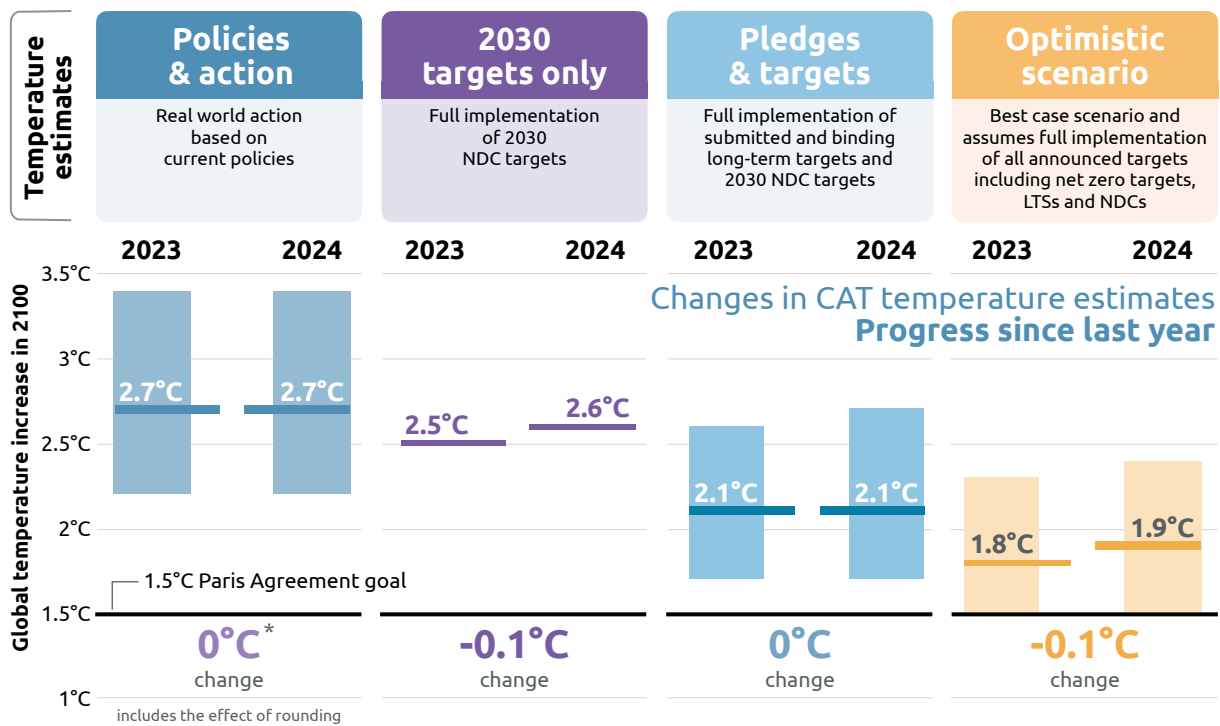
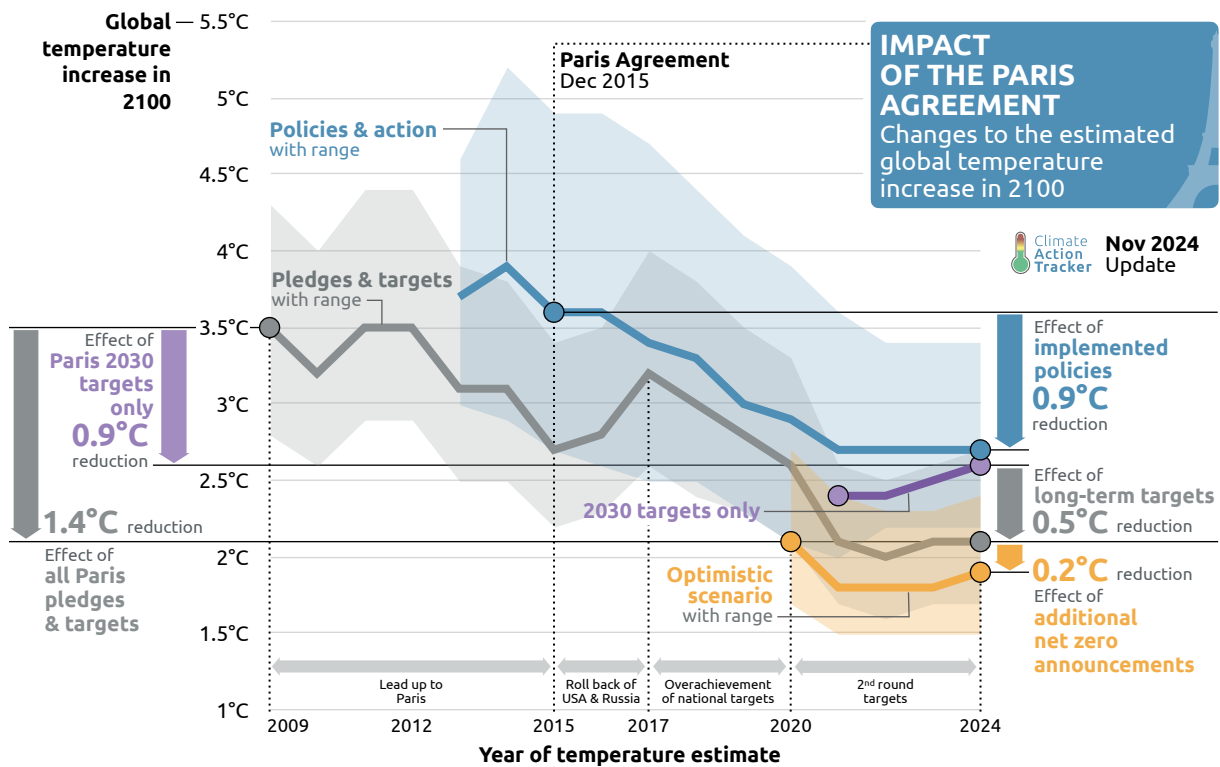


Figure 3: Impact of the Paris Agreement

3 Catastrophic outlook: temperature keep rising after 2100

Global temperature projections remain on an upward trajectory, with warming expected to continue beyond 2100 under all but the most optimistic scenario. Pledges and policies currently in place are not only not enough to meet the Paris Agreement goal of keeping global warming below 1.5°C, but they also show a persistent upward trend. We are clearly failing to bend the curve. Without an increase in policy ambition and implementation, global temperatures will likely continue climbing, pushing the planet into increasingly dangerous climate thresholds with severe, long-term impacts.

As the world edges closer to these dangerous climate thresholds, the need for immediate, stronger action to reverse this trend becomes ever more urgent.

Countries must shift into emergency mode, increasing the ambition of their 2030 climate targets and implementing policies that can deliver on these commitments. To stay on track with the Paris Agreement's 1.5°C goal, governments must not only reinforce their 2030 NDCs but also set an ambitious target for 2035, one that aligns with a global trajectory toward net zero CO₂ emissions by 2050.

We have come to a critical point and COP29 is our last chance to keep 1.5°C alive. **If countries fail to substantially increase the ambition of current 2030 targets and action, limiting peak global warming to 1.5°C will not be possible and would likely lead to a multidecadal, high overshoot of this limit, even if followed by strong post 2030 action and large-scale permanent removal of CO₂ from the atmosphere.**

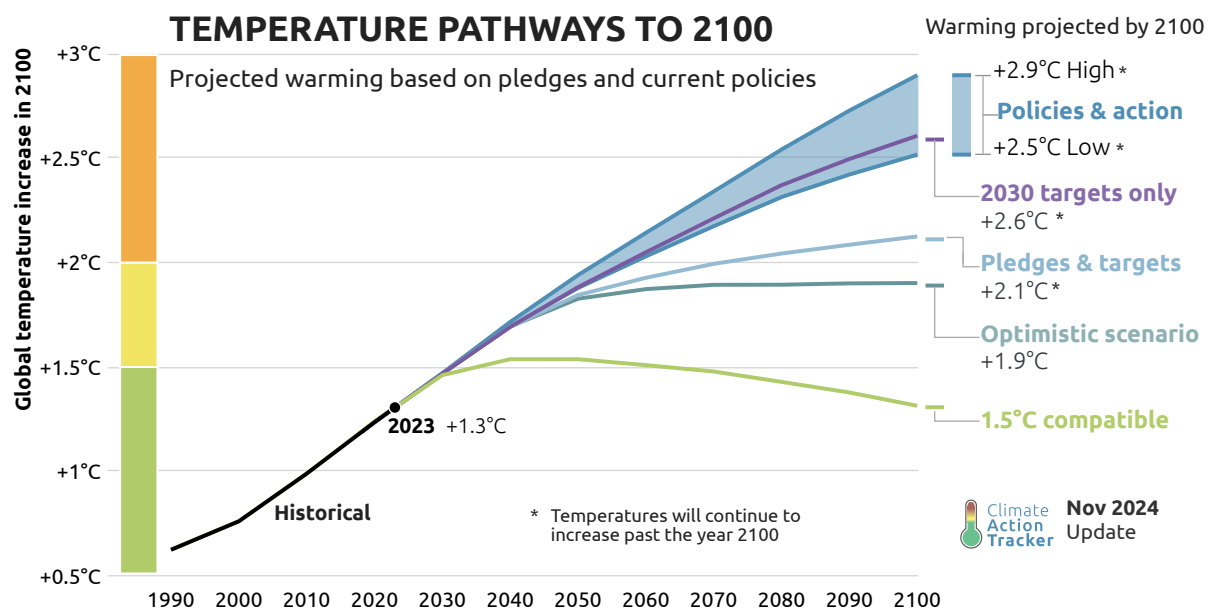


Figure 4: Temperature pathways to 2100.

4 Stuck with no progress: the global emissions gap remains huge

The science is clear: to keep the 1.5°C limit within reach, global emissions need to peak before 2025, which is just around the corner, and be halved by 2030 compared to 2019 levels. This reduction must be followed by a steep downward trend, thereafter, reaching net zero CO₂ emissions by around mid-century and net zero GHG emissions soon after that.

However, current projections indicate that global emissions under existing policies will be nearly double the levels required for 2030 to adhere to a 1.5°C pathway. Even the level of emissions expected if countries meet their NDCs and long-term targets will exceed necessary levels in 2030 by 70-85%, highlighting a significant shortfall in climate action.

Moreover, the existing NDCs only manage to narrow the 2030 gap by a mere 15-20% compared to what current policies will end up contributing anyway. This stark reality underscores the lack of ambition in these targets, which tend to err on the side of caution rather than proposing meaningful changes that can lead to a change in current emissions trends. Failing to adopt bold and transformative policies risks putting the 1.5°C goal further out of reach, compromising the health of our planet for future generations.

The emissions gap in 2030 for policy implementation remains at 24-27GtCO₂e, same as reported last year. This apparent “no-shift” in the policy emissions gap is linked to opposing trends: while renewable energy is growing at a rapid pace, its impact is counterbalanced by ongoing fossil fuel subsidies, which continue to entrench fossil fuels in the global economy.

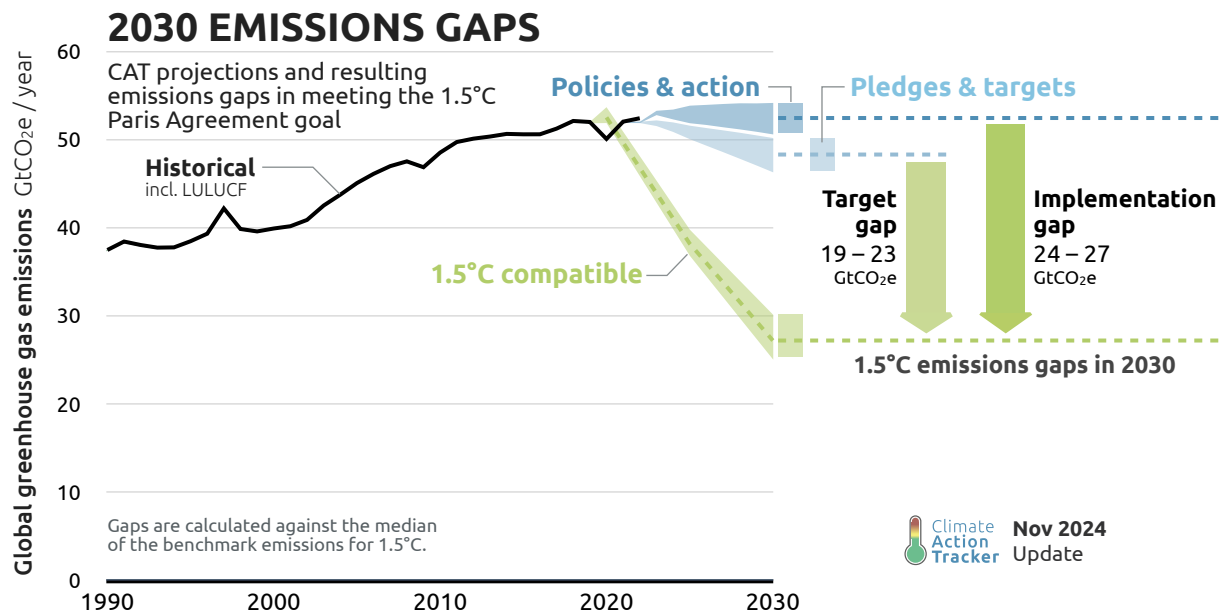


Figure 5: 2030 emissions gaps

Some of the most relevant reductions in our emissions projections include Türkiye, the UAE, the US and South Korea. However, these reductions are quickly counterbalanced by other countries' slow-to-no progress in reducing emissions, most significantly Nigeria, China and Mexico. See below:

- ↓ A recalculation of **Türkiye's** current policy projections using the best available sources which now leads to lower emissions levels by 2030.
- ↓ A lower range of emissions projections for the **UAE**, which is influenced by both recently published inventory data, as well as their newly submitted LTS.
- ↓ Emissions projections for the **US** takes into account positive developments from the Biden Administration out of the EPA, including vehicle emissions standards and fossil fuel power plant pollution standards, leading to lower emissions expected in 2030. Impacts of the election of Donald Trump are not considered here.
- ↓ **South Korea** 2030 projections have fallen compared to previous assessments due to lower historical emissions data and an updated current policy scenario. These developments are however not fully aligned with the government policies.
- ↑ **Nigeria's** continuous revisions to their historical data which now leads to a new high for emission in 2022, pushed current policy projections upwards for 2030. At the same time, the implementation status of relevant policies like Nigeria's Energy Transition Plan remains unclear with little information on action towards achieving the plan's targets available.
- ↑ **China's** emissions also reached an all-time high in 2023 due to a rapid rebound in economic activities and fossil fuel consumption after the end of zero-COVID policies. Most recent projections suggest that China's emissions will peak before 2025, albeit at a higher level than initially predicted.
- ↑ **Mexico's** previous administration missed the opportunity to implement mitigation policies, opting instead to expand fossil fuel production and roll back climate policies and institutions which now translate into higher current and projected emissions levels. Decisions by the new administration will be key to determine which way Mexico's emissions will develop.

The 2030 target emissions gap remains significant at 19-23 GtCO₂e this year. While there are some positive developments—such as Nigeria, Argentina, and the UAE providing more detailed long-term strategies—these are overshadowed by the recalculation of China's carbon neutrality target based on more updated data. This trend underscores how “flexible” targets tied to economic growth or energy system changes, rather than concrete emissions reductions, allow countries to celebrate reaching unambitious goals while their national emissions continue to rise.

- ↓ **Nigeria's** LT-LEDS now indicates a net zero target of 2060, whereas before it referred to a range (between 2050 and 2070).
- ↓ Recently published studies to estimate the contribution of **Argentina's** agriculture and land use sector in reaching their net zero target by 2050 allowed for a more accurate estimation of expected emissions by mid-century.
- ↓ **UAE** submitted a new LTS in January 2024, which included more details on the target.
- ↑ We recalculated the expected contribution of forestry and land use sector emissions to **China's** carbon neutrality target to reflect the most recent data.

While stopping deforestation, reforestation and bolstering the land sector can be highly beneficial to the climate and biodiversity, they should not substitute the primary task of phasing out fossil fuels and cutting GHG emissions. In general, NDC and long-term targets that aggregate the land use and forestry sector together with other sectors can lead to countries masking inadequate overall action and essentially allow ongoing or even increased fossil fuel use.

Last month, the UNEP Emissions Gap Report (EGR) published temperature estimates of the impact of current policies and targets. While at first glance, the headline figures may appear different, a closer examination of the underlying methods reveals that our results are closely aligned and offer the same general message: that current policies and 2030 targets are totally inadequate to achieve the 1.5°C temperature goal (see Annex 2 for further details).

The bumpy road to Net Zero: aligning NDC targets with longer-term net zero targets

Net zero targets have become the new normal in setting longer-term targets towards the mid-century and beyond, now covering countries accounting for close to 90% of global emissions. The upcoming round of NDC submissions puts the scope, transparency, and architecture of these targets once again in the spotlight. It is critical that NDC 2030 and 2035 targets align with a pathway towards net zero – an element missing in many of them– and that the policies then align with the targets overtime. This is a key issue the Climate Action Tracker will be focusing on.

For many governments with net zero targets for 2050, or even 2045 like Germany, only 10–15 years stand between their forthcoming 2035 targets and reaching net zero. This context reemphasises the need to align resubmitted 2030 NDC targets with 1.5°C-compatible net zero pathways (see detailed explanation in ‘Chapter 1 – Ambition’ of our [Guide to a good 2035 climate target](#)).

The transparency and credibility of net zero and carbon neutrality targets has gradually improved since 2020, when we started tracking all announced net zero targets.

To date, almost half of the countries we assess provide underlying scenario assumptions to understand their intended emissions reduction in the target year and their reliance on carbon dioxide removals (19 out of 34 countries with a net zero target assessed by the CAT, representing 33% of global 2019 emissions).

Many large emitters such as Brazil, China, India, Japan, Saudia Arabia and Russia, however, have not officially provided this information. For this reason, we have to make simplified assumptions on their emissions levels in the respective net zero target years (15 out of 34 countries, representing 48% of global 2019 emissions). While the ‘optimistic scenario’ has gradually increase credibility and transparency, much uncertainty remains on how governments define their longer-term net zero targets and how they will implement them. This is also relevant for our ‘pledges & targets scenario’ including all submitted and binding net zero targets.

The design of net zero and carbon neutrality targets remains generally insufficient to date (Figure 6). Only five countries, responsible for 7% of global GHG emissions, have defined their net zero targets

Net zero target design - mostly inadequate to date

Quality of net zero targets by percentage of global emissions evaluated using the CAT’s design blueprint for transparent, comprehensive and robust national net zero targets

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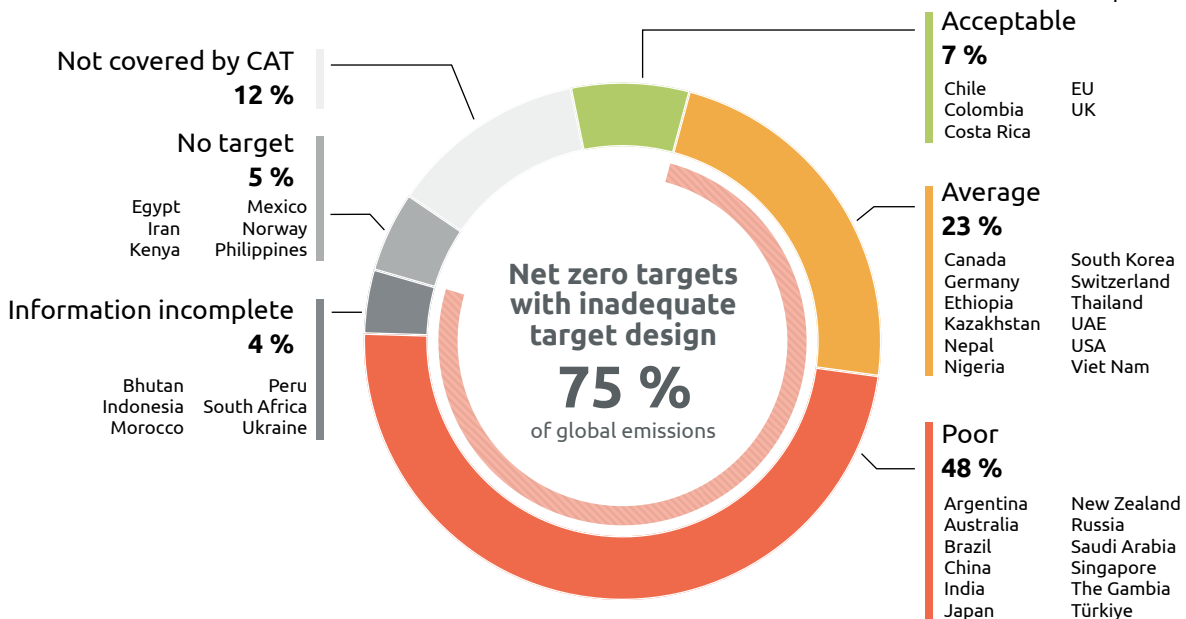


Figure 6: Share of global GHG emissions by Climate Action Tracker’s headline evaluation for announced net zero targets as of November 2024. Emissions data excluding LULUCF for 2019 taken from PRIMAP emissions database (Gütschow et al., 2021).

in a manner the CAT rates as 'acceptable' in terms of scope, architecture, and transparency. Another 12 countries, responsible for 23% of global emissions, fall into the 'average' category.

However, an increasing number of governments have improved specific elements of their targets. For example, an increasing number of net zero targets have been directly enshrined into law (14 countries out of the 42 countries assessed by the CAT) or at least included within LTSs or other policies (20 countries). Over the course of 2024, the [UAE](#) in January, [Nigeria](#) in April and [Kazakhstan](#) in October have been the latest countries to anchor net zero targets in their LTS submitted to the UNFCCC, all of which we assess as 'average'. Switzerland has been last countries to enshrine its net zero target into law in June 2023.

Questions over the design and credibility of net zero targets have been intensifying in domestic political and judicative areas, as numerous pledges lack the specific policies and planning needed to drive emissions reductions.

The UK government, for example, transparently outlines its planning to reach net zero, but independent analysis shows a lack of emissions coverage with [only 20% of the necessary emissions reductions covered](#) by credible policy. In another example, South Korea's constitutional court has ruled that the lack of legally binding emissions reduction targets between its NDC and net zero target places an [excessive burden on future generations](#), and ordered the government to include annual carbon reduction targets for the 2031-2049 period.

Most governments are currently planning to rely heavily on carbon dioxide removal to reach net zero, or they leave out a notable share of their emissions from the target. We conservatively estimate this to be almost a fifth of their current emissions, namely 18–21% of 2019 emissions.

For this estimation, we have taken a closer look at 31 out of 34 governments with a net zero target assessed by the CAT as of November 2024⁴, which jointly cover 82% of global emissions. Countries like Australia, Chile, New Zealand, Russia, Saudi Arabia and Viet Nam still plan to emit more than 30% of their 2019 emissions even after meeting their 'net zero target'.

Ultimately, governments need to avoid any over-reliance on removals at the expense of delaying rapid and deep cuts in emissions. The forthcoming NDC revision cycle presents an opportunity for governments to increase the transparency on contributions from forestry and land use, other carbon dioxide removal, and Article 6 on their road to net zero (see detailed explanation in 'Chapter 4 – Transparency' of our [Guide to a good 2035 climate target](#)).

4 Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Ethiopia, European Union, Germany (analysed separately but not aggregated as included in EU), India, Indonesia, Japan, Kazakhstan, Morocco, Nepal, New Zealand, Nigeria, South Korea, Russia, Saudi Arabia, Singapore, South Africa, Switzerland, Thailand, Türkiye, UAE, UK, US, and Viet Nam.

6 Country snapshots

-  Under **Argentina's** new government, progress in developing and implementing climate policies has taken a step back. Among restructuring and budget cuts in the national public administration, Argentina's former ministry of environment has been demoted to the sub-secretary level, and the continuity of its previous climate policies is in doubt. Meanwhile, the government continues to invest heavily in fossil fuels, with the highlight being a USD 30 bn LNG terminal to export fossil gas out of Vaca Muerta.
-  In the past year, the **Australian** government has introduced several measures aimed at stimulating investment in large-scale renewable energy, green hydrogen production and clean manufacturing, as well as improvements to vehicle efficiency standards. However, the scale and strength of these policies does not match the task and, as a consequence, Australian emissions from fossil fuels industry and agriculture continue to flatline. The government has maintained an appearance of progress through successive revisions of its projected land use change and forestry inventory. The result is that, in 2024, Australia looks to have reduced net emissions by 28% since 2005 (including LULUCF), but the actual drop in gross emissions was only 2%. In parallel, the government has approved several coal mine extensions and embedded the role of fossil gas in its domestic energy mix and exports for decades to come.
-  **Brazil's** new government is prioritising the reconstruction of its environmental policy, starting by reverting to its original NDC targets and focusing on combating deforestation. Brazil will host the G20 summit in 2024 and COP30 in 2025, showing the country's re-engagement with the international community. However, the government announced it will continue to allocate significant resources to the production and development of oil and fossil gas in the next decade, with no fossil fuel phase-out plan in sight. This contradicts the Paris Agreement's target and Brazil's ambition to lead on climate action ahead of COP30.
-  As **Canada's** forests burn in a record fire season, its pace of climate action appears to be moving at a glacial speed. So far, the EV sales mandate is the only major new policy from its 2022 climate plan to be implemented. While existing measures are starting to pay off, with emissions now firmly on a downward trend, implementing the full 2022 climate plan is critical to closing the gap between current policies and Canada's 2030 climate target (NDC). Canada's exported emissions from oil and gas are not considered in the CAT's rating, but are larger than Canada's domestic emissions when their eventual combustion is taken into account.
-  **Chile** has made notable progress on climate action over the past few years, reflected in the rapid rate of renewables expansion and the coal phase-out plan going faster than anticipated. Still, Chile's emissions under current policies are not yet sufficient to meet its climate targets or be aligned with 1.5°C. The impact of phasing out coal could be lessened if it results in higher fossil gas consumption from planned reconversions. The implementation of measures in the energy end-use and other sectors, transport in particular, has also been at a slower pace than what is needed to meet Chile's commitments under its NDC and related policy documents.
-  **China's** emissions reached a record high in 2023, driven by a rapid economic rebound and increased fossil fuel consumption following the end of zero-COVID policies. However, the rapid rollout of renewables, with China surpassing its 2030 NDC target of 1,200 GW six years ahead of schedule, recent projections indicate emissions could peak before 2025, potentially making 2023 the peak year. Without further commitments, emissions may rise again before 2030, especially given the government's conservative stance. China is set to update its NDC targets in early 2025. To align with 1.5°C China would need to increase the ambition of its 2030 NDC as well as putting forward a 1.5°C compatible 2035 set of targets.



Costa Rica has made good progress towards its climate goals, evident in the rapid uptake of electric vehicles (EVs) and the enhancement of carbon sinks. However, the current administration could hinder the full implementation of the measures necessary to meet Costa Rica's own targets. Key electric public transportation projects have been on pause or have been downscaled in ambition. The oil moratorium bill also faces challenges, as President Chaves announced his opposition to it and his intention to explore Costa Rica's fossil fuel reserves.



Ethiopia is already doing its fair share to meet 1.5°C. Ethiopia published its LTS in 2023 where it introduces three pathways to reach net zero by 2050 under the 'Late Action' and 'NDC Aligned' pathway and an accelerated ambition to reach this by 2035 through the 'Maximum Ambition' pathway. However, these pathways necessitate substantial financial investment and international support. Notably, Ethiopia's primary emissions stem from agriculture and LULUCF, making mitigation in these sectors pivotal to attaining these ambitious climate goals. Ethiopia has also taken notable achievement to decarbonise transportation sector and building towards vehicle electrification, by being the first country to ban the import of combustion-powered vehicles and exempted all tax for electric vehicle as of 2024.




The EU proposed its 2040 emissions reduction target of at least 90% but has not updated its NDC in 2024. The EU plans to massively scale up its industrial carbon removal capacity to deliver on its long-term targets but is vague on how this will be applied to the power sector. Most of the EU's member states have failed to submit their final updated National Energy and Climate Plans (NECPs) in 2024. Plans have shown some improvements but are still insufficient to meet the EU's 2030 targets and lack meaningful support measures to achieve them. Planned investments into fossil fuels projects continue domestically. Indirectly, private investments labelled "green" under the EU's sustainable finance mechanism have financed fossil fuel developments abroad. With most of the revisions of its climate policies completed, fossil fuels remain embedded in its plans through loose definitions of "low carbon fuels", risking long term lock-in investments or stranded fossil fuel assets.




Germany's coalition government has accelerated climate action since coming into office in 2021. In combination with the country's current weak economy, the government's policies have shifted emissions projections significantly downwards, largely due to a fast uptake of renewables. However, the government is divided on its general approach to mitigating climate change, creating substantial discrepancies in the level of action and ambition within and between sectors. Further exacerbating these disparities is the government's recent weakening of its main climate law, which replaces binding sectoral emissions reductions targets with a system that allows for sectors to compensate for each other's reductions to meet an economy-wide target. In doing so, the amended law dilutes responsibility for climate action and jeopardises both Germany's 2030 and 2045 climate targets.




India's recent elections delayed new climate policies, but the expansion of solar and wind energy is accelerating. Solar, especially with storage, is now cost-competitive with coal. However, coal still dominates India's electricity generation, accounting for over 70%, contradicting its commitments to the 1.5°C target. Despite substantial progress in renewable energy installations and falling tariffs, fossil fuel consumption remains high, with coal production and imports reaching record levels in 2024 to meet rising electricity demand. India's progress toward achieving 50% non-fossil capacity ahead of schedule shows potential for even more ambitious targets. However, the challenge of meeting peak demand during non-solar hours, especially with excessive cooling demand due to extreme heat, underscores the need for significant investments in grid infrastructure and storage capacity, which are far below what is required. International support will be crucial to help India access advanced technologies and accelerate its clean energy transition.

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Indonesia's energy sector is still heavily reliant on coal, and palm oil-driven deforestation continues to drive up emissions. A draft of Indonesia's Second NDC has been released but not formally submitted to the UNFCCC; preliminary analyses indicate both positive developments alongside some red flags. The JETP Secretariat is currently formulating the 2024 version of the Comprehensive Investment and Policy Plan (CIPP), which is expected to include energy efficiency and electrification. The new administration under President Prabowo Subianto emphasises economic development and self-sufficiency, including initiatives like the food estate programme, which raises environmental and social risks. To align with the 1.5°C target, Indonesia must rapidly accelerate its renewable energy transition, protect its forest and biodiversity, ensure a just transition, and leverage international support.

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Last year, **Japan's** greenhouse gas emissions fell to their lowest since 2013. However, the country is still set to miss its 2030 target if it does not implement more ambitious policies. The government's latest decarbonisation strategy, the GX Basic Policy, places more emphasis on economic growth and energy security. It does not provide concrete emission reduction targets; instead putting a strong emphasis on the need to develop Carbon Capture and Storage (CCS) technologies, and co-firing with ammonia and hydrogen in the power sector. Renewable energy deployment continues to take a back seat, as the government prioritises nuclear energy expansion and the development of so called "clean coal" technologies.

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Kazakhstan enhanced its long-term climate ambition by enshrining its net zero by 2060 target into law, but then failed to increase short-term ambition in its updated NDC submission to the UNFCCC in June 2023, leaving its previously modest emission reduction targets for 2030 unchanged. Recent policy developments pull in opposite directions and continue to support fossil fuels more, driving emissions up. CAT projections show that Kazakhstan will not meet its climate targets, as emissions will grow until 2035 (at least) under current policies.

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Kenya climate action is in line with its fair share. Kenya's policies and unconditional target are rated 1.5°C compatible, but there is still room for Kenya to strive for further emissions reductions in all sectors. Renewables represent 95% of electricity, but coal plans remain in play.

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Mexico is at a crossroads after electing its new president Dr Claudia Sheinbaum, a former climate scientist, who implemented policies to promote renewable energy and public transport as Mexico City's mayor. She inherits a government that has, for six years, continuously and systematically prioritised fossil fuels, rolled back climate and energy policies and dismantled governance institutions. While she has reiterated that her government will continue the transformation started by López Obrador, it is imperative that her administration focuses on turning the missed opportunities into success by making a just and equitable transition from fossil fuels to renewables the trademark of her government.

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Morocco's climate targets are within reach — the country is on track to meet its unconditional 2030 emission reduction target and continue to prioritise the expansion of renewables. Yet, its electricity mix remains largely dominated by coal, which accounted for 68% of total power generation in 2022. Morocco has yet to announce a concrete phase-out timeline and has recently extended the lifetime of its largest coal plant to 2044. The government has recently opened the door to offshore fossil gas exploration, a move which could trap Morocco into a high-emission pathway.

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Nigeria faces a severe cost of living crisis, in part spurred by the removal of costly fuel and electricity subsidies. The government continues to send mixed messages on its energy priorities: acknowledging the need to reduce reliance on the oil and gas sector, and expand solar power, but also seeking to expand oil and gas production. Emissions plateau this decade if its energy transition plan is fully implemented, but more is needed to meet its conditional NDC target and for 1.5°C. Both require international support. Energy access continues to be a key challenge. Reliance on fossil fuels for centralised and decentralised generation remains costly and risks Nigeria locking-in carbon-intensive infrastructure.



Norway's current policies and actions have improved slightly but are still off track to meeting its 2030 target. The Norwegian government has no plans to phase out of the fossil fuel industry, rather the government anticipates oil production to increase and fossil gas output to continue at near record high levels. These actions on the part of the Norwegian government stand in stark contrast to the fact that oil and gas production should already be declining in 1.5°C compatible pathways.



This year, **Philippines** set more ambitious targets in the Philippine Energy Plan (2023-2050). While the new PEP aims for a 41% renewable energy share by 2030 and over 56% by 2040, plans for fossil gas expansion, ongoing coal reliance, and potential nuclear revival pose significant risks—such as energy security issues, stranded assets, reduced climate resilience, higher power costs, and social and environmental impacts. In addition, Philippines still needs to submit its net zero targets and strengthen its unconditional NDC.



Russia's efforts to tackle climate change remain very low. Its few relevant policies are unambitious or have an unclear expected effect on emissions. Russia's existing policies indicate no real commitment to curb emissions. It will meet its weak 2030 target with current policy action and is far off track from what is needed for 1.5°C.



Saudi Arabia has yet to implement any policies that would substantially bring down its emissions, which reached an all-time high in 2023, and projected to continue increasing through 2030. Announced plans to cut emissions through expanding renewable energy are not materialising. In 2023, installed renewable energy capacity stood only at 2.7 GW, generating around 1% of electricity. Despite its flagship economic diversification plan, Saudi Arabia remains highly dependent on the production, use and export of hydrocarbons. While Aramco, the state-owned oil company, recently abandoned its plan to increase oil production, this decision appears largely driven by strategic considerations rather than a commitment to phase out fossil fuels.




Singapore's recent policies on clean energy have been promising, most notably the SGD 5bn Future Energy Fund announced in the 2024 budget. Singapore is also on-track to meet its target of importing 4 GW of “low carbon” electricity by 2035, which is expected to meet approximately 30% of domestic demand. However, Singapore is also doubling down on fossil gas, planning to expand both LNG imports and gas-fired generation capacity to meet the country's growing electricity demand. Singapore is already projected to overachieve its 2030 target, making a strong case for increasing ambition in its forthcoming NDC update.





South Korean government is scrapping its denuclearisation and 100% renewable energy policies. South Korea is currently drafting the 11th Basic Plan for Electricity Supply and Demand for 2024-2038 and rolled out “carbon-free” energy to take 40% in 2023 and 70% by 2038. The plan: 1) has no explicit coal phase-out plan, 2) plans for nuclear energy to take major share of the future power mix, 3) depicts slow renewable energy uptake. Emission projections under the current policies shows a decreasing trend towards 2030, but still fails to put South Korea on a 1.5°C compatible trajectory.





Switzerland has made progress in its climate policy with the Federal Act on a Secure Electricity Supply with Renewable Energies, which is expected to significantly reduce projected emissions enough to improve its policy rating to “almost sufficient”. However, Switzerland has yet to set a clear domestic target and continues to rely on international offsets, prioritising reductions abroad rather than domestically. It has also not responded meaningfully to a recent European Court of Human Rights ruling that highlights gaps in its climate strategy. To reach an overall “almost sufficient” rating, Switzerland must set a target to achieve roughly 75% of its 2030 emissions reductions domestically and work toward meeting it.

 **Thailand** is working to meet its climate goals through the National Energy Plan (NEP) and Climate Change Act, both of which have been in draft form since 2022. The Power Development Plan (PDP), part of the NEP, expected applied in the 2024, shows a continued reliance on fossil fuels, with nearly half of 2030's power capacity expected from fossil sources and imported hydropower, making the renewable energy transition difficult. This suggests limited ambition in achieving the 1.5°C target. The new government has yet to show serious commitment to a more ambitious renewable energy shift.

 Although **Türkiye's** current policies and actions have improved, Türkiye remains well off track from aligning with 1.5°C. The introduction of an Emissions Trading System will likely drive emissions reductions in the industry sector, and investments in energy efficiency and renewables are welcome. However, continued reliance on coal cancels many of the gains from its ongoing renewables rollout. A fossil fuel phase-out plan is imperative to align with 1.5°C, with their share replaced by a faster ramp-up of renewables.

 This year, the **United Arab Emirates** has made a step forward in transparency with the publication of its LTS and its latest GHG emissions inventory, which led to an improved CAT assessment. Emissions are now expected to plateau under current policies and miss the NDC target by a moderate margin. However, it is now also clear that the UAE is planning to rely heavily on CCS technologies to achieve its 2050 net zero target, a move which seriously compromises its credibility. The UAE's large renewables investment plans are also largely overshadowed by its fossil fuel expansion plans, exports and investments.

 The **United Kingdom's** new government has an opportunity to rebuild the United Kingdom's reputation as a climate leader. The UK is planning on releasing an updated NDC at COP29 – this needs to boost the 2030 target to 70%, and cut emissions in 2035 by at least 78% relative to 1990 levels. However, ambition must also be paired with action. With credible policies covering only a third of the required reductions to meet the UK's current 2030 target, the government needs to move fast in developing and implementing policies to achieve its climate goals.

 **US** climate action under President Biden showed promising signs. Underpinning the US climate policy framework is the 2022 Inflation Reduction Act (IRA), which has mobilised historic investments in clean energy and activating subnational and non-state action on climate change. Recent revisions to regulations in the power and transport sectors further strengthen the Biden administration's climate policy portfolio. Although making progress, the US will not meet its domestic climate target without additional, substantial emissions reductions measures. However, under the Trump administration, measures are likely to be weakened or scrapped rather than strengthened. The US needs to expand its policy packages at the sectoral level in order to address the rising demand for electricity across all sectors. The year-on-year increase which President-Elect Trump has indicated will continue under his presidency in the country's fossil fuel production and exports compromises the government's ambition. How much of this action will be undone under the future Trump administration has yet to be seen.



A1 Comparison to other warming estimates

This section compares the differences behind the global temperature projections by the [UNEP Emissions Gap Report](#) (EGR) and the CAT. The EGR assesses peak warming with a 66% likelihood of the current policy scenario to be 3.1°C (range: 1.9–3.8°C) while this year’s assessment of the Climate Action Tracker provides an estimate of 2.7°C median warming at the end of the century. The main difference is the quantified exceedance probability, the EGR uses the 66% likelihood while the CAT uses the 50% likelihood. In addition, the CAT considers end-of-century warming, which for our current scenarios is however equivalent to the peak warming which the EGR considers. Our assessment of the current policy scenario for a 66% likelihood would result in a warming level of 3.0°C, very close to the EGR.

The table below summarises the warming assessments of different scenarios under the EGR (peak warming) and CAT (end-of-century warming) with a 50% and 66% chance.

Temperatures	50% chance		66% chance		Comments
	CAT	EGR	CAT	EGR	
Current Policies	2.7°C	2.9	3.0°C	3.1°C	
2030 targets only	2.6°C	2.6°C (unconditional) 2.4°C (conditional)	2.7°C	2.8°C (unconditional) 2.6°C (conditional)	CAT/UNEP unconditional NDCs For UNEP we give unconditional and conditional NDC warming
Pledges plus binding net zero targets	2.1°C		2.3°C		
Optimistic (all net zero targets)	1.9°C	1.7°C	2.1°C	1.9°C	

General differences in methodology

Despite being very close in the actual equivalent temperature outcome, there several methodological differences:

- ▶ The Climate Action Tracker does for the first year consider current policy pathways up to the year 2035.
- ▶ UNEP GAP Report assessed a 66% chance of warming, the CAT assesses a 50% chance.
- ▶ The used methods to extend pathways over the are different. The UNEP GAP report is extending current policies and NDCs throughout the century based on their implied carbon price by 2030. Over the century carbon prices are adapted to follow the same growth path as global GDP. Following the method published by Rogelj et al. 2023⁵, the emissions implied by these carbon price trajectories are estimated based on the relationships found in five IAM modelling frameworks. The Climate Action Tracker uses the equal quantile extension framework⁶ based on a similar set of IAM models.
- ▶ The UNEP GAP Report uses the FaIR⁷ climate emulator, while the Climate Action Tracker uses MAGICC7.⁸

This list of differences does only reflect the main differences and is not exhaustive.

5 Rogelj, J., Fransen, T., den Elzen, M., Lamboll, R.D., Schurer, C., Kuramochi, T. et al. (2023). Credibility gap in net zero climate targets leaves world at high risk. *Science* 380(6649), 1014-1016. <https://doi.org/10.1126/science.adg6248>

6 Lamboll, R. D., Nicholls, Z. R. J., Kikstra, J. S., Meinshausen, M., and Rogelj, J.: Silicone v1.0.0: an open-source Python package for inferring missing emissions data for climate change research, *Geosci. Model Dev.*, 13, 5259–5275, <https://doi.org/10.5194/gmd-13-5259-2020>, 2020a

7 Leach, N. J., Jenkins, S., Nicholls, Z., Smith, C. J., Lynch, J., Cain, M., Walsh, T., Wu, B., Tsutsui, J., and Allen, M. R.: FaIRv2.0.0: a generalized impulse response model for climate uncertainty and future scenario exploration, *Geosci. Model Dev.*, 14, 3007–3036, <https://doi.org/10.5194/gmd-14-3007-2021>, 2021

8 Meinshausen, M., S. C. B. Raper and T. M. L. Wigley (2011). “Emulating coupled atmosphere-ocean and carbon cycle models with a simpler model, MAGICC6: Part I – Model Description and Calibration.” *Atmospheric Chemistry and Physics* 11: 1417-1456. doi:10.5194/acp-11-1417-2011

Method update

In the last years, we applied a correction to minimize the impact of the Covid-19 pandemic on emission reductions. To prevent that the lower emissions during the pandemic artificially reduce the emissions projection, we created a current policy scenario that excludes the effect of the pandemic. We extended this no-covid scenario with the equal quantile method from (Gütschow et al. 2018; Lamboll et al. 2020) on the basis of the AR6 IAM scenario data base and used the growth rate of this pathways' extension to extend the current policy scenario after 2035. In that way the pandemic only had an effect on emissions until 2035 and not until 2100. In this year's update, we stopped using this correction. Firstly, the historic emissions for many countries rebounded up close to levels projected before COVID. Secondly, IAM models started to incorporate the effects of the COVID crisis within their scenarios and we simultaneously started to use those scenarios. Our analysis showed that the effect of the correction reduced to a negligible level over the last years and thus we drop the correction without substantial effects on our results.



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The Consortium



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 institute leading research on climate science and policy in relation to the 1.5°C limit in the Paris Agreement. It has offices in Germany, the United States, Togo, Australia, Nepal and Trinidad and Tobago.

climateanalytics.org



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.

newclimate.org



Institute for Essential Services Reform (IESR) is an energy and environment focused think-tank that aims to accelerate the energy transition by supporting sustainable mobility, green economy, and well designed climate change policy. IESR has experience mainly in Indonesia, but is expanding its focus to work in other regions and countries.

iesr.or.id