

EMISSIONS GAP REPORT 2023

Key Messages

As temperature records tumble and climate impacts intensify, the [*Emissions Gap Report 2023: Broken Record – Temperatures hit new highs, yet world fails to cut emissions \(again\)*](#) finds that the world is heading for a 2.5-2.9°C temperature rise above pre-industrial levels unless countries step up action and deliver more than promised in their 2030 pledges under the Paris Agreement. Predicted 2030 emissions must be cut by at least 28-42 per cent compared to current policy scenarios to get on track for the 2°C and 1.5°C goals of the Paris Agreement respectively. Maintaining the possibility of achieving the Paris Agreement goals hinges on strengthening mitigation this decade to narrow the emissions gap. This will facilitate more ambitious targets for 2035 in the next round of climate pledges and increase the chances of meeting net-zero promises, which cover around 80 per cent of global emissions.

The world is setting alarming emissions and temperature records, which intensify extreme weather events and other climate impacts across the globe.

- This year, until the beginning of October, 86 days were recorded with temperatures over 1.5°C above pre-industrial levels. September was the hottest recorded month, with global average temperatures 1.8°C above pre-industrial levels.
- Global greenhouse gas (GHG) emissions increased by 1.2 per cent from 2021 to 2022 to reach a new record of 57.4 Gigatonnes of Carbon Dioxide Equivalent (GtCO₂e).
- Similarly, GHG emissions across the G20 increased by 1.2 per cent in 2022.
- Emissions remain unequally distributed within and between countries, reflecting global patterns of inequality.

Despite the accelerating climate disasters, insufficient mitigation efforts mean the world is on track for a temperature rise far beyond agreed climate goals during this century.

- If mitigation efforts implied by current policies are continued, global warming will be limited to 3°C above pre-industrial levels throughout this century.
- Fully implementing and continuing efforts implied by unconditional Nationally Determined Contributions (NDCs) would put the world on track for limiting temperature rise to 2.9°C.
- The additional achievement and continuation of conditional NDCs would lead to temperatures not exceeding 2.5°C above pre-industrial levels.
- In the most optimistic scenario, where all conditional NDCs and net zero pledges are met, limiting temperature rise to 2.0°C could be achieved. However, net-zero pledges are not currently considered credible: none of the G20 countries are reducing emissions at a pace consistent with their net-zero targets.
- In the most optimistic scenario, the likelihood of limiting warming to 1.5°C is only 14 per cent.

The world needs to cut 2030 emissions by 28 per cent to get on a least-cost pathway for the 2°C goal of the Paris Agreement and 42 per cent for the 1.5°C goal.

- Unconditional and conditional NDCs for 2030 are estimated to reduce global emissions in 2030 by only 2 and 9 per cent respectively, compared with current policies and assuming full implementation.
- Current unconditional NDCs imply additional emissions cuts of 14 GtCO₂e are needed in 2030 over predicted levels for 2°C. Cuts of 22 GtCO₂e are needed for 1.5°C.
- The implementation of conditional NDCs reduces these estimates by 3 GtCO₂e.

There has been progress since the Paris Agreement was signed, but significantly ramping up implementation in this decade is the only way to keep the window open for limiting global warming to 1.5°C without significant overshoot.

- Policy progress has reduced the implementation gap, defined as the difference between projected emissions under current policies and full NDC implementation.
- GHG emissions in 2030 based on policies in place were projected to increase by 16 per cent at the time of the adoption of the Paris Agreement. Now the projected increase is 3 per cent.
- The global implementation gap for 2030 is estimated at around 1.5 GtCO₂e for unconditional NDCs (down from 3 GtCO₂e last year), and 5 GtCO₂e for conditional NDCs (down from 6 GtCO₂e).
- Nine countries have submitted new or updated NDCs since COP27 in 2022, bringing the total number of updated NDCs to 149.
- If all new and updated unconditional NDCs are fully implemented, they are estimated to reduce GHG emissions by about 5.0 GtCO₂e annually by 2030, compared with the initial NDCs. The nine NDCs submitted since COP27 amount to around 0.1 GtCO₂e of this total.
- However, unless emission levels in 2030 are brought down compared with the levels implied by full implementation of the NDCs, it will become impossible to establish least-cost pathways that limit global warming to 1.5°C above pre-industrial levels, with at least a 33 per cent chance, during this century.

All nations must accelerate economy-wide, low-carbon development transformations.

- Countries with greater capacity and responsibility for emissions – particularly high-income and high-emitting countries among the G20 – will need to take more ambitious and rapid action and provide financial and technical support to developing nations.
- As low- and middle-income countries already account for more than two thirds of global GHG emissions, meeting development needs with low-emissions growth.
- The coal, oil and gas extracted over the lifetime of producing and planned mines and fields would emit over 3.5 times the carbon budget available to limit warming to 1.5°C, and almost the entire budget available for 2°C.

Low- and middle-income countries face economic and institutional challenges in low-carbon development transitions but can also seize opportunities.

- Energy transitions in low- and middle-income countries can help to provide universal access to energy, lift millions out of poverty and expand strategic industries.
- The associated energy growth can be met efficiently and equitably with low-carbon energy as renewables get cheaper, ensuring green jobs and cleaner air.
- International financial assistance will have to be significantly scaled up, with new public and private sources of capital restructured through financing mechanisms that lower

costs of capital. These include debt financing, long-term concessional finance, guarantees and catalytic finance.

- The preparation of the next round of NDCs offers the opportunity for low- and middle-income countries to develop national roadmaps with domestic visions of ambitious development and climate policies and targets for which finance and technology needs are clearly specified.
- COP28 should ensure that international support is provided for the development of such ambitious roadmaps.

The first Global Stocktake (GST) at COP28 will provide a framework for building new ambition.

- The first global stocktake under the Paris Agreement will inform the next round of NDCs that countries should submit in 2025 with targets for 2035.
- Action in this decade will determine the ambition required in these NDCs, and the feasibility of achieving the long-term temperature goals of the Paris Agreement.
- Global ambition in the next round of NDCs must bring global GHG emissions in 2035 to levels consistent with the below 2°C and 1.5°C pathways, while compensating for excess emissions until levels consistent with these pathways are achieved.

Further delay of stringent global GHG emissions reductions will increase future reliance on carbon dioxide removal.

- All pathways consistent with meeting the Paris Agreement goals require immediate and deep emission cuts and the use of carbon dioxide removal (CDR) in the medium and longer term.
- CDR is already being deployed, mainly through afforestation, reforestation and forest management. Current direct removals through land-based methods are estimated at 2.0 GtCO₂e annually.
- Least-cost pathways assume significant increases in both conventional and novel CDR, but achieving higher levels of CDR remains uncertain and associated with risks: around land competition, protection of tenure and rights and other factors.
- Upscaling of novel CDR is associated with different types of risks, including that the technical, economic and political requirements for large-scale deployment may not materialize in time.
- This points to four important areas for political action: setting and signalling CDR priorities; developing robust monitoring, reporting and verification systems to enhance credibility; harnessing synergies and co-benefits with other efforts; and accelerating innovation.