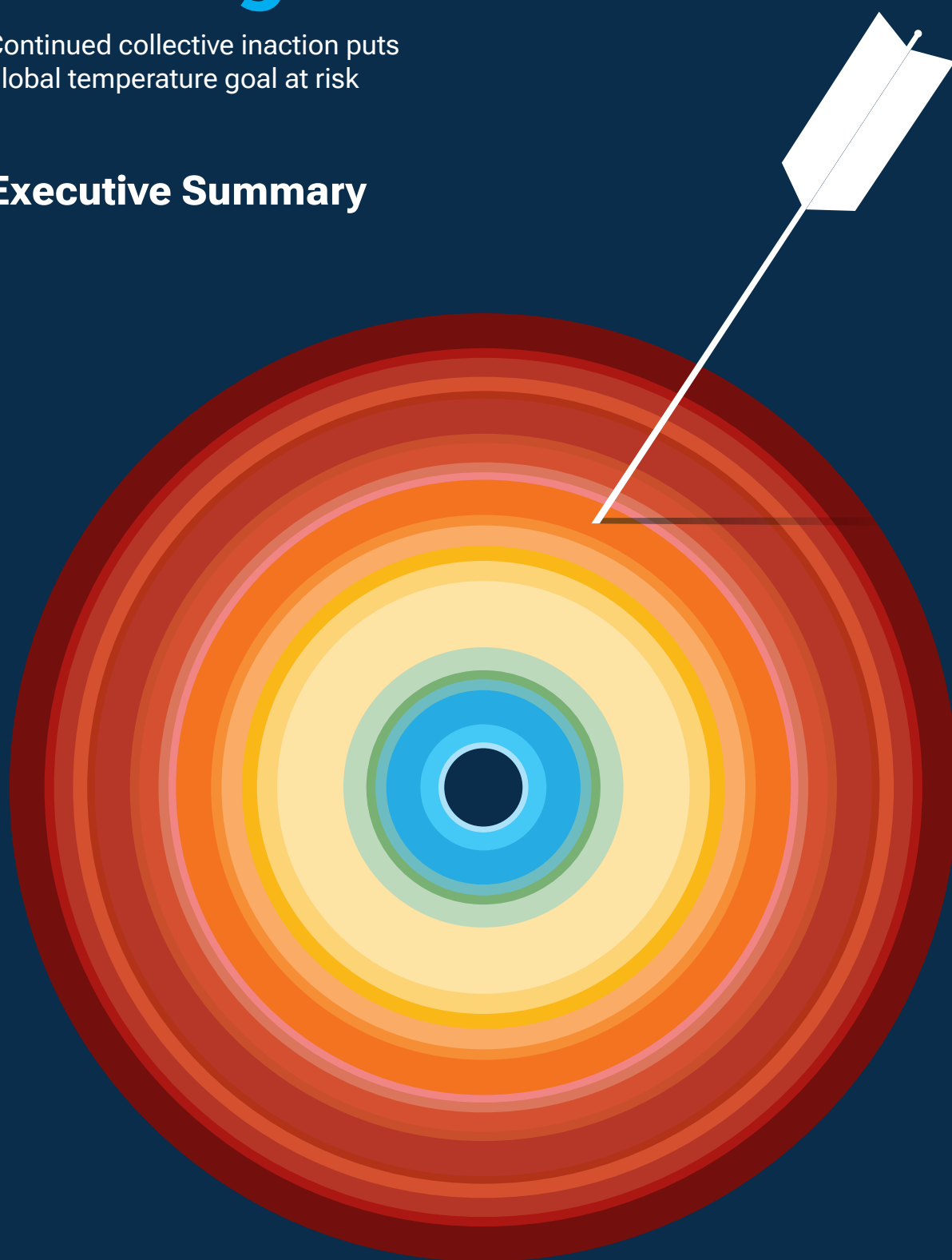


Off target

Continued collective inaction puts global temperature goal at risk

Executive Summary



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Executive summary

Emissions Gap Report 2025

Executive summary

Ten years of the Paris Agreement has spurred climate action, but ambition and implementation still fall short of what is needed

The Paris Agreement has been pivotal in lowering projected global greenhouse gas (GHG) emissions, helping to drive the accelerated adoption of renewable energy technologies, policies and targets while catalysing net-zero emission pledges from state and non-state actors. Global warming projections based on current policies have declined from just below 4°C at the time of adoption of the Paris Agreement, to just below 3°C today. Similarly, temperature projections based on the conditional and unconditional nationally determined contributions (NDCs) have fallen from 3–3.5°C to 2.3–2.5°C in this year’s report. Although direct comparisons of the warming projections are challenged by changes in the methodological approach over the past 10 years, there has been a significant lowering of projected warming. The proportion of global emissions covered by net-zero emission pledges by around the middle of the century has increased from zero in 2015 to about 70 per cent today. At the same time, climate governance frameworks, policies and legislation have advanced substantially, while low-carbon technology costs have plummeted. These developments position the international community far more favourably to accelerate climate ambition and action than a decade ago – and such acceleration is critically urgent.

As this sixteenth Emissions Gap Report shows, the new NDCs have limited effect on narrowing the emissions gap by 2030 and 2035, leaving global warming projections well above the Paris Agreement’s temperature goal. New scenarios show that limiting warming to 1.5°C by 2100 remains technically possible. However, due to the continued delay in deep emission cuts, 1.5°C pathways now imply higher temporary exceedance of this temperature target. The magnitude and duration of this overshoot must be limited as much as possible. Each year of delayed action

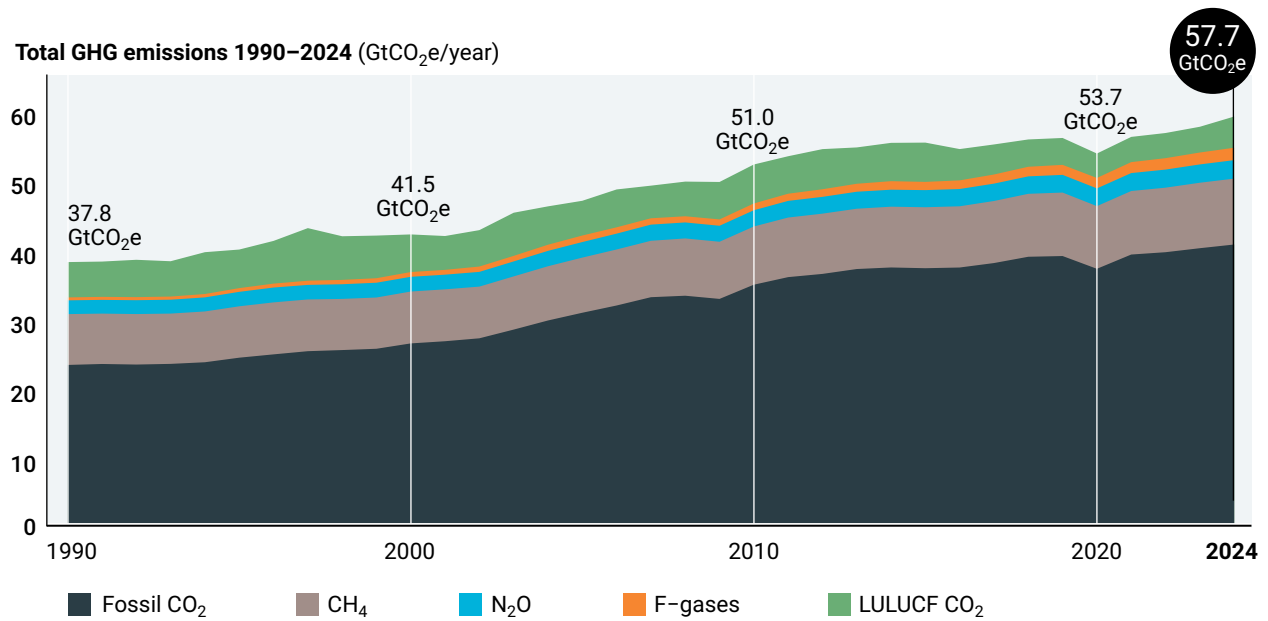
locks in carbon-intensive infrastructure. It results in greater losses for people and ecosystems, higher adaptation costs and a heavier reliance on costly and uncertain carbon dioxide (CO₂) removal. Each year of inaction makes the path to net zero by 2050 and net-negative emissions thereafter steeper, more expensive and more disruptive.

On the tenth anniversary of the Paris Agreement, the message is clear: only decisive, accelerated GHG emission reductions can align the world with the goals of the Paris Agreement and limit the escalation of climate risks and damages that, already today, are severe, and hit the poorest and most vulnerable the hardest.

1. Another year of broken records – global GHG emissions reached 57.7 GtCO₂e in 2024, a 2.3 per cent increase from 2023 levels

- ▶ The 2.3 per cent increase in total GHG emissions from 2023 levels is high compared with the 2022–2023 increase of 1.6 per cent. It is more than four times higher than the annual average growth rate in the 2010s (0.6 per cent per year), and comparable to the emissions growth in the 2000s (on average 2.2 per cent per year).
- ▶ The increase is occurring in all major sectors, and all categories of GHGs (figure ES.1). However, despite the key role of fossil fuels in driving total emissions, deforestation and land-use change was decisive for the rapid increase in 2024 emissions (figure ES.2). Global net land use, land-use change and forestry (LULUCF) CO₂ emissions increased by 21 per cent in 2024, and were responsible for 53 per cent of the overall increase in global GHG emissions. There are significant uncertainties in estimates of net LULUCF CO₂ emissions, and the large increase in 2024 was likely exacerbated by climatic conditions. Fossil CO₂ increased by 1.1 per cent and was responsible for 36 per cent of the increase in global GHG emissions.

Figure ES.1 Total net anthropogenic GHG emissions, 1990–2024



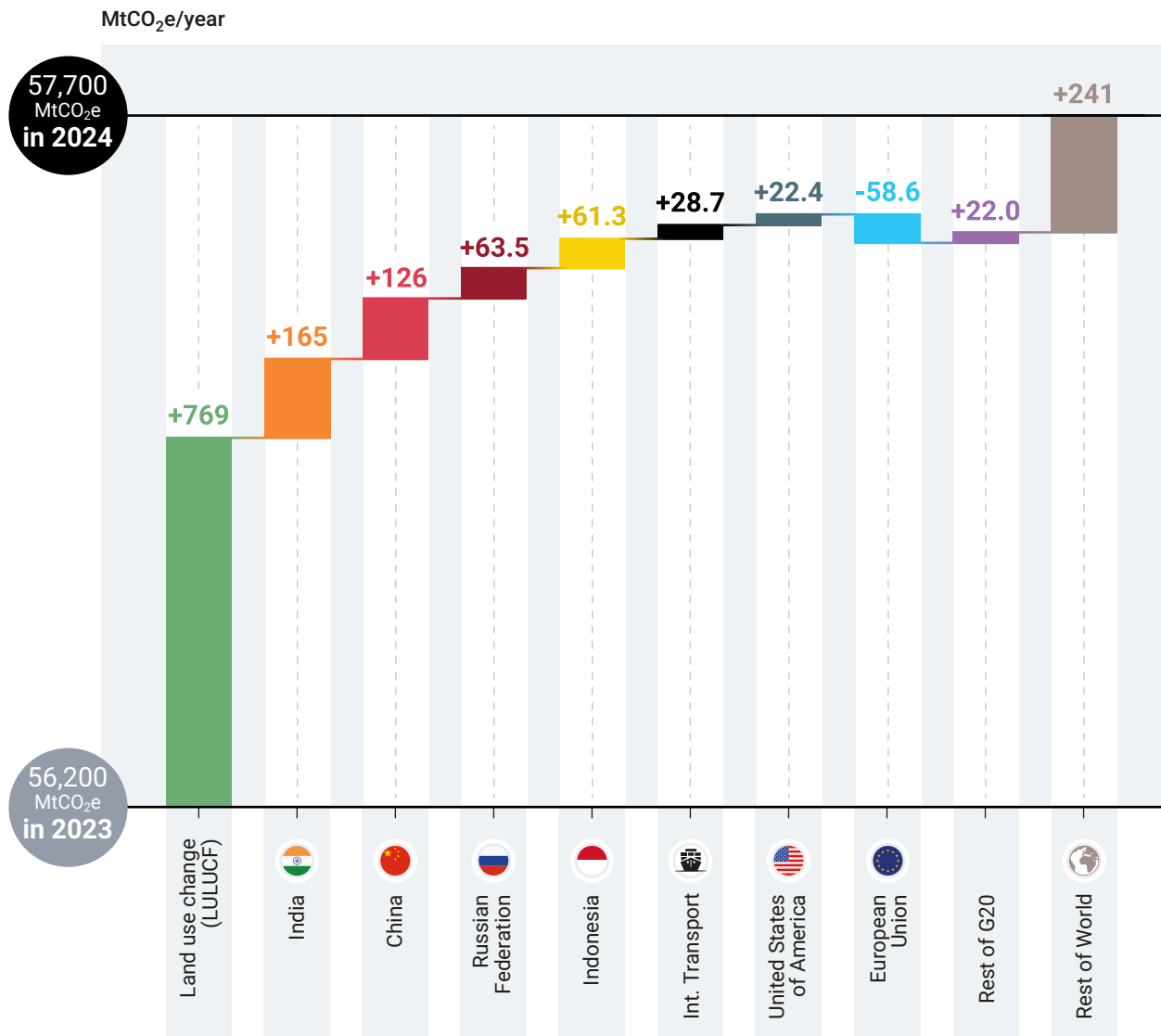
Note: The time series data sets used for the Emissions Gap Report are updated on an annual basis using the latest available statistical information on activities and emissions factors. These updates imply changes compared to prior reporting in the Emissions Gap Report. Accordingly, global GHG emissions in 2023 were adjusted to 56.2 GtCO₂e from the 57.1 GtCO₂e reported in the 2024 edition of the report.

▶ GHG emissions of the G20 members, excluding the African Union, account for 77 per cent of global emissions and increased by 0.7 per cent in 2024. Many countries outside of G20 also showed significant increases in emissions in 2024 (figure ES.2). Of the six largest emitters of GHGs, the European Union was the only one to decrease emissions in 2024. The highest absolute increase in total GHG emissions, excluding LULUCF, was observed in India and China, while Indonesia recorded the fastest relative growth in emissions. It should be noted that current, per capita and historic emissions differ across G20 members and world regions, and should be considered along with contributions to global emissions.

2. Only 60 parties, covering 63 per cent of global GHG emissions, submitted or announced new NDCs containing mitigation targets for 2035 by 30 September 2025

▶ Despite the Paris Agreement requirement to submit new NDCs by February 2025, only 64 parties covering 63 per cent of global GHG emissions had submitted or announced new NDCs by the cut-off date for this report of 30 September. Sixty of these contain mitigation targets for 2035. Only 13 parties covering less than 1 per cent of global GHG emissions have updated their 2030 targets as part of their new NDCs. Overall, NDCs have become modestly more robust over time, but at nowhere near the pace needed, and the new NDCs have done little to accelerate progress.

Figure ES.2 Contributions to the increase in GHG emissions in 2024 from 2023 levels of the six largest emitters, the rest of the G20 members, the rest of the world, international transport and LULUCF



- ▶ Countries' NDC targets have become incrementally more robust over the past decade, with enhanced sector and gas coverage and a greater number of countries adopting absolute targets. Most of this progress, however, occurred prior to the new NDCs, which have done little to increase ambition and coverage.
- ▶ The NDCs reflect uneven progress towards the sectoral efforts identified in the outcome of the global stocktake. While 73 per cent of the new NDCs include renewable energy targets, it is unclear whether these will be sufficient to achieve the goal of tripling renewable energy by 2030, with market trends currently suggesting a 2.7-times increase. NDCs commitments also fall short of the goal to double the rate of energy efficiency improvements by 2030, the actual rate of improvement has stalled in the last two years, and fewer than half of new NDCs contain such targets.
- ▶ The NDC response to the fossil fuel-related outcomes of the global stocktake remains low. Just 62 per cent of new NDCs set a target to reduce fossil fuel use in the electricity mix, while 29 per cent set a coal phase-down target. To date, no NDCs have set targets to reduce oil and gas production or phase out inefficient fossil fuel subsidies.
- ▶ Investment signals in new NDCs remain limited. While some parties have improved the scope or detail of finance needs, most NDCs still lack clarity on capital requirements, sectoral pathways and implementation plans.

3. The new NDCs and policy updates of the G20 members lower expected GHG emissions in 2035, but reductions are relatively small and surrounded by significant uncertainty

- ▶ Seven G20 members have submitted new NDCs with mitigation targets for 2035 (Australia, Brazil, Canada, Japan, the Russian Federation, the United Kingdom and the United States of America), while three members have announced such targets (China, the European Union and Türkiye). None of the G20 members have strengthened their 2030 targets.
- ▶ All the new NDC mitigation targets of the G20 members imply progress in terms of reducing emissions in 2035 beyond the NDC mitigation targets for 2030. If fully implemented, they are estimated to bring GHG emissions in 2035 to 3.6 gigatons of CO₂ equivalent (GtCO₂e) (range: 3.3–3.6 GtCO₂e) below the 2030 emission level. For the G20 members collectively, this estimate increases to around 4 GtCO₂e (figure ES.3). These estimates include the NDC of the United States of America, which will only remain active until the United States of America leaves the Paris Agreement in January 2026. As shown in figure ES.3, the withdrawal of the United States of America NDC will have significant implications for the estimates.
- ▶ To assess whether the new G20 NDCs represent increased mitigation ambition beyond what would result from policies already in place, 2035 emissions under the new G20 NDCs are compared with those expected under current policies. In aggregate, the new NDC targets for 2035 by G20 members are estimated to result in 2035 emissions that are about 2.8 GtCO₂e/year (range: 1.8–5.9) lower than current policy projections. The new NDC targets of Brazil and the United States of America make up the largest contribution to the estimated total, while the new NDC targets of several G20 members are close to or even less ambitious than expected emissions based on policies currently in place (figure ES.4).

▶ Current policy updates do not noticeably change expected emissions in 2030 by the G20 as a group. However, there are significant changes for individual G20 members, particularly for China and the United States of America. Updated current policy projections for China indicate a peaking of emissions around 2025, followed by a reduction of 0.3–1.4 GtCO₂e by 2030. Previously, projections pointed to continued emission growth until 2030. The new trend is mainly explained by the growth of renewable electricity generation in China outpacing overall growth in power demand. In contrast, the 2030 emission projections for the United States of America increase by 1 GtCO₂e, largely due to recent policy reversals.

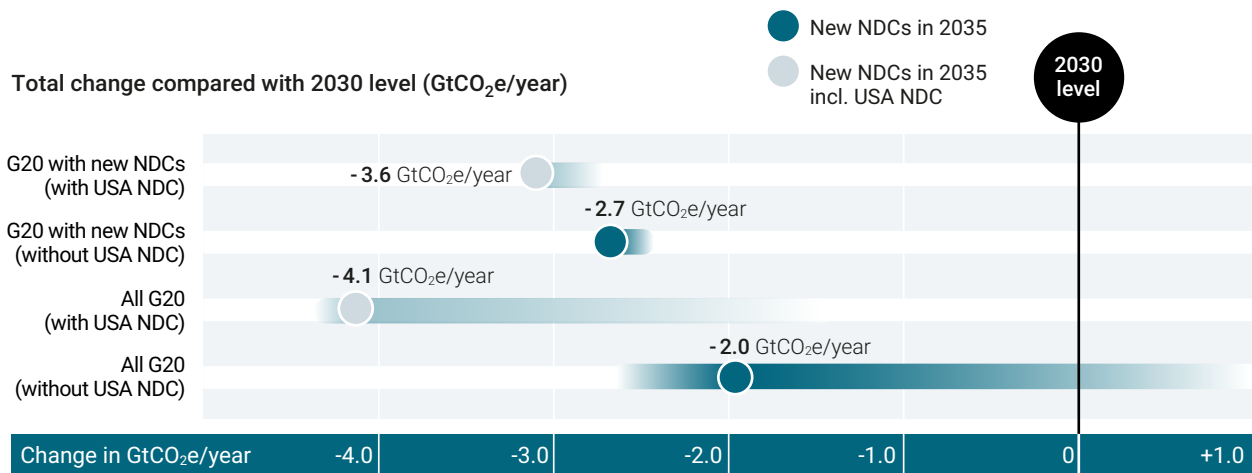
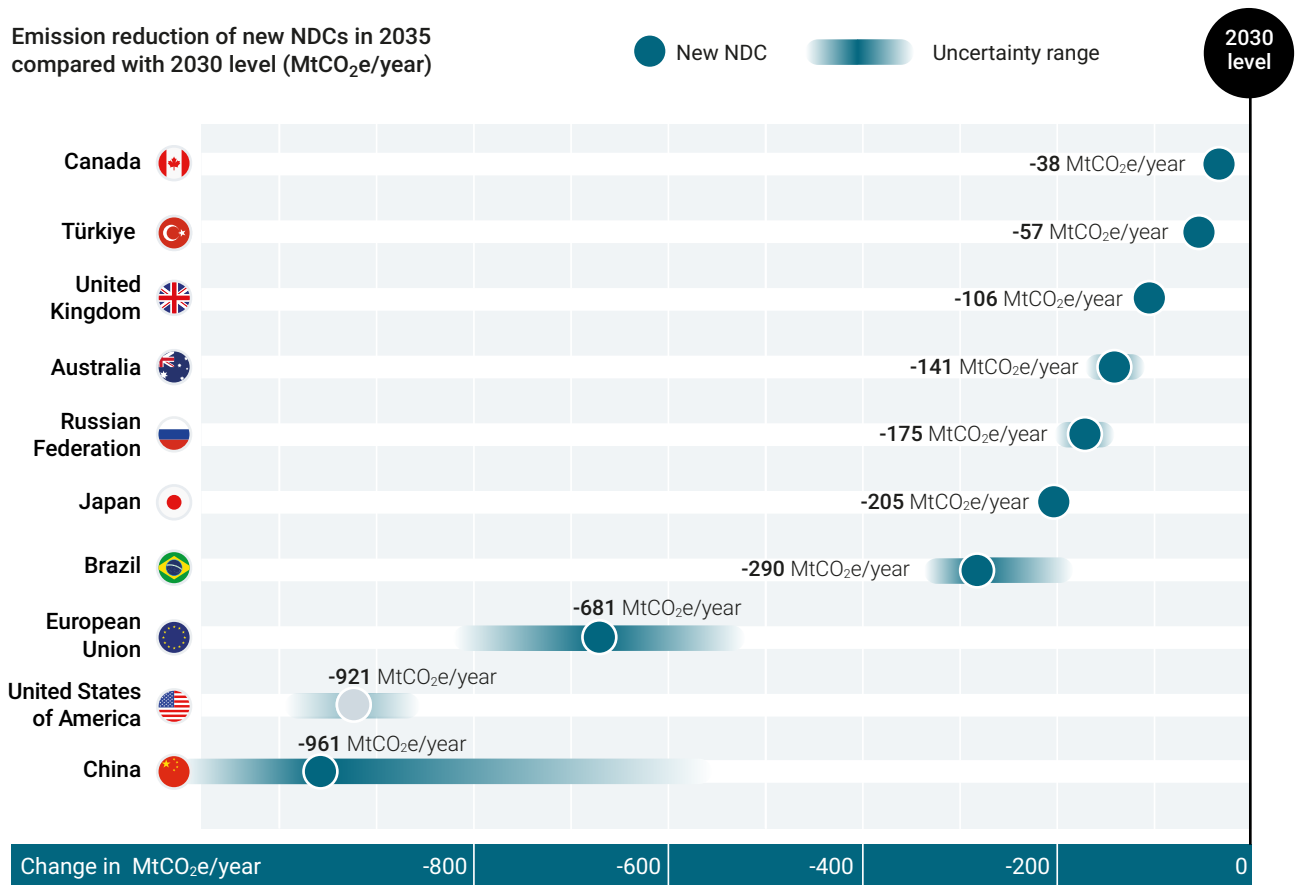
▶ In 2035, the G20 aggregate emissions under current policies are projected to drop by 2 GtCO₂e compared with 2030 levels. The largest contributor to the reduction is China (1 GtCO₂e), followed by the European Union (0.6 GtCO₂e) and the United States of America (0.2 GtCO₂e).

4. Seven G20 members are on track to achieving their NDC targets, but few are on a clear trajectory towards their net-zero emission pledges

▶ Collectively, the G20 members are not on track to achieving their unconditional and conditional NDC targets for 2030. This implementation gap between emissions under NDC pledges and current policies is estimated at 2 GtCO₂e for the unconditional NDC scenario, increasing to 3–4 GtCO₂e if adjusted for overachievement. For the conditional NDC scenario, it is 0.5 GtCO₂e higher.

▶ Seven G20 members are likely to achieve their 2030 unconditional NDC targets with existing policies, while nine G20 members are assessed to be off track or uncertain to achieve their targets with existing policies. It is worth noting that a few countries have narrowed the implementation gap significantly and now have their target within reach, based on existing policies and measures.

Figure ES.3 Emissions in 2035 implied by the new unconditional NDCs of G20 members compared with 2030 NDC targets, individually (upper figure) and collectively (lower figure)

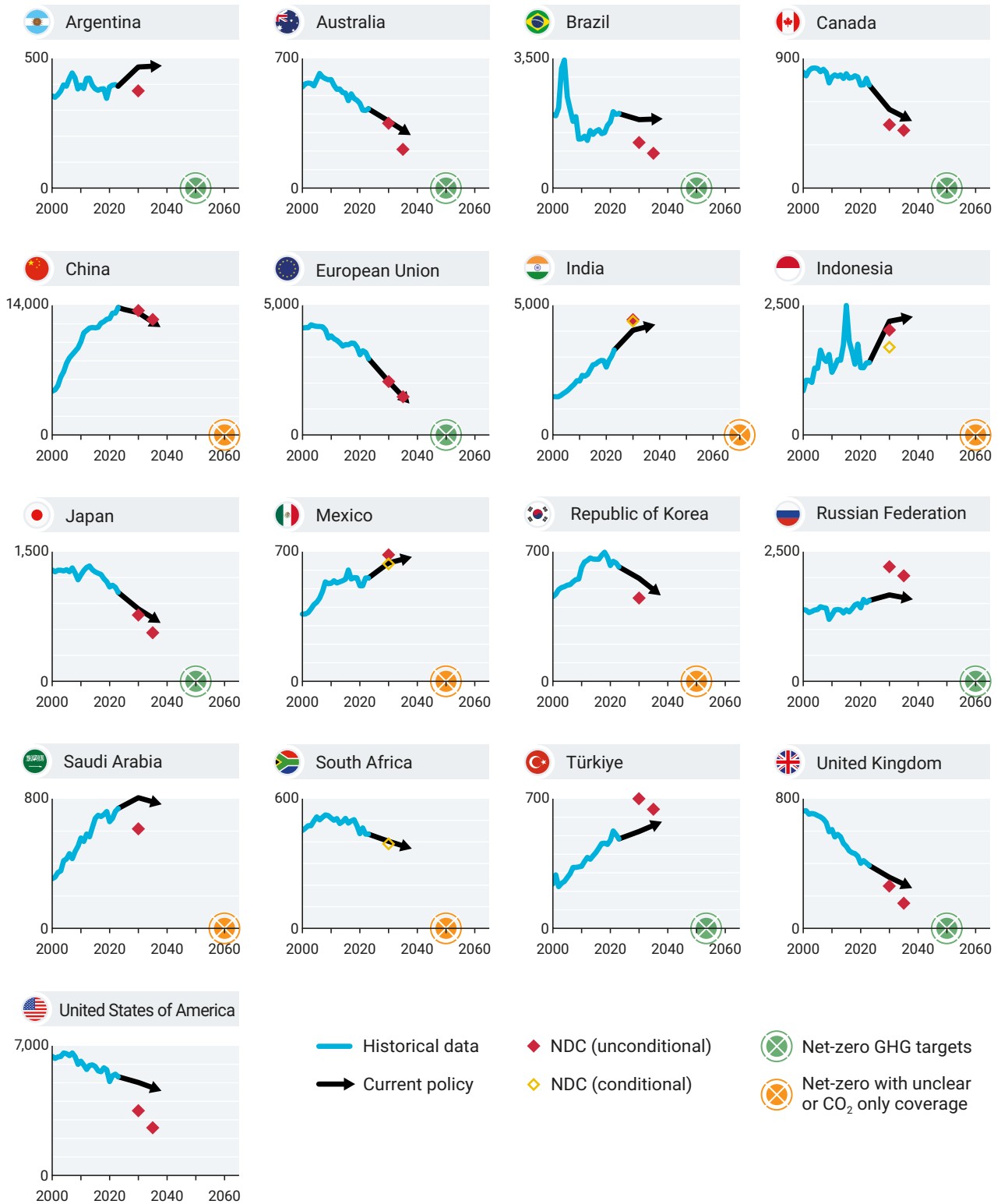


► Figure ES.4 shows the direction required for G20 members to move from their current emission trajectories to their NDC targets for 2030 and 2035, as applicable, and the extent to which further acceleration of decarbonization rates would be required to achieve the net-zero targets for each G20 member (noting that France, Germany and Italy are only assessed as part of the European Union). Few G20 members are on a clear trajectory towards their net-zero emission pledges based on current policies and NDC targets.

For G20 members whose emissions have not yet peaked, the NDC and net-zero targets that countries have set themselves suggest a very short time frame for peaking emissions and reaching net zero. It should be noted that this illustration does not consider the relative merits in terms of equity or fairness of the choices countries make regarding their NDCs or their nationally determined pathways to net zero.

Figure ES.4 G20 members' emissions trajectories implied by historical emissions, current policies, NDC targets and net-zero targets

National emissions in MtCO₂e/year over time



5. The new NDCs narrow the emissions gap in 2035, but the gap remains large

- ▶ Despite the new NDCs, the emissions gap in 2030 and 2035 between global GHG emissions resulting from the full implementation of the NDCs and the levels aligned with 2°C and 1.5°C pathways remain large (figure ES.5 and table ES.1).
- ▶ For 2030, full implementation of unconditional NDCs is estimated to result in an emissions gap with below 2°C pathways of about 12 GtCO₂e annually (range: 9–15 GtCO₂e), and 20 GtCO₂e (range: 17–23 GtCO₂e) with 1.5°C pathways. If, in addition, conditional NDCs are fully implemented, these gaps are reduced by approximately 2 GtCO₂e (see table ES.1 and figure ES.5). These gaps are slightly lower than last year's assessment (about 2 GtCO₂e for unconditional NDCs, and 1 GtCO₂e for conditional NDCs). However, this does not stem from strengthened 2030 NDC targets, but rather results from updated emission trends by modelling groups and methodological updates that decrease the gaps. As indicated in table ES.1, the numbers would increase by 2 GtCO₂e once the United States of America exits the Paris Agreement and its NDC becomes void, cancelling out the effect of the updates.
- ▶ It should be noted that countries are not even on track to achieving the globally insufficient NDCs for 2030. There is also an implementation gap between global emissions projected under current policies and those expected with full NDC implementation (table ES.1). This implementation gap amounts to about 5 GtCO₂e (range: 3–8 GtCO₂e) for unconditional NDCs, and 7 GtCO₂e (range: 5–9 GtCO₂e) for conditional NDCs by 2030 (table ES.1). These totals are around 2 GtCO₂e higher than last year's assessment, due to the increasing divergence between the United States of America's NDC and its current policies. If the United States of America's NDC is excluded, the median estimates of the implementation gap are similar to last year's.
- ▶ The new NDCs narrow the emissions gap in 2035 compared with last year's assessment. The unconditional and conditional NDC gaps with respect to 2°C and 1.5°C pathways are 6 and 4 GtCO₂e lower than last year respectively. The new NDC targets and updated policy projections contribute around 4 and 3 GtCO₂e to these reductions respectively, while updates to methodologies and emissions trends reduce the gaps by another 1–2 GtCO₂e.
- ▶ Full implementation of all unconditional NDCs is estimated to result in a gap with below 2°C pathways of about 12 GtCO₂e annually (range: 10–16 GtCO₂e), and 23 GtCO₂e annually (range: 21–27 GtCO₂e) with 1.5°C pathways. If conditional NDCs are also fully implemented, these gaps are reduced by approximately 1 GtCO₂e for both temperature limits. The small difference between unconditional and conditional NDC scenarios reflects that no new NDCs with conditional elements for 2035 had been submitted by major emitters by the cut-off date for inclusion in this report.

Table ES.1 Global total GHG emissions in 2030, 2035 and 2050, and estimation of associated emissions gaps under different scenarios

Scenario	Projected GHG emissions (GtCO ₂ e)	Estimated emissions gaps (GtCO ₂ e)		
		Median and range	Below 2.0°C	Below 1.8°C
2030				
Current policies	58 (51–62)	17 (11–21)	23 (16–27)	25 (19–29)
Unconditional NDCs	53 (49–55)*	12 (9–15)*	18 (15–21)*	20 (17–23)*
Conditional NDCs	51 (48–53)*	10 (7–12)*	16 (13–18)*	18 (15–20)*
2035				
Current policies	54 (52–62)	19 (17–26)	28 (26–35)	30 (28–37)
Unconditional NDCs	48 (46–52)*	12 (10–16)*	21 (19–25)*	23 (21–27)*
Conditional NDCs	46 (45–49)*	11 (9–13)*	20 (18–22)*	22 (20–24)*
2050				
Current policies continued	51 (33–71)	30 (13–51)	38 (20–59)	42 (24–63)
Conditional NDCs and all net-zero pledges**	19 (8–29)	-1 (-12–9)	7 (-4–17)	11 (0–21)

Note: * All estimates would increase by 2 GtCO₂e without the NDC of the United States of America.

** Extensions of conditional NDCs with net-zero pledges, including long-term low emission development strategies, exclude the United States of America's net-zero target as it has been withdrawn.

Figure ES.5 Global GHG emissions under different scenarios and the emissions gap in 2030 and 2035

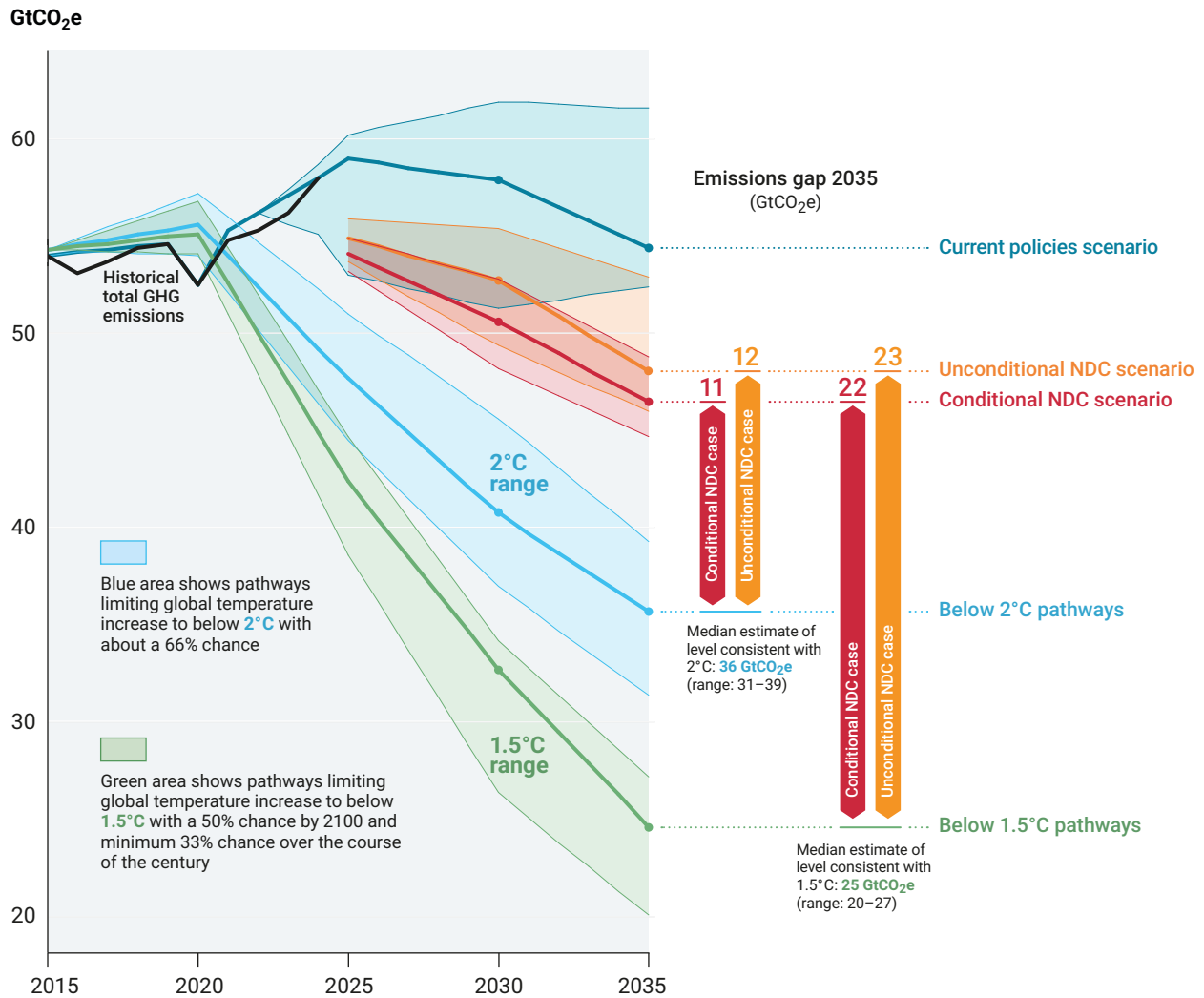


Table ES.2 Global total GHG emissions in 2030, 2035 and 2050, and global warming characteristics of different scenarios, consistent with limiting global warming to specific temperature limits

Scenario	# scenarios	Global total GHG emissions (GtCO ₂ e)	Estimated temperature outcome					
			In 2030	In 2035	In 2050	50% chance	66% chance	90% chance
Below 2.0°C (66% chance)	195	41 (37–46)	36 (31–39)	20 (16–24)	Peak: 1.7–1.8°C In 2100: 1.4–1.7°C	Peak: 1.8–1.9°C In 2100: 1.6–1.9°C	Peak: 2.2–2.4°C In 2100: 2.0–2.4°C	C3a
Below 1.8°C (66% chance)	139	35 (28–41)	27 (21–31)	12 (8–16)	Peak: 1.5–1.7°C In 2100: 1.3–1.6°C	Peak: 1.6–1.8°C In 2100: 1.4–1.7°C	Peak: 1.9–2.2°C In 2100: 1.8–2.2°C	N/A
Around 1.5°C (50% in 2100 with no or limited overshoot)	50	33 (26–34)	25 (20–27)	8 (5–13)	Peak: 1.5–1.6°C In 2100: 1.1–1.3°C	Peak: 1.6–1.7°C In 2100: 1.2–1.5°C	Peak: 1.9–2.1°C In 2100: 1.6–1.9°C	C1a

- ▶ The full implementation of unconditional and conditional NDCs would reduce expected emissions in 2035 by about 12 (range: 6–16) and 15 per cent (range: 11–18) respectively, compared with 2019 levels. These percentages change to 9 (range: 0–13) and 11 (range: 6–15) per cent if the NDC of the United States of America is excluded. While this indicates a peak and decline in global emissions, the large ranges around the estimates signals continued uncertainty around firm conclusions about peaking. Furthermore, the reductions are far smaller than the 35 and 55 per cent reductions needed to align with 2°C and 1.5°C pathways, respectively.

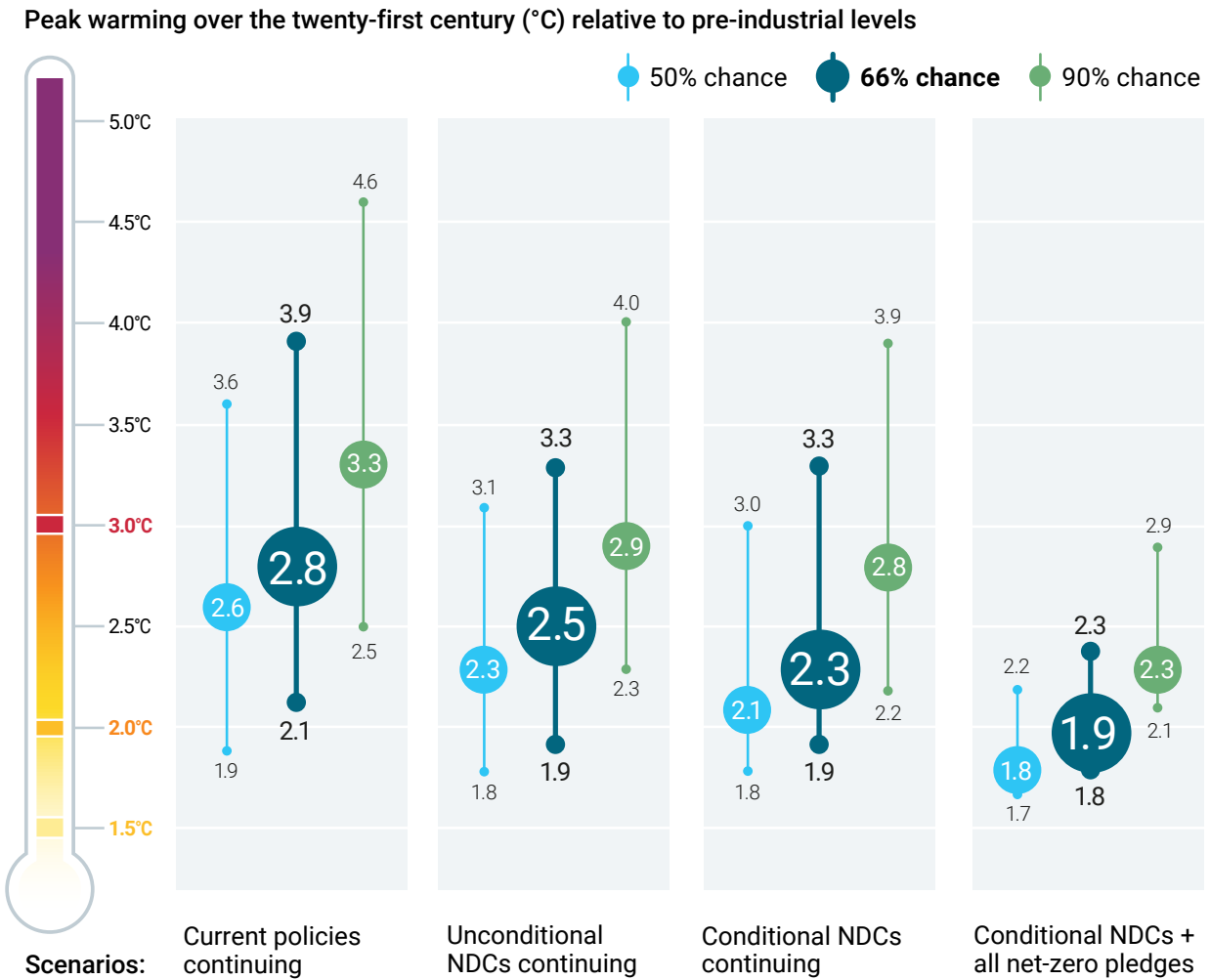
6. Temperature projections are only slightly lower than last year and reiterate that immediate mitigation matters

- ▶ Immediate action matters: a move from the current policies scenario to the conditional NDC scenario through stronger immediate mitigation action shaves 0.5°C off global temperature projections. If, in addition, all net-zero pledges are fully achieved, projections drop by another 0.4°C (figure ES.6).
- ▶ A continuation of the mitigation effort implied by current policies only limits warming below 2.8°C (range: 2.1–3.9) over the century, with a 66 per cent chance. This level of warming would be reduced to 2.5°C (range: 1.9–3.3) if unconditional NDCs are fully implemented by 2035 and similar efforts continue. Even with efforts sufficient to meet the conditional NDCs in full, warming would only be kept below 2.3°C (range 1.9–3.3) with at least a 66 per cent chance. By 2050, the central warming projections for these scenarios see global warming surpassing 1.5°C by several tenths of a degree, leaving the world with a 21–33 per cent chance that warming will already exceed 2°C by then.
- ▶ The updated policy projections and new NDC targets for 2035, along with methodological updates, have lowered these warming projections by about 0.3°C, compared with last year’s assessment. The updated policy projections and new NDCs account for roughly two thirds of this improvement, with around one-third due to methodological updates. However, about 0.1°C of this limited progress would be cancelled out, once the forthcoming official withdrawal of the United States of America’s NDC is accounted for.
- ▶ The most optimistic pledge-based scenario included in this report, which combines the full implementation of conditional NDCs and all net-zero pledges, would limit warming over the course of the century to 1.9°C (range: 1.8–2.3°C) with a 66 per cent chance. This has remained unchanged since last year.
- ▶ These projections highlight the potential to reduce warming significantly through immediate mitigation action. However, they also underline the uncomfortable truth that surpassing 1.5°C is increasingly near, and that the risk of even higher levels of warming is rising fast.

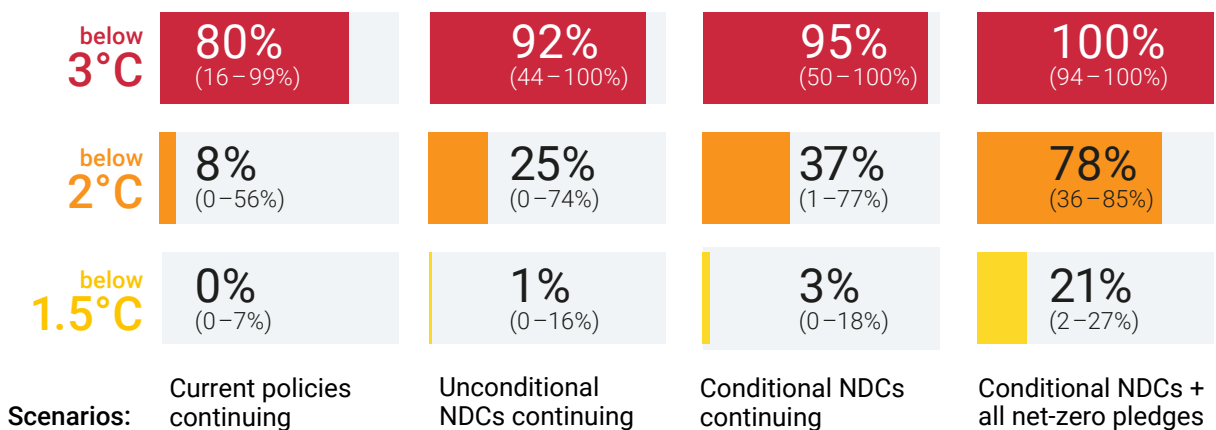
7. Despite the increasing likelihood of higher and longer temperature overshoot, pursuing efforts to limit global warming to 1.5°C remains as critical and relevant as ever

- ▶ While global warming is now close to 1.5°C and is likely to exceed this temperature limit soon, the long-term temperature goal of the Paris Agreement to limit global warming to well below 2°C, while pursuing efforts to stay below 1.5°C, remains central. The Paris Agreement does not set a target date or expiration for its temperature goal. It is widely understood as a legal, moral and political obligation, as affirmed by the recent advisory opinion of the International Court of Justice affirming that 1.5°C remains the “primary” target of the Paris Agreement.
- ▶ New scenarios show that limiting warming to 1.5°C by 2100 remains technically possible. However, due to the continued delay in deep emission cuts, 1.5°C pathways now imply temporary exceedance of this temperature limit. This merely stresses the imperative of immediate and unprecedented levels of mitigation to limit the magnitude and duration of overshoot to the lowest possible level, thereby also minimizing the increased reliance on uncertain, risky and costly CO₂ removal methods.
- ▶ Every fraction of a degree of global warming matters. Each additional 0.1°C of global warming is associated with an escalation of the damages, losses and adverse health impacts that are already being experienced at current levels of global warming, and which hit the poorest and most vulnerable the hardest. Furthermore, the risks of irrevocable impacts and of triggering climate tipping points that would lead to abrupt and irreversible climate changes, increase with every increment of global warming.
- ▶ Accelerated mitigation action provides benefits and opportunities. In many cases, mitigation aligns with economic growth, job creation, energy security and achievement of other pressing development needs and the Sustainable Development Goals. The required technologies are available, and wind and solar energy development continue to exceed expectations, lowering deployment costs and driving market expansion. Yet deployment remains insufficient, and accelerated emission reductions require overcoming policy, governance, institutional and technical barriers; unparalleled increase in support to developing countries; and redesigning the international financial architecture.
- ▶ The new NDCs and current geopolitical situation do not provide promising signs that this will happen, but that is what countries and the multilateral processes must resolve to affirm collective commitment and confidence in achieving the temperature goal of the Paris Agreement.

Figure ES.6 Projections of global warming under the pledge-based scenarios assessed



Likelihood of limiting warming below a specific temperature limit (%) over the twenty-first century



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