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World Environment Day 2026: A Global Call for Climate Action

Progress, peril and the race against time

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The State of the Planet in 2026

Every year on the fifth of June the world performs a small ritual of conscience. Schools plant saplings, ministries issue statements, corporate logos turn briefly green, and a host nation — this year the Republic of Azerbaijan, in the oil city of Baku — convenes the largest of the United Nations' environmental observances under a banner of climate action.[1] The symbolism is sincere and, in its way, valuable. It is also, set against the physical state of the planet it commemorates, almost unbearably modest. For the awkward truth of World Environment Day 2026 is that humanity has never understood the climate crisis more precisely, possessed more of the tools to address it, or done so much that is genuinely transformative — and still the atmosphere keeps filling.

Consider the numbers that frame this anniversary. The concentration of carbon dioxide in the atmosphere reached roughly 426 parts per million in 2025, about 52 per cent above its pre-industrial level and rising at a rate perhaps a hundred times faster than at any point in the recent geological record.[2] At Mauna Loa, the seasonal peak crossed 430 parts per million for the first time in the spring of 2025, and the curve has not paused since.[3] The World Meteorological Organization has confirmed that 2025 was one of the three warmest years ever measured, around 1.43 °C above the 1850–1900 baseline, in a year cooled rather than warmed by a La Niña; the eleven years to 2025 are the eleven hottest in the 176-year record.[4]

Behind that headline lie subtler alarms. In 2024 — the warmest year on record, near 1.55 °C — the planet recorded its first full calendar year above the 1.5 °C threshold that the Paris Agreement was built to defend.[5] A single year is not the breach of a long-term goal, but the symbolism was lost on no one. The ocean, which absorbs more than nine-tenths of the excess heat trapped by greenhouse gases, set new heat records; for the first time the WMO elevated Earth's energy imbalance — the net rate at which the planet is accumulating heat — to a headline indicator, and found it at a record high. Arctic winter sea ice shrank to its smallest extent ever observed.[6] Glaciers retreat, seas rise, coral reefs bleach in successive waves, and the slow attrition of biodiversity continues beneath the noise of more dramatic disasters.

And yet emissions, the thing that actually drives all of this, remain stubbornly, historically high. Fossil-fuel carbon dioxide reached a record 38.1 billion tonnes in 2025, up about 1.1 per cent on the year; counting land use, total CO_2 was effectively flat at around 42 billion tonnes — tied with 2024 for the highest in human history.[7] Total greenhouse-gas emissions hit a record 57.7 billion tonnes of CO_2-equivalent in 2024, growing more than four times faster than the average of the 2010s.[8] This is the central tension of the moment, and the question this essay sets out

to answer: humanity now understands the climate crisis better than at any point in its history. Why, despite unprecedented technological capability and scientific certainty, does meaningful action remain so hard?

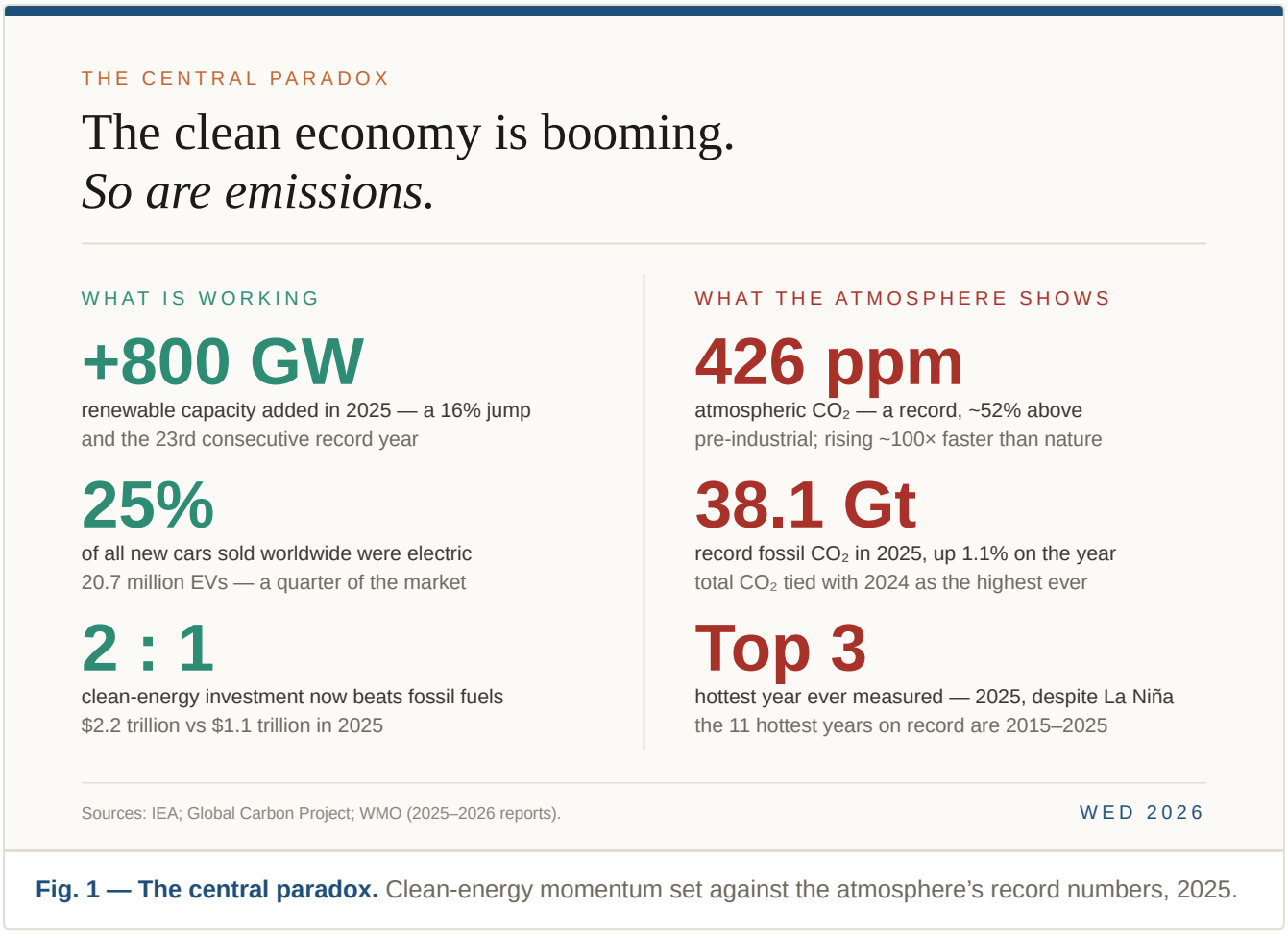

Fig. 1 — The central paradox. Clean-energy momentum set against the atmosphere's record numbers, 2025.

Part One — The Climate Transition Has Begun

It would be a kind of dishonesty, common to the gloomier register of climate writing, to pretend that nothing is working. A great deal is working, and at a pace that even sober analysts did not predict a decade ago. The transition is no longer a forecast; it is an industrial fact, visible in the accounts of the world's largest economies.

Renewable power has crossed from promise to dominance. In 2025 the world added roughly 800 gigawatts of renewable generating capacity — a 16 per cent jump and the twenty-third consecutive record year. Solar photovoltaics alone contributed more than 600 gigawatts, over three-quarters of the total; wind added around 160.[9] Cumulative solar capacity now stands near 2,800 gigawatts, making it the most-installed generating technology on Earth, and solar supplied more than 8 per cent of global electricity in its single largest annual increase of any source in history.[10] The threshold long treated as a milestone — renewables overtaking coal as the world's largest source of electricity — is being crossed in 2025 or 2026.[11] Costs have collapsed so far that in favourable locations new solar is now the cheapest electricity humanity has ever built.

Fig. 2 — Capital has changed sides. Global energy investment in 2025: a record $3.3 trillion.

The car is being rewritten. Electric-vehicle sales exceeded 20 million in 2025, a fifth higher than the year before and a full quarter of all new cars sold worldwide; the IEA expects close to 23 million, around 30 per cent, in 2026.[12] The transformation is uneven but real: within China, electric models now approach 55 per cent of new-car sales, and Chinese manufacturers supply some 60 per cent of the global market, while sales across emerging economies leapt by roughly 80 per cent on the back of cheaper imports.[13] Electric cars displaced well over a million barrels of oil a day in 2025 — a small figure against total demand, but one growing relentlessly.

Capital has changed sides. Perhaps the most consequential shift is financial. Of an estimated USD 3.3 trillion flowing into energy in 2025, around USD 2.2 trillion went to clean technologies — renewables, grids, storage, nuclear, efficiency and electrification — against USD 1.1 trillion for oil, gas and coal: a two-to-one margin that did not exist a decade ago.[14] Solar is now the single largest line item in the entire global energy ledger, outspending oil production. A decade ago, fossil-fuel supply attracted thirty per cent more capital than electricity; today that ratio is inverted. Markets, in other words, have already made a decision that politics is still arguing about.

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Policy, for all its disappointments, has bent the curve. The Paris Agreement, ten years old this winter, did not deliver the emissions cuts its architects hoped for, but it did something subtler: it made net zero the organising ambition of the global economy and gave every government a yardstick against which to be measured. Carbon pricing has spread from Europe to dozens of jurisdictions; national net-zero pledges now cover the great majority of global emissions and GDP. The cumulative effect is measurable. When Paris was signed, the world was on track for something close to 4 °C of warming by 2100. Full implementation of today's pledges would hold that to

roughly 2.3–2.5 °C.[15] That is still a catastrophic number. It is also, as a measure of avoided disaster, an achievement without precedent in environmental diplomacy.

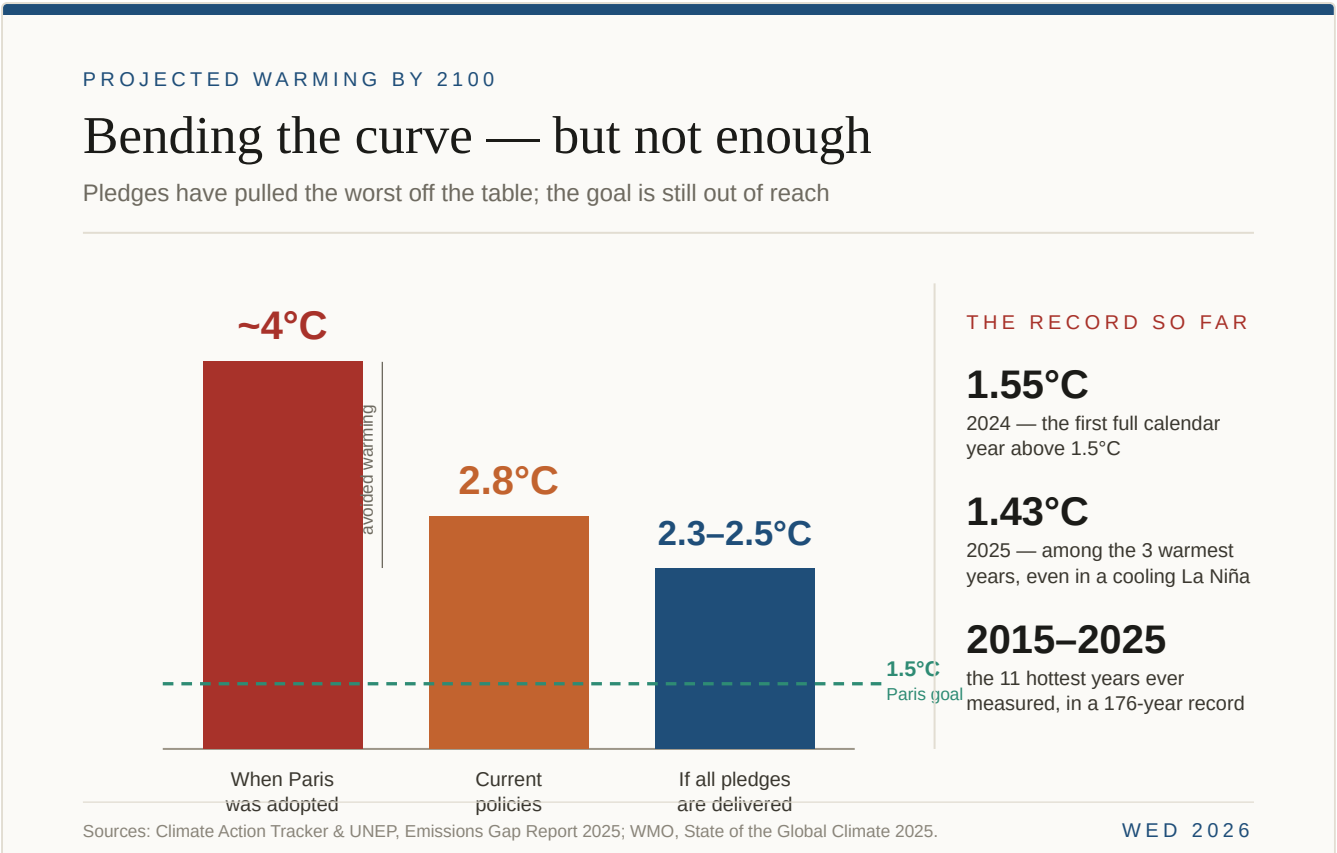

Fig. 3 — Bending the curve. Projected warming by 2100 under successive policy assumptions, against the temperature record.

Part Two — Why Emissions Keep Rising

Here is the paradox in its sharpest form. The clean economy is growing faster than ever, and so are emissions. How can both be true? The answer is that the world is not, for the most part, replacing fossil energy. It is adding clean energy on top of a fossil base that keeps expanding to meet relentless growth in demand.

Demand outruns the transition. Global energy appetite is swollen by population growth, by the industrialisation and urbanisation of Asia and Africa, and now by a voracious new consumer — the data centres and artificial-intelligence systems whose electricity demand is rising steeply. Renewables are meeting most of the *growth* in electricity demand, which is genuine progress; but where total demand rises faster than clean supply can be built, coal and gas fill the gap. In 2025 the increase in fossil consumption came from all three fuels at once — coal, oil and gas — even as their share of the whole slowly declined.[7]

Fossil infrastructure is built to last. A coal plant commissioned today is a forty-year financial commitment; a gas network, a pipeline, a steel works, a petrochemical complex are all designed to be paid off over decades. This is the lock-in problem: trillions of dollars of existing capital have every incentive to keep running, and the communities, pension funds and governments that depend on them have every incentive to defend them. Even as clean

investment doubles fossil investment, approvals of new fossil-fuel projects have reached their highest level in years, and conventional-fuel subsidies remain entrenched across much of the world.[14]

The development question is real, and it is moral. It is easy, from a heated office in a wealthy capital, to deplore a rise in emissions from countries where hundreds of millions still lack reliable electricity. Their governments make a powerful argument: the atmosphere was filled overwhelmingly by the historical emissions of the rich world, and the right to develop — to electrify, to industrialise, to lift people out of poverty — cannot be conditioned on a sacrifice the wealthy never made. The tension between development and decarbonisation is not a misunderstanding to be cleared up; it is a genuine conflict of justice. It is also, increasingly, a false dichotomy, because the cheapest new power in most of the developing world is now renewable. The obstacle is rarely the technology; it is the cost of capital, the weakness of grids, and the failure of promised finance to arrive — of which more below.

Part Three — The Politics of Delay

If the physics is settled and much of the economics now favours the transition, the binding constraint is political. And the politics of 2026 have hardened in ways that the optimistic accounts of a few years ago did not anticipate.

A great power has walked away. On 27 January 2026 the United States — the largest historical emitter and second-largest current one — formally completed its withdrawal from the Paris Agreement.[16] Earlier that month it had announced its intention to leave the UN Framework Convention on Climate Change itself, along with the Intergovernmental Panel on Climate Change and dozens of other multilateral bodies — an unprecedented retreat that, if completed, would degrade the very scientific and accounting infrastructure on which global climate cooperation depends.[17] The practical effect is less a collapse than a corrosion: incomplete emissions inventories, weakened finance, and a permission structure for other governments to lower their own ambition. Climate action does not require unanimity, but the defection of the largest economy raises the cost and lowers the confidence of everyone who stays.

The summit of implementation underdelivered. COP30, convened in November 2025 in Belém on the edge of the Amazon and timed to the Paris Agreement's tenth anniversary, was billed as the "COP of implementation." It produced real gains — an agreement to triple adaptation finance by 2035, the operationalisation of the Loss and Damage Fund, and the first explicit UN commitment to counter climate disinformation.[18] But on the central question — a roadmap to transition away from fossil fuels — it failed. More than eighty nations backed such a roadmap; a bloc of major producers, including Saudi Arabia, Russia, India and China, refused, and the language was stripped from the final text in the closing hours. The host presidency salvaged the moment with voluntary roadmaps launched outside the formal agreement.[19] A voluntary roadmap with no targets and no penalties is a statement of intent, not a policy. That the leaders of the three largest emitters skipped the leaders' summit altogether tells its own story.

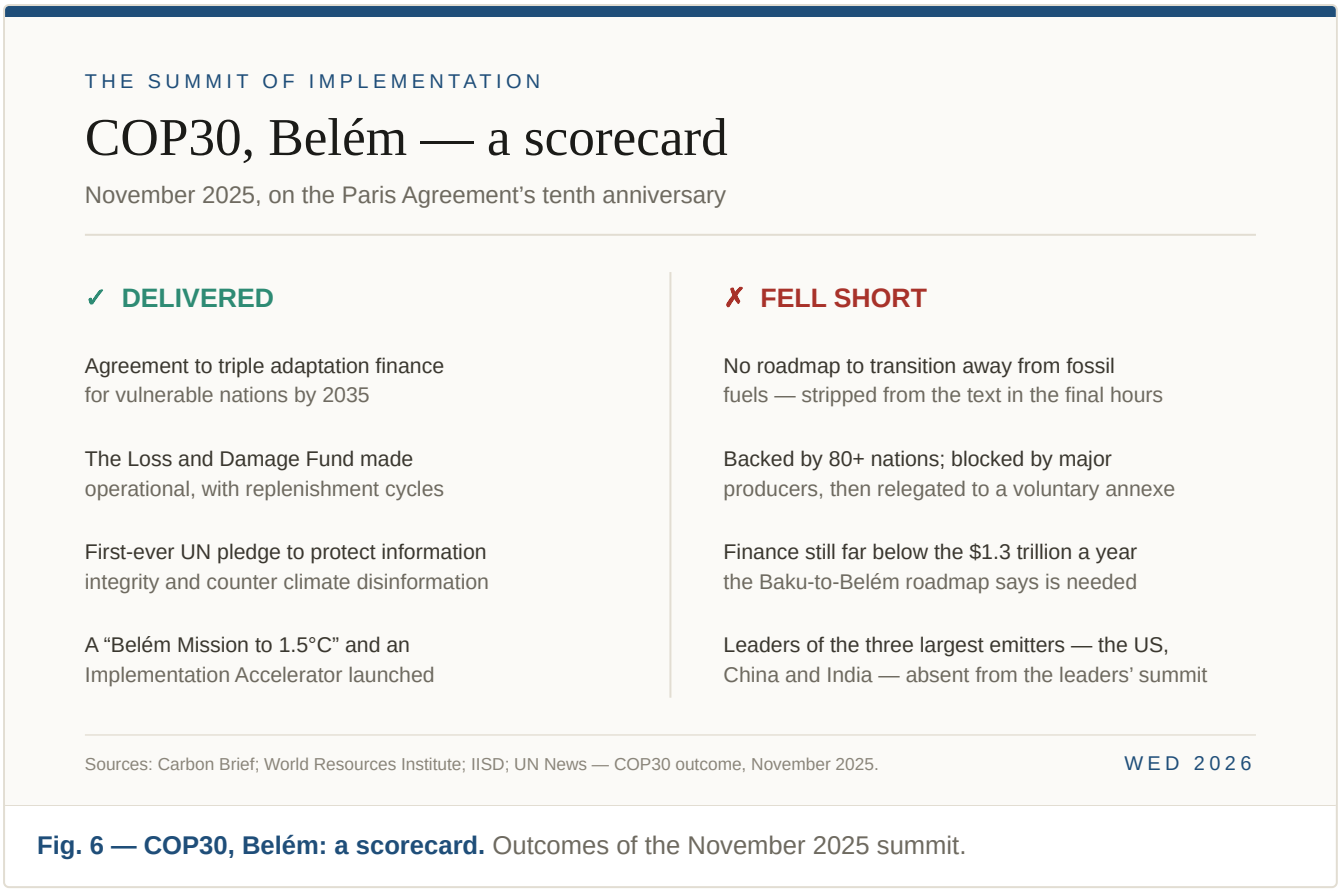

Fig. 6 — COP30, Belém: a scorecard. Outcomes of the November 2025 summit.

Energy security has been weaponised — for and against the transition. The defining shock of 2026 is not a summit but a war. The conflict in the Middle East and the disruption of the Strait of Hormuz — through which around a fifth of the world's oil normally passes — triggered what the IEA has called the largest supply disruption in the history of the global oil market, with initial losses exceeding ten million barrels a day and crude prices lurching above USD 100, at one point spiking far higher.[20] The World Bank expects energy prices to rise roughly a quarter in 2026, their highest since 2022.[21] Such a shock cuts both ways. For some governments it is the final argument for electrification and home-grown renewables, which no foreign navy can blockade; for others it is a pretext to subsidise fuel, reopen coal and sign new gas contracts. Which instinct prevails will shape emissions for years.[22]

And then there is us. The deepest obstacles may be psychological. Climate change is the perfect adversary for a mind built to fear the immediate and the visible: it is gradual, statistical, global and deferred. Normalcy bias persuades us that tomorrow will resemble yesterday; psychological distance files the crisis under "elsewhere, later, other people"; and the sheer scale of the problem induces a numb fatalism — the sense that nothing one does could matter. To these natural frailties has been added a deliberate one. For four decades, an industry that understood the science early funded doubt, delay and, latterly, a subtler discourse that concedes the problem while disputing every particular solution. The Belém decision's pledge to defend information integrity is an acknowledgement, late but real, that the contest over facts is itself part of the crisis.

Part Four — The Climate Frontlines

Averages conceal the cruelty of climate change, which arrives not as a smooth global trend but as a series of local catastrophes, distributed with a bitter inverse logic: those who did least to cause the warming tend to suffer its

sharpest edge.

The small island states live the arithmetic of sea-level rise as an existential countdown. For atoll nations of the Pacific and Indian Oceans, a metre is not an abstraction but the difference between a homeland and a diaspora; saltwater already poisons freshwater lenses and farmland, and the question their leaders bring to every summit is not whether to adapt but whether adaptation has a limit. The Arctic, warming several times faster than the global mean, recorded its lowest winter sea-ice extent on record in 2025,[6] unravelling a frozen world that regulates the climate of the whole hemisphere and the lives of the peoples who depend on it.

Africa faces the starkest injustice of all: home to roughly a fifth of humanity, it receives about 2 per cent of global clean-energy investment, even as it confronts intensifying drought, flood and heat with the thinnest of financial buffers.[23] South Asia endures heatwaves that now press against the limits of human physiology, where a labourer's working day and an elderly person's survival turn on a few degrees of wet-bulb temperature. Australia, wealthier and better resourced, nonetheless offers a preview of compounding disaster for the rich world — the cycle of bushfire, drought and flood, and the slow funeral of the Great Barrier Reef across successive mass bleachings, a reminder that no amount of GDP buys immunity.

Not every frontline is a tragedy. The Amazon, long feared to be nearing a dieback tipping point, offers a countervailing story: deforestation in the Brazilian Amazon fell in 2025 to its lowest level in more than a decade, and global emissions from land-use change dropped nearly a tenth.[24] It is a demonstration, rare and precious, that determined policy can move a planetary-scale system in the right direction — and that the frontline is also where some of the most important victories are won.

Part Five — What Climate Action Actually Means

"Climate action," the slogan of this World Environment Day, is in danger of meaning everything and therefore nothing. It is worth being concrete about what it requires at each scale — and honest about where leverage actually lies.

Governments hold the largest levers. The decisive interventions are unglamorous: pricing carbon so that pollution is no longer free; ending the fossil-fuel subsidies that still dwarf much climate finance; rewriting building codes, vehicle standards and planning law; and, above all, building the grids and storage without which a renewable system cannot function. The world is spending more than two dollars on new generation for every dollar on the grids to carry it — a bottleneck that now constrains the transition more than the supply of panels or turbines.[23] Public investment in transmission, interconnection and long-duration storage is the least visible and most important climate policy of the decade.

Business must decarbonise its operations, not merely its image. The credible corporate agenda is narrow and demanding: cut absolute emissions across the supply chain; adopt the circular practices that strip carbon and cost out of materials at once; disclose honestly under mandatory standards; and direct genuine research into the hard-to-abate sectors — steel, cement, shipping, aviation, chemicals — where the technologies exist but remain expensive. The temptation to substitute pledges for performance, and offsets of dubious integrity for real reductions, is the principal way business action fails.

Communities turn abstract resilience into concrete survival. Adaptation is intensely local: shade and water and cool refuges for heatwaves; managed retreat and natural defences for floods; early-warning systems that, where they exist, have already saved many thousands of lives. The most effective community action marries local knowledge — often Indigenous knowledge, which safeguards a disproportionate share of the world's surviving biodiversity — to modern science and finance.

Individuals matter, but proportionately. Honesty here is its own form of respect. The largest personal choices — how one travels, how one heats a home, how much meat one eats, and, for the affluent, how much one flies — are not trivial, particularly because the wealthiest tenth of humanity accounts for a wildly disproportionate share of emissions. But the arithmetic of individual virtue cannot substitute for systemic change, and the rhetoric that makes the consumer solely responsible has too often served to divert attention from the producers and policymakers who hold the structural levers. The most powerful thing most individuals can do is act as citizens — voting, organising, and demanding the policies that make the low-carbon choice the easy and default one.

Part Six — The Great Acceleration or the Great Turning?

Two futures are visible from 2026, and the next decade will decide between them. Neither is fantasy; both are extrapolations of forces already in motion.

The first is drift. In this scenario the energy shock of 2026 entrenches fossil interests, the American retreat erodes ambition elsewhere, finance to the developing world keeps falling short of the USD 1.3 trillion a year that the Baku-to-Belém roadmap identifies as the real need,[25] and emissions plateau at a high level rather than falling. Warming proceeds toward the upper end of the 2.3–2.5 °C pledge range — and crucially, the closer the world creeps to thresholds such as West Antarctic ice-sheet collapse or abrupt permafrost thaw, the higher the risk of triggering self-reinforcing feedbacks that no later policy can reverse.[26] Drift is not a stable equilibrium; it is a slide toward irreversibility.

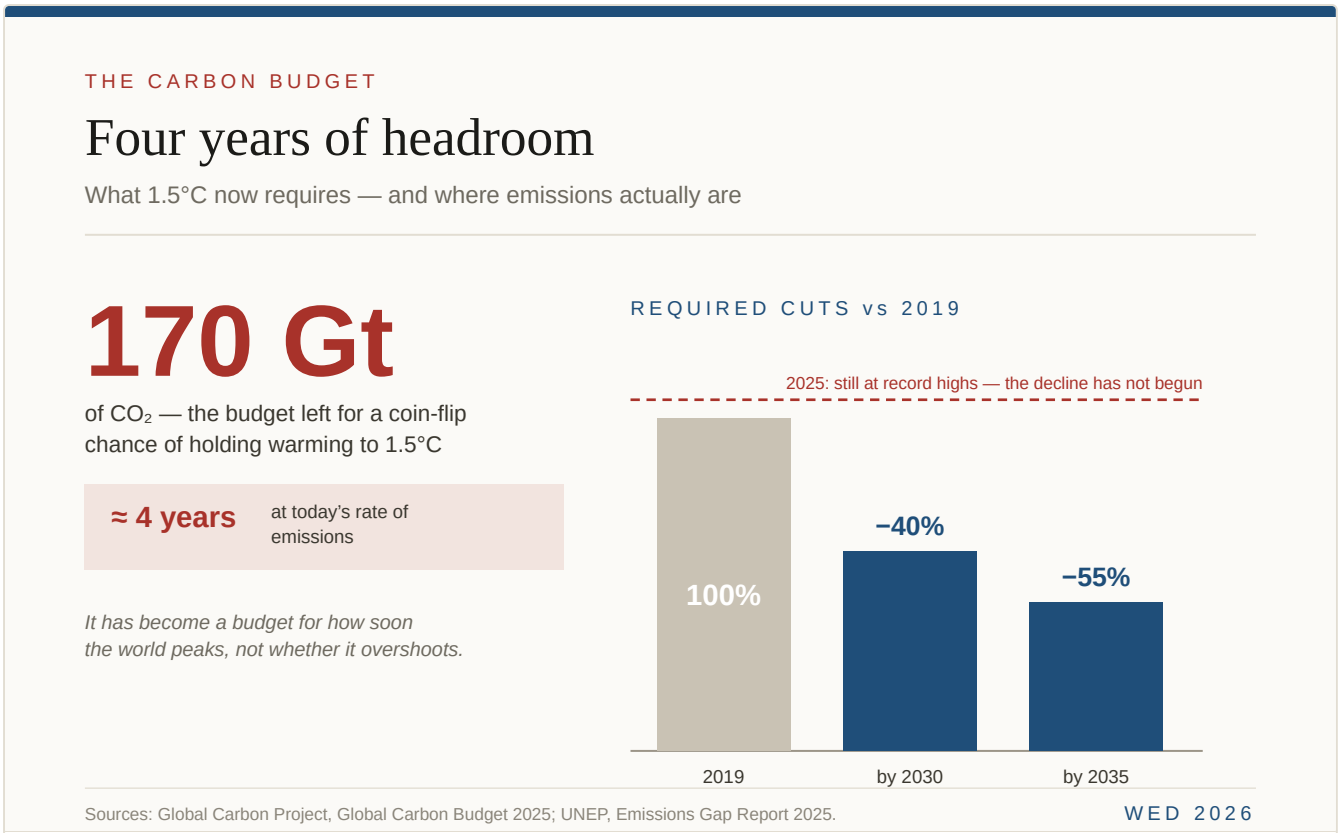

Fig. 4 — Four years of headroom. The remaining 1.5°C budget and the emissions cuts it now demands.

The second is acceleration. Here the momentum already evident in the data compounds: clean-power deployment keeps breaking records and is matched, at last, by the grid investment to absorb it; the carbon budget for 1.5 °C — now roughly four years of emissions, and effectively a budget for how soon the world peaks rather than whether it limits overshoot —[27] disciplines policy toward the 40 per cent cut from 2019 levels that 2030 demands.[28] In this future, carbon removal finally scales from its present infancy. It must be said plainly that it has not yet done so: durable, engineered removal today operates at the scale of hundreds of thousands of tonnes a year, against a mid-century requirement of seven to nine billion — a gap of four orders of magnitude that no amount of optimism should be allowed to obscure.[29] Removal is a complement to rapid emissions cuts, never a substitute, and any plan that leans on it as an excuse to keep emitting is a plan to fail.

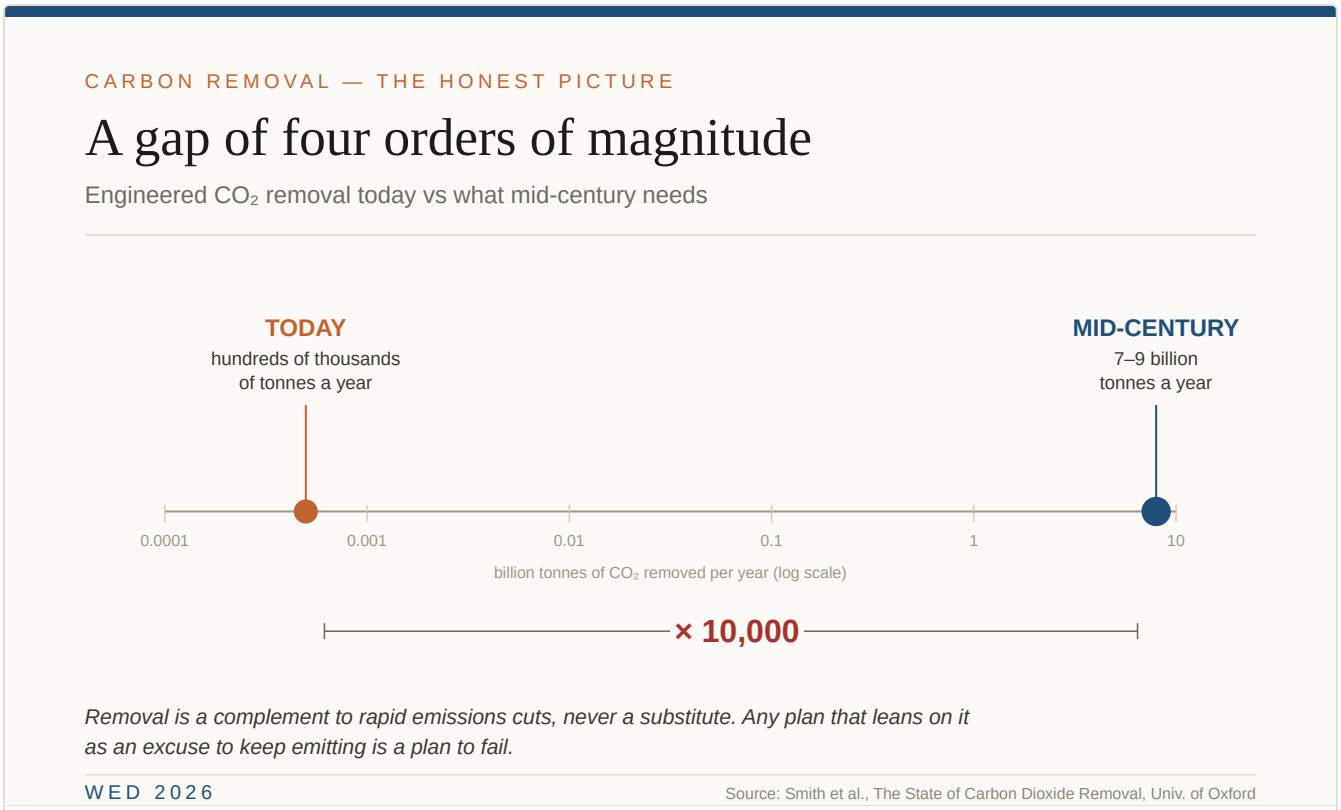

Fig. 5 — A gap of four orders of magnitude. Engineered CO_2 removal today versus mid-century need.

The honest expert consensus is that the acceleration scenario remains physically achievable and is becoming economically advantageous — and that it is not, on present policy, the path the world is on. Closing the gap between the possible and the probable is the entire task of the next ten years.

Conclusion — The Test of Our Time

Return, then, to the saplings and the green logos of World Environment Day. The ritual is not worthless, but it belongs to an earlier era — one in which the work was to raise awareness of a distant threat. That era is over. Awareness is no longer the scarce resource; the science is overwhelming and broadly believed. Climate change has ceased to be principally a scientific challenge and become something harder.

It is now a governance challenge — can institutions designed for the timescale of an election cycle act on the timescale of a century? It is an economic challenge — can capital be moved, and the losers of the transition be justly compensated, fast enough to outrun the lock-in? It is a cultural challenge — can societies that have organised their idea of the good life around ever-rising consumption learn to value sufficiency, repair and restoration? And it is, finally, a moral challenge — whether the generation holding the levers in the 2020s will discharge its obligation to people who cannot yet vote, who live in countries that did not cause this, and who are not yet born.

This essay has tried to be fearless about the obstacles, and they are formidable: a retreating superpower, a summit that flinched, an oil shock that rewards the old order, an industry skilled at delay, and a human mind ill-suited to slow apocalypse. It would be dishonest to end on a note of easy hope. But it would be equally dishonest to end in despair, because despair is simply the mirror image of denial — another way of concluding that nothing need be done.

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The empirical case is neither bleak nor triumphant. It is this: the tools exist, the money has begun to move, the worst trajectories have already been taken off the table, and the only genuinely scarce ingredient is political will, which is the one thing that human beings, unlike physics, can choose to change.

The recommendations that follow from the evidence are not exotic. Price carbon and end fossil subsidies. Build the grid as if it were a war effort. Deliver, in full and on time, the finance owed to the developing world — not as charity but as the most cost-effective climate investment available. Treat engineered carbon removal as an essential research priority and a moral hazard in equal measure, never as an alibi. Defend the integrity of information as fiercely as any border. And measure every government, including those that have walked away, against the one number that matters — not pledges, but emissions, falling, year upon year.

The climate crisis is the largest collective-action problem our species has ever faced: a case in which the costs are local and immediate, the benefits global and deferred, and the responsibility so diffuse that everyone may reasonably wait for someone else to move first. We have spent three decades learning that the atmosphere does not wait. The choices made in this decade and the early years of the next will echo not for an election cycle or a generation, but for centuries — in coastlines, in harvests, in the habitability of whole regions, in the texture of lives not yet begun. That is the test of our time. World Environment Day is, at best, a reminder that the examination is already under way, and that the clock on the wall is real.

NOTES

1. United Nations Environment Programme, “World Environment Day 2026” (Nairobi: UNEP, 2026). The 2026 commemoration is hosted by the Republic of Azerbaijan in Baku and centres on climate action. ↩
2. Global Carbon Project, *Global Carbon Budget 2025* (13 November 2025). The 2025 atmospheric concentration is projected at 425.7 ppm, roughly 52 per cent above pre-industrial levels. ↩
3. Met Office, “Mauna Loa carbon dioxide forecast for 2026,” and NOAA/Scripps Institution of Oceanography. The May 2025 monthly peak exceeded 430 ppm at Mauna Loa for the first time; the 2026 annual mean is forecast near 429 ppm. ↩
4. WMO, “WMO confirms 2025 was one of warmest years on record” (14 January 2026). 2025 was 1.44 °C ± 0.13 °C above the 1850–1900 mean across eight datasets; 2023–2025 averaged 1.48 °C. ↩
5. Copernicus Climate Change Service and WMO, January 2025. 2024 was the first calendar year more than 1.5 °C above pre-industrial levels, at about 1.55 °C. ↩
6. WMO, *State of the Global Climate 2025*. The 2025 edition introduced Earth’s energy imbalance as a headline indicator, reporting a record high; more than 90 per cent of excess heat is stored in the ocean. Arctic winter sea-ice extent was the lowest on record. ↩
7. Global Carbon Project, *Global Carbon Budget 2025*. Fossil CO_2 emissions are projected at a record 38.1 $GtCO_2$ (+1.1 per cent); total CO_2 including land use is approximately flat at 42.2 $GtCO_2$, effectively tied with 2024. ↩
8. United Nations Environment Programme, *Emissions Gap Report 2025: Off Target* (Nairobi: UNEP, November 2025). Global GHG emissions rose 2.3 per cent in 2024 to a record 57.7 $GtCO_2e$. ↩
9. International Energy Agency, *Global Energy Review 2026* (Paris: IEA, April 2026). Renewable capacity additions rose 16 per cent to roughly 800 GW in 2025 — a 23rd consecutive record year; solar PV contributed about 605 GW and wind about 159 GW. ↩

10. IEA, *Global Energy Review 2026*. Cumulative solar PV capacity reached about 2,800 GW, the largest installed of any generating technology; solar supplied more than 8 per cent of global electricity, its largest-ever annual generation increase. ↩

11. IEA, *Electricity 2026* and *Renewables 2025* (Paris: IEA, 2025–2026). Renewables are set to overtake coal as the largest source of global electricity in 2025 or 2026. ↩

12. IEA, *Global EV Outlook 2026* (Paris: IEA, May 2026). Electric-car sales grew about 20 per cent to exceed 20 million in 2025, a quarter of all new cars; sales are projected near 23 million (around 30 per cent) in 2026. ↩

13. IEA, *Global EV Outlook 2026*. Chinese manufacturers supplied about 60 per cent of global electric-car sales; EVs reached nearly 55 per cent of new-car sales within China. Sales in emerging and developing economies rose roughly 80 per cent. ↩

14. IEA, *World Energy Investment 2025* (Paris: IEA, June 2025). Total energy investment is set at about USD 3.3 trillion, with USD 2.2 trillion to clean energy and USD 1.1 trillion to oil, gas and coal; solar is the single largest line item at roughly USD 450 billion. ↩

15. Climate Action Tracker and UNEP, *Emissions Gap Report 2025*. Full implementation of current pledges points to roughly 2.3–2.5 °C of end-of-century warming, against about 2.8 °C under current policies and close to 4 °C when the Paris Agreement was adopted. ↩

16. UNFCCC depositary records; Harvard Environmental & Energy Law Program, "Paris Climate Agreement" tracker. The United States' withdrawal from the Paris Agreement became effective on 27 January 2026. ↩

17. Carbon Direct and contemporaneous reporting, January 2026. On 7 January 2026 the United States announced its intention to withdraw from the UN Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change, among other bodies. ↩

18. UN News, "Belém COP30 delivers climate finance boost" (24 November 2025). For the first time, the COP decision committed parties to promote information integrity and counter climate disinformation. The leaders of the United States, China and India were absent from the leaders' summit. ↩

19. Carbon Brief, "COP30: Key outcomes agreed at the UN climate talks in Belém" (28 November 2025). The final package, the "global mutirão," omitted an explicit fossil-fuel phase-out roadmap despite the backing of more than 80 nations. ↩

20. IEA, *Oil Market Report* (Paris: IEA, May 2026); World Economic Forum, "Middle East war: ways countries are responding to the energy shock" (April 2026). IEA Executive Director Fatih Birol described the disruption as the largest supply shock in the history of the global oil market. ↩

21. World Bank, *Commodity Markets Outlook* (Washington: World Bank, April 2026). Energy prices are projected to rise about 24 per cent in 2026 to their highest level since 2022. ↩

22. Institute for Energy Economics and Financial Analysis, "Impact of Middle East Crisis on Global Energy Markets" (May 2026). Short-term responses have included both renewables acceleration and a reversion to coal and new fossil-supply contracts. ↩

23. IEA, *World Energy Investment 2025*. Africa is home to about 18–20 per cent of the world's population but receives roughly 2 per cent of global clean-energy investment; grid spending lags new generation by more than two to one. ↩

24. Global Carbon Project, *Global Carbon Budget 2025*. Amazon deforestation fell to its lowest level since 2014; global land-use-change emissions declined nearly 10 per cent. ↩

25. World Resources Institute, "COP30 Delivers on Forests and Finance, Underdelivers on Fossil Fuels" (22 November 2025); International Institute for Sustainable Development, "COP30 Outcome" (22 November 2025). Parties agreed to triple adaptation finance by 2035 and referenced the Baku-to-Belém roadmap toward USD 1.3 trillion a year for developing countries by 2035. ↩

26. Ayesha Tandon, "Global Warming above 1.5 °C Could Trigger 'Multiple' Tipping Points," *Carbon Brief* (8 September 2022), reporting research in *Science* on thresholds including West Antarctic ice-sheet collapse and abrupt permafrost thaw. ↩

27. Global Carbon Project, *Global Carbon Budget 2025*. The remaining carbon budget for a 50 per cent chance of limiting warming to 1.5 °C is about 170 $GtCO_2$ — roughly four years at 2025 emission rates. ↩

28. UNEP, *Emissions Gap Report 2025*. Aligning with 1.5 °C requires global emissions roughly 40 per cent below 2019 levels by 2030 and about 55 per cent below by 2035. ↩

29. Steve Smith et al., *The State of Carbon Dioxide Removal* (University of Oxford / StateofCDR.org, 2024). About 7–9 $GtCO_2$ of removal a year will be needed by mid-century to meet the 1.5 °C goal; durable "novel" removal currently operates at the scale of hundreds of thousands of tonnes a year. ↩

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