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Progress and peril on the road to net zero

The path to decarbonization is uneven and daunting, but we have the capacity to spur change.

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This was always going to be hard.

Reaching net zero, a state in which our global systems emit only as much carbon as they can absorb, will be the biggest collective action humanity has ever undertaken. After all, 84% of the world's energy still comes from fossil fuels. Achieving net zero will require a full rewiring of the global economy.

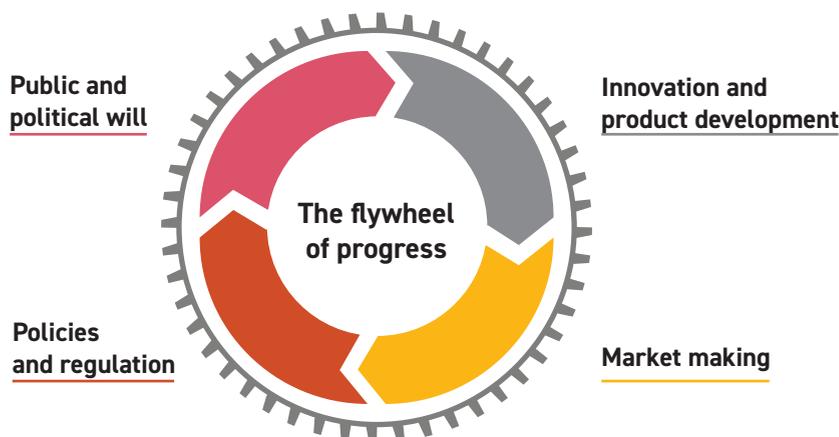
When our PwC team was at the COP26 climate summit recently, a Glasgow taxi driver said to us, “No one can imagine how differently we'll all be living in 10 or 15 years.” He's right. So much has to change. In 15 years, the taxi he'll be driving will likely be an electric vehicle, as per the UK's policy. More broadly, there will be vast changes in the ways we work, play, eat, move around, power our lives, and make and use things—because all of these activities generate greenhouse gas emissions. And if we are to meet the aggressive targets the world has set to reduce emissions, all of these activities have to be transformed.

How can we start to unpack the vast transformation that is needed across our society and economy? It's not about a single magic bullet, a single technology, or even a single stream of work. Rather, we think action is needed in at least four interconnected areas to spark the chain reactions of change that can build upon one another, create momentum, and propel us more rapidly on the path to net zero:

- We need *innovation and product development* to make green options feasible, affordable, and appealing. In fact, the International Energy Agency predicts that roughly half of our improved carbon efficiency in energy by 2050 will use technology that exists now only as prototypes.

The flywheel of progress

Four interconnected areas combine to create a flywheel that can energize the world's transition to a net-zero future.



Source: PwC

- We need to *make functioning markets* where business can exercise its creative power to deliver a green transition at speed. This means making sure myriad elements such as financing, infrastructure, demand, and aligned incentives are in place.

- We need government *policies and regulations* to incentivize actions aligned with net zero and to provide the clear market signals business requires in order to act and invest with confidence.

- We need to build and maintain *political and public will* for deep change. To maintain the world's will, we must deliver a just transition, managing the social and human impact with compassion for all people and nations. We must recognize countries' differing abilities to make this transition, and the need for feasible green options if countries are to reach net zero while maintaining their people's livelihoods.

The good news is that positive change in any one of these areas amplifies positive change in others, **speeding the "flywheel" of progress** and moving us faster toward net zero. To turn impassioned calls for action into real change at scale, we need both the public and the private sectors to exercise their full power to create systemic change in these areas.

The flywheel is a useful framework for taking stock of some of the ways we are gaining momentum, and some of the ways we need to work harder. Below, we look at each part of the flywheel in turn. We note major areas of progress—i.e., where we are gaining momentum. We also note major areas of peril—i.e., where there are obstacles to progress, sources of friction, or causes for concern. Finally, we offer ideas for what we need to do to accelerate the process.

We focus on outcomes of COP26 as the recent defining event on our path to net zero. But many of the issues discussed here transcend COP26 and will define the future leadership agenda for achieving net zero. Our purpose is not to document every climate initiative, but rather to pull out major themes that represent progress or peril. For brevity, we cite each theme of progress or peril only once. (Many could easily be cited in multiple parts of the flywheel; after all, the parts of the flywheel are deeply interconnected.)

INNOVATION AND PRODUCT DEVELOPMENT

Progress

Action to make green tech and clean energy feasible and affordable. Momentum is building to get the breakthroughs we need. For example, the Glasgow Breakthroughs coalitions aim to make clean technologies the cheapest and most accessible option globally in some of the most hard-to-abate sectors (energy, agriculture, road transport, steel) and to make clean hydrogen “affordable” and “globally available” by 2030.

Market signals to fuel innovation and investment. From COP26’s many specific declarations to its overall effect as a demonstration of the world’s seriousness, the summit sent strong market signals that clean initiatives can be good investments and demand for them is rising.

Growing recognition of the need for combined public-private efforts. Some have called COP26 the “business COP,” because of the increased attendance of business leaders and the flurry of business-led declarations to take action toward net zero. The need for initiative from **both government and business**—and the mutually reinforcing effects of their actions—are increasingly recognized. Business commitments to decarbonize—in carbon-intensive sectors like agriculture and

infrastructure, and others—will have powerful amplifying effects as these commitments radiate through supply chains.

Peril

The lack of many feasible green alternatives, which inhibits our ability to transition. Plans to deliver green options are great, but we need results. Without feasible, scalable green options from aviation fuel to steel, the political reality is that companies and countries will struggle to scale up their decarbonization efforts. For example, it was challenging for some countries to join COP26's range of carbon-reduction pacts (such as the pact to wind down usage of coal) because workable alternatives weren't available that would maintain their people's livelihoods or keep their systems running. As one COP26 delegate commented, "These countries can't just turn the lights out."

So we need to

Fuel an Apollo program of innovation. Governments can assist by funding early-stage R&D, and the private sector can apply its skills in innovation, product development, and distributing products to end users at scale. As [Bill Gates wrote](#) in *How to Avert a Climate Disaster*, there is a pressing need to overcome the "green premium"—the extra expense of no-emissions solutions compared with less environmentally friendly ones. When green options match or exceed dirty ones on cost, performance, and consumer appeal, they gain a potent economic logic. A trickle of adoption can quickly become a flood. Many economists argue that carbon pricing is [a key lever](#) to incentivize rapid development and adoption of low-carbon technologies.

MARKET MAKING

Progress

Increase in company commitment to and financing for net zero. The signatories of the [Glasgow Finance Alliance for Net Zero \(GFANZ\)](#) have agreed that the US\$130 trillion of private capital that they collectively support will be managed in alignment with net zero, amplifying the recent flood of money into net-zero-aligned investments. Our conversations with business leaders reveal a growing shift in

mindset from net-zero alignment as a defensive strategy to avoid regulation or reputational damage to an **offensive strategy for value creation**. This will further fuel the growth of net-zero-aligned markets.

Peril

Many obstacles inhibit functioning markets where companies can operate. Bureaucratic barriers, conflicting interests, lack of infrastructure, low demand, high risk, broken supply chains, absent incentives, and other market inhibitors can prevent companies from entering markets or operating in ways that ultimately reduce emissions. Chicken-versus-egg traps can snare businesses; for example, scaling up the supply of sustainable aviation fuel may not make business sense until demand rises, but demand may remain low until supply is available.

Companies must balance action on carbon reduction with other goals and demands. Business leaders must juggle sustainability imperatives with other strategic imperatives and objectives. PwC's new Annual Global CEO Survey (launching January 2022) explores the structural factors that encourage—or inhibit—the prioritization of emissions reductions by business leaders. And as a recent PwC study shows, investors are demanding action on ESG, but not at the expense of returns. While 79% of asset managers see ESG as an important factor in choosing investments, only 19% are **willing to take a hit** of more than 1% on their returns in service of achieving ESG benefit

Decarbonizing portfolios is not the same as decarbonizing economies. Investor action is a powerful lever to encourage decarbonization, but it is a lever with some limitations. We have a long way to go to achieve the consistent, trusted non-financial reporting standards we need to make investor action a more discerning, powerful instrument (see “Policies and regulation,” next page). And as PwC's **State of Climate Tech 2021** report shows, there is a clear mismatch between where investment is needed to reduce emissions and where investment is actually funneled (mostly into areas like mobility, where tech is already more advanced). Public company assets sold off for climate impact reasons can be purchased by other investors, blunting the intended effect of the sale. This underlines the need to consider whole-of-market macro solutions like carbon pricing that affect all companies regardless of ownership, and leave emissions nowhere to hide.

Building a broader conception of value that includes both financial and societal benefit will foster the understanding of net-zero alignment as an opportunity for value creation.

So we need to

Develop thriving green markets. Identifying and breaking obstacles to functioning markets unleashes the creative power of businesses. We can rapidly scale up the financing models, market mechanisms, infrastructure, supply chains, R&D, and the myriad other supports that business needs to enter and grow green markets. Building a broader conception of value that includes both financial and societal benefit will encourage greater investment, while simultaneously fostering the understanding of net-zero alignment as an opportunity for value creation.

Trusted non-financial reporting metrics and disclosures are necessary so that businesses can plan and measure their progress, and so that investors can reward performers accordingly. Carbon pricing should be considered, as it is a powerful market-based lever to incentivize action to reduce emissions in production and consumption, reward technological innovation, and fire up markets for low-carbon alternatives.

POLICIES AND REGULATION

Progress

Movement toward consistent policies, frameworks, and reporting standards. By delivering a framework for carbon markets and timeframes for countries to report their plans and progress, COP26 completed the rulebook for the Paris Agreement. And earlier in 2021, the International Sustainability Standards Board

(ISSB) was launched, tasked with creating consistent, trusted ESG reporting standards.

Peril

Numerous gaps in net-zero-aligned reporting, policy, and regulation. ISSB fired the starting gun for clearer ESG reporting standards. But the work to agree to global standards and achieve adoption by governments and regulators will be a marathon, not a sprint. Lots of work remains to settle on consistent standards for country-level emissions reporting, carbon-offset accounting, [emissions trading accounting](#), and for the accounting of emissions throughout the value chain (Scope 3 emissions).

So we need to

Rapidly solidify and implement net-zero-aligned policies, regulations, and reporting standards. “You’ve got business actually calling for regulation because they can see the risk and opportunity, and they need the framework to keep up with their ability to drive change,” says Emma Cox, PwC’s Global Climate Leader. We need to implement policies at the state and local level to set clear expectations and incentives for business. Agreed reporting standards will accelerate us toward net zero by creating transparency and accountability.

PUBLIC AND POLITICAL WILL

Progress

Global alignment that we need urgent action. Critics who argue that COP26 did not go far enough in its declarations miss the important symbolic role the summit played in signaling that the world is united and determined to reach net zero. The Overton window—the set of ideas that are commonly considered the norm—now clearly includes net zero as an urgent necessity. And our expectations keep rising. Though some would have liked stronger language than a pledge to “phase down” coal, this pledge marks the first time a COP agreement has explicitly targeted movement away from fossil fuels. It’s more and more possible to envision a new normal in which the use of fossil fuels is rapidly winding down. Reaching net zero is now a question of when and how rather than if.

Ongoing pressure for gains. At COP26, frameworks were agreed for when and how countries will review, monitor, and report on their progress. These actions help to build trust and enable comparability and aggregation of national targets and actions. Countries that do not have Paris-aligned targets are invited to submit stronger near-term targets by next year.

Peril

Support for net zero could erode if the transition is too painful. Not all people, organizations, and states are wholeheartedly supportive of net zero and the range of actions proposed or in process to achieve it. Public support for it is a fragile peace that could be disrupted if the transition is too painful, the necessary lifestyle changes too jarring, or the economic dislocation too great. As mentioned above, the political reality is that it is hard for countries to transition away from fossil fuels without feasible green options to adopt.

So we need to

Bring feasible green options online as fast as possible. From zero-carbon fertilizer to renewable energy at scale, we need to make net zero practical and affordable. The net-zero transition will be welcomed if net-zero options are appealing—or even make life better.

Deliver a just transition. It's not sufficient simply to declare that systems must change without regard for how those changes will affect people or countries. We must manage this vast, disruptive transformation with empathy for its effects on people. Leaders must take into consideration the differing abilities of nations to transition to a net-zero economy. We can deliver clean-tech alternatives at a pace and scale that enables countries at all stages of development to transition to net zero in a just way that protects the lives and livelihoods of their people. And we must find the right mix of mitigation and adaptation that ensures no one is left behind.

Heroic efforts required

It's easy to be pessimistic about the pace of progress. PwC research shows we are decarbonizing at less than a fifth of the rate needed to achieve net-zero emissions

by mid-century. And the commitments made in Glasgow alone won't close the gap. We are still headed for a disastrous 2.4°C temperature rise by 2100.

There is a broad global consensus that rapid emissions reduction is necessary. But heroic efforts will be needed to achieve it. And one of the inspiring aspects of this task is the way it summons our collective will, resources, and aspirations.

We need all hands on deck in both the public and the private sectors. We all need to pull every lever in our grasp to accelerate progress. The powerful force of the flywheel can sustain the exponential gains needed to keep the goal of limiting the temperature rise to 1.5°C. Let's make it happen. +

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