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Capital at risk.

Signal failure

An energy transition is happening - but are investors aware?

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List of abbreviations

Abbreviation	Explanation
°C	Degrees Celsius
AI	Artificial intelligence
AMOC	Atlantic Meridional Overturning Circulation
AR	Assessment Report
CAPEX	Capital expenditures
CCS	Carbon capture and storage
CFRF	Climate Financial Risk Forum
COP	Conference of the Parties
DAC	Direct air capture
EDGAR	Emissions Database for Global Atmospheric Research
EJ	Exajoules
EV	Electric vehicle
GDP	Gross domestic product
GHG	Greenhouse gas
Gt	Gigatonnes (billion tonnes)
GW	Gigawatt
ICE	Internal combustion engine
IATA	International Air Transport Association

Abbreviation	Explanation
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
kWh	Kilowatt-hour
LCOE	Levelised cost of electricity
LGIM	Legal & General Investment Management (now L&G's Asset Management business)
Mt	Megatonnes (million tonnes)
NDCs	Nationally determined contributions
NGFS	Network for Greening the Financial System
PV	Photovoltaics
SAF	Sustainable aviation fuel
SSA	Sub-Saharan Africa
tCO_2e	Tonnes of carbon dioxide equivalent
TRL	Technology readiness level
TW	Terawatt (thousand GW)
USD	US dollars
UNEP	United Nations Environment Programme

Executive summary

Investors today are operating in an environment rife with misunderstandings about the energy transition.

We are concerned that two fundamental misunderstandings have developed in market narratives:

(1) that the energy transition has stalled or even died, and

(2) that the amount of uncertainty around this topic means long-term analysis has little merit.

We believe that these misunderstandings underpin a potential market failure: too great a focus on short-term returns over long-term capital allocation to the energy transition.

In this whitepaper, we outline the conclusions from our latest climate scenario research. We use scenario analysis to understand the key trade-offs involved in an energy transition and crystallise investment-relevant insights on future risks. Climate scenarios are not forecasts, but illustrative pathways built on a set of assumptions and constraints we believe to be plausible today. Over the past year, we have refreshed our scenarios with the latest data and reviewed all our assumptions. As long-term investors, we are particularly interested in understanding structural change to the economy. We believe that climate change poses material long-term risks, that the energy transition is underway and offers significant opportunities, and that while it is impossible to know how it will play out, scenario analysis allows us to identify plausible outcomes.

Market participants who only consider the short term could risk being surprised by an energy transition. International equity investors today have average holding periods of around one year, shortening to only six months when zooming in on the US (CIBC, 2025). We believe this could mean companies are more likely to prioritise short-term performance and shareholder disturbution, which could divert attention from structural changes and their capital allocation implications which are important to long-term value creation and risk mitigation. The energy transition is one of these long-term structural shifts. Transition technologies, such as electric vehicles (EVs) and solar photovoltaics (PV), tend to be more capital intensive than their conventional counterparts, requiring more upfront financing, but may be less risky due to a reduced exposure to price volatility and lower operating costs – which may also enable new use cases. These dynamics, coupled with a potential fear of first mover disadvantage and a hesitation to compete with Chinese dominance in many low-carbon technology markets, are likely to be holding companies back from committing capital to decarbonisation. However, hesitation around capital commitment could expose companies (and investors) to significant risk and prevent companies from capturing opportunities if – as we believe – there is to be an energy transition.

While there are undoubtedly some headwinds, and the path may not be linear, our analysis indicates the direction is clear: the global economy will decarbonise. Recent high interest rates, shifts in climate policy in the US and the EU, and persistent global coal power capacity growth, all represent headwinds to the energy transition. Despite the uncertain backdrop, in 2024, renewables represented 90% of global power additions. Solar and wind capacities in 2024 were already higher than we thought they may be in 2030 under 'inaction' pathways we published in 2020 and 2023. In fact, they have been evolving more in line with what we then thought a 1.5°C pathway might look like. The electric mobility transition is also clearly underway, with EVs already accounting for one in five new cars sold globally in 2024, and affordability continuing to improve due to falling battery prices and increasing competition. These developments also imply that today's levels of coal, oil and gas use are unlikely to persist – with the question being 'when', not 'if', they will be phased out.

Accordingly, our scenarios now indicate that even without global climate action, emissions are likely to fall in the long term. The new scenarios presented in this paper include an inaction pathway with significantly lower emissions than prior versions, as many low-carbon technologies are now likely to continue growing even without further policy implementation. While our previous inaction pathways would likely have resulted in warming of above 3°C, our new pathway is likely to be closer to 2.5°C. At the same time, the physical consequences of any level of warming are highly uncertain, and climate scientists have indicated that they will likely be larger than previously anticipated, at lower temperatures (IPCC, 2023).

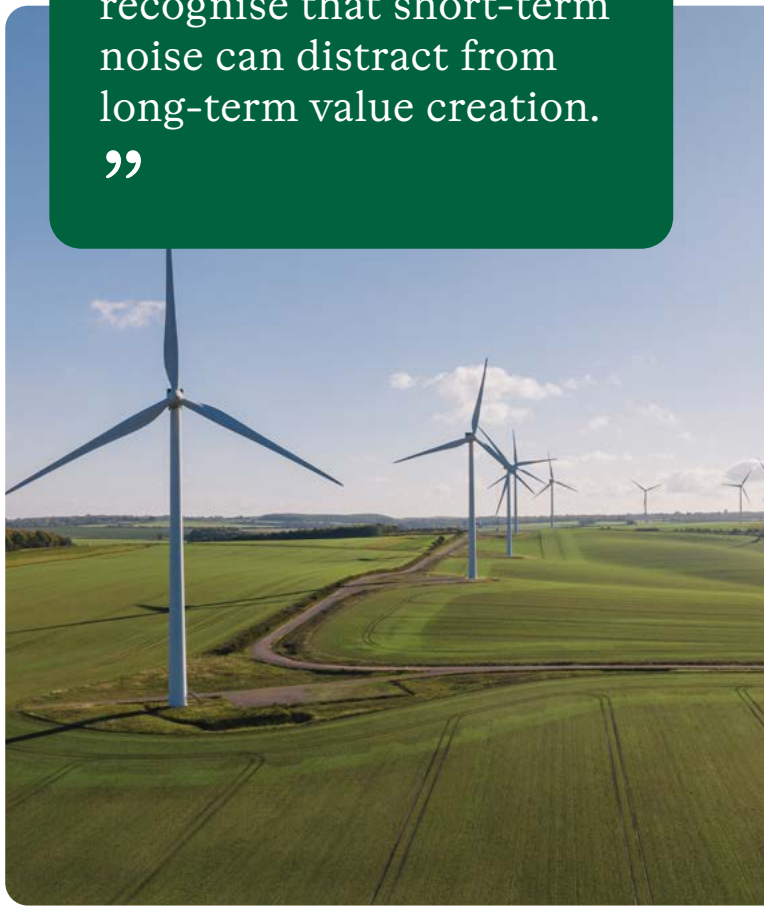
As a result, we are convinced that below 2°C outcomes remain achievable and affordable – for now. The Paris Agreement set out a global goal of limiting global warming to well-below 2°C, ideally 1.5°C, compared to pre-industrial averages. But since the sudden drop in GHG emissions due to the pandemic in 2020, emissions have continued to grow every year. This means the old versions of our Paris-aligned scenarios, in which global emissions reductions started in 2020, are no longer feasible. Fortunately, we are still able to identify pathways to below 2°C outcomes that are not materially more expensive than older versions, despite this delay. This is because several key technologies, including solar, wind and EVs, have exceeded our expectations in terms of cost reductions and rollout speed. We can also still chart a course to net zero CO_2 emissions in 2050 that stays within the carbon budget for a 1.5°C outcome but involves some 'overshoot' (a period where temperatures initially rise above the target before being brought back down by sustained net negative emissions). Any overshoot introduces additional uncertainty and risk, including an increased reliance on carbon sequestration at unprecedented scale, and likely higher physical impacts from climate change – including risk of triggering so-called 'tipping points' in the climate system. In other words, the longer it takes to achieve deep emissions reductions in the economy, the less likely it will be that those targets remain within reach.

We know that reality will not play out exactly like one of our scenarios, but we believe that there is as much value in the spaces between the lines as the lines themselves. There are many spaces between scenarios: there are those between our four narrative pathways, those between our new pathways and older versions of the same, and those between our scenarios and other providers'. In this context, we ask ourselves three key questions: How wide is the range of outcomes? How have scenarios evolved over time? What are the key differences between providers? We believe that the answers to these questions can help us understand some of the key sources of uncertainty around the energy transition and make better decisions surrounding risks and opportunities for our clients. So, while we know that our scenarios do not predict the future, we remain convinced that the process of creating and benchmarking them is valuable to us as stewards of client capital.

We acknowledge there are many sources of uncertainty that we do not capture in our modelling – but uncertainty does not justify inaction. There are countless sources of uncertainty around the energy transition, some of which we can attempt to quantify – such as future energy demand or technology costs – and others which we cannot – such as physical tipping points. One key source of uncertainty which is currently receiving high interest is the impact of AI on energy consumption. Some energy scenarios now include AI, especially in shorter-term projections. However, the impact of AI – especially in the long term – is unlikely to be limited to its direct energy consumption, as outputs could also accelerate material discovery, drive technological innovation and system optimisation – all of which in turn may increase or decrease energy consumption. We do not think the data available on this topic is good enough for a quantitative approach yet. Investors and policymakers should be prepared for both gradual change and sudden shifts, recognising that the energy transition will be shaped by both the risks we can measure and those we cannot. We live in a highly uncertain world – so should remain alert to emerging trends that could reshape the transition landscape.

The implications for us as investors are clear: ask 'when' an energy transition will happen, not 'if', and recognise that short-term noise can distract from long-term value creation. While markets may be prioritising short-term returns, investors should also recognise that the energy transition creates significant opportunities and risks in the medium and long term. Short-term developments may be effective signals of long-term trends – or in some cases they may be explicitly contradictory. By stepping back from the 'here and now', we believe that investors can better anticipate structural changes that will redefine value, especially as demand for fossil fuels may remain robust in the short term before declining in the long term. This tension between short-term demand and long-term decline is particularly evident in sectors like oil, where near-term profitability can mask underlying risks related to stranded assets and regulatory changes. Maintaining a long-term perspective, therefore, becomes essential in safeguarding capital and seizing new growth opportunities. For many companies, investing in low-carbon opportunities may reduce margins over the short to medium term. However, doing so now could result in structurally higher earnings across many plausible pathways, particularly those with significant expansion in carbon pricing mechanisms.

"The implications for us as investors are clear: ask 'when' an energy transition will happen, not 'if', and recognise that short-term noise can distract from long-term value creation."



In engaging with companies, we focus on identifying opportunities for them to participate in the transition in a value-accretive way – recognising that listed companies' actions are not taken in a vacuum. Rather than prescribing a specific pathway for companies to align with, we believe it sensible to encourage them to prepare for the risks from a range of plausible pathways, while seeking to maximise the long-term return prospects for investors by thinking about the long-term opportunities of the structural changes already underway. We do not think there is a fundamental conflict between targeting outsized returns and addressing climate change. The world is not currently on track to hit global climate targets, and neither are most listed companies - creating risks for future shareholder returns. It is imperative that we engage with companies across the spectrum of climate integration to address systemic risks and integrate the energy transition into their strategies. At the same time, given that regardless of which pathway the world ends up on, warming and the resulting physical impacts are likely to continue rising until at least 2050, we need to encourage companies to consider how they will adapt to a changing climate and associated physical risks.

Just like other business risks, investors can manage uncertainty around the energy transition through analytical frameworks such as scenario analysis. The energy transition will not be linear, and there are likely to be some bumps in the road. It may take longer than we expect today in some ways, and in others it may surprise us and go faster – as indeed has already happened with solar and wind for example. Despite the uncertainty, we believe the signs are pointing in a clear direction: that there will be a transition to a low-carbon economy, and that it has already begun. For us as investors, climate scenario analysis is a valuable tool in managing the uncertainty around the 'how' of this transition.

Factsheet: our scenarios

Inaction

National governments do not implement further climate policies, but low-carbon technology is built where it is cheaper than the alternatives.

Below 2°C

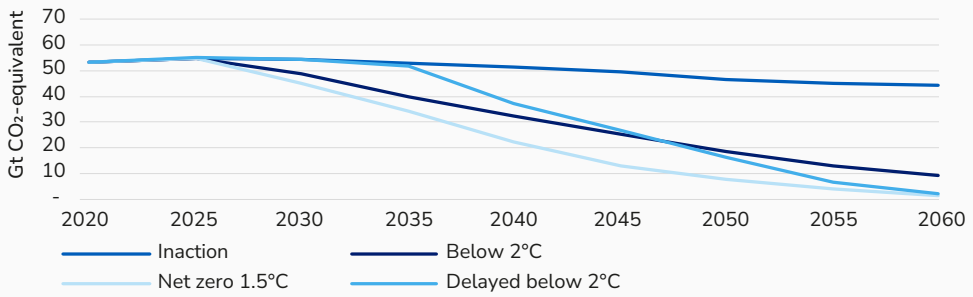
There is significant and immediate policy action to limit global warming, however, the 1.5°C warming limit is exceeded.

Net zero 1.5°C

Ambitious climate action achieves net zero CO_2 emissions around 2050, and global warming is limited to 1.5°C.

Delayed below 2°C

Policy action to reduce global emissions is delayed until 2035, and warming is kept below 2°C.



Source: L&G Destination@Risk, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Greenhouse gas (GHG) emissions

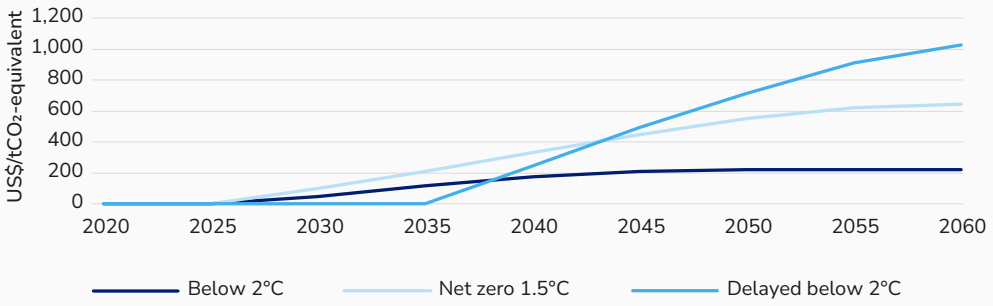
All our scenarios see GHG emissions peak by 2030. In the inaction scenario, gradual reductions over the following decades see emissions fall to around 45 Gt by 2060.

Our 1.5°C scenario achieves net zero CO_2 emissions between 2050-55, just before the delayed below 2°C scenario. The below 2°C scenario still has positive CO_2 emissions by the end of our modelling period, but we expect it would also reach net zero around 2065-70.

Carbon prices[1]

To achieve these emissions reductions, global carbon prices (per tCO_2e) in the net zero 1.5°C and below 2°C scenarios would need to reach around $100 and $50 by 2030, and $550 and $200 by 2050, respectively.

In the delayed scenario, prices only rise from 2035, reaching around $700/$tCO_2e$ by 2050.



Source: L&G Destination@Risk, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

1. The scenario carbon price is best thought of as the cost of the last, most expensive tonne of GHGs globally abated in each period. There may be many ways in practice that these required prices per tonne could be achieved by policy – they are not necessarily best implemented through a blanket carbon price but could be realised through subsidies for low-carbon technologies, sales bans for highly polluting products, cap-and-trade mechanisms, and other instruments.

The time horizon dilemma

The tensions in time horizons between different market participants may mean that energy transition risks and opportunities get overlooked - climate scenarios can help resolve this tension.

Market participants who only consider the short term could risk being surprised by or missing out on an energy transition. Equity investors appear to be holding onto their positions for very short periods on average, with the average holding period in the largest 1,000 companies in the US falling from around nine years in 1975 to around half a year in 2025. International markets are similarly short-term focused, with average equity holding periods of around one year (CIBC, 2025). At the same time, median CEO tenure in the S&P500 fell from six years in 2013 to less than five years in 2022 (Chen, 2023), and there is evidence to suggest that the increasing share of stock options in executive compensation may be associated with higher risk taking by CEOs (Van Le & Lopez Cruz, 2024). Focus on quarter-by-quarter results and shareholder distribution is likely to divert companies' attention from long-term structural changes and their capital implications. For instance, the International Energy Agency (IEA) expects a 35-40% supply gap for copper by 2035, driven by economic development and the energy transition (IEA, 2025) – but shareholder distributions paid out by the top 10 publicly listed copper mining companies were over 2.5x larger than their capital expenditure on growth projects, and distributions have been growing at 3x the rate of growth CAPEX, over the last 10 years.[2]

Climate risks are material long-term risks. There are broadly two categories of climate risk: transition risk and physical risk. Transition risk describes the risks associated with an energy transition, including from climate policies, technology developments, and public perception. Physical risk is the risk from physical climate change, which spans acute risk events like heatwaves and tropical cyclones to chronic risks, such as productivity impacts from permanently higher temperatures. Every additional tonne of GHG emissions increases global warming, and every additional degree of warming increases physical risk non-linearly. If the world took stronger policy action to reduce emissions, this would result in higher transition risk over the short and medium term but reduce physical risk in the long term – but they would likely still be higher than today. Given their long-term nature and dependency on developments in technology, geopolitics, and our understanding of climate systems, which themselves are complex and may behave chaotically, there is clearly a high degree of uncertainty around how and when these risks will materialise.

2. L&G analysis based on Bloomberg data and company disclosures. Companies covered: Rio Tinto*, BHP, Anglo American*, Glencore*, Teck Resources*, Antofagasta*, Freeport McRoran*, First Quantum Minerals*.

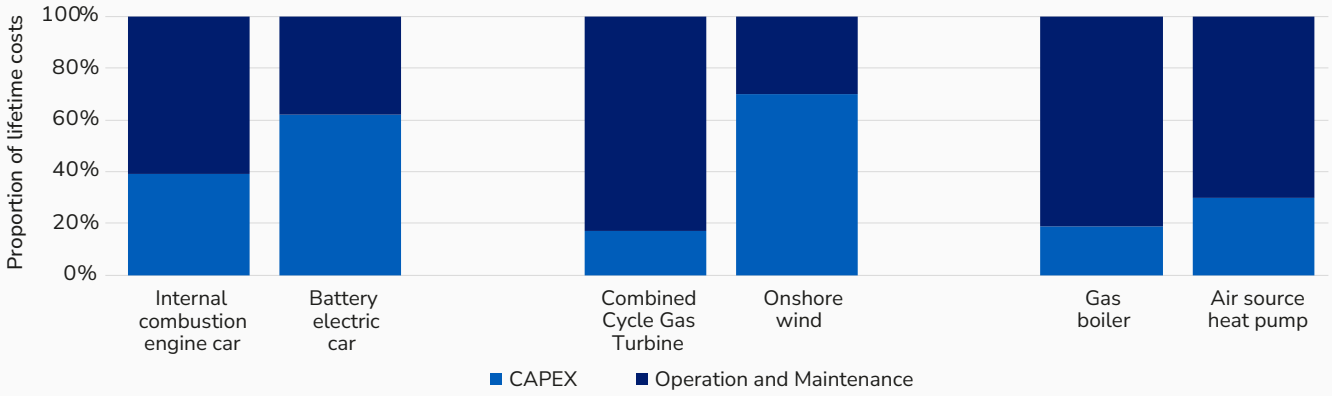
Scenario analysis allows us to explore how these risks could play out – and how they may be mitigated. Our scenarios are not forecasts, but illustrative pathways built on a set of assumptions and constraints we believe to be plausible today. We use them to evaluate how global energy and land systems could evolve over the next three decades, resulting in different climate outcomes and economic conditions. Scenarios are available from many sources, including international agencies, energy companies, and consultancies. We think there is value in developing our own scenarios to better understand the key trade-offs involved in a transition to a low-carbon economy and yield investment-relevant insights on future risks. The greater the potential disruption from an energy transition, the more likely we are to see relative winners and losers within key sectors.

As long-term investors, we are concerned that focus on the short term may obscure the long-term reality of the energy transition and pose a systemic risk. We use insights from our scenario modelling to identify and engage with companies on the long-term risks and opportunities for value creation arising from climate change. Responding to these may sometimes require companies to make short-term concessions or incur costs that would reduce or delay near-term shareholder distributions, but could improve the long-term profit outlook for the company or increase resilience to different energy transition pathways. It may also require companies to undergo structural transformation.

Energy transition investments often require high initial capital outlays and have long-return profiles – but they may also be associated with less risk and enable new uses of energy. Transition technologies in all sectors tend to be more capital-intensive, with three key examples included in the chart below. This means the initial capital investment is higher and requires more upfront financing, with the payback period often longer than for conventional alternatives. At the same time, renewables are perceived as less risky, with lending spreads between renewable and fossil fuel assets of around negative 100 basis points (Wilson, Shrimali, & Caldecott, 2025), likely due to the higher relative sensitivity of fossil fuel assets to price environments. In other words, ongoing costs are lower, and in some cases, electricity generated by solar and wind may even be available at zero marginal cost at some times of the day – potentially enabling new applications of energy that would not have been feasible with fossil fuels. For some companies, these dynamics are significantly different from their traditional activities. In industries such as utilities and mining, the energy transition is associated with a return to growth, which may take time to be reflected in market valuations. Given recent cost declines in some lower carbon technologies, such as solar and batteries, companies may also fear a first mover disadvantage around investing in something today that may be much cheaper tomorrow.

> “As long-term investors, we are concerned that focus on the short term may obscure the long-term opportunity of the energy transition and pose a systemic risk.”

Share of CAPEX and Operation and Maintenance type of costs within total lifetime costs for the compared technologies



Data in chart is for the EU, as at February 2026.
Source: University of Cambridge Institute for Sustainability Leadership (2021)

The low-interest rate environment of the pre-COVID years benefitted investments in energy transition technologies, while current dynamics are more challenging. After the financial crisis, the global economy entered a sustained period of low interest rates that lasted until the aftermath of the COVID-19 pandemic. Low-carbon electricity generation is likely to be 3-5 times more sensitive to interest rate increases than gas power generation in terms of impact on the levelised cost of electricity (LCOE).[3] This has clear implications for payback periods across interest rate environments and can delay investment decisions that are critical to the energy transition. Emerging markets, where borrowing costs are already up to three times higher than in developed countries, are likely to be particularly affected (Brookings, 2022). For example, while the weighted average LCOE of onshore wind is comparable in Africa and Europe (around 0.05 USD/kWh), financing alone represents over half of this cost in Africa – compared to around a quarter in Europe (IRENA, 2025).

As an additional headwind to energy transition investment, most national governments have failed to implement policies that would help achieve their long-term climate targets – or abandoned the latter altogether. Year-on-year GHG emissions growth was 2.3% in 2024, over four times the annual average growth rate in the 2010s, and comparable to the average of 2.2% seen in the 2000s (Carbon Brief, 2025). The United Nations Environment Programme (UNEP) estimates that the likelihood of limiting global warming to less than 2°C based on current policies alone would be around 8%. If countries fulfilled their conditional nationally determined contributions (NDCs) to the Paris Agreement – these are national targets to reduce emissions that are 'conditional' on some external factor such as international support – and met their net zero goals, this probability rises to 78% (UNEP, 2025). The space between these two figures represents the gap between the current policy environment and what would be required to achieve national targets.

3. In the US, an increase in real weighted average cost of capital from 0 to 5% would increase solar PV and onshore wind LCOE by 4.6 and 3.5 times as much as CCGT LCOE. Source: L&G analysis, based on (Wilson, Shrimali, & Caldecott, 2025).

The US (which contributed 11% of global GHG emissions in 2024 (EDGAR, 2025)) has withdrawn from the Paris Agreement, including the associated national emissions reduction targets. The European Union, also recently implemented policy shifts, including through the Omnibus Directive, which reduces the scope of its Corporate Sustainability Reporting and Due Diligence Directives, and through plans to scrap its 2035 ban on combustion engine vehicle production (Financial Times, 2025).

Despite this backdrop, benchmarking our scenarios from prior years against current data reveals that there are areas of both under- and outperformance. We have been modelling climate scenarios using our L&G Destination@Risk toolkit for the better part of a decade. There have been three versions of our scenarios: version 1 (2020), version 2 (2023) and version 3 (2026).[4] Comparing our version 1 and 2 scenario pathways against actual data for recent years – for example in solar, wind and coal capacity – we observe that despite a challenging financing and political environment, solar and wind have outperformed our expectations of the past. Yet the picture is more nuanced: coal has also outperformed our expectations to the upside, with net capacity additions continuing at pace in Asia.

Comparing our scenarios to actual data provides insight into how real-world developments reshape the landscape of plausible pathways. There may be various factors driving divergence from past scenario pathways, including:

Maturing technologies: As economics, policy signals, and consumer behaviour become clearer, uncertainty narrows and pathways converge. This is evident in technologies such as electric vehicles, where cost declines and adoption trends have reduced divergence across scenarios.

Early-stage technologies: For nascent solutions, trajectories can swing significantly between updates. Some may gain prominence in revised projections (such as utility-scale batteries), while others may see diminished roles (such as hydrogen in certain sectors).

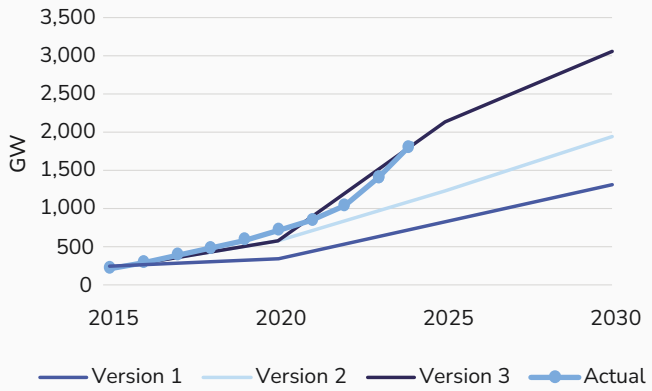
Breakthrough innovations: Disruptive technologies can reconfigure expectations entirely. For example, ten years ago, few scenarios considered direct air capture (DAC) technology.

Geopolitical dynamics: Shifts in global stability and cooperation can widen the range of plausible futures. Against an uncertain geopolitical backdrop, competing priorities and regional disparities create a broader fan of pathways.

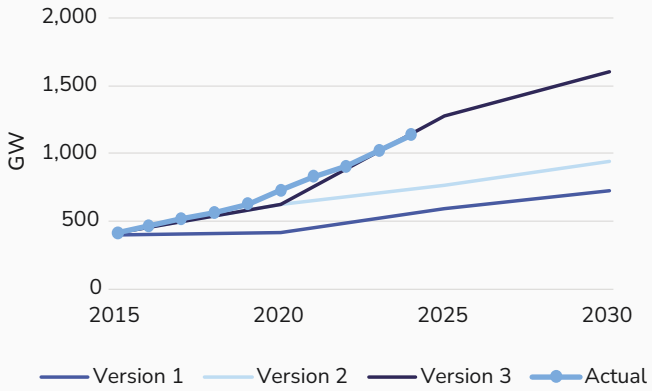
Carbon budget constraints: Ambitious pathways demand early and decisive action. The longer emissions remain on a non-ambitious trajectory, the steeper and more disruptive the transition required to stay within tightening carbon budgets.

4. Note that for each iteration of the scenarios, we endeavour to use the latest available data, but the year for which data is available may vary across variables or regions, with some data lagging by two years or more. This means scenario data may not line up perfectly with actual data even for historical years.

Global solar capacity (inaction)



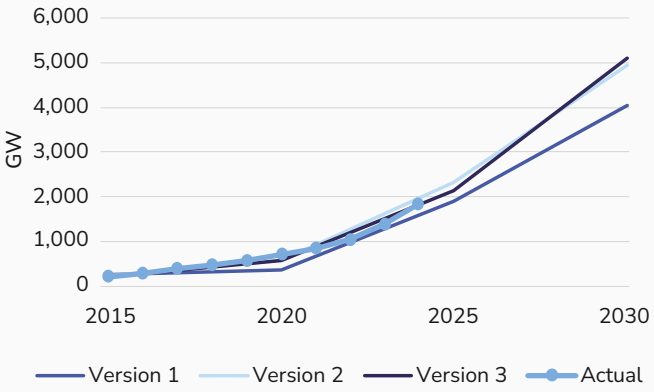
Global wind capacity (inaction)



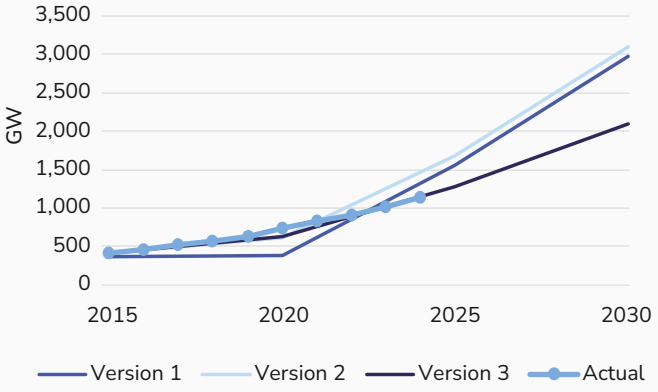
Source: L&G Destination@Risk (as at February 2026) and IRENA (2025). **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Actual solar and wind capacities in 2024 were already larger than we envisioned they would be by 2030 in our old inaction scenarios. Despite high inflation and rising interest rates post COVID, solar and wind additions have significantly outperformed our previous expectations. Since 2010, due to a combination of technology improvements, supply chain competitiveness and economies of scale, the global weighted average LCOE of utility-scale solar PV fell by 90%, onshore wind by 70% and offshore wind by 62%. This means solar is now 41% cheaper and onshore wind 53% cheaper than the least expensive fossil-fuel generation alternative in global weighted average terms. In parallel, the cost of enabling technologies also fell considerably: utility-scale battery storage costs per kWh declined by 93% from 2010 to 2024 (IRENA, 2025).

Global solar capacity (net zero 1.5°C)



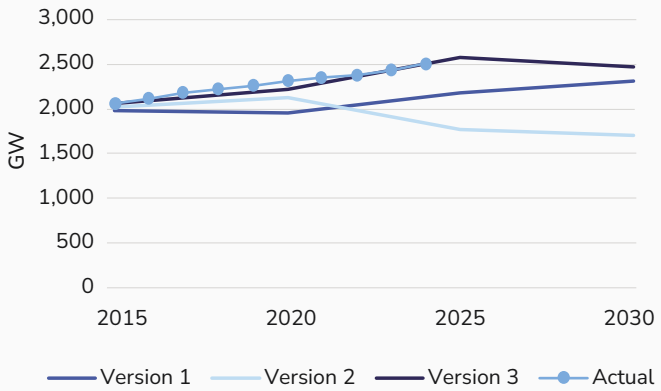
Global wind capacity (net zero 1.5°C)



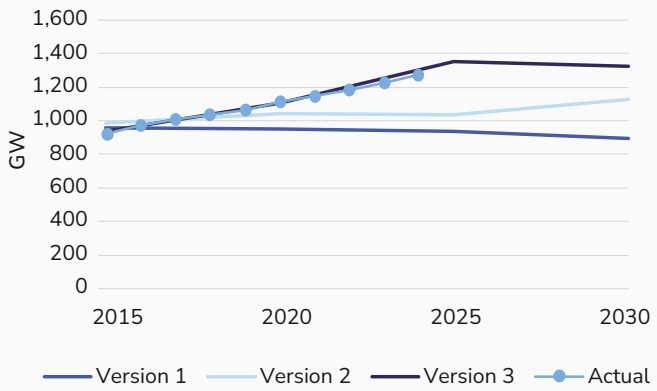
Source:L&G Destination@Risk (as at February 2026) and IRENA (2025). **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

On the contrary, solar has performed more in line with our old net zero 1.5°C pathways, while actual wind deployment is somewhere between our old below 2°C and net zero 1.5°C pathways. Despite the lack of comprehensive global policy action, we observe that actual solar and wind capacities have evolved more like our decarbonisation pathways than the inaction pathway from versions 1 and 2. In fact, over the short term our net zero 1.5°C pathways for solar capacity have changed little over the versions (we will examine the long-term outlook later, where there has been significant upward revision). Regarding wind, however, we have reacted to the underperformance relative to our old net zero 1.5°C pathways by revising down our pathway for version 3.

Global coal capacity (inaction)



Chinese coal capacity (inaction)



Source: L&G Destination@Risk, (IRENA, 2025). **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

At the same time, global coal capacity has not declined in line even with our past inaction pathways. Coal remains the largest source of power generation in the world, accounting for 35% of electricity in 2024. However, its contribution is gradually falling, with capacity additions in 2024 hitting their lowest level in twenty years at 44 GW. This means net capacity grew by 19GW, given retirements of around 25GW (Global Energy Monitor, 2025). On one hand, in advanced economies, demand in 2024 was 50% lower than at peak in 2007, the UK closed its last coal power plant, and the EU retired four times as many coal plants as in 2023 (IEA, 2025). On the other hand, in China and India, 2024 was a record year for coal plant construction starts and proposals, respectively. These two countries are among a dwindling number of nations – a total of eight – that proposed new coal plants in 2024 (Global Energy Monitor, 2025).

Both stories are primarily playing out in China, as it outperforms all other countries on both solar and wind additions and coal power generation. China added more solar and wind capacity in 2024 than all other countries combined and is on track to reach its new 2035 wind and solar target five years early. The average LCOE for solar and wind in China were 23% and 15% lower than the global weighted average, respectively. The country's solar market is the world's largest and most cost-competitive, with vertically integrated supply chains that produce most of the wafers, cells and modules sold worldwide (IRENA, 2025). Yet China also remains the world's largest coal consumer, consuming almost 40% more than all other countries combined, and burning more than one third of global coal consumption in its power plants (IEA, 2025). In fact, net global coal capacity excluding China decreased by 9GW in 2024 – compared to the global increase of 19GW when including China (Global Energy Monitor, 2025). In 2021, President Xi Jinping pledged to phase down Chinese coal use from 2026, but continued coal plant construction starts and proposals may raise doubts that this target will be achieved. 2025 has been projected to become the biggest year of coal power capacity additions in the past decade, with an expected commissioning of over 80GW (Centre for Research on Energy and Clean Air, Global Energy Monitor, 2025).

We consider these short-term comparisons useful in evaluating progress – if we distinguish between cyclical and systemic dynamics. Our scenarios are not intended as short-term forecasts, so we do not expect that they will perfectly match actual data. In fact, reality may look like a combination of pathways – as indeed the examples above show: while solar and wind are performing more in line with our old Paris-aligned pathways, coal deployment has exceeded even our inaction pathway. A key question when evaluating them against short-term developments is whether they obscure or demonstrate a long-term trend. Short-term developments, for instance US tariffs on key energy transition equipment, or central banks lowering interest rates in 2024-25, can have material pricing impacts, and we monitor them carefully. Comparing our old scenarios against realised progress makes clear that we are likely to be observing a renewable revolution.

We believe that structural dynamics are clear: an energy transition is happening, and companies will need to prepare or risk being surprised. We remain convinced that an energy transition is underway, though the temperature outcome remains uncertain. Solar and wind deployment continues at scale despite a challenging financing and political environment, outperforming our expectations and leading us to revise upward renewable deployment in all our scenario pathways, as we examine further in the next section. Interest rates have been higher since the COVID-19 pandemic but have been gradually coming down in recent months.

Reading between the lines

Spaces between climate pathways may tell us as much as the pathways themselves.

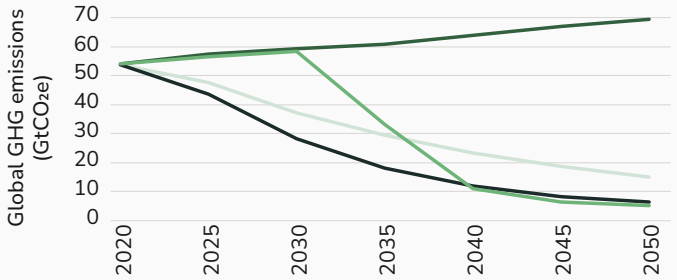
While we believe climate scenarios are informative in themselves, we also think that a large part of their value lies in the spaces between the lines. A scenario pathway represents only one of possibly infinite ways to achieve a particular outcome. While it carries information on what we think would be a plausible way to get to an outcome, it is not a forecast. So, when interpreting our scenario results, we ask ourselves three questions about the spaces between scenarios: How wide is the range of outcomes? How have the scenarios evolved over time? How do they compare to third-party scenarios? We are convinced that the answers to these questions can help us understand key sources of uncertainty around the energy transition and make better decisions surrounding risks and opportunities for clients.

Funnel vision: spaces between scenarios

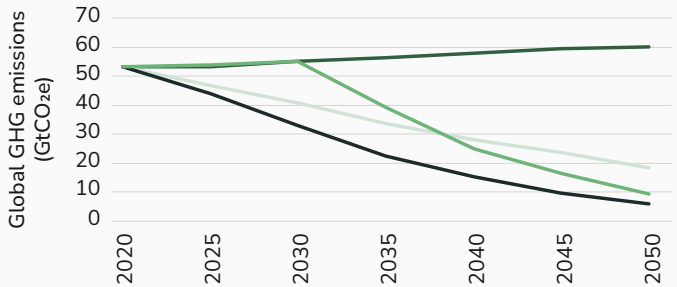
As we developed new versions of our scenarios over the years, we have found that insights surrounding key variables like emissions, fossil fuel demand and emerging technologies have changed considerably. All iterations of our scenarios have included four narrative pathways, ranging from highly ambitious climate mitigation to inaction. On the one extreme, the net zero 1.5°C scenario attempts to reach the most stringent of climate targets through unprecedented economy-wide decarbonisation. On the other, in the inaction scenario, the world also undergoes significant change, but deployment of new technologies is primarily driven by cost considerations rather than climate mitigation policy. Yet the way that our scenarios envision these narratives playing out has undergone significant transformation since version 1.

The other key marker of change we observe is whether the scenario 'funnel' is narrowing or widening, and what this means for uncertainty. Because our scenarios are potential pathways rather than predictions, we generally do not ascribe them specific probabilities. Nevertheless, we think they can be useful tools in evaluating uncertainty. We assess a set of four diverse narratives, so if pathways for some variables begin to converge, this may indicate where related investments are less vulnerable to uncertainty on the shape of the transition. Equally where pathways diverge over time, we may need to examine what this means for our strategic decision-making and how it can stay robust to these different outcomes.

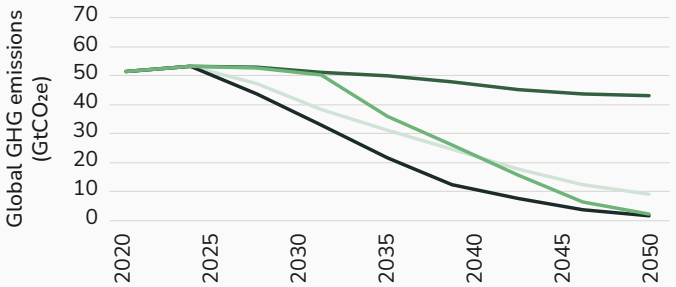
Version 1 (2020)



Version 2 (2023)



Version 3 (2026)



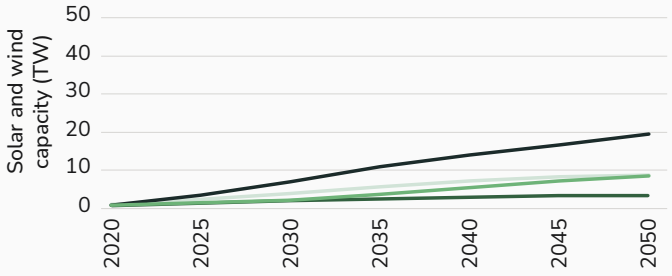
Source: L&G Destination@Risk, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Emissions – and the anticipated global warming – in our inaction scenario have been revised downward with every iteration, with the funnel between scenario pathways becoming narrower. Our first inaction pathway saw GHG emissions continuing to grow over the entire period to 2050. In version 3, this is no longer the case: CO_2 emissions only grow until 2030, after which they gradually begin to fall (we now model until 2060). There are many reasons for this which are explored below, chief among them our improved solar outlook. As a result, where we previously anticipated our inaction pathway would result in above 3°C of warming, we now think it is likely to be closer to 2.5°C. This is in line with research from Climate Action Tracker, which estimates that when the Paris Agreement was reached in 2015, existing policies would have resulted in around 3.6°C of warming by 2100, whereas the policies in place now (in 2025) would result in around 2.6°C of warming (Climate Action Tracker, 2025).

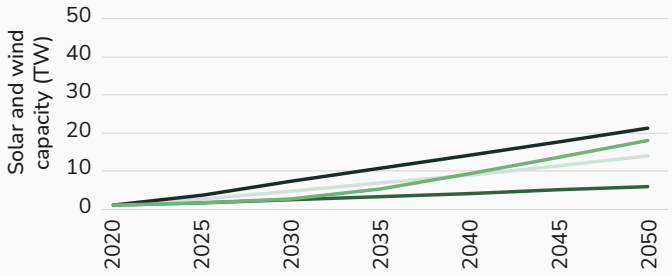
While the decrease in anticipated future warming for the inaction pathway is positive, the scientific communities' evolving understanding of the physical impacts indicates they may be higher than expected. Human activity, primarily the emission of GHGs, has caused around 1.3°C of warming relative to pre-industrial temperatures to date. Physical impacts of these higher temperatures have already been observed in weather and climate extremes, with adverse effects on people and ecosystems, and will continue to worsen for years to come, regardless of scenario, as there is some delay between emissions reductions and warming feedback. Impacts can be either chronic – from the gradual changes in climatic conditions such as average temperatures – or acute – from extreme events such as coastal flooding. While chronic risks may build up slowly over time, acute risk materialises suddenly. The world's scientific authority on climate change – the Intergovernmental Panel on Climate Change (IPCC) – revised its long-term climate risk assessments up significantly from AR5 (2014) to AR6 (2023), meaning it now expects risks to be higher for lower levels of global warming due to higher-than-expected observed impacts, improved process understanding and new insights around the exposure and vulnerability of humans and ecosystems (IPCC, 2023).

At the same time, there remains a great deal of uncertainty around the magnitude of damages from climate change, with large ranges in available estimates. Researchers have been attempting to quantify the potential economic costs from future climate change for several decades, using different methods and arriving at different results. One of the challenges around communicating climate risk and the need for action has been that estimates of potential future are very variable: for example, at the global level, loss estimates range from 2-40% of GDP by 2100 for around 3°C of warming (NGFS, 2024). Separately, recent research from the Climate Financial Risk Forum (CFRF) comparing 13 data vendors' property-level financial risk assessments revealed that physical climate change estimates are highly variable. Significant dispersion existed between vendors on both the intensity of hazards (such as flood depth and wind speed) and the associated damages. As an example, vendors' estimates for damage ratios from flooding in 2030 ranged from 0-100% for a tenth of the 100 properties examined (CFRF, 2025) These estimate ranges demonstrate the challenge in quantifying the potential physical impacts of climate change, but should not detract from the established science that every degree of warming non-linearly increases the potential impacts, including those of irreversible changes such as the reaching of so-called tipping points, which could devastate fragile ecosystems and communities (IPCC, 2023). For the purposes of this paper, we focus our analysis on the potential ways an energy transition could play out, and the resulting investment implications.

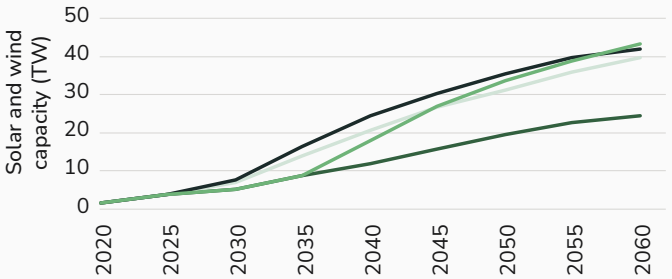
Version 1 (2020)



Version 2 (2023)



Version 3 (2026)



Inaction | Below 2°C | Net zero 1.5°C | Delayed below 2ºC

Source: L&G Destination@Risk, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Key drivers for the decrease in emissions across scenarios are higher deployment pathways for solar and wind, particularly in emerging markets. As we showed in the previous section, solar and wind have outperformed our expectations in recent years, given higher-than-anticipated cost declines (including in utility-scale storage), and we have since adjusted our scenarios to allow for faster buildout of capacity, particularly in emerging markets. Globally, this means that our pathways for solar and wind capacity now end up nearly doubled across all scenarios by 2050. The world added a record 452GW of solar capacity and 113GW of wind capacity in 2024 (IRENA, 2025). To achieve our new net zero 1.5°C scenario, it would need to build on average around double these amounts every year to 2060. While current additions are being driven by China, we expect significant buildout of solar capacity in the Middle East, Africa, India and other Asia from 2030 onwards in our decarbonisation scenarios.

> “We now believe there will be less scope for gas to act as a transition fuel between coal and renewables in power or industry.”

Accordingly, we now believe there will be less scope for gas to act as a transition fuel between coal and renewables in power or industry. Global coal power plant retirements have not kept pace with our previous pathways, and capacity has in fact continued to grow, as we showed in the previous section. We have incorporated these new expansions and updated our coal asset lifetime expectations and now expect that the last coal plant would retire by 2055 in the net zero pathway, compared to 2045 in version 2. We think this, coupled with updated gas lifetime assumptions, reduces the likelihood of additional gas capacity buildout to fill gaps left by rapidly retiring infrastructure: while gas capacity held relatively stable to 2050 in our previous below 2°C scenarios, we now see it decline in the short term – even in the Inaction pathway. Baseline power would be supplemented by battery storage, hydro and nuclear. In industry, we observe that a mixture of electrification and green hydrogen is a more economical choice to decarbonise than relying on coal and gas with CCS given the cost declines in variable solar, wind and battery storage.

The overall role of carbon capture and storage is likely to be smaller than previously thought, as our scepticism around potential injection rates has increased. CCS has been deployed much more slowly than industry forecasts indicated, with many capture and storage projects delayed or cancelled in the last few years. We have revised our view for the short-term maximum deployment of CCS to align with only the set of planned projects, rather than allowing deployment beyond this level (Zhang, Jackson, & Krevor, 2024). By 2030, the maximum possible deployment of CCS in our scenarios is now around 200Mt per year, relative to over 2Gt of CO_2 per year in version 2. Several academic studies have recently raised doubts over the ability to inject significant volumes of CO_2 into underground storage reservoirs in the longer term (Zhang, Jackson, & Krevor, 2024). This scepticism is driven by the lack of historical experience with CCS, which raises concerns around the technical and economic feasibility of large-scale injection. Critically, the constraint is not with the overall volume of underground storage, but with the annual injection rate which can be achieved. We have chosen to constrain deployment of CCS based on average historical production of oil and gas across regions, considering it a proxy for experience with the subsurface (Grant, Gambhir, Mittal, Greig, & Koberle, 2022). Globally, the maximum annual amount of CCS by 2050 is 5.6Gt per year, down from a maximum of 8.5Gt in version 2.

Slowing policy momentum in Europe and the US, alongside recent negative results from carmakers, have driven some market pessimism around electric vehicles. European policy support for EVs has been declining, with several major economies including Germany and France phasing out subsidies, and the recent watering down of the EU’s 2035 combustion engine ban (Politico, 2025). Similarly, in the US, the Trump administration recently terminated EV purchasing incentives and relaxed emissions standards introduced by the previous government. Recent announcements from global carmakers, such as General Motors’ $1.6bn losses related to EV rollout plan changes and VW’s €5.1bn write-down due to EV strategy rollbacks, are also likely contributing to general market scepticism on the EV transition (Financial Times, 2026).

Yet the latest EV costs and sales figures paint a clear picture of a transition in progress. While low-emission vehicle sales in the US declined by 4% in 2025, other regions did not see the same slowdown. Despite recent news out of the EU regarding subsidy phaseout, relaxed sales bans, and company write-downs, Europe was the region with the largest growth in electric vehicle sales in 2025: 33% higher than 2024 (Fleet News, 2026). China continues to lead global EV sales, with EVs representing over 50% of sales in 2025, and many emerging markets are experiencing an even faster transition to EVs than more established geographies – Singapore, Vietnam Thailand and Uruguay, for instance, have all reached over 20% of sales from low-emission vehicles, despite mass-market uptake starting several years later than more mature geographies (Graham, 2025). Geographically, there is a further shift happening: 70% of electric cars sold globally are manufactured in China, and two-thirds of electric cars sold in China are cheaper than ICE cars of equivalent size. Many of these vehicles are exported to emerging markets – Brazil, Mexico, the United Arab Emirates and Indonesia were all among the ten largest value markets for Chinese exports in 2025 (Graham, 2025). Generally, affordability has shown significant improvements over the past decade due to falling battery prices, increasing competition and more models becoming available. In 2024, average prices of global battery packs fell by more than a quarter relative to the year before, despite a small increase in global average battery size (IEA, 2025).

Recognising this momentum, we have revised upwards our outlook on EVs in our inaction pathway, narrowing the spaces between our scenarios. While EV sales have continued to rise globally, the share of government spending on electric cars has been steadily declining from 20% in 2017 to 7% in 2024 (IEA, 2025). Accordingly, we now think EVs could represent around 60% of car stock by 2050 even in an Inaction scenario, compared to less than 50% in version 2. We expect that the speed of transition could be slower in some emerging markets, where the build out of charging infrastructure, and the prevalence of used car imports, are likely to act as significant roadblocks – despite the opportunity to import cars cheaply from China. As lower-carbon technologies mature and become cost-competitive, we expect our scenario pathways to converge, and this is a good example. In our most ambitious net zero 1.5°C scenario, EVs reach 80% of global car stock by 2050 – that is only about 10 years ahead of the inaction scenario.

Just five years ago, we did not think that battery electric trucks could be deployed at scale in decarbonising heavy road transport – now we think they represent the best available option. In 2020, batteries were too heavy and recharge times too long, leading us to conclude that the only credible transition for the sector was to hydrogen-powered vehicles. The data has shown a different story: from 2020 to 2024, the price of batteries for commercial vehicles fell by nearly a third, with battery pack size for heavy-duty trucks increasing by 70% over the same period but the overall cost per vehicle increasing by less than 20% (IEA, 2025). In China, electric heavy trucks jumped from a 9% sales share in the first half of 2024 to 22% in the first half of 2025 (The Independent, 2025). Once we introduced the latest cost estimates for heavy-duty truck technologies into the model, it became clear that fuel-cell vehicles were no longer going to be a serious contender. Challenges around charging infrastructure and hydrogen price competitiveness are likely to blame for lack of improvements in this area. Nevertheless, we think there will be a bit of delay between the transition of smaller vehicles and that of trucks, with large-scale electric truck deployment only beginning in the 2030s.

More opportunity for direct electrification in transport is accompanied by less low-carbon hydrogen production, although it continues to find applications in industry and shipping. Electrifying demand in sectors like transport and buildings to contribute to deep decarbonisation necessitates the supply of clean power. Higher solar deployment could therefore unlock higher rates of direct electrification and reduce reliance on fuel switching to hydrogen. At the same time, it may drive down the cost of green hydrogen relative to other fuels, and indeed we now see the hydrogen production mix skewed much more significantly towards electrolysers. These contribute around 80% of hydrogen produced by 2050 in our net zero 1.5°C scenario, compared to only around a third in version 2 of the same scenario. More importantly, overall hydrogen demand for decarbonisation is significantly lower: our new scenarios foresee only around 175Mt additional hydrogen demand in 2050 in the net zero 1.5°C scenario than in inaction. That's less than half of the nearly 500Mt of hydrogen demand imagined for 2050 in version 2 of our scenarios – but still more than double the roughly 100Mt of conventional hydrogen demand today. In 2050, more than two thirds of the additional hydrogen demand comes from the industry sector, where high-temperature processes including iron and steel production partially switch to hydrogen from natural gas. The remaining third is for goods shipping, where hydrogen makes up around a third of fuel consumption by 2050, with around another third coming from biofuels while the rest remains oil.

Our oil demand scenario pathways have remained relatively stable due to a lack of deployable alternatives in aviation, shipping and petrochemical feedstocks. Non-energy use continues to anchor future oil demand, rising to around 30 million barrels per day across all scenarios by 2050, with fossil-free feedstocks for plastics and chemicals remaining limited due to high costs and low technological readiness. While road transport currently accounts for about half of global oil demand, all three scenarios converge towards electrification displacing liquid fuels as the dominant technology. However, the dampening effect of the accelerating EV transition is offset by increased demand elsewhere, particularly in aviation. Passenger aviation demand has rebounded beyond pre-pandemic levels, and supply constraints on fuel-efficient aircraft have slowed efficiency gains (IATA, 2025). At the same time, cost reductions for sustainable aviation fuel (SAF) have lagged those seen in batteries, resulting in SAF making up around 50% of aviation fuel in our net zero 1.5°C scenario by 2050 – up from the 0.8% today, but lower than our previous estimate of 70%. This analysis does not include less mature technologies – our oil demand scenario pathways could be vastly overestimating long-term demand from aviation and petrochemicals if innovative solutions, including hydrogen- or battery-powered planes and bio-based plastics, develop at scale.

Nevertheless, across all our scenarios oil demand begins to fall sooner rather than later, with reductions in total market size of at least 20% by 2040 – contrary to recent oil market optimism. In the 2025 World Energy Outlook, the IEA re-introduced its 'current policies' scenario, projecting growing oil and gas demand for the next 25 years if there is no additional climate policy action. This marks a significant change in messaging, given prior entries in the series emphasised peaking fossil fuel consumption this decade across all pathways. The IEA pointed to a loss of momentum in country climate goals and a slowdown in electric vehicle deployment as reasons for the new addition (IEA, 2025). This more optimistic view on long-term oil demand is matched by the industry's prioritisation of growing reserves in anticipation of an upcoming supply crunch, best summarised by a continually strong oil price despite growing supply surplus in early 2026 (IEA, 2026). By contrast, our inaction scenario sees oil demand falling by around 0.5% per year every year to 2060, which, coupled with falling oil prices, would result in an average annual oil market size reduction of around 1.4%. Of course, in our decarbonisation pathways, reductions are much more significant: total oil demand would fall by around 50% to 2050 in our net zero 1.5°C scenario. These pathways have changed very little from version 2 of our scenarios, meaning that our outlook on oil demand remains the same: the key questions are when it will peak and how was it will fall, not whether.

"Across all our scenarios oil demand begins to fall sooner rather than later, with reductions in total market size of at least 20% by 2040 – contrary to recent oil market optimism."

The pressures on carbon prices for our new scenarios are twofold and opposed: time passing without action being taken, and technology costs falling. The more time goes by without significant climate action, the greater the concentration of greenhouse gases in the atmosphere, and the steeper the future emissions reductions required to stay within the carbon budget. This puts upward pressure on carbon prices in our scenarios, which indicate the cost of the last, most expensive tonne abated in every period. The longer we wait, the more we have to reduce, and the more we may be forced to rely further on expensive technologies like DAC, which could cost up to $1,000 per tonne of CO_2 captured. Yet the delay of action to 2025 in our new scenarios has not produced significantly higher carbon prices than version 2. This is because we have been able to significantly revise our assumptions around solar cost and deployment, which has exerted roughly equivalent amount of downward pressure on carbon prices.

Our delayed below 2°C pathway, which sees action delayed to 2035, remains the most disruptive, producing macroeconomic impacts around one-third larger than the 1.5°C pathway by 2060. The delayed below 2°C scenario narrative examines a world where public backlash against increasing physical climate impacts leads to a rapid downward correction in emissions starting in 2035 (in previous versions of our scenarios, action was delayed only until 2030, but given we are now in 2025, we have now moved this further out). We think that there is value in examining a 'what-if' of highly disruptive delayed action, particularly given the uncertainty around the potential physical risks of climate change. If there was a significant breakthrough in climate science that helped us better understand the risks of our current pathway, or an irreversible tipping point were reached, what would be the impact of the world course-correcting rapidly? We consistently (through all our scenario iterations) find that such a scenario would be more expensive to the economy than an orderly 1.5°C pathway with immediate action, even without considering the potentially higher physical risks. In version 3, the macroeconomic impacts from delayed policy by 2060 would be one-third larger than from our 1.5°C pathway.[5]

5. Macroeconomic impacts are measured as risk to GDP relative to a counterfactual pathway without climate action or physical risk.

Our scenarios continue to include a 1.5°C pathway, and though this has not become materially more expensive relative to previous versions, it now involves more overshoot and hence more uncertainty. Emissions over the past five years have not fallen in line with our previous 1.5°C pathways, and we have instead continued to exhaust a limited carbon budget. As of 2026, there are around two years of current emissions left before this budget will be spent. What's more, temperatures exceeded 1.5°C for the first time in 2024, although individual years with temperatures exceeding the threshold do not mean that the target, which is based on an average over an extended period (currently between 1.34-1.41°C depending on measurement approach (World Meteorological Organization, 2025)), is out of reach. These developments do not necessarily mean that the goal has become impossible: in fact, many 1.5°C scenario pathways – including ours – involve some degree of warming 'overshoot', where temperatures temporarily rise above the stated target, but are brought back down once emissions become net negative. Yet the more overshoot there is in a scenario, the more uncertainty and risk are introduced, both by relying more on negative emissions (this could be either from nature-based solutions or from technology solutions such as DAC) and by accepting a period of higher physical impacts from climate change – which likely increases the risk of so-called 'tipping points' in the climate system.

Perhaps more importantly, the range of plausible outcomes is narrowing, and we are optimistic about the world's chances of limiting global warming to below 2°C. Over the past 10 years, much emphasis has been placed on one central 'destination' for global emissions: that of net zero around 2050. This is what the IPCC has indicated would be required to limit global warming to 1.5°C with no or limited overshoot. Considering some of the evidence we have examined in this section, we are beginning to think that the key question is no longer 'where' we are heading, but 'when'. Our inaction emissions pathway has been revised downward for the third time in a row. Our outlook on EVs and renewables is very positive across all scenarios, despite some genuine and some overrated headwinds. The funnel of outcomes is narrowing, and the likelihood of a low-carbon transition continues to increase – but how fast will it play out? Will we reach net zero this century? What will this mean for warming outcomes? There are many unanswered questions, but one thing is clear: there remain many pathways to below 2°C outcomes, and there is cause for optimism. However, we do not think these targets will remain within reach indefinitely, as our caution on the 1.5°C pathway illustrates. The emissions curve may be bending – but it is not bending quickly enough to put us on track for below 2°C outcomes. Currently, the balance of positive developments and delay to decarbonisation is somewhat stable, and the costs of a transition have not increased materially since version 2 of our scenarios. Yet we don't think this will continue forever: action is needed sooner rather than later.

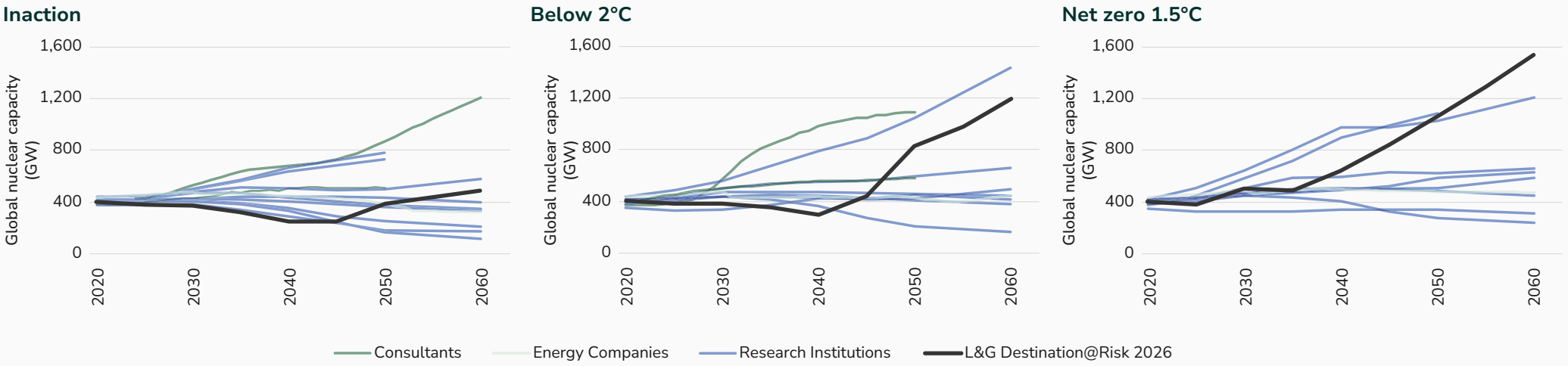
Third party: spaces between providers

We believe there is value in comparing our scenarios to those from third-party providers to examine where consensus is emerging, and where uncertainty remains high. We benchmark our pathways extensively against the IEA, the Network for Greening the Financial System (NGFS), scenarios submitted to the IPCC for AR6, consultancies, energy companies, and various others. Given that scenarios are explorations of plausible futures, different modellers will often come up with very different answers to how a specific temperature outcome could be achieved. Some may want to explore the potential impact of nascent technologies, while others (like us) prefer to rely on proven options. Approaches to projecting future cost pathways can also vary considerably. Comparing our findings to those of others helps us challenge our own assumptions and ensure we are aware of and comfortable with any key areas of divergence. It also helps us understand where a consensus may be emerging and where areas of greatest disagreement (and hence uncertainty) lie.

One key area of divergence is the narrative around delayed scenarios, where we deliberately explore a more disruptive pathway. We observe that few providers explore 'delayed' pathways – out of the sources examined, only the IPCC and NGFS include delayed narratives. We have included a delayed pathway since version 1 of our scenarios and continue to believe there is value in trying to model how a system would adapt if forced to decarbonise later and make up for lost time. Of course, by pushing action out by 10 years, to 2035, we accept that this is a pathway with a lot of inherent uncertainty – possibly more than one where deep emissions reductions begin today. However, it's also one we find compelling given the lack of comprehensive global action to date. Our delayed below 2°C scenario features a global emissions reductions pathway that is faster and deeper (after the initial delay) than most comparable narratives from third parties. As a result, our scenario also involves higher carbon prices and more damage to the economy. Given there are fewer delayed pathways, and they mostly start action in 2030, we focus on other narratives for the charts in this section.

Another is around nuclear power generation, where we see the potential for a late nuclear renaissance in Paris-aligned pathways, driven by rapid deployment in Asia and cost normalisation in developed markets. Ageing fleets in Europe and North America, coupled with high-profile cases of cost overruns on new developments do not offer positive portents for future nuclear build-out. We believe that future growth in nuclear capacity will be driven by Asia, where cheap Chinese reactor costs can translate into competitive return profiles. In the inaction scenario, this growth will be relatively moderate and only sufficient to replenish the capacity lost globally from retirements in developed markets. However, in our below 2°C and 1.5°C pathways, not only do we think there could be significantly more growth in Asia we also think that with the proper policy support, capacity could see moderate growth in Europe and North America in the 2040s. The chart below shows that there is a large range of scenarios for global nuclear capacity development across all main scenario narratives, indicating that there is not yet much consensus around the potential future of nuclear.

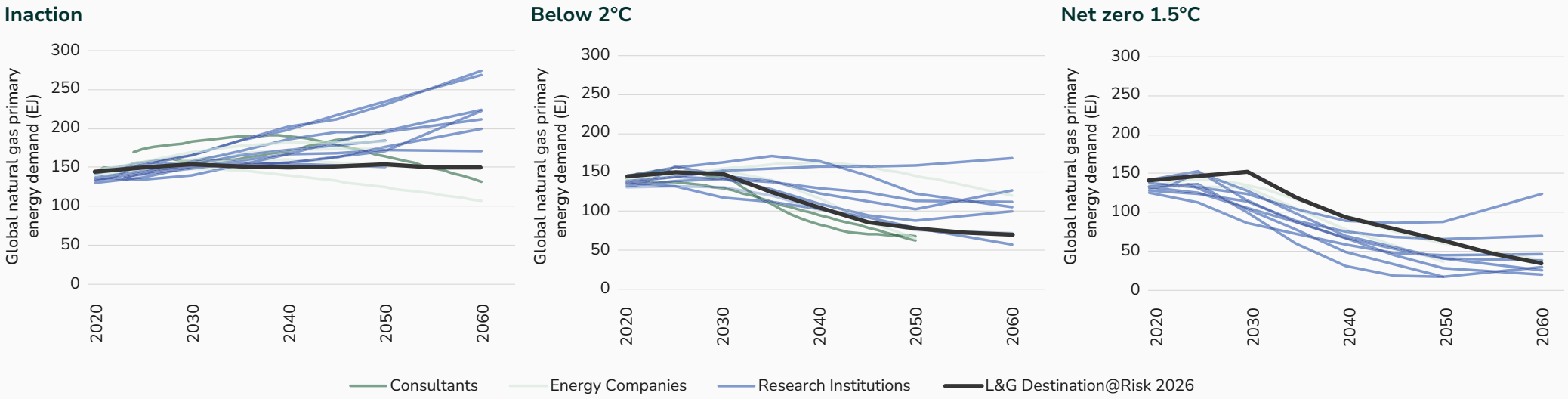
Nuclear Capacity



Source: L&G Destination@Risk analysis, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

We observe significant uncertainty around gas demand in inaction scenarios, but consensus is emerging around demand declines in Paris-aligned scenarios. Gas demand has been one of the most disagreed-on variables in climate scenarios for many years. We can still observe this across inaction pathways: at the extremes, there is a pathway projecting a doubling of demand to 2060, and another that sees demand fall by around 20%. Most inaction scenarios are somewhere in the middle, but no clear narrative emerges. A few years ago, we may have seen a similar dispersion for below 2°C pathways. This is no longer the case: it is becoming clear that demand for natural gas is likely to decline significantly in Paris-aligned scenarios. For below 2°C pathways, demand reductions range from 10% to nearly 60% over the period 2020-60. For 1.5°C pathways, the picture is even clearer: many scenarios foresee a reduction in demand of at least 70% over the same period. Yet the road to these outcomes remains uncertain: some Paris-aligned scenarios (like ours) imply some demand increase to 2030, while others see a more immediate decline.

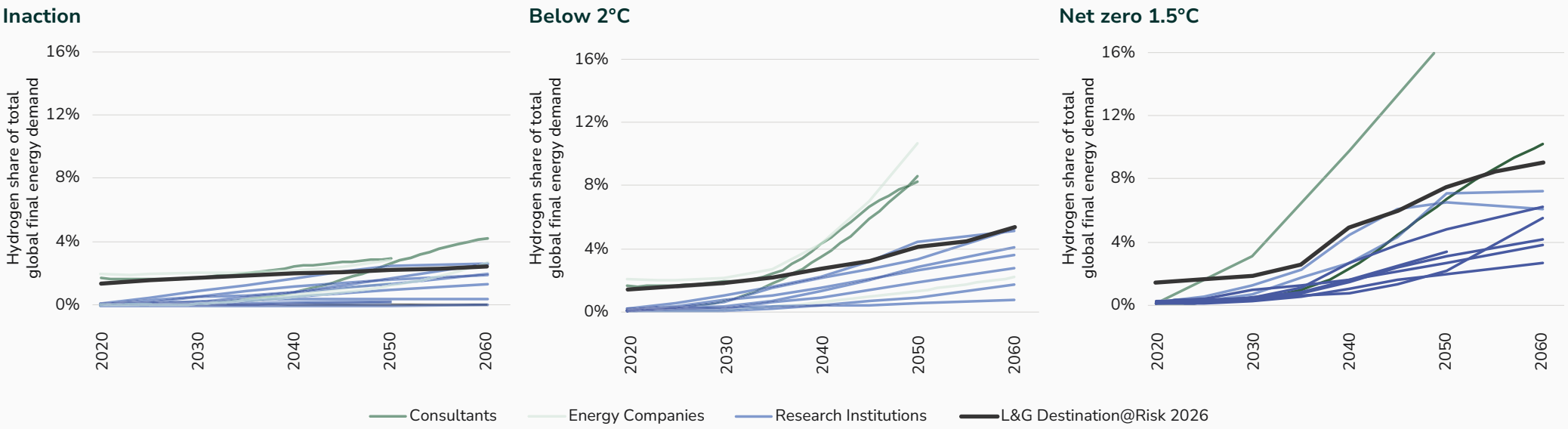
Gas total primary energy demand



Source: L&G Destination@Risk analysis, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

For less mature technologies, like hydrogen and carbon capture and storage, the range of potential pathways is naturally larger. Not all parts of the energy system can be decarbonised by electrification. Some, like shipping and steelmaking, may need to rely on alternative fuels like hydrogen for emissions reductions. Others, like cement, where chemical reactions during production produce so-called 'process emissions', may additionally need to capture and store some of their emissions. Neither low-carbon hydrogen nor carbon capture and storage have been deployed anywhere near the scale they may be needed for a global energy transition. Nevertheless, many climate scenarios envision a large role for these two levers, though there is considerable disagreement over how large. Across the Paris-aligned pathways we examined, the share of hydrogen in total final energy consumption in 2050 ranges from less than 1% to more than 15%. Similarly, the amount of carbon captured and stored in Paris-aligned scenarios ranges from around 2Gt (equivalent to Russia's annual emissions in 2024) to almost 15Gt (more than China and India's emissions today, combined) in 2050 (Our World in Data, 2025). What complicates benchmarking of hydrogen demand pathways is the different ways in which providers are accounting for current (also called 'conventional') hydrogen – some include this in their total demand figures, others do not. We have included it, so our pathway in the Inaction shows the conventional hydrogen demand trajectory, whereas any uplift in decarbonisation scenarios is from novel uses of hydrogen.

Hydrogen share of total final energy demand



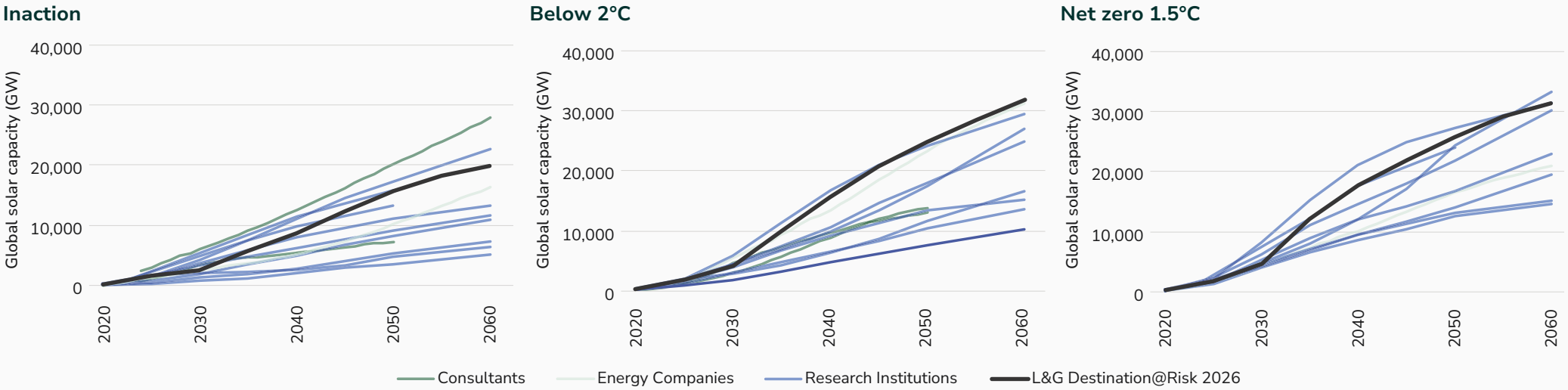
Source: L&G Destination@Risk analysis, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

With every subsequent iteration of our benchmarking, we have seen scenarios revise up their solar projections. It is not just our expectations that were outperformed by solar growth in recent years. We have been benchmarking our scenarios against third parties since version 1, so we have some idea of how others' estimates have evolved through time as well. One of the key observations is that most providers have been revising up their solar estimates in each iteration, responding to the same data we have been. Nevertheless, the range of potential solar deployment pathways remains large, reflecting the persistent uncertainty in projecting a variable that is currently growing exponentially. Estimates range from less than 15,000 GW capacity in 2050 to more than 27,000 GW in net zero narratives. The range for inaction pathways is even larger, extending from around 5,000 GW to over 20,000 GW by 2050. This is perhaps not surprising: in projecting an exponential growth trajectory, small changes in assumptions can greatly affect the outputs.

Great expectations: summary

In recent years, differences in views between political parties over climate and net zero targets have led to doubts that there will be an energy transition. Parties globally are increasingly divided on how (or whether) to approach climate change and the energy transition. Critics of climate action often point to higher costs to the consumer and lack of coordinated global action invalidating ambitious national targets as key reasons for a potential shift. Tied to this, setting national emissions targets based on how much is emitted within a country's borders, rather than the emissions associated with what is consumed within a country's borders, may have limited impact on global warming overall. There are many areas where the world seems to be moving backwards on climate: the US has once again withdrawn from the Paris Agreement, hopes for binding commitments to fossil fuel phase-out at COP30 remained unrealised, and China and India continue to build more coal power plants.

Solar capacity



Source: L&G Destination@Risk analysis, as at February 2026. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Yet a key emerging conclusion from our scenarios is that the days of extensive coal, oil and gas use are likely to be limited – with the question being 'when' not 'if'. The outlook on fossil fuels from our scenarios couldn't be clearer: their use is going to decline significantly, though timing does vary depending on the strength of climate action. Both coal and oil demand would decline even in the inaction pathway, while gas demand would remain relatively stable. In the three Paris-aligned scenarios, demand declines are rapid and extensive: by 2060, coal falls by almost 90%, oil and gas by at least 50%. Of course, there is some variation between the pathways, but the overall direction has become significantly clearer over the past few years. The precise timing of each fuel's peak is less critical than the fact that demand growth will cease, which could have destabilising effects on markets. It also places the energy industry in a challenging position: substantial investment is still needed in the short term to meet growing demand, but long-term prospects are increasingly negative.

As a result, we continue to believe that, on balance, there are more positive than negative developments. In 2024, renewables represented 90% of new power additions (IRENA, 2025) and one in five new cars sold were battery electric (IEA, 2025). The UK closed its last coal-fired power station in October 2024, and Chile closed half of its coal fleet within five years (Climate Action Tracker, 2025). Over the years, our long-term outlooks have increasingly become reliant on technologies already in use today, and consensus is emerging around a significant decline in demand for fossil fuels. While countries have shifted on their commitments to climate action, some low-carbon technologies have become cheaper or more useful than their fossil fuel-powered counterparts. They may also be serving national interests in other ways, including by reducing reliance on fossil fuel imports and contributing to greater energy security, or by helping new entrants into previously difficult-to-enter markets, such as the automobile industry. There is an energy transition underway. What remains to be seen is how much more it can achieve without collective action – and what the physical consequences will be.

What we know about what we don't know

Not all sources of uncertainty can be captured in scenario modelling.

Uncertainty is an inevitability when thinking about long-term pathways – to better understand its implications, we think about different types of unknowns. Known unknowns are the 'shallow' types of uncertainty that we are aware of and can make informed assumptions about. Examples include pathways for GDP, population and service demand levels, behaviour change (such as dietary preferences), and technology cost reductions. Unknown unknowns are the 'deep' sources of uncertainty which we know little to nothing about, such as the impact of artificial intelligence (AI), future geopolitics, and so-called tipping points. Some of these we can try to understand qualitatively, but they would likely be difficult to incorporate into our scenario modelling given the extent of uncertainty involved. We would have to make assumptions based on very little data, casting doubt on the insight produced by any outputs. Instead, we dedicate some space in this section to thinking through how these may manifest and identifying the key developments to watch.

Shallow uncertainty

Our approach to technology inclusion in the scenarios is to focus on those that have reached at least industrial-scale pilot stage, to avoid relying on unproven solutions. When publishing our scenarios, we inevitably (and understandably) receive a lot of 'what about…?' questions regarding novel technologies receiving a lot of media attention. What about direct air capture, what about solar geo-engineering, what about nuclear fusion? For version 3 of our scenarios, we focus on technologies that have been proven in an industrial-scale pilot project. Direct air capture is such an example, with three plants worldwide currently capturing 1,000 tCO_2 or more. While solar geo-engineering and nuclear fusion are potentially transformational, they have not been proven even in pilot projects, so we lack information on their cost and availability. We prefer to explore what can be achieved with those options likely to be available within the next 5 years and monitor emerging solutions for potential future inclusion. As an example of a technology we have removed from our scenarios based on this rule, we no longer allow hydrogen production from bioenergy and CCS, which, while all its main sub-processes are technologically mature, has not yet been demonstrated as an integrated operation at relevant scale (IEA Bioenergy, 2025).

One of the known sources of uncertainty around the energy transition is the growth in future energy service demand, particularly in emerging markets. To assess how the energy system can meet demand, we must first estimate how much demand there is going to be. Energy service demand is the demand for energy from processes that produce services such as kilometres travelled, tonnes of steel and cement, and homes heated. Some commentators point to emerging economies, where demand for these services is expected to increase significantly over this century, as potential blockers to an energy transition. The argument is that growth in population and wealth will drive rapid growth in energy demand, and that this would be most cheaply met by fossil fuels. All our scenarios rely on the same population and GDP pathways to underpin future energy service demand. These foresee population rising from around 8 billion in 2020 to around 10 billion by 2060, with Sub-Saharan African (SSA) population more than doubling over that period; and GDP growing by a factor of 2.6 globally, and a factor of 6 in SSA (from 2020 to 2060). We build our outlooks for energy service demands on our understanding of historical relationships between income, population and demand, and industry-specific research on future trends. These are also scenario-agnostic, meaning all our scenarios, regardless of decarbonisation objectives, must meet the same levels of service demand – which in some regions, including SSA, grow significantly to 2060.

Our scenarios illustrate how temperature outcomes could be achieved without lowering consumption – by meeting the same level of demand more efficiently. Options to reduce overall consumption demand include increasing circularity for steel and cement, ride sharing and autonomous vehicles, electricity demand response, among others. However, our general approach to climate scenario modelling is to test what is required for there to be no impact on consumption levels relative to Inaction. This is because the methods and costs for reducing demand and, more generally, behaviour change, can be difficult to capture in the model context, potentially resulting in scenarios that look easier to achieve than they would be. There are two cases where we allow demand substitution (as opposed to overall reduction): one is that we allow some modal shift from short-haul aviation to rail; and the other is that we allow some diet substitution towards plant-based calories as meat gets more expensive in scenarios with carbon pricing.

Of all inputs to our scenarios, the most impactful are likely to be our assumptions around future technology costs and deployment trajectories. As we have highlighted throughout this paper, the speed and scale at which solar can be deployed is perhaps the single most impactful lever in our scenarios. Its growth over the past quarter-century has been exponential: from providing 0.15% of total electricity generation in 2010 to almost 7% in 2024 (Our World in Data, 2025). It's clear that the potential role of solar in the energy system is enormous, but how do we go about projecting deployment? As we have shown throughout this paper, we have got this wrong in the past – and inevitably the actual pathway will look quite different from our new scenarios, too. Nevertheless, to develop our scenarios we must think about what a realistic pathway could look like, and we have included the most recent evidence in the process, including resource availability, latest stock figures and costs, and the relationship between economic output and solar spending.

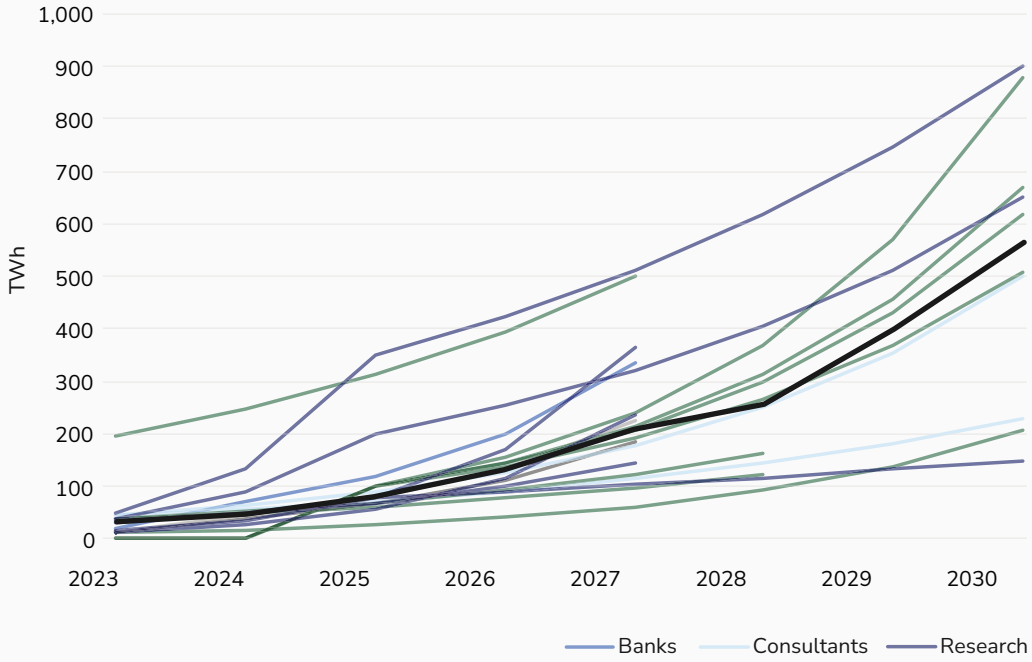
Deep uncertainty

There are many potential sources of deep uncertainty in long-term climate scenario analysis, where attempts to systematise and quantify prove especially challenging. These could act in different directions – technological breakthroughs could accelerate the transition, geopolitical movements could disrupt pathways, or physical impacts could be amplified. Here we explore a few of these sources thematically but acknowledge that we cannot cover the span of unknown unknowns. We think such sources of deep uncertainty are best reflected in exploratory studies or sensitivity analysis rather than scenario analysis, where we prefer to focus on plausible pathways rather than extreme tail events.

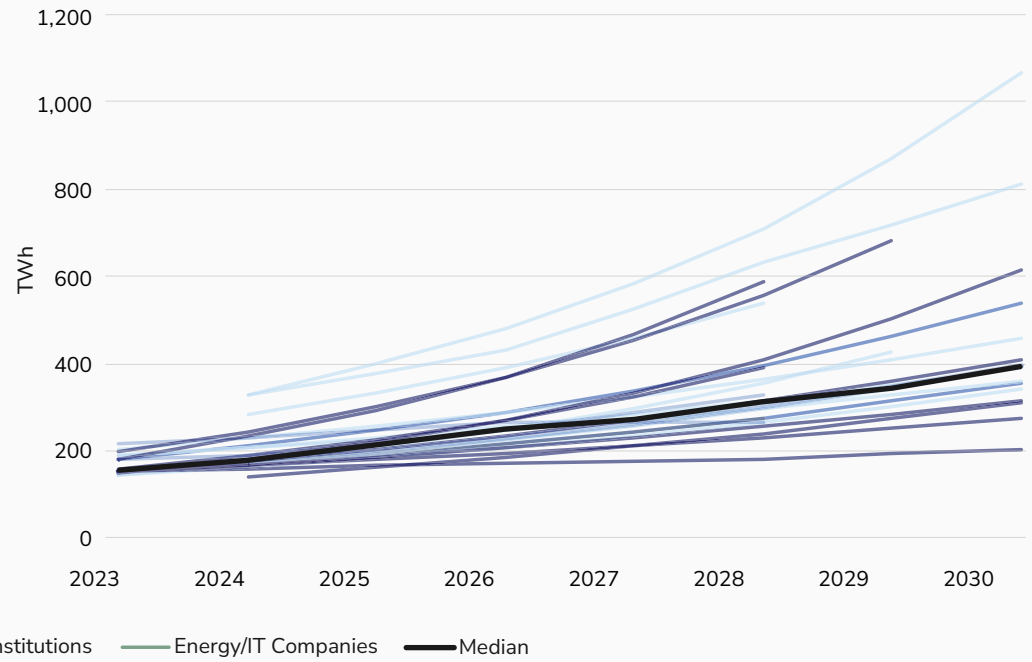
The AI megatrend is a key source of uncertainty in long-term forecasts. Both AI and the energy transition are driven by exponential technologies: their interaction could be profound over the medium and long term. AI is a classic example of an unknown unknown beginning to crystallise, as AI and data centres were scarcely discussed in climate scenarios from any providers a few years ago and did not feature in our prior whitepaper, but is now a popular topic at many energy and climate conferences. This demonstrates the broader point of deep uncertainty – we cannot know what will move the landscape over a three-year window, let alone 35 years.

On AI, we take a pragmatic approach by accounting for existing data centre energy demand but not explicitly modelling the potential expansion, given uncertainty and poor data availability. To focus on the first-order, near-term power demand impacts only would be a one-sided approach when the net direction of AI impacts remains unclear. Our scenarios are conditioned on the world broadly as it is today, with the range of proven technologies we already see. Nonetheless our forecasts do incorporate some degree of techno-optimism – we project continued improvements in energy efficiency and technology learning curves. These improvements may be aided by AI innovations as a key factor behind continued cost reduction. Similarly, our positive view of nuclear is not explicitly linked to AI but could be consistent with hyperscaler sentiment shifts here. This is a fast-moving space, so we proactively monitor AI and its interaction with the energy transition, highlighting some of the possible trends below.

Global AI electricity demand



US datacentre (AI & other) electricity demand



Source: Kamiya & Coroama, 2025. **Assumptions, opinions, and estimates are provided for illustrative purposes only. There is no guarantee that any forecasts made will come to pass.**

Near-term AI inputs dominate the view, driving rising electricity demand in specific regions. Compute requirements for both training generative models (like ChatGPT or Gemini) and for inference (using these models to generate responses) are growing rapidly. Data centres require concentrated, dispatchable power and this trend is driving much of the load growth in the US, as well as fuelling capacity buildout in China and the Middle East. Forecasts to 2030 vary widely due to differing assumptions about model size, efficiency, deployment rates and potential bottlenecks. When focussing on AI demand as a subset of total data centre demand - estimated at ~22% in 2023 and expected to rise – projections for 2030 global demand span from 150-900 TWh/yr across organisations and scenarios (Kamiya & Coroama, 2025). Average estimates for demand growth would imply an increase from 0.1% in 2023 (33TWh/yr) to 1.6% in 2030 (560TWh/year) expressed as a share of global electricity demand in our Inaction scenario. Whilst these proportions are relatively small, total data centre demand share for some regions can be significantly higher - in the US, average estimates rise from 2.2% in 2023 (150TWh/yr) to 4.6% in 2030 (390TWh/yr) as a proportion of our North American electricity demand in our Inaction scenario. Familiar debates from energy circles are increasingly common in this new context – will efficiency gains from algorithmic innovations help offset demand increases, or will cheaper models drive broader usage? Will this new source of demand cannibalise renewable energy for other end uses, or could the AI race and power bottlenecks act as a critical pull factor in the deployment of new nuclear or advanced geothermal? The demand implications over a multi-decade horizon are challenging to foresee.

Over the medium and long-term, AI outputs compound uncertainty. We cannot just focus on the first order power demand; the impacts of distributed intelligence could compound across sectors. On the upside, AI could contribute to climate solutions via systemic efficiency– the IEA explore a Widespread Adoption Case of known AI applications, indicating potential energy savings of 8% in light industry and 20% in transport by 2035 (IEA, 2025). There is also potential for discrete breakthroughs, as AI could accelerate material discovery and potentially yield battery or solar innovation with profound climate benefits. But there are countervailing effects too: AI is being used for oil exploration and to improve oil recovery rates which could drive up emissions. Over the longer-term, AI introduces deep uncertainty; it is widely viewed as a general-purpose technology that could transform activities across all sectors and reshape our world.

Other technological breakthroughs could materially shift pathways yet remain too speculative for inclusion in our scenarios. There are a range of emerging technologies which could interact strongly with transition pathways and potentially be accelerated by AI. On the solution side, enthusiasts point to advanced geothermal and fusion as routes to low-carbon baseload power. For example, startup Helion announced a PPA with Microsoft for deployment in 2028 and has a long-term goal to deliver power prices of $0.01/kWh (Helion Energy Articles, n.d.), If such technologies could be deployed at scale, abundant cheap power could fuel carbon capture and reshape our climate future. Similarly, discussion of solar geoengineering - efforts to manipulate atmospheric conditions to limit warming – has moved from the fringes into mainstream debate. However, profound ethical, governance, and risk concerns mean it remains highly controversial.

On the demand side, emerging technologies could also reshape consumption patterns over the long-term, with implications for carbon projections. In the digital sphere, blockchain technologies like cryptocurrencies are increasingly important, contributing 0.5% (c.125TWh) of global electricity in 2023 (IEA, 2025). However historic mining levels have been volatile, and future adoption is highly uncertain. Efficiency improvements could also be transformative: for example, Ethereum* – the second largest coin by market cap – reduced its electricity demand by >99% in 2022 through a change to its mining mechanism (Etherum.org, 2025)). In the physical world, wide-scale robotic innovation and deployment could drive up demand for power and commodities – our scenario modelling does reflect the electrification trends in general industry and transport which help drive decarbonisation, but we do not attempt to reflect novel products and services here. Consistent with many other scenario providers, we exclude these technologies from our core framework due to their immaturity and deep uncertainty. Nonetheless, we acknowledge that breakthroughs in these areas could significantly alter the long-term trajectory of the energy transition.

Systemic model challenges also generate uncertainty, with discussion of tipping points becoming more prominent in the climate community. These refer to thresholds where a small additional change triggers a large systemic change. These are non-linear changes driven by self-reinforcing feedback and are often irreversible. There is deep uncertainty in the timing and impact of such tipping points, but there is high confidence on directionality. This is a significant challenge to our modelling paradigm where we seek to define long-term pathways across five-yearly windows.

Physical tipping points could span multiple Earth systems and are difficult to predict due to limited historical data and the complexity of non-linear feedback. Climate scientists warn of cascading dynamics across cryosphere (ice and snow), biosphere (living organisms), and ocean–atmosphere systems, with a range of confidence intervals over which tipping points could be crossed. Several systems likely have tipping points around 1.5°C with more around 2°C (University of Exeter, 2025). In the cryosphere, there is high confidence in warming tipping points that could cause dramatic sea level rise if breached. In the biosphere, warm water coral reefs experienced the worst bleaching event on record in 2023-24 and have already crossed the central estimate of their thermal tipping points. In ocean and atmospheric systems, collapse of the Atlantic Meridional Overturning Circulation (AMOC, a large-scale system of ocean currents in the Atlantic) could lead to prolonged severe winters in northwest Europe and threaten global food and water security. Whilst some physical tipping points could have limited positive effects (such as greening in high latitudes) most carry severe risks for ecosystems, economies, and societies and can themselves interact, tending to increase risk. These dynamics are highly uncertain and not represented in our scenarios but could significantly magnify the cost of inaction or delay. They also increase the risk of overshoot scenarios, in which temperatures initially exceed a target before being brough within the limit, such as our current 1.5°C pathway.

Transition tipping points exist within human systems and can act as transition accelerators. They arise when positive feedback mechanisms overwhelm stabilising factors: drivers can be policy, market forces, or consumer sentiment. Arguably such tipping points have already been reached for mature transition technologies like solar globally and for EVs in some regions. Our modelling incorporates regional S-curves to capture deployment acceleration, but real-world shifts could outpace these assumptions. Importantly, physical and transition tipping points may interact, as extreme climate events could catalyse abrupt policy shifts, while accelerated transitions could mitigate the likelihood of crossing dangerous physical thresholds.

Sources of deep uncertainty could act in different directions, but uncertainty does not justify inaction. We acknowledge that there are many potential dynamics and pathways which we do not explore in our scenarios. But this should not invalidate our scenarios or overall view, which is that decisions should be robust to different pathways, and a precautionary principle should prevail. Investors and policymakers should be prepared for both gradual change and sudden shifts, recognising that the energy transition will be shaped by both the risks we can measure and those we cannot. We live in a highly uncertain world – so should remain alert to emerging trends that could reshape the transition landscape.

Implications for investors

The energy transition materially changes the competitive landscape, so we believe investors need to think about long-term implications and get comfortable with uncertainty.

Throughout this paper we have attempted to dispel two misunderstandings about the energy transition, including a pessimism that there will be a transition, and a fundamental discomfort with uncertainty over its potential course. We have shown that overly focusing on short-term dynamics may be detrimental to a longer-term view of the energy transition, which could impact long-term value creation and risk mitigation. The evidence that this transition is happening is clear: not only are solar, wind and EVs deploying at speed, they are likely to continue to do so without any further policy implementation. This is narrowing the range of outcomes of our scenarios, with the inaction scenario now resulting in a lower global emissions trajectory than ever before. Yet there are also many variables that continue to show a lot of variation across pathways, and across scenario providers, including less mature technologies like CCS and hydrogen. There are also some sources of uncertainty that we lack good data to quantify, such as the impact of AI and the potential risks from physical and transition tipping points. As a result, there remains a lot of uncertainty around how the transition may play out. However, we believe that scenario analysis is a very useful tool in helping us understand the investment implications of this uncertainty.

For us as investors exercising our fiduciary duty, tackling these misunderstandings will involve several key questions, including:

- How can short-term dynamics be reconciled with sometimes opposing long-term trends?
- How should we engage with companies using our scenarios?
- How can we manage uncertainty surrounding climate outcomes in our decision-making?

We do not think we have perfect answers to these questions – but our long-term commitment to scenario analysis has allowed us to spend a lot of time thinking about them. Getting scenarios from third parties and thinking about their implications is a very useful exercise. But developing them in-house and seeing first-hand the trade-offs between different technologies, the potential for regional divergence, and the limitations of the available models, has allowed us to develop an even deeper understanding of the landscape. In this section, we share some of the key investment-relevant insights we have gained through this work.

While markets may be prioritising short-term returns, investors should also recognise that the energy transition creates significant opportunities and risks in the medium and long term. Short-term developments may be effective signals of long-term trends – or in some cases they may be explicitly contradictory. By stepping back from the 'here and now', we believe that investors can better anticipate structural changes that will redefine value, especially as demand for fossil fuels may remain robust in the short term before declining in the long term. This tension between short-term demand and long-term decline is particularly evident in sectors like oil, where near-term profitability can mask underlying risks related to stranded assets and regulatory changes. Maintaining a long-term perspective, therefore, becomes essential in safeguarding capital and seizing new growth opportunities. For many companies, investing in low-carbon opportunities may reduce margins over the short to medium term. However, doing so now could result in structurally higher earnings across many plausible pathways, particularly those with significant expansion in carbon pricing mechanisms.

> "By stepping back from the 'here and now', we believe that investors can better anticipate structural changes that will redefine value."

In engaging with companies and exercising our fiduciary duty, we use our scenarios to assess resilience and encourage alignment with global climate targets, without prescribing a specific pathway. A core challenge for active investors is how to engage with companies when the path ahead is obscure, and there may be a range of plausible outcomes. Rather than prescribing an exact pathway companies should align with, we think it is worthwhile asking them: Are there opportunities to reduce emissions while positioning your company for long-term success which your competitors are not taking advantage of? Are you prepared for the risks associated with different pathways, and can you aim to effect change while also addressing your risk exposure? We encourage companies to recognise and act on their impact in the broader system, with the objective of achieving the targets of the Paris Agreement – without insisting that they follow exactly the scenario pathways that we have set out in this paper. However, the pathways we have developed do help us identify where companies' actions may be posing a risk to their future profitability due to misalignment with plausible decarbonisation pathways.

Large, listed companies' actions are not taken in a vacuum – in combination, they can have significant impact on the overall outcome we head towards. Our analysis indicates that a delayed transition is likely to be significantly more costly to the economy than one that starts as soon as possible. This is because the longer we wait to commit capital to decarbonisation, the longer we continue to emit and – even though many transition technologies are becoming cheaper – the more we will be forced to rely on carbon removal technologies, and the higher the potential physical impacts from temperature overshoot. Based on our analysis of corporate emissions data, listed companies account for around half of global GHG emissions – meaning the potential for impact through engagement is significant.

Across all pathways, investment in adaptation will be crucial, as physical risks are unpredictable and could be larger than anticipated. The narrowing of plausible temperature outcomes does not mean that physical climate risk has become less of a concern. In fact, the IPCC's long-term climate risk assessments were revised upwards significantly from 2014 to 2023, and it now expects risks to be higher for lower levels of warming (IPCC, 2023). In all our scenarios, warming continues to rise until at least 2050 (although temperature trajectories begin to diverge within the next decade), with the 1.5°C scenario involving some overshoot of the target before temperatures stabilise. Given that every additional degree of warming is likely to intensify physical impacts and may trigger irreversible tipping points in a complex climate system, these conclusions imply that no matter what path the world ends up taking, adaptation to the impacts of climate change will be essential.

At the same time, we believe addressing climate change through the energy transition is consistent with targeting outsized returns over the long-term. Given our conviction that an energy transition will take place, we think investors, as part of their fiduciary duty, should encourage companies to take the necessary steps now to prepare for the key structural shifts taking place. Reduce reliance on fossil fuels, embrace electric mobility and renewables, and consider what other steps can be taken to reduce exposure to carbon pricing risk. At the same time, consider the opportunity: where can existing expertise be usefully employed to bring about change? How might quicker action represent a clear advantage against competitors, for example, by capturing additional market share, securing access to lower-cost capital or widening available profit margins?

As long-term investors, we have come to understand that if we are to try to have impact through our choices, we must engage with companies across the spectrum of climate strategy-integration. As previously mentioned, the world is currently not on track to meet the Paris accord's target of limiting global warming to well-below 2°C, ideally 1.5°C. There are some companies that defy this trend and show not only ambitious decarbonisation targets, but a history of decarbonisation. If we only invested in these types of companies, we could claim to be 'Paris-aligned' today – but it is unlikely that we would be able to have much additional impact on their strategy. Instead, we continue to believe that investment stewardship is a powerful tool, that, when effective, can cut to the heart of value creation. As a universal owner, exposed to an array of macroeconomic and systemic risks, active engagement – including with companies that are not currently doing very well on integrating the energy transition into their strategy – is an indispensable tool for us to seek to address these risks for our clients.

Uncertainty should not paralyse us, instead, we should use the tools we have available to separate the signal from the noise. The energy transition landscape is shaped by a multitude of factors – technological innovation, policy changes, geopolitical developments, and shifting societal expectations – that can act in various, and sometimes conflicting, directions. Scenario planning is not just a tool for imagining alternative outcomes – it compels investors to challenge their assumptions and to consider the consequences of both action and inaction. We recognise that it is not possible to perfectly prepare for all possible outcomes. However, reflecting on what a plausible outcome space may look like, and preparing for the potential repercussions while remaining flexible to changing environments, are all sensible steps to take in building resilience.

In this paper we have made three main arguments:

(1) Investors should not be asking if there will be a transition to a low-carbon energy system – we should instead be asking when this transition will take place, and how fast it will be

(2) Investors should not let short-term noise distract them from the structural dynamics likely to drive long-term value creation

(3) The significant uncertainty in this area is not unmanageable – and can be managed through the analytical tools at our disposal, such as scenario analysis

The transition to a low-carbon economy will not be linear, and there are likely to be bumps in the road. It may take longer in some sectors than we anticipate today, but it may also be a lot faster in others. The signs are pointing in a clear direction: the energy transition has already begun, and it will have transformational implications for investors. It is essential that investors consider this structural transformation in their decision-making – but we need to embrace uncertainty and look beyond the next few quarters' earnings seasons.

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