The COP31 Net Zero Atlas

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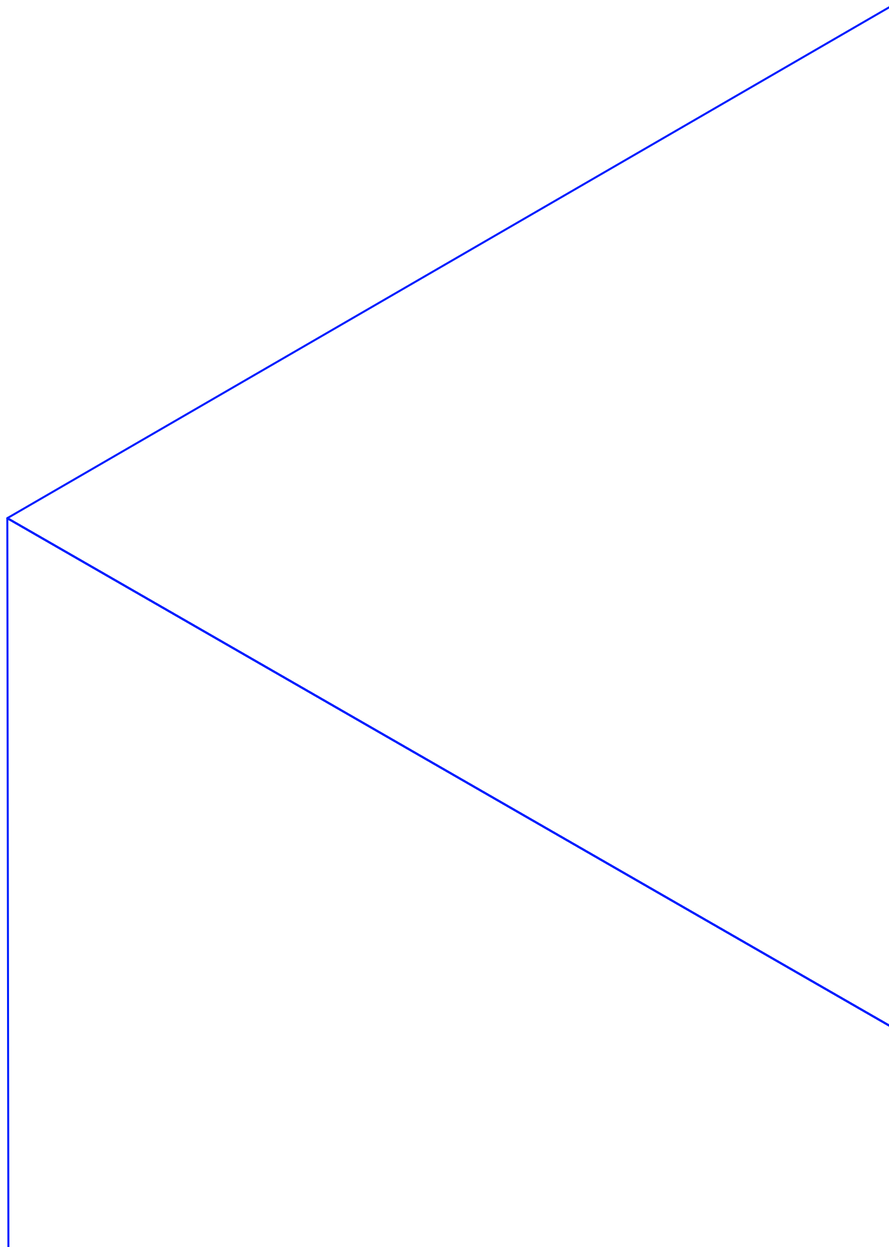


Acknowledgements

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Foreword

A decade after Paris, global leaders are gathering in Antalya, Türkiye, for the latest round of climate negotiations against a backdrop of geopolitical tensions, supply disruptions and rapid technological change.

The range of plausible warming outcomes has narrowed as the transition gathers momentum and successive rounds of national commitments are delivering material, if uneven, emissions reductions. Yet our analysis shows that the world remains on a trajectory well above the Paris Agreement's temperature goals.

For companies and investors, this means navigating the economic consequences of rising temperatures and increasingly severe weather extremes while the energy transition reshapes industries and capital flows across sectors, from transport to power generation. Responding to these risks also creates opportunities as societies seek to decarbonise, adapt and build resilience.

LSEG's Net Zero Atlas – now in its sixth edition – brings these perspectives together through trusted data and rigorous analysis. It examines progress on national climate commitments, the economic implications of physical climate risks and the growing importance of adaptation. These insights serve as a practical guide for investors navigating shifting climate risks in an uncertain world.





Gianluca Biagini

Executive summary

A decade after the Paris Agreement, the range of plausible global warming outcomes has narrowed considerably. The sixth edition of the LSEG Net Zero Atlas shows that a broadening and deepening energy transition has made 3 or 4°C 'Hot House' scenarios increasingly unlikely. Yet the pace of decarbonisation remains insufficient, with the global economy appearing increasingly anchored to a 'well-above-2°C' trajectory.

The pledge-and-review mechanism of the Paris Agreement has proven resilient despite growing geopolitical fragmentation. More than 150 countries, accounting for over 80% of global emissions, have come forward with new 2035 NDC commitments since 2025, implying a further 3.5 $GtCO_2e$ reduction in annual emissions between 2030 and 2035.

Meanwhile, rapid growth in low carbon technologies is transforming the economics of decarbonisation: wind and solar's share of G20 electricity generation has risen from around 5% in 2015 to almost 20% in 2025. They are now also the dominant source of new electricity supply accounting for around 95% of the increase in global electricity generation in 2025.

Nevertheless, current commitments remain well short of the Paris temperature goals, with progress on many readily available opportunities for large-scale emissions reductions remaining uneven. For instance, across the G20, methane emissions and coal-fired power generation have risen by 7% and 13%, respectively, since 2015.

Our analysis suggests that meeting the 2035 NDCs and maintaining emissions at those levels would imply warming of approximately 2.35°C by 2100. Continuing reductions at the pace implied by the NDCs beyond 2035 would lower this to around 2.16°C, while accelerating towards countries' longer-term net-zero commitments could reduce warming further to 2.08°C.

Achieving a well-below-2°C outcome would require substantially faster emissions reductions: Our modelling suggests G20 countries would need either to cut emissions by 31% by 2035, almost three times the pace implied by the NDCs, or alternatively more than quadruple the annual pace of emissions reductions post 2035.

For investors, this means that an accelerating energy transition will unfold alongside mounting physical climate risks - with long-term global warming currently on track to reach 1.5°C above pre-industrial levels around 2030 and 2°C around mid-century.

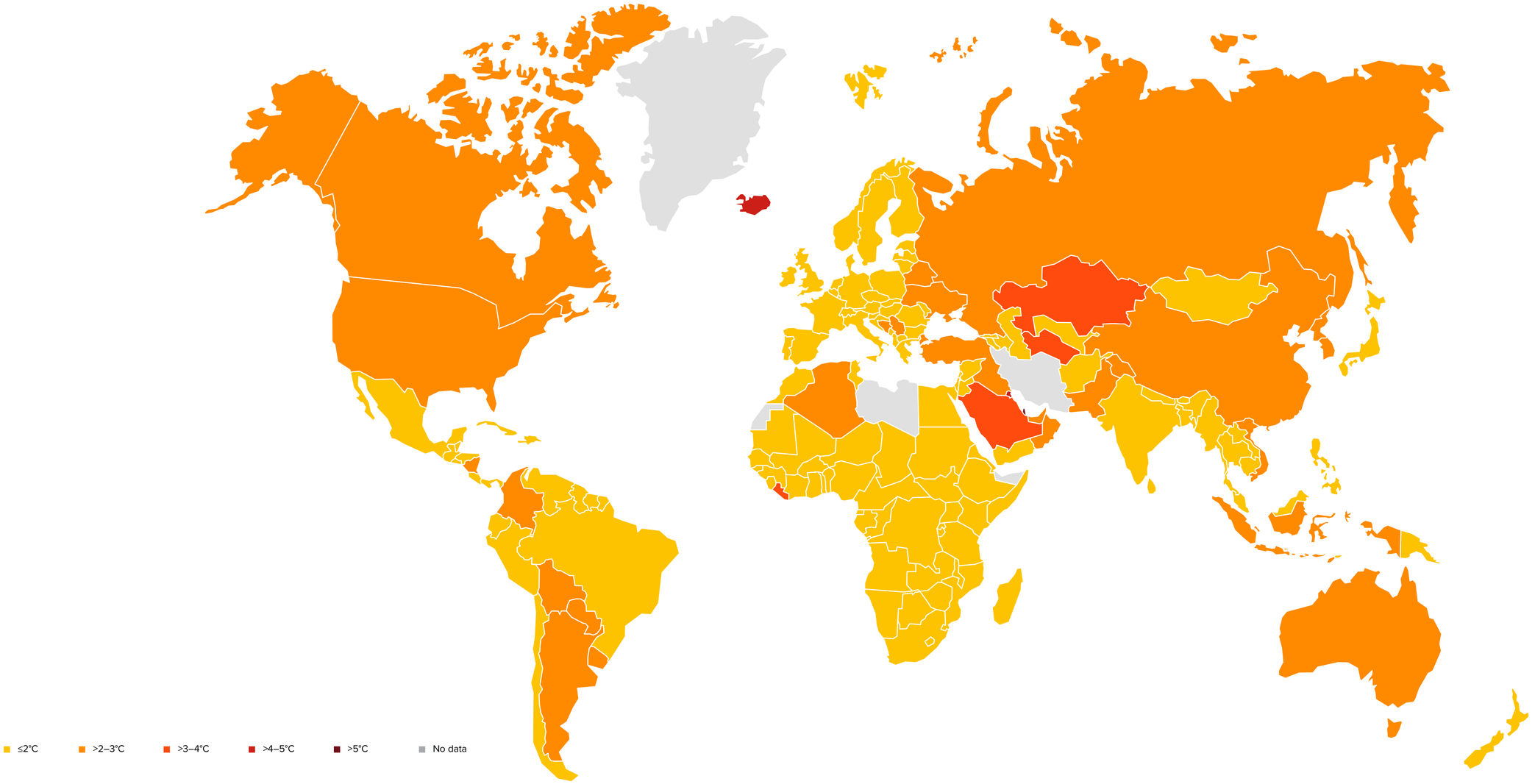
As temperatures rise, heat and drought are set to weigh on G20 productivity, while once-rare extremes - including floods, wildfires and cyclones - become more common, causing large, concentrated losses. Our analysis with Planetrics suggests substantial differences in economic impacts. In China, chronic hazards account for most impacts, while acute hazards dominate in Japan. Modelled impacts are 2.29 times the FTSE All-World average in Real Estate versus 0.65 times in Healthcare. Across equity markets, FTSE China A stands at 2.3 times the average, compared with 0.8 times for the Russell 1000.

Yet aggregate findings can mask substantial differences between firms, even within the same sector, as physical shocks propagate through supply chains. Indirect effects account for 52% of the total modelled economic impact in the EU, compared with just 23% in India. Companies' geographic footprints and supply chains therefore matter as much as sector exposure, highlighting the need for granular company-level risk assessments.

Against this backdrop, adaptation and resilience will increasingly redefine national and business priorities, requiring substantial investment while creating commercial opportunities. Over half of FTSE All-World companies now refer to taking adaptation measures in their disclosures – particularly in heavily exposed sectors like Utilities (85%) or Basic Materials (67%). Our updated analysis of G20 adaptation plans shows that half of members have submitted revised national plans to the UNFCCC over the past three years.

However, significant gaps remain. While G20 members are increasingly translating adaptation strategies into laws, as well as establishing monitoring and evaluation frameworks, investment is failing to keep pace with escalating hazards. Most climate finance is still directed towards mitigation, with China currently spending less than 5% of climate finance on adaptation, while the UK government estimates that adaptation funding would need to grow to c. 2% of economy-wide investment. As physical risks intensify, resilience and investment in adaptation will increasingly shape the scale and distribution of climate impacts across countries and companies.

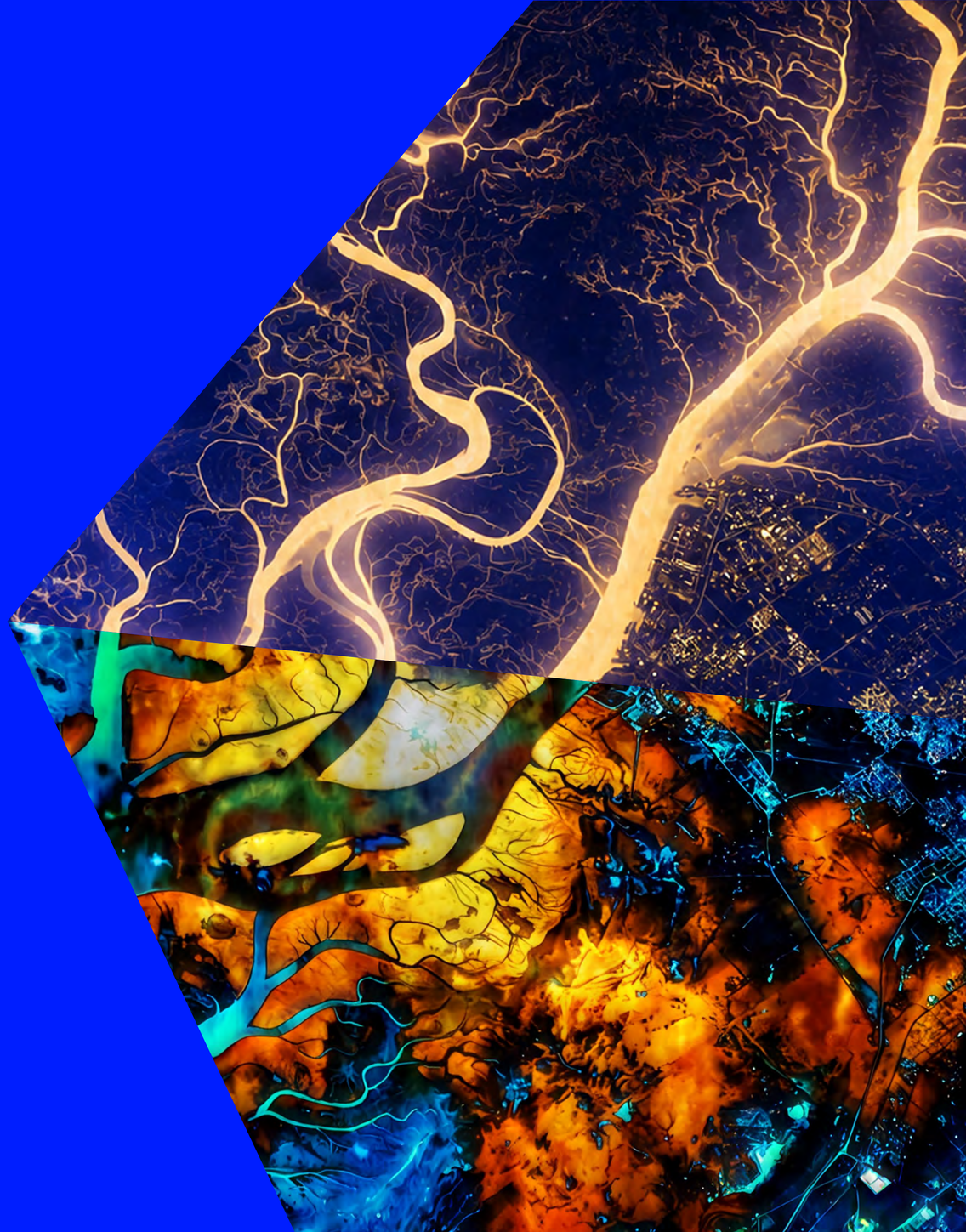
Figure 1. World Atlas: Implied Temperature Rise of every country with a quantifiable NDC target



Source: LSEG, based on UNFCCC. See annex for detailed sources.
The USA ITR is based on current policies rather than its NDC target

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Transition risk



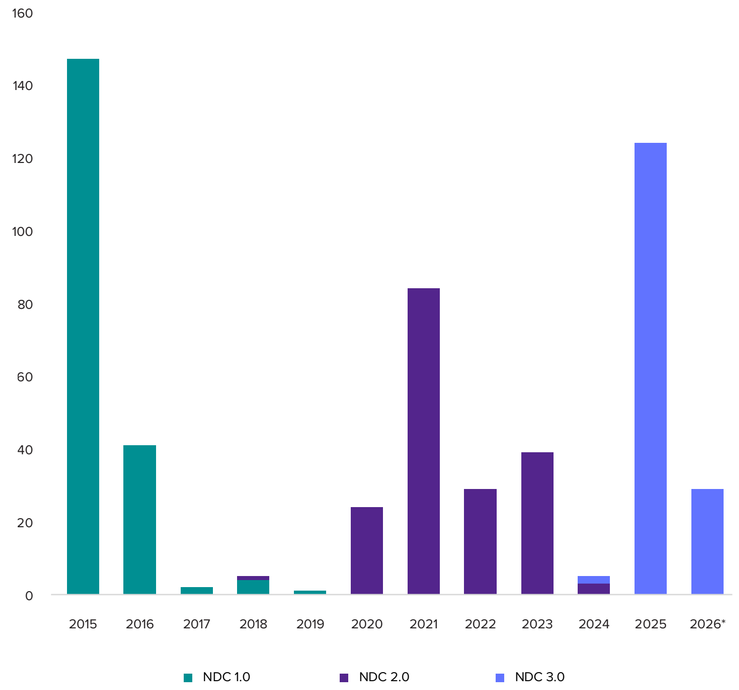
The Paris framework continues to deliver...

At the heart of the Paris Agreement is a mechanism for translating a shared long-term ambition – holding the increase in global average temperature to well below 2°C and pursuing efforts to limit it to 1.5°C – into successive rounds of shorter-term national commitments. These Nationally Determined Contributions (NDCs) are periodically updated, with each round intended to go further than the last, progressively ratcheting up national climate ambition over time.

This pledge-and-review framework has helped to break the deadlock of earlier climate negotiations and has proved remarkably resilient despite growing geopolitical fragmentation. The first round of 2030 commitments (NDCs 1.0) accompanied the adoption of the Paris Agreement in 2015, followed by enhanced 2030 targets around 2021 (NDCs 2.0). The Paris process weathered a critical stress test in 2025, when, despite the US withdrawal from the Agreement and widespread initial delays in submissions, over 150 countries responsible for over 80% of global emissions ultimately came forward with new 2035 commitments (NDCs 3.0) (Figure 2).[1]

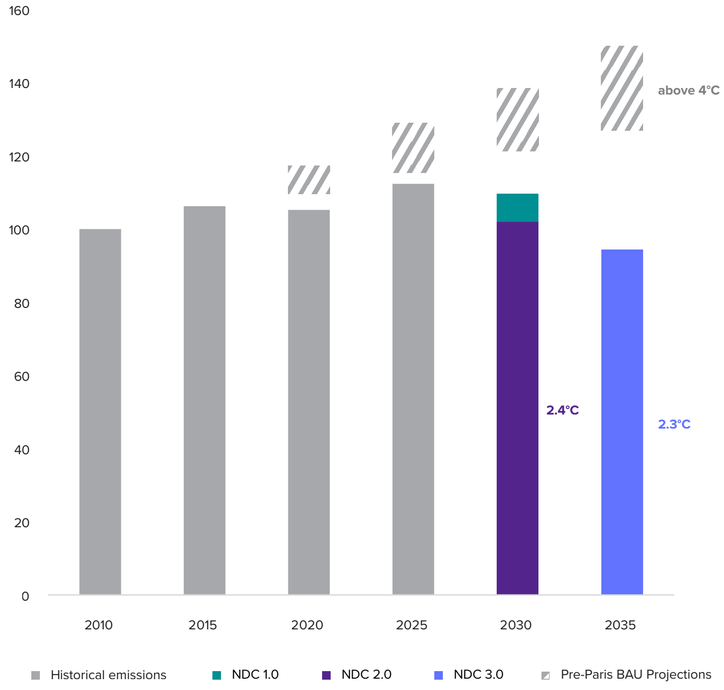
While the latest round of NDCs remains an uneven and incomplete patchwork, they imply an additional 3.5 $GtCO_2e$ reduction in annual emissions between 2030 and 2035, equivalent to circa 7.5% of current global emissions.[2] Beyond these headline reductions, they also mark an important evolution in national target-setting frameworks. Many emerging economies – including China and Indonesia – have for the first time adopted absolute, economy-wide emissions reduction targets covering all greenhouse gases. Meanwhile, developed economies such as the EU and Japan have doubled down on deep decarbonisation commitments, which will require substantial emissions reductions in hard-to-abate sectors during the 2030s.

Figure 2. Successive waves of national climate pledges under the Paris Agreement...
NDCs submitted to UNFCCC



Source: LSEG analysis on UNFCCC NDC registry from 2015-2026
*As of 15 Oct 2026

Figure 3. ...have progressively shifted the global emissions trajectory
Global GHG emissions (2010 =100)



Source: LSEG analysis on UNEP Emissions Gap reports from 2011-2026

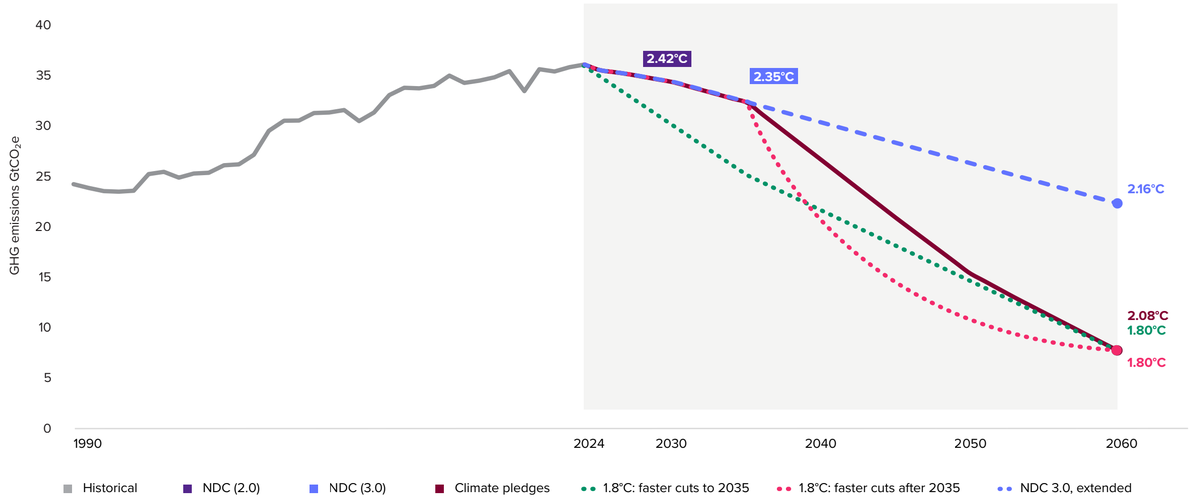
...but the global economy is increasingly anchored to a 'well-above-2°C' trajectory

A decade after Paris, the range of plausible warming outcomes by the end of the century has narrowed significantly. Mitigation efforts are beginning to deliver tangible results: emissions are now on course to peak before 2030, while the annual pace of reductions implied by the NDCs is accelerating from 0.8% under NDC 2.0 to 1.3% under NDC 3.0 (Figure 5). This points to economic growth beginning to decouple from greenhouse gas emissions – a key milestone for global climate action.

This has made 'Hot House' scenarios, where global temperatures exceed 3°C or even 4°C, appear increasingly unlikely. We estimate that meeting 2035 NDC pledges and then holding emissions constant would imply c. 2.35°C warming by 2035. Continuing emissions reductions at the NDC-implied pace (c. 1.3% annually) after 2035 would lower this to c. 2.16°C. If G20 countries accelerated reductions further towards their long-term net zero targets (LTCs) this would reduce warming to 2.08°C (Figure 4).

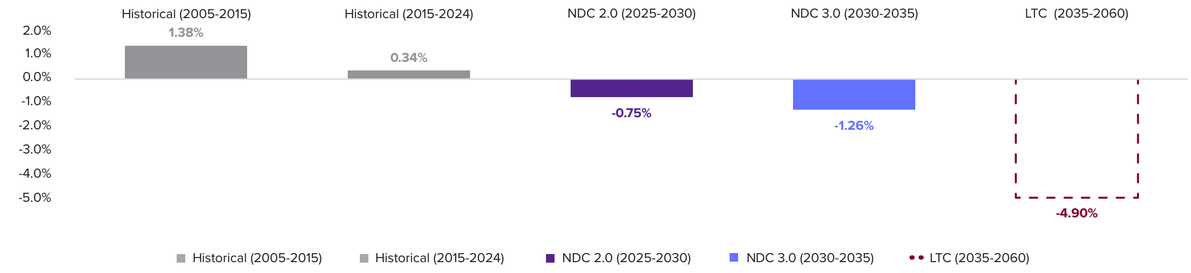
Yet achieving the Paris Agreement's temperature goals is also becoming increasingly challenging. The latest UN projections consider limiting warming to 1.5°C with no or limited overshoot to be out of reach[3] – consistent with our 2024 COP29 Net Zero Atlas analysis, which found that existing NDC trajectories are no longer compatible with 1.5°C pathways.[4] Even limiting warming to well below 2°C would require increasingly drastic reductions, as our modelling of two 1.8°C-consistent pathways illustrates. In the first, G20 countries would have to accelerate reductions immediately, cutting emissions by 31% by 2035 rather than the 11% implied by current NDCs. In the second, they would follow their current NDCs to 2035, but then would have to more than quadruple the pace of annual reductions to c. 5.7%.

Figure 4. G20 historical and projected annual GHG emissions ($GtCO_2e$)



Source: LSEG analysis

Figure 5. G20 historical and projected emissions growth rates (%)[5]



Source: LSEG analysis

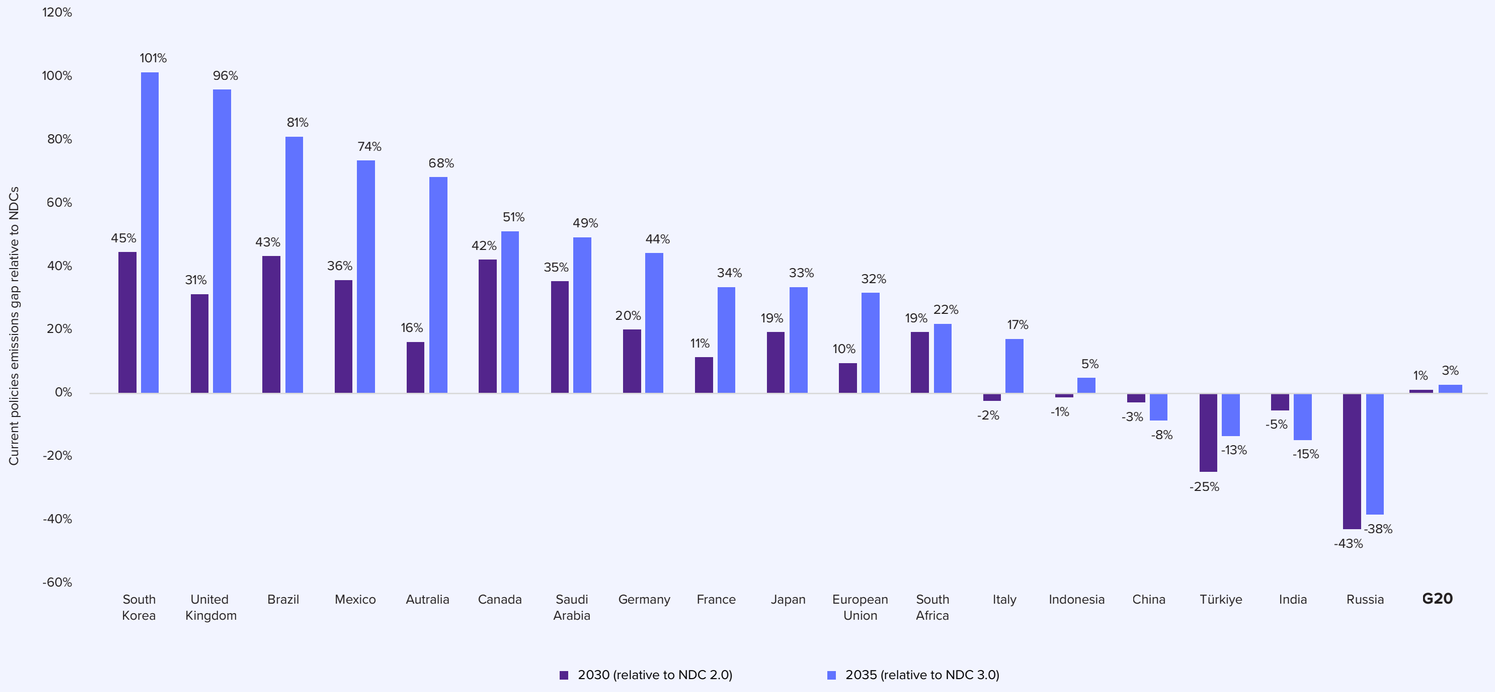
Box 1: The G20 is close to meeting NDCs, but aggregate figures mask national gaps

To assess whether G20 countries are on track to meet their NDC commitments, we compare emissions projections under currently enacted policies, developed by the NewClimate Institute, with the levels implied by countries' 2030 and 2035 NDCs. These estimates suggest that, in aggregate, G20 countries remain within touching distance of meeting their targets, with projected G20 emissions exceeding NDC levels by just 1% in 2030 and 3% in 2035.[6]

However, these aggregate figures mask substantial implementation gaps. Under current policies, half of G20 countries are projected to exceed their NDC emissions targets by at least 15% in 2030 and at least 30% in 2035 (Figure 6). South Korea faces the largest projected gap, with emissions exceeding its NDCs by an estimated 45% and 101%, respectively. Such gaps may reflect ambitious targets requiring substantial additional policy measures, rather than necessarily indicating that countries will miss their commitments. South Korea is a case in point: the government recently unveiled its ten-year 'K-GX' Green Transformation plan, a KRW 1,000 trillion (c. US$750 billion) commitment, to support delivery of its NDCs and drive sustainable economic growth.[7]

Some G20 countries have NDCs that align with relatively high warming outcomes (e.g. Canada and Saudi Arabia), while others have targets that imply smaller emissions reductions than those already projected under current policies (e.g. China and India). Such gaps may reflect cautious target-setting, as in China, whose 2035 NDC effectively sets a floor for emissions reductions while "striving to do better"; or the role of international climate negotiations, as in Indonesia, whose 2035 NDC includes significantly more ambitious emissions pathways conditional on international climate finance and technology transfer.

Figure 6. Emissions gap between current policies and NDCs in 2030 (NDC 2.0) and 2035 (NDC 3.0)



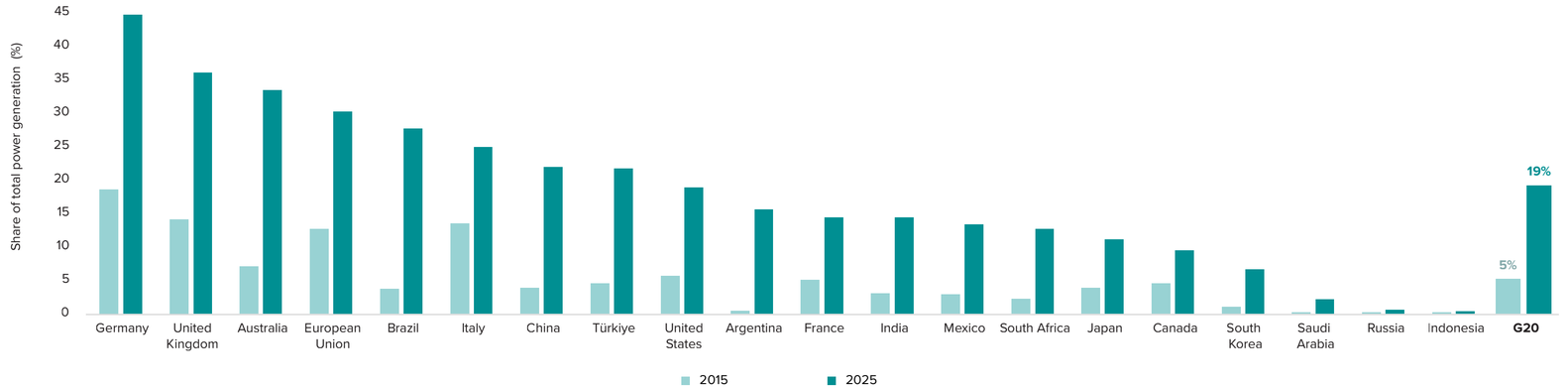
Source: LSEG analysis

Technology is delivering, but progress on other climate levers remains uneven

Underpinning progress towards the Paris goals has been the remarkable advance and scaling of low-carbon technologies, notably batteries, solar and wind power. Wind and solar's share of G20 electricity generation has risen from around 5% in 2015 to almost 20% in 2025 (Figure 7). It is now also the dominant source of new electricity supply accounting for around 95% of the increase in global electricity generation in 2025.[8] Falling costs have increasingly made deployment an economic proposition as much as a climate-policy choice: by 2025, more than 90% of new utility-scale renewable projects globally produced electricity more cheaply than the lowest-cost new fossil-fuel alternative.[9]

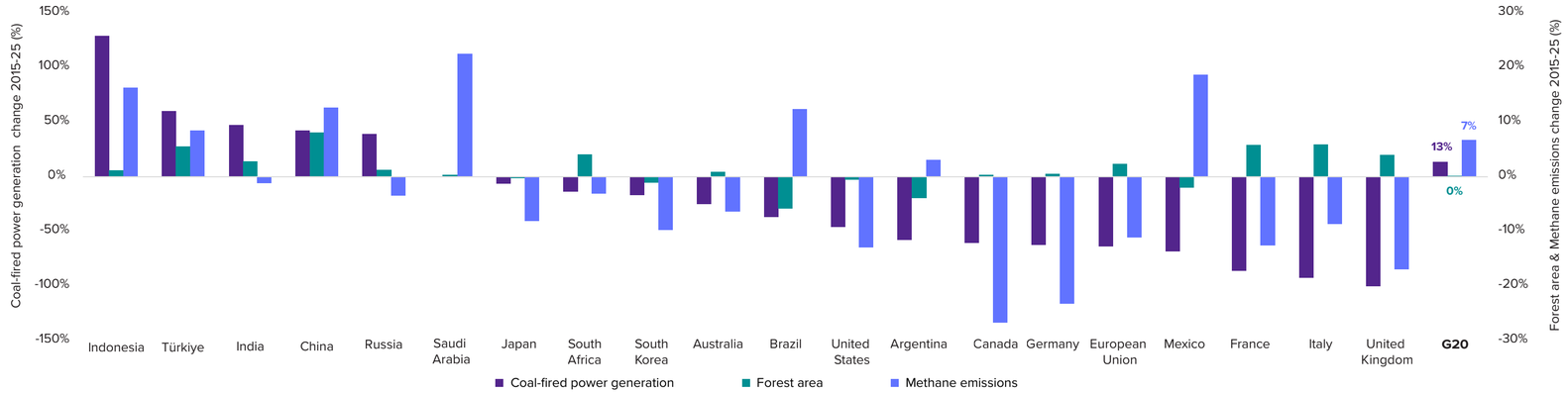
Progress on other major levers for large-scale emissions reductions has been considerably more uneven across the G20. Brazil illustrates the point: between 2015 and 2025, net forest area declined by around 6% – an area the size of Italy – and methane emissions increased by 12%, even as coal-fired power generation fell by 36% (see Figure 8). Across the G20, coal-fired power generation rose by around 13%, driven by large emerging economies, and methane emissions by 7%, while total forest area remained broadly unchanged. This mixed progress has therefore left substantial opportunities for large-scale emissions reductions unrealised across the G20.

Figure 7. Wind and solar power generation has scaled rapidly...



Source: LSEG analysis on Ember data from Electricity Data Explorer (accessed on Nov 2026)

Figure 8. ...while progress on coal, forests and methane remains uneven



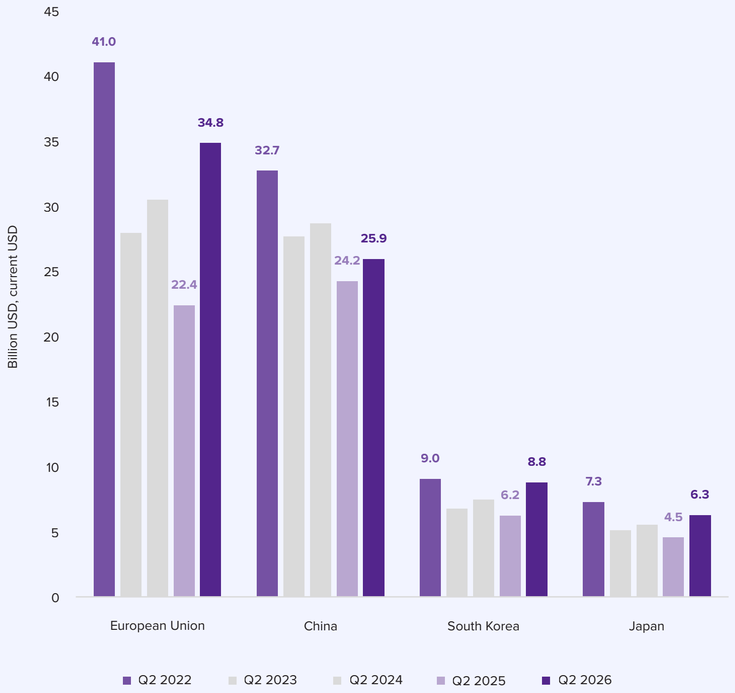
Source: LSEG analysis, based on external data sources as follows: Forest area change in km² (FAO [2025] – with major processing by Our World in Data); Methane emissions in MtCH4 (PRIMAP-hist [2025]); Coal-fired power generation in TWh (Ember [2025])

Box 2: Energy security concerns are becoming a major driver of the transition

As governments gather in Antalya for COP31, the energy crisis triggered by the 2026 Iran war and disruption to shipping through the Strait of Hormuz has once again highlighted the vulnerability of energy-importing economies to fossil-fuel supply shocks. Oil import expenditures among major importers rose sharply in Q2 2026 compared with recent years, although they remained below the peak reached during the 2022 energy crisis following Russia's invasion of Ukraine (Figure 9).

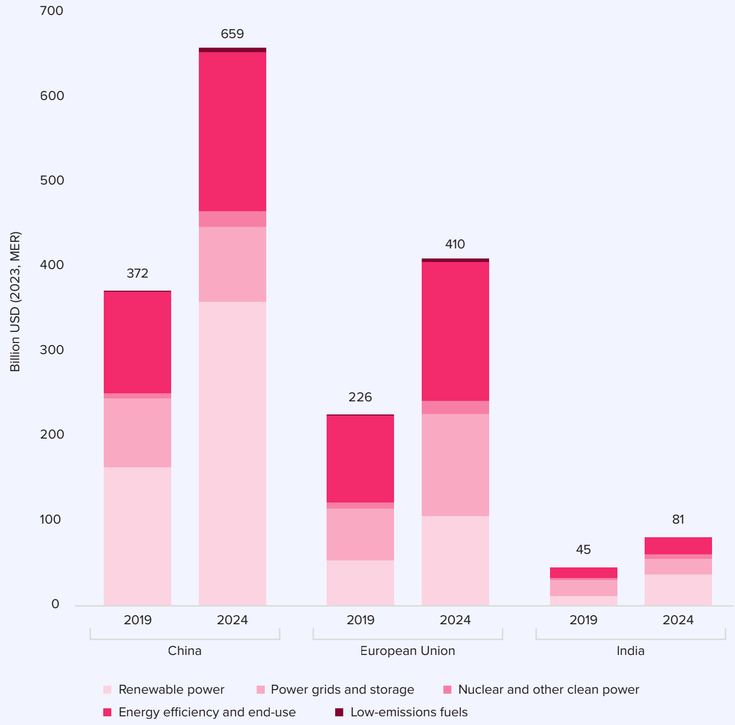
Such disruptions also reinforce the economic and strategic case for decarbonisation. Expanding domestic renewable electricity generation and the grids needed to support it can reduce reliance on imported fuels, while electrification and energy efficiency can reduce demand for oil and gas more broadly. These investments therefore serve multiple objectives: reducing emissions, limiting exposure to volatile fossil-fuel markets, strengthening energy security and supporting economic competitiveness. The 2022 energy crisis helped accelerate this shift, contributing to a substantial increase in clean-energy investment across major economies between 2019 and 2024 (Figure 10).

Figure 9. 2026 Oil import expenditures above 2025 but remain below the 2022 energy crisis peak (in billion USD, current USD)



Source: LSEG data and analysis

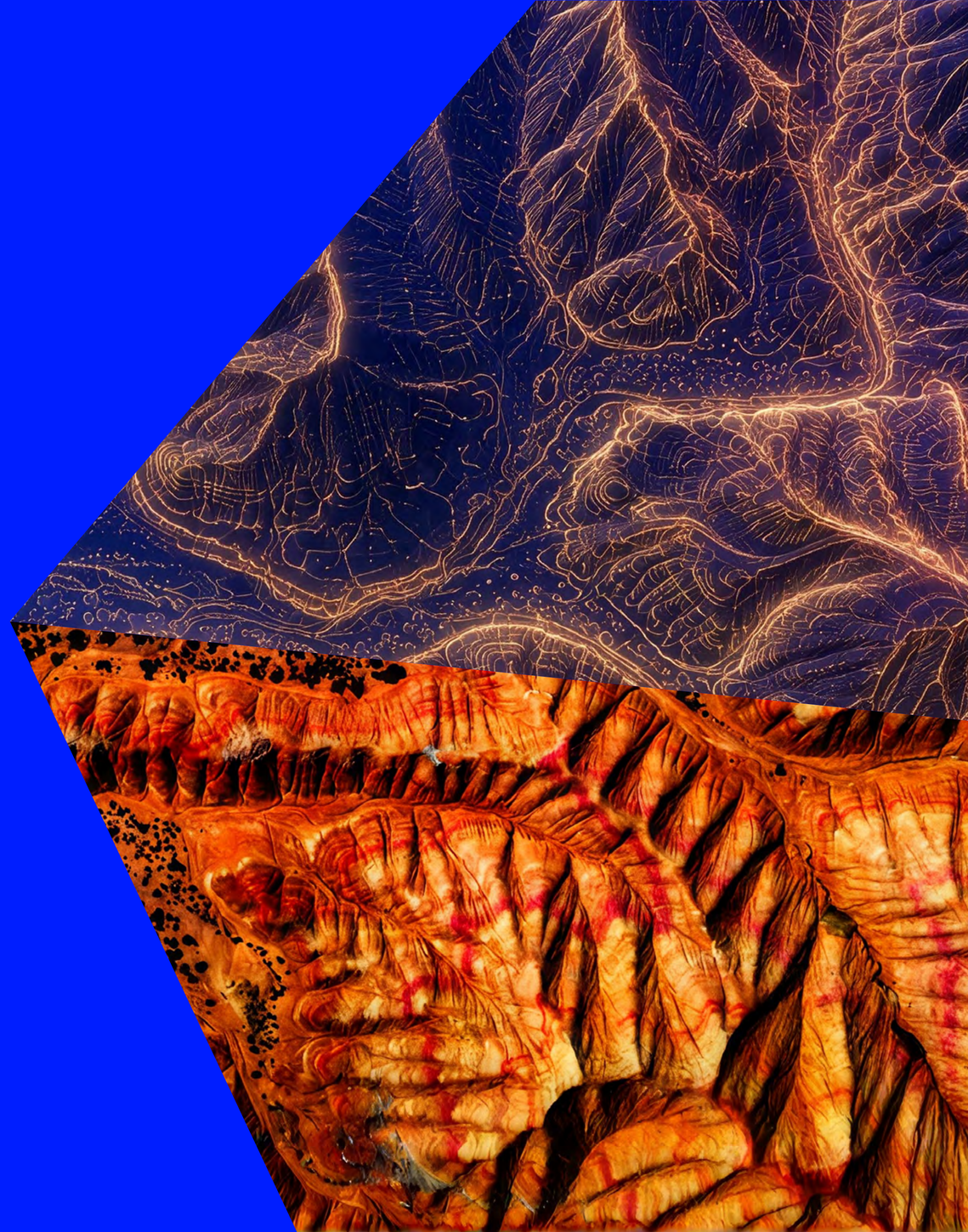
Figure 10. Clean-energy investment before and after the 2022 energy crisis (excluding fossil fuels – in billion USD)



Source: International Energy Agency (IEA) 2024; Annual investment in clean energy by selected country and region, 2019 and 2024, url, License: CC BY 4.0

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Physical risk



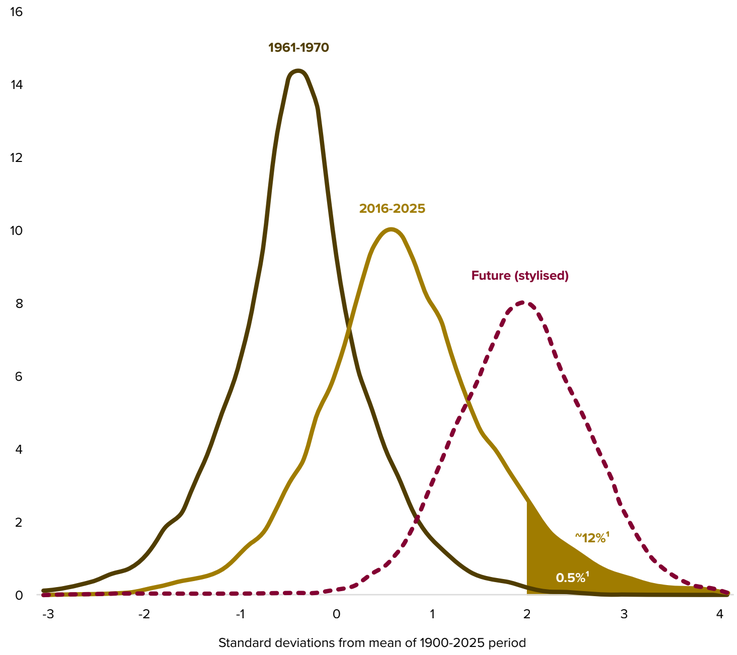
In a well-above 2° world, today's tail risks become the new norm

Current projections suggest that, on a 'well-above-2°C' trajectory, global temperatures would reach approximately 1.5°C above pre-industrial levels around 2030 – towards the early end of previous projections[10] – and 2°C around mid-century.[11] Warming also reshapes the distribution of weather events: once-rare extremes become more common while more severe events emerge in the tail. Figure 11 illustrates this shift: Northern Hemisphere summer temperatures more than two standard deviations above the 1900-2025 mean accounted for roughly 0.5% of observations in 1961-1970, rising to around 12% in 2016-2025, with future conditions predicted to sit more than two standard deviations above the historical average.

These shifts are consequential because climate hazards are inherently concentrated, with the greatest losses arising from rare events in highly exposed locations. In a 2°C world, in the UK and Brazil, average annual surface-flood damage at a typical location is just 0.03% and 0.27% of asset value, respectively. For a 1-in-100-year flood event, however, expected damage at the most exposed locations reaches 8.1% of asset value in the UK and 28.5% in Brazil (Figure 12). Cities are a critical vector through which physical climate risks will materialise, given their exceptional concentration of economic activity and assets, as highlighted in our COP29 Net Zero Atlas.[12] The 2025 LA wildfires illustrate this, generating an estimated US$40bn in insured losses – the costliest wildfire event on record.[13]

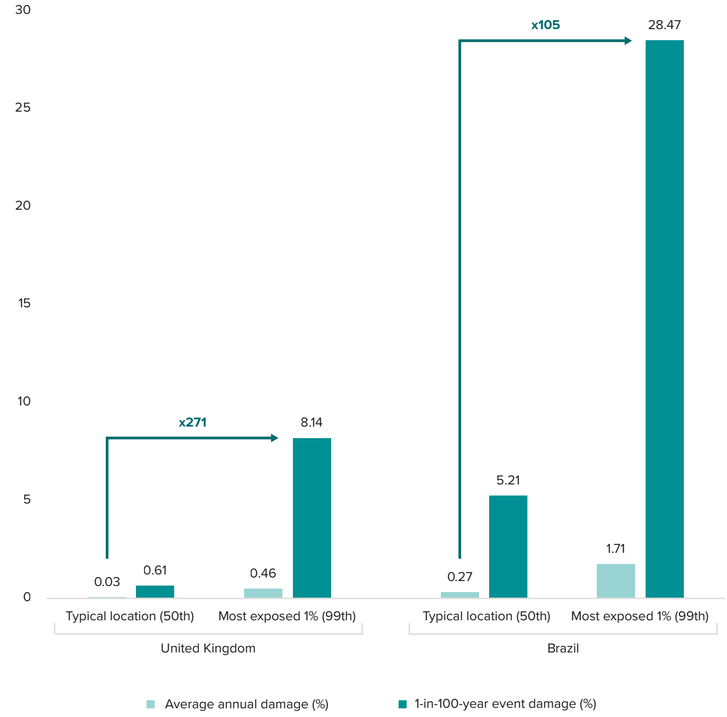
As climate change amplifies these tail risks, relatively modest shifts in the frequency or severity of extreme events can translate into non-linear increases in expected losses. Our 2025 Net Zero Atlas analysis of 4,416 regions across eight G20 countries projects that, at 2.4°C, the population exposed to high physical climate risk would rise from 155 million to over 800 million, and GDP from US$7.8 trillion to US$28 trillion.[14] This year's analysis goes beyond modelling exposure, drawing on our collaboration with Planetrics, a climate risk analytics provider, to model the economic and financial impacts of evolving climate hazards at a more granular level.[15]

Figure 11. Number of Northern Hemisphere summer temperature anomaly observations (thousands)



Source: Planetrics analysis based on NASA GISS data (2026);
Planetrics climate risk modelling based on data from Fathom, Bloemendaal et al. (2020, 2022)
[1]References the % share of observations greater than 2 standard deviations from the mean of the 1900-2025 period

Figure 12. Average vs 1-in-100-year flood event damage (% of asset value)



Source: Planetrics

As shocks propagate through supply chains, indirect impacts compound direct damages

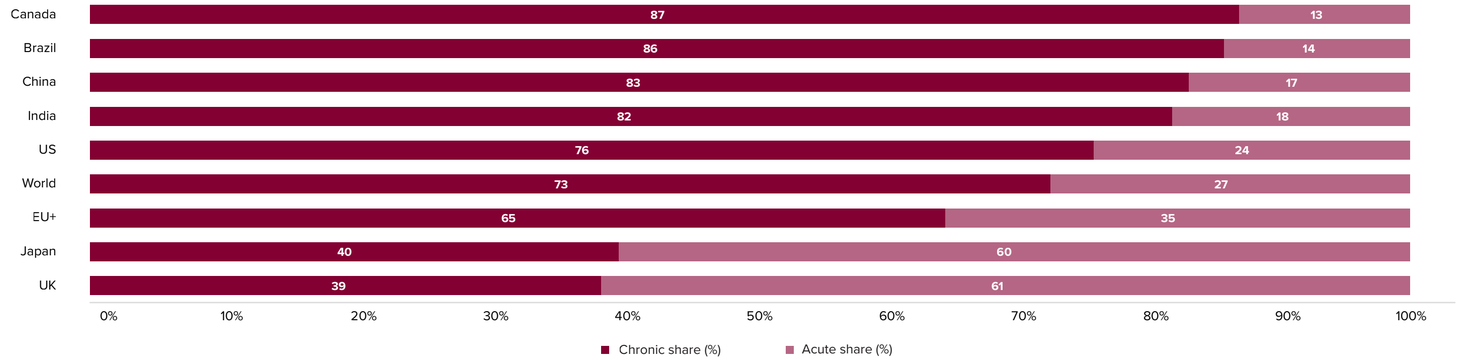
Physical climate risks affect economic growth through damage to infrastructure, reduced productivity and disruptions to supply chains, trade and demand. An economy's overall economic impact can therefore differ materially from its climate damages, reflecting not only the distribution of climate hazards, but also differences in economic structure.[16] To estimate these impacts, the Planetrics Climate Macro Model projects the macroeconomic effects of physical climate risk, translating acute hazards (e.g. flooding, cyclones, windstorms and wildfire), and chronic hazards (e.g. heat, drought) into impacts on asset, labour and land productivity, and ultimately economic growth and price levels.

Planetrics modelling suggests chronic hazards account for around 73% of direct impacts on economic growth from physical climate risk globally, rising above 80% in Canada, India, China and Brazil. These hazards can reduce labour productivity, agricultural output, and the reliability of water and energy supplies. By contrast, acute hazards dominate in Japan and the UK, causing abrupt disruption to infrastructure, transport networks and production (Figure 13). But differences in economic structure can amplify the wider impacts of physical climate shocks. Transmitted effects – the indirect economic impacts of physical climate shocks as disruption spreads throughout supply chains, trade and demand – account for 75% of the UK's total modelled impact, compared with just 23% in India (Figure 14).

Evidence of significant economic disruption from severe climate-related hazards is mounting across G20 economies (Figure 15). In 2026, Allianz estimates that European heatwaves reduced economic output by c. €113 billion (0.46% of GDP across 30 countries).[17] That same year, one of Indonesia's worst wildfire seasons in a decade affected nearly two million hectares, generated estimated economic and health costs of US$2.2–6.9 billion through August, disrupted c. 2,600 flights and spread hazardous haze across Southeast Asia, forcing widespread school closures in neighbouring countries.[18,19]

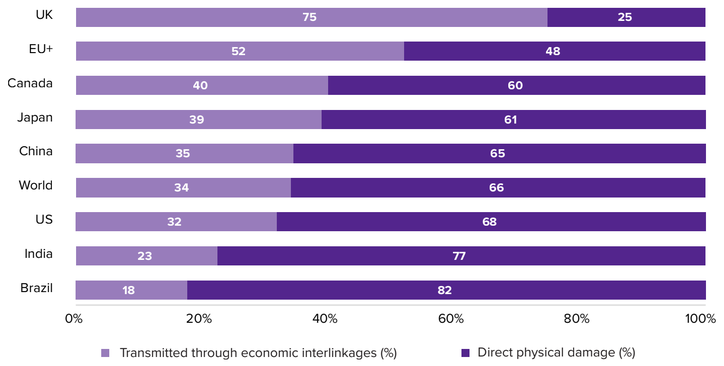
These impacts also vary by sector: our analysis estimates that agriculture faces a reduction in Gross Value Added (GVA) – a measure of economic output – of 2.7 times the global average, whilst manufacturing and construction face around 1.1 times, and Services and the Public Sector sit below the average.

Figure 13. Share of the direct physical drag on growth, % (ordered by chronic share)



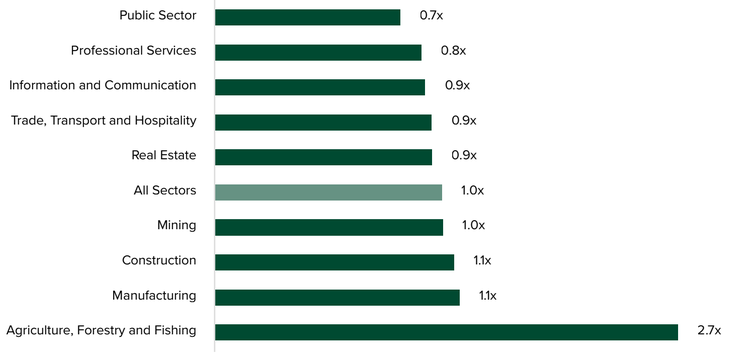
Source: Planetrics macroeconomic model (PlanetView Climate Macro Outlook)

Figure 14. Share of total damage, direct and transmitted, % (ordered from most transmitted to most direct)



Source: Planetrics macroeconomic model (PlanetView Climate Macro Outlook)

Figure 15. Reduction in GVA growth relative to the global average (World = 1.0x)



Source: Planetrics macroeconomic model (PlanetView Climate Macro Outlook)

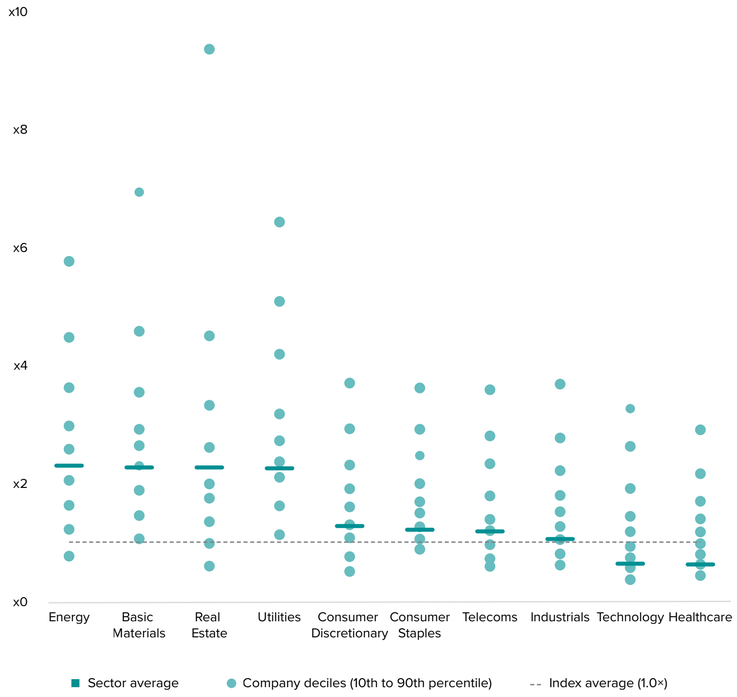
Exposure to cascading shocks varies even within sectors and regions

Physical climate risk is also increasingly affecting companies through damaging assets or disrupting operations, with effects commonly transmitted through supply chains, ultimately affecting earnings and company valuations. To assess the impact on companies, we use Planetrics' company-level modelling. It first translates climate hazards into economic shocks: damage to a company's property, plant and equipment from acute hazards, and lower labour and land productivity from chronic heat stress and changes in crop yields. These shocks are then applied to each of the company's business units by sector and country, including costs passed on by suppliers and the company's own response through adaptation and pricing. Finally, the resulting changes in earnings are translated into impacts on valuation relative to the baseline.[20]

Aggregating company-level results suggest significant sectoral differences. Energy, Basic Materials, Real Estate and Utilities face impacts around 2.3 times the index average, reflecting their greater reliance on physical assets and infrastructure, while Healthcare faces around two third the average (Figure 16). For example, in Utilities the company at the 90th percentile faces an impact of 6.5 times the index average, against 1.2 times at the 10th percentile; in Real Estate the range runs from 0.6 to 9.4 times. Where companies operate and source their inputs shapes direct and indirect exposure, while pricing power and demand responses determine the impact on earnings. For example, Utilities may pass some infrastructure costs through regulated tariffs, whereas manufacturers can face significant supply-chain losses even when their own assets are unaffected.

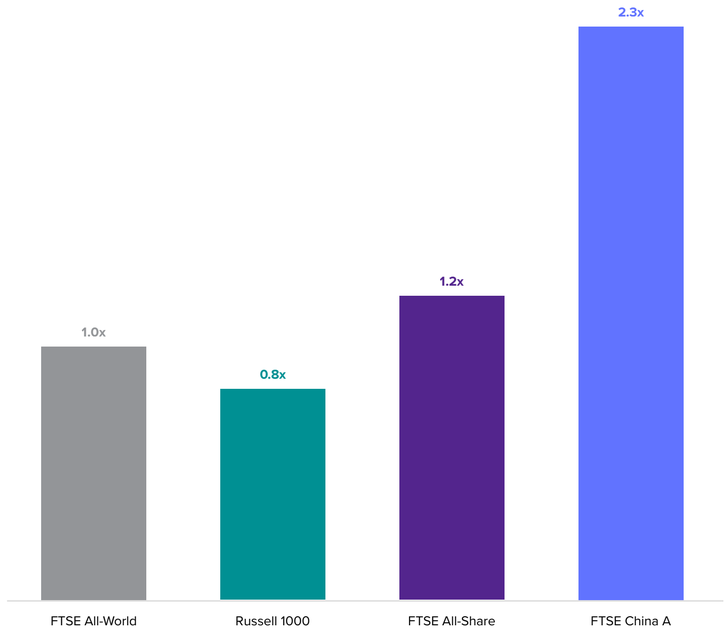
Our analysis shows that physical climate impacts vary materially across equity markets.[21] FTSE China A stands out at 2.3 times the FTSE All-World average, compared with 1.2 times for the FTSE All-Share and 0.8 times for the Russell 1000 (Figure 17). These differences reflect both sector composition and variation within sectors: Technology, Healthcare and Consumer Discretionary in FTSE China A face significantly greater impacts than their global peers, while Telecoms, Basic Materials and Energy contribute to the FTSE All-Share's above-average impact. At index level, physical risk therefore depends on both sector mix and companies' geographic footprints, operations and supply chains.

Figure 16. Impact by sector, multiple of the FTSE All-World average



Source: Planetrics company-level physical risk model, equity results with supply chain effects; FTSE Russell constituents and weights for the FTSE All-World (26 June 2026)

Figure 17. Impact by index, multiple of the FTSE All-World average (FTSE All-World = 1.0×)



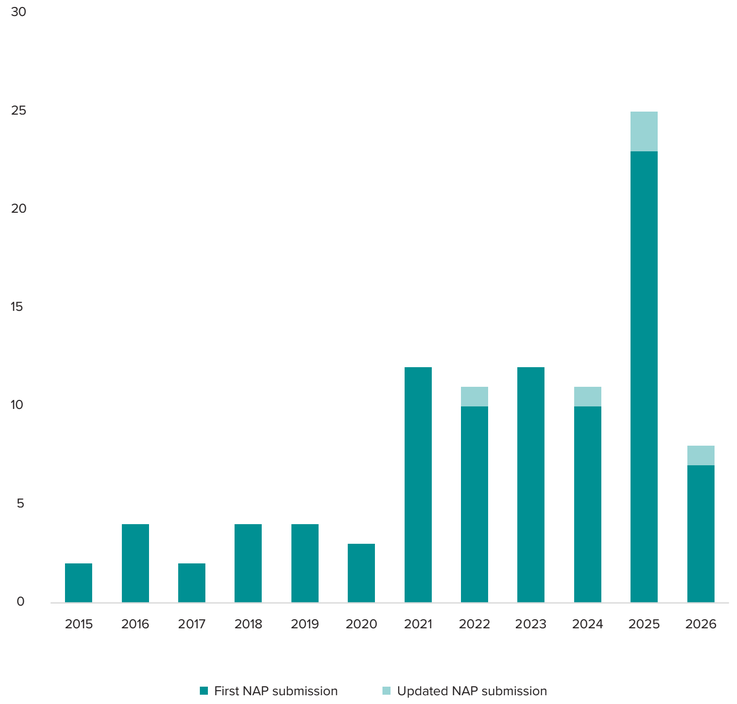
Source: Planetrics company-level physical risk model, equity results with supply chain effects; FTSE Russell constituents and weights for the FTSE All-World (26 June 2026), Russell 1000 and FTSE China A

Adaptation efforts are accelerating, but are yet to match the scale of the challenge

In a world on a well-above-2°C warming trajectory, understanding how economies are adapting to escalating climate hazards is becoming just as important for investors as assessing transition plans and exposure to physical risk. Not unlike the energy transition, building resilience to new climate extremes will require trillions of dollars in investment over the coming decades, spanning infrastructure, buildings, water systems and other areas of the economy. This creates large costs but also creates significant opportunities. The share of FTSE All-World companies referencing adaptation measures in their corporate disclosures rose from 39% for FY2023 to 61% in FY2025 (Figure 19), while our 2025 Investing in the Green Economy report identified over US$1 trillion in annual revenues from products and services contributing to climate adaptation.[22]

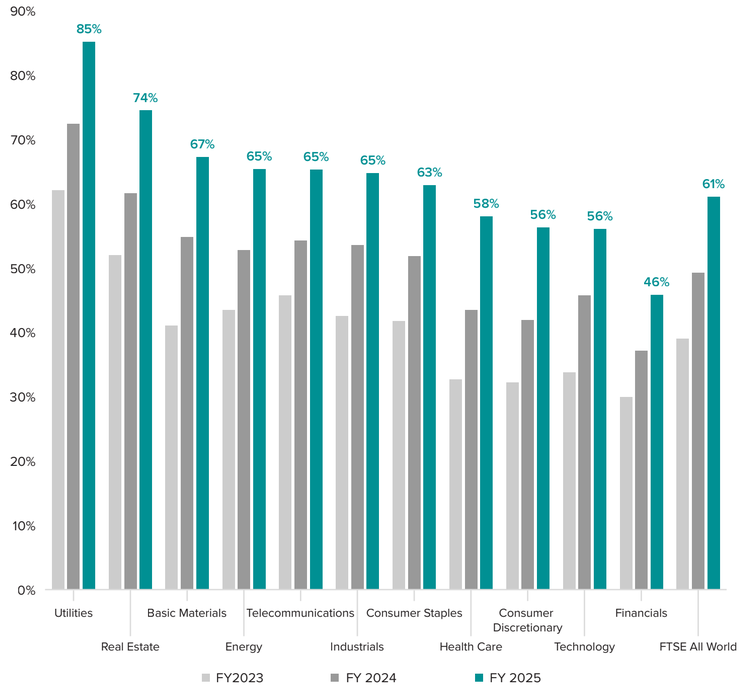
National governments play a central role in shaping this response, through investment, planning and regulation. Adaptation has also gained prominence in international climate negotiations, from the establishment of National Adaptation Plans at COP16 (2010) to the Paris Agreement's Global Goal on Adaptation (2015), followed by specific targets at COP28 and 59 indicators to track progress at COP30. Since the first national adaptation plans were formulated in the early 2010s, more than 90 countries have now submitted National Adaptation Plans (NAPs)[23] to the UNFCCC (see Figure 18).

Figure 18. National Adaptation Plan (NAP) Submissions to the UNFCCC by Year



Source: LSEG analysis on the UNFCCC NAP Central for developed (2025) and developing country (2026)

Figure 19. Share of the FTSE All-World constituents citing adaptation measures in their corporate disclosures, by ICB industry



Source: FTSE All-World as of 26th June 2026, using LSEG climate data for FY2023, FY2024 and FY2025

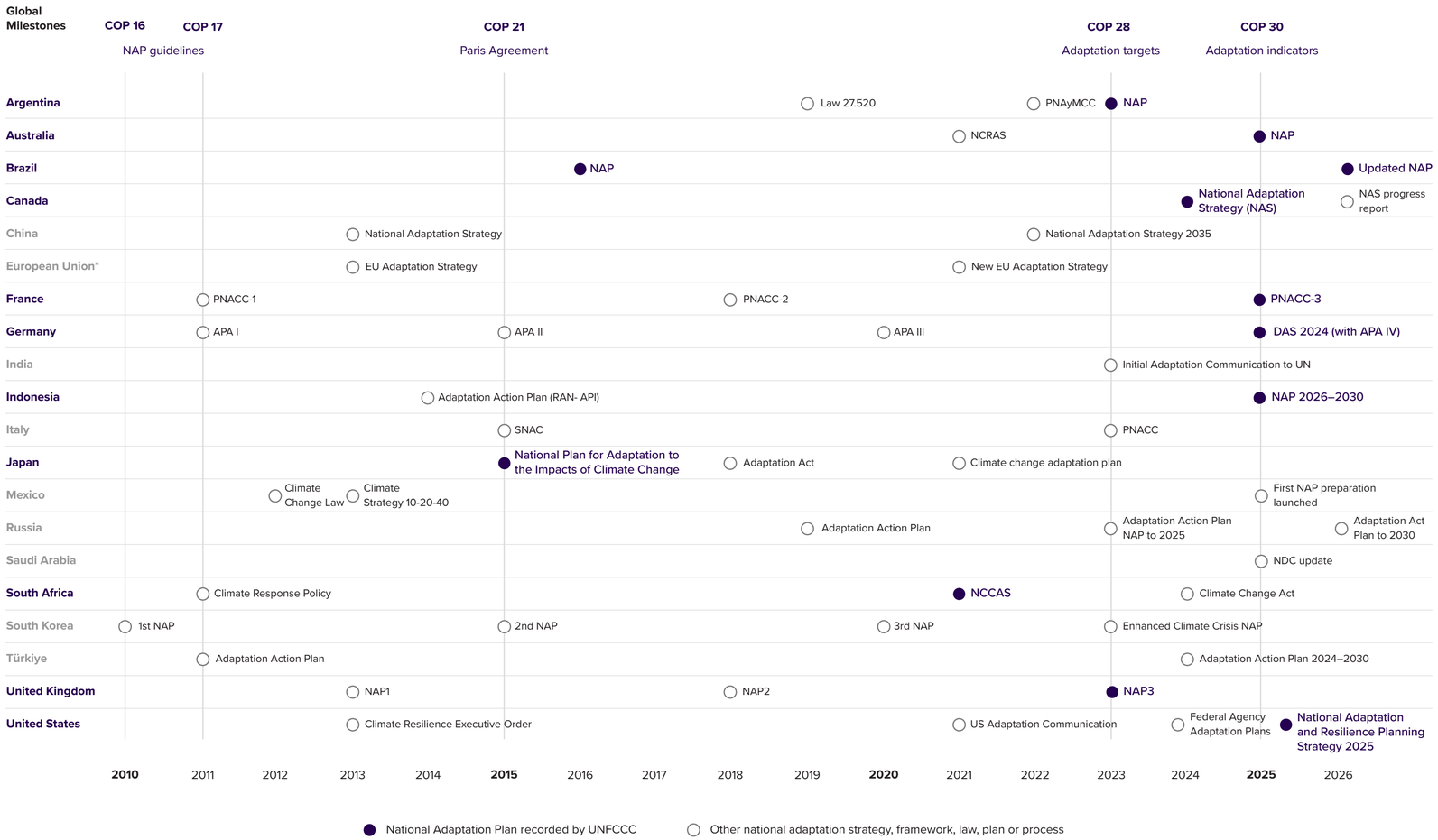
National adaptation planning is becoming more sophisticated, but implementation remains uneven

Three years after our initial review of national adaptation planning across the G20 in the COP28 Net Zero Atlas, we revisit how governments are preparing for growing physical climate risks. Our 2023 assessment found that adaptation strategies were already widespread, but varied considerably in scope and sophistication, particularly around implementation and monitoring.[24] Overall, we find that national adaptation planning is becoming gradually more widespread and sophisticated, with just under half of G20 countries updating and revising their adaptation plans since COP28.

Governments are increasingly translating broad strategies into national laws and statutory obligations and beginning to establish data-driven monitoring and evaluation (M&E) frameworks. Germany's 2024 Climate Adaptation Act for example now requires federal, state and municipal authorities to regularly update risk-based adaptation strategies;[25] while Japan's legally mandated planning process draws on five-year climate impact assessments.[26] In a growing number of G20 countries, this also includes ongoing monitoring.[27] In 2026, Canada expanded its M&E framework from an initial set of 13 indicators to 47 quantifiable indicators across five core systems (disaster resilience, health, nature, infrastructure, and economy/workers);[28] whilst France tracks 52 adaptation measures,[29] and Brazil defines 15 indicators to track its 12 national adaptation targets.[30]

Yet despite advances in national adaptation planning, significant gaps remain in how countries assess future climate risks and mobilise the investment needed to address them. A recent UN study found that many developing countries still rely on present-day climate baselines in their adaptation planning[31] and even among G20 economies, many national adaptation plans do not explicitly assess risks under a range of future climate scenarios, whether through time-dependent[32] projections or specific global warming levels (SWLs).[33] The gap between rapidly growing adaptation investment needs and actual spending remains substantial, including in G20 economies. A recent study estimated that adaptation finance in China amounted to less than 5% of mitigation finance between 2018 and 2023, while the Indian government estimates that climate impacts could add approximately US$190 billion to its adaptation investment requirements by 2030.[34,35] The UK government estimates that adaptation investment would need to be around £11 billion per year (c. 2% of current annual UK investment) and totaling £380 billion by 2059.[36]

Figure 20. National Adaptation Plans (NAPs) and equivalent adaptation frameworks across the G20, 2007–2026



Source: UNFCCC NAP Central and UNFCCC document repository; national government sources; LSEG analysis
*The European Union operates a separate supranational adaptation framework through the EU Adaptation Strategy and is therefore assessed separately from national NAPs

Footnotes

1. Ignore the Gloom: Why COP30 is a success, 2025 [LSEG]
2. LSEG analysis of stated 2030 and 2035 NDC commitments; consistent with UNEP's c.3.5–4 $GtCO_2e$ estimate for 2030–35 [UNEP]
3. UNEP Emissions Gap Report, 2026 [UNEP]
4. COP29 Net Zero Atlas, 2024 [LSEG]
5. Note: 2020 historical emissions are interpolated as the arithmetic mean of 2019 and 2021 values
6. We note that the USA does not have either NDC 2.0 or NDC 3.0, having withdrawn from the Paris Agreement last year
7. South Korea unveils $747 billion energy transition plan through 2035, 2026 [Reuters]. These new policies are not yet baked into our policy estimates for this year
8. International Energy Agency (IEA), Electricity 2025: Analysis and Forecast to 2027, 2025 [IEA]
9. Renewable power generation costs in 2025, 2026 [IRENA]
10. Latest EU Copernicus estimates suggest that global temperatures could reach 1.5°C as early as 2029 under current trends, ahead of the early 2030s projected by IPCC AR6 [Copernicus Climate Change Service]
11. The IPCC assesses crossing 2°C during 2041–2060 as more likely than not under the SSP2-4.5 (2.7°C) scenario [IPCC]. The NGFS Phase V Fragmented World scenario provides a broadly comparable 2.4°C pathway [IIASA]
12. LSEG, COP 29 Net Zero Atlas, 2024 [LSEG]
13. Swiss Re Institute, 'Natural catastrophes in 2025: the persistent rise of wildfire and storm risk, 2026 [Swiss Re Institute]
14. See LSEG, COP30 Net Zero Atlas [LSEG] for details based on the SSP5-8.5 scenario reaching 2.4°C by 2050 (broadly equivalent to conditions around 2070 in SSP2-4.5)
15. Planetrics physical risk assessments at ~2°C are based on its Hot House World scenario (based on NGFS Current Policies). Hazard projections and damage estimates assume that the world reaches 2°C by ~2040. Impacts are shown as annual averages and individual extreme years could be worse. For most hazards (e.g. river and surface water flooding, tropical cyclones, windstorms, wildfire and heat stress), these impacts would, in general, be directionally the same if the world were to reach 2°C earlier or later. For coastal flooding, however, differences would be more pronounced; for example, reaching ~2°C by 2060 would lead to considerably increased sea level rise and associated damages due to prolonged effects of warming. See Annex for further details
16. See Fahr, Senner & Vismara, ECB Working Paper 2942, 2024 [ECB]; Zappalà, IMF Working Paper 23/53, 2023 [IMF]
17. Europe's 2026 heatwaves carry an estimated annual output cost of EUR113bn (USD128bn), Indonesia on wildfire suppression, 2026 [Allianz]
18. Indonesia fires have burned nearly two million hectares, 2026 [The Strait Times], The Transportation Ministry recorded 2,604 scheduled domestic flights affected by forest and land fires, 2026 [The Jakarta Post]
19. The total economic and health costs of forest and land fires in Indonesia during January–August 2026 are estimated at Rp39.29–123.1 trillion ~$2.2 billion to $6.9 billion US Dollars, 2026 [CELIOS]
20. See the Data & Methodologies annex for further detail on the Planetrics "Companies and indices modelling"
21. Coverage is high by index weight across all benchmarks, ranging from 94.3% for the FTSE All-Share to 99.9% for the Russell 1000. By constituent count, coverage is 96.1% for the FTSE All-World, 99.2% for the Russell 1000, 96.1% for FTSE China A and 63.8% for the FTSE All-Share
22. LSEG, Green Economy Report, 2025 [LSEG]
23. UN Climate Change reports show Paris Agreement supporting whole-of-economy approaches, but progress still clearly insufficient; more implementation and acceleration needed, 2026 [UNFCCC]
24. LSEG, COP 28 Net Zero Atlas, 2023 [LSEG]
25. German Strategy for Adaptation to Climate Change, 2025 [Bundesumweltministerium]
26. Japan Adaptation Communication Pursuant to Article, 2023 [UNFCCC]
27. ACSOR finds that only 39% of assessed countries publish monitoring and evaluation reports on adaptation implementation, 2026 [TPI]
28. Canada's 2026 National Adaptation Strategy Progress Report, 2026 [Government of Canada]
29. PNACC-3, 2025 [Ministère de la Transition écologique]
30. National Adaptation Plan Brazil, 2026 [UNFCCC]
31. Among 1,226 risk pathways identified across 41 LDC/SIDS NAPs, only 29.7% rested on a named individual or mixed climate scenario, 2026 [UNFCCC]
32. Canada, Germany and the United States assess a range of future climate conditions rather than against a defined end-century warming level
33. Only Australia, the UK, Japan and France evaluate adaptation under specific ~2°C warming conditions
34. Climate finance in China, 2026 [Climate Policy Initiative]
35. India Initial Adaptation Communication, 2023 [UNFCCC]
36. UK Climate Change Committee, 'Well-adapted UK Adaptation investment analysis', 2026 [UK Climate Change Committee]

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