

CLIMATE CONVERSATIONS

GOVERNMENTS MUST LEAD ON CLIMATE ACTION

This new "Climate Conversations" series offers perspectives on climate change and the energy transition. In this first piece, and call to action, Adrienn Sarandi and Bhaskar Sastry argue that the world is sleepwalking into Climageddon. Without government leadership globally on targeted subsidies and establishing a carbon price, we will fail to limit temperature rise to below 2°C, let alone 1.5°C.

Key takeaways

- The IPCC believes it may be possible to limit temperature rise to 1.5°C, or well below 2°C, above pre-industrial levels by the end of this century but that it would require deep emissions reduction this decade and various technologies to remove carbon dioxide from the atmosphere. Yet, greenhouse gas emissions have been rising rather than falling while emissions reduction technologies are in their infancy.
- We argue that the most potent levers available to decarbonise the global economy on time are expanding mandatory and sufficiently high carbon prices and appropriate subsidies implemented by governments around the world.
- Only governments have the power to mobilise private capital and influence consumer behaviour sufficiently quickly through the right financial incentives. Hence, governments urgently need to develop a detailed strategy for decarbonisation to provide a clearer outlook for consumers and companies and to create long-term opportunities for investors to finance the transition.

A climate of extremes...

Unprecedented, record, catastrophic, destructive, deadly. Many pointed adjectives can be used to describe the impacts of climate change around the world in recent months. Between the floods that ravaged Pakistan, the growing intensity and frequency of wildfires on all continents, the droughts in Europe, China and Africa and innumerable heat waves, climate change is now hitting hard across the globe.

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The impacts of these climate extremes are not short-lived and transitory but long-lasting and cumulative, with the poorest most at risk. Approximately half the global population is "highly vulnerable" to climate change and millions already face starvation and water shortage¹. Madagascar has experienced the "world's first climate change famine"² according to the World Food Programme³.

We are in an emergency situation, a "Code Red" for humanity, according to the Intergovernmental Panel on Climate Change (IPCC), a United Nations-led panel of scientists representing 196 countries⁴.

...Yet, emissions are still rising

Worryingly, we are yet to experience the full ravages of climate change. That is because warming always lags the cumulative emissions that drive it, and global emissions continue to rise when they should be plateauing and falling. Based on current nationally determined contributions (NDCs)⁵ pledges made since the COP26 talks in November 2021, global emissions will rise by 10.6% by 2030, compared to 2010 levels⁶. This is expected to result in planetary warming of around 2.5°C above pre-industrial levels by the end of the century. This is far beyond the 1.5°C that scientists consider to be the upper limit for humanity to avoid the worst impacts of climate change.

The IPCC has warned that to keep warming below 1.5°C, we require a 43% cut in greenhouse gas (GHG) emissions by 2030 from 2019 levels and to reach net zero GHG emissions by 2050⁷. The IPCC states that without "immediate and deep emissions reductions across all sectors", curbing global warming to 1.5°C above pre-industrial levels by 2100 would be "beyond reach"⁸. The Economist is more pessimistic, calling 1.5°C "dead"⁹.

What are the consequences of missing these targets? Columbia University researchers have estimated a figure of 83 million excess deaths by the end of the century if the status quo on emissions is maintained¹⁰. Species loss is expected to be at least twice as severe at 2°C warming than it would at 1.5°C. In a 3°C "Hot House" world, complete ecosystems would collapse¹¹ and breach tipping points,

potentially resulting in "abrupt, irreversible, and dangerous impacts with serious implications for humanity"¹². Therefore, avoiding even a seemingly minor 0.1°C increase in temperature is critical.

The IPCC believes it may be possible to limit temperature rise to below 2°C by the end of this century but that it would require deep emissions reduction this decade and various technologies to remove carbon dioxide from the atmosphere. Many are concerned however that pinning too much hope on such technologies could prolong our dependence on fossil fuels¹³. Nature-based solutions and other negative emissions technology will play a role, but it should be limited to unavoidable emissions. Ultimately, there is no substitute for deep emissions cuts in achieving net zero on time.

Yet, we find ourselves in a disordered world with a war in Europe, heightened economic and political tensions, and an energy and cost of living crisis. It is difficult to imagine the coordinated global action needed to implement current climate pledges, let alone increase ambition.

In our recent piece, "*COP27 – 10 key takeaways for investors*" we wrote about the continuing rise in emissions, despite an increasing number of countries committing to net zero targets. However, amid the unstable global backdrop, few countries made more ambitious NDC commitments in 2022.

It's politics, stupid

Over the last 50 years, the global economy has suffered through several crises including the 1970s oil shocks, the 2008-2009 Global Financial Crisis and the COVID-19 pandemic. In each case, governments stepped in to protect society, enacted legislation and collaborated with other countries to coordinate a global recovery.

In the case of the pandemic, governments took bold and concerted action through lockdowns and quarantine measures and financed the development of vaccines to reduce deaths and infirmity. Vaccines were so successful because governments collectively put their faith in objective, unbiased scientific reasoning. In the same way, we need to follow through on the science to formulate climate solutions.

¹ IPCC: Half of global population 'highly vulnerable' to climate crisis impacts - edie

² Madagascar: Severe drought could spur world's first climate change famine | UN News

³ In Madagascar, continued drought exacerbated by climate change and unsustainable deforestation has rocked a nation already on the brink due to widescale poverty and overpopulation.

⁴ IPCC report: 'Code red' for human driven global heating, warns UN chief | UN News

⁵ A Nationally Determined Contribution (NDC) is a climate action plan to cut emissions and adapt to climate impacts. The Paris Agreement stipulates that Parties should establish an NDC and update it every five years.

⁶ <https://www.reuters.com/business/environment/cop27-world-track-increase-emissions-106-by-2030-un-report-2022-10-26/>

⁷ Climate Mitigation Report Says 43% Reduction Needed In Carbon Emissions By 2030 - Health Policy Watch (healthpolicy-watch.news)

⁸ The evidence is clear: the time for action is now. We can halve emissions by 2030. — IPCC

⁹ "We will overshoot 1.5 degrees of warming. That target is now dead"—a call for COP27 realism | The Economist

¹⁰ The mortality cost of carbon | Nature Communications

¹¹ These are nice planetary boundaries that represent environmental thresholds that should not be exceeded to avoid further natural degradation of the planet. We outline these in a previous piece: *ESG_Primer_Series_Biodiversity_Loss_April22.pdf* (janushenderson.com)

¹² Exceeding 1.5°C global warming could trigger multiple climate tipping points | Science

¹³ Confronting the myth of carbon-free fossil fuels: Why carbon capture is not a climate solution | Environmental Working Group (ewg.org)



This means governments must enable and deliver genuine climate action over political rhetoric and delaying tactics.

The particular challenge with climate change is that it spans not just geographies but also time. Unlike previous crises which impacted and revolutionised the world over a relatively short period, climate change unfolds imperceptibly over decades and beyond election cycles. Climate impacts can occur decades later and far away from the source of emissions. The result has been political and economic inertia, and an inability and/or unwillingness to act on the enormous threat of climate change, which explains much of our current malaise.

The key reason for inaction is a misalignment of incentives. **The countries most responsible for climate change, the countries most vulnerable to its impacts and the countries most able to afford the energy transition are different. This makes decarbonising the global economy incredibly complex and politically divisive.** Yet, finding a way to cooperate and pull in the right direction is the only chance we have of keeping global warming below 2°C. Inaction, procrastination or waiting for a magic technological solution is wasting the precious time we have left to reduce emissions, increase energy efficiency and accelerate renewable capacity building.

Despite the many successes of capitalism, it should be clear to policymakers that climate change cannot be tackled by free markets and enterprise alone. If that were the case, it would be yesterday's problem. While free markets and a singular focus on economic growth has resulted in unrivalled prosperity, it has also resulted in an environmentally broken planet due to unpriced negative

externalities¹⁴. When market failures¹⁵ occur, governments should step in to correct them. **Climate change is the largest market failure in history and only policy that puts a price on pollution can be expected to reduce it at the scale and speed necessary.**

Therefore, government intervention is necessary and requires smart policies aimed to incentivise businesses and investors to put up the required capital. Many governments have made ambitious long-term net zero promises, but no short-term steps to initiate action. The International Energy Agency (IEA) estimates that to reach net zero emissions by 2050, annual global energy investment needs to rise to US\$5 trillion per year¹⁶. Neither public nor private markets can deliver the energy transition alone because governments cannot afford it and private markets are not yet sufficiently incentivised to do so.

Investors are instrumental to the success of the energy transition, however, only governments can mobilise private markets effectively, through implementing sufficient financial incentives that will enable capital markets to do what they do best: optimally allocating capital and maximising risk-adjusted returns.

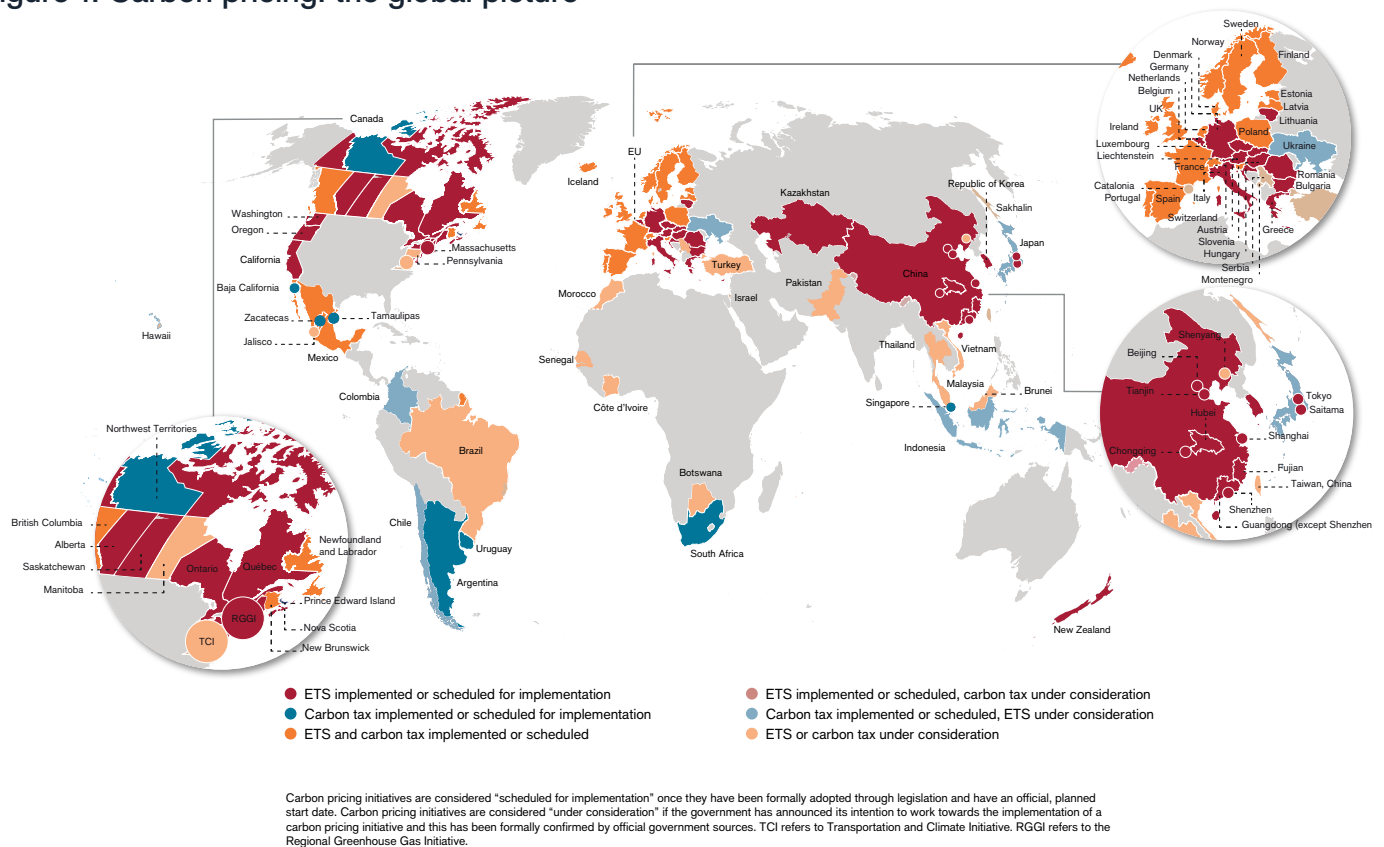
Hence, **governments urgently need to develop a detailed strategy for decarbonisation to create a clearer outlook for consumers and companies and to create attractive long-term opportunities for investors to finance the transition.** The slogan at COP26 was "If governments lead, finance will follow". Regrettably, governments are still not leading the way to net zero, as we saw at COP27.

¹⁴ Negative externalities cause an unpreferable and inefficient situation of market failure. Climate change is a classic example of a negative externality. Indeed, a fundamental problem is that the cost for society of activities that emit greenhouse gases into the atmosphere is not reflected in market prices.

¹⁵ Economists describe climate change as a market failure due to the inability and/or unwillingness to account for the release of greenhouse gases into the atmosphere during production and consumption processes. When free markets do not maximise society's welfare, they are said to 'fail' and policy intervention is needed to correct them.

¹⁶ Net Zero by 2050 – Analysis - IEA

Figure 1: Carbon pricing: the global picture



Governments can utilise various policy tools and financing measures

If it doesn't cost anything to emit GHG emissions, who will pay for having them lowered or removed? In a profit-maximising construct, polluters will only pay the *true* environmental costs of pollution if governments implement appropriate financial incentives or disincentives.

Therefore, we argue that **one of the strongest policy levers a government can introduce is mandatory and sufficiently high prices on carbon emissions that are appropriate for different sectors and countries at various points in their economic development.** Currently, only 30% of the world's emissions are priced¹⁷, however, to limit global warming, coverage must expand while prices must rise from a *global average* of \$6 per ton of CO₂ today to \$75 by 2030.

Policymakers considering introducing or scaling up carbon pricing face multiple decisions when choosing among and within policy instruments, including implementation, price levels, competitiveness concerns, alignment with other mitigation instruments, and coordination across countries. They may also choose different approaches based on their own circumstances and objectives.

Imposing a sufficient cost on pollution and having that cost reflected in the price of goods and services will radically alter incentives in favour of greener and cleaner activities.

Although designing a cap-and-trade system or setting an optimal carbon tax is difficult and vulnerable to political manipulation and lobbying, policymakers should not make perfection the enemy of progress. Expanding or implementing carbon pricing would send a strong signal against relentless climate lobbying from some companies that are supportive of net zero in public while actively lobbying against real change in the shadows^{18,19}. While they are a powerful minority exerting influence on politicians, many executives think putting a price on pollution is absolutely the right thing to do²⁰.

Encouragingly, investors and asset owners are also putting pressure on companies with respect to their lobbying activities. A recent study by Climate Action 100+ revealed that only 10% of the largest polluters in the world are aligned with the Paris Agreement when it comes to advocacy. Investors want to see companies publicly disclosing where, how much and to whom they give their lobbying money.

¹⁷ More Countries Are Pricing Carbon, but Emissions Are Still Too Cheap (imf.org)

¹⁸ Despite ambitious corporate pledges, major U.S. companies shy from climate policy lobbying, new report finds | Ceres

¹⁹ Apple and Disney among companies backing groups against US climate bill | US political lobbying | The Guardian

²⁰ U.S. CEO group says it supports carbon pricing to fight climate change | Reuters

Critically, efforts must be stepped up to redirect subsidies towards activities that help tackle climate change and environmental challenges, and away from fossil fuels.

Globally, fossil fuel subsidies were \$5.9 trillion in 2020, or 6.8% of GDP, and are expected to rise to 7.4% of GDP in 2025 according to the IMF²¹. The IMF finds that the vast majority of these subsidies (92%) reflect undercharging for environmental costs and foregone consumption taxes. As the impact of the energy crisis diminishes, these subsidies should be redirected away from fossil fuels to renewables. Emerging markets will be less able to remove subsidies until the capacity for clean energy has been built up through domestic and foreign investment. Action on the use of subsidies requires a science-based approach combined with responsible and strategic political leadership.

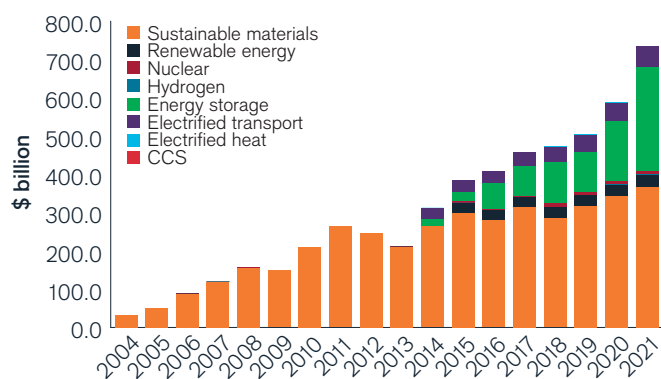
One of the simplest wins would be to improve the energy efficiency of homes, particularly by financially incentivising the replacement of gas and oil-fired boilers with heat pumps and insulating homes in cooler countries. The UK is a good example. It has been estimated that over a quarter of the UK's total carbon emissions comes directly from homes on a residency basis²², mostly from boilers burning gas for hot water and space heating. Nearly two thirds of UK homes fail to meet long-term energy efficiency targets²³ and government schemes to fund insulating homes act both to reduce people's energy bills in winter (critical in a cost of living crisis) and to reduce carbon emissions significantly. To meet the target of net zero emissions in the UK, 28-29 million houses need energy efficiency improvements. Assuming air-source heat

pumps would be the dominant technology, the bill could be around 17% of 2019's GDP, according to the UK Office for Budget Responsibility (OBR). Regrettably, the amount governments have set aside for such measures remains very small and works on a first come first serve basis. It needs upfront investment from households that is hard to justify in the current economic environment, if at all possible, for many. In short, green subsidies need to be scaled up.

Alongside carbon prices and redirecting subsidies, we must also permanently reduce demand for dirty energy over time. The IEA states that net zero means a huge decline in the use of fossil fuels, from almost four-fifths of total energy supply today to slightly over one-fifth by 2050²⁴. We believe the gap should be filled by a rapid build-up of renewable capacity. Rapid being the operative word, yet complex and slow permitting procedures are stalling the rollout of wind power in Europe for example, making the EU more reliant on gas for longer. But it is not just red tape.

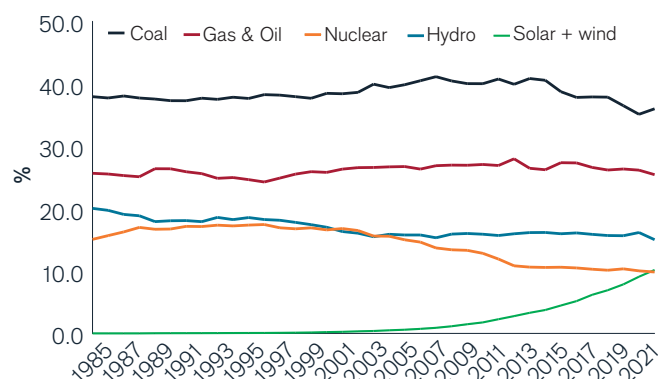
The International Renewable Energy Agency (IRENA) finds that the clean energy transition is happening, but too slowly to avoid 2°C warming as current global investment of around \$1 trillion per annum in clean energy needs to increase to over \$5 trillion per annum to limit warming to a manageable level²⁵. This sounds like a very large number, however, to put it into context, the IEA expect that the global energy bill for consumers will top \$10 trillion for the first time in 2022 due to skyrocketing fossil fuel prices²⁶.

Figure 2: Global new investment in energy transition by sector



Source: Bloomberg NEF, date: 31 Dec 2021.

Figure 3: Global electricity generation by fuel source, TWh Market share



Source: BP, date: 31 Dec 2021.

²¹ Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies (imf.org)

²² Climate change insights, families and households, UK - Office for National Statistics (ons.gov.uk)

²³ Two-thirds of UK homes 'fail on energy efficiency targets' - BBC News

²⁴ Net Zero by 2050 - A Roadmap for the Global Energy Sector - Summary for Policy Makers (windows.net)

²⁵ World Energy Transitions Outlook: 1.5°C Pathway (irena.org)

²⁶ World Energy Investment 2022 (windows.net)

The urgent need to increase investments in clean energy to \$5trillion per annum signals a very large opportunity for investors. In 2021, the world committed a record \$755 billion to decarbonise the energy system according to Bloomberg NEF (Figure 2), beating the previous year by 27%. Both renewable energy and electrified transport, the two biggest categories, rose to new records in 2021 as wind and solar installations, and electric vehicle sales surged. Rising investments into renewables took solar and wind to 10% of the market share for global electricity generation in 2021 from 1% in 2008 (Figure 3). We expect these trends to continue in 2023.

While clean energy is an enormous investment opportunity over the longer term, investors today are cognisant of several challenges when it comes to renewables producers. Current valuations remain elevated and the potential for legacy energy and utility players to adapt and expand their renewables businesses may increase pressure on renewable project internal rates of return leading to longer payback times and greater reliance on government incentive schemes to support profitability. Moreover, trends by certain European governments towards negative bidding in renewables auctions may further increase costs for developers or will serve to increase energy prices for residential and industrial consumers. Nevertheless, rising investments into clean energy is a general trend we expect to see from both governments and the private sector.

Amid the current energy crisis however, many European countries are also investing in fossil fuel infrastructure to meet demand given supply has drastically fallen since the onset of the Russia-Ukraine conflict, while demand has been on the rise since the pandemic. This is expected in the short term as Europe and Asia are net importers of fossil fuels, however, the longer that countries depend on fossil fuels, the longer they are at risk of energy shocks. We hope coal use

will be temporary and the current domestic gas investments will only be used to replace gas imports until renewables can fill the energy gap. We expect that renewable capacity build will be accelerated by the urgency of this crisis.

Crucially, we must find an answer to how clean technological infrastructure (charging stations, grids, pipelines) can be funded at scale while inflation is rife and the developed world's priorities are shifting towards the preservation of living standards. Those that expected governments to largely fund the transition with cheap government debt will need to think again. The price of government debt has risen sharply, and the developed world is already drowning in debt. Governments cannot pay the full cost of the transition, and they shouldn't. If they tried, their further ballooning debt levels would simply add to inflationary pressures. What they should do is expand carbon pricing regimes, recycle revenues raised from carbon taxes and redirect subsidies faster once the energy crunch subsides.

Implementing climate disclosure regulations is an unpopular but critical lever too because what gets measured gets managed. Mandatory Task Force on Climate-Related Financial Disclosures (TCFD) reporting in the UK and New Zealand will require companies and investors to understand and quantify their emissions, as well as the risks and uncertainties they may face under various climate scenarios²⁷. Such reporting may become mandatory for other regions in the future.

Notably, the US financial regulator, the Securities & Exchange Commission (SEC), is proposing sweeping mandatory climate reporting in the US²⁷. This will require time and money from businesses to understand, calculate and report their emissions and climate strategy. Whilst it is painful, it is necessary to measure if we are to manage emissions.



²⁷ Mandatory climate-related financial disclosures by publicly quoted companies, large private companies and LLPs (publishing.service.gov.uk)

The cost of the transition

Ultimately, the private sector will have to pick up most of the tab. In the UK, the Office for Budget Responsibility's (OBR's) central scenario is for the British government to pay around a quarter of the total cost to transition to a net zero economy, which represents a public investment of around 0.4% of GDP annually on average until 2050. However, the actual cost of the transition to taxpayers in the long term will largely depend on the policies implemented in the next few years, and whether they will encourage investments into green technology. The longer it takes to decarbonise the higher the costs of the transition go.

Economists will tell us that increasing carbon prices are inflationary and will hurt short-term growth because the cost pass-through from carbon taxes will inevitably hit supply chains and the consumer. That may be the case to a certain extent, but the structure of the economies are an important consideration. The IMF thinks carbon pricing reforms can protect low-income families (energy often constitutes a large share of their budget) while also supporting economic growth. For example, by using some of the revenues collected from carbon taxes to compensate vulnerable households and the remainder for labour tax cuts and productive investments²⁸. In their view, with careful design, implementation and coordination, the economic costs of carbon pricing can be manageable – indeed for some countries these costs are more than offset by domestic environmental co-benefits (such as fewer deaths from local air pollution) even before counting the global climate benefits.

The impact of carbon prices on inflation and growth is not straightforward and we need to intensify honest debate about it. Decarbonisation will not be free but we must find ways to bear the price.

Carbon pricing through either cap and trade or carbon taxation is expected to affect different economies differently, depending on the design, structure and implementation of the carbon pricing system. Some markets may achieve better results with a carbon "tax" and other with a cap-and-trade system.

In any case, in a carbon-priced economy where the carbon price is sufficiently high, it is expected that the composition of the economy would change with expansion of less energy-intensive sectors and contraction in energy-intensive sectors. Accompanied cuts in corporate, labour and payroll taxes can reduce the impact on GDP and mitigate impacts on wages and households.

Clearly, significantly ratchetting up the price on carbon overnight is not possible without hurting an already fragile economy. Yet, policymakers must be clear on one important point: the impact of gradually but sufficiently increasing carbon prices this decade will be much smaller than waiting for another decade and locking-in transition costs that could double or triple due to inaction. A long-term lens that sees well beyond election cycles is essential at this critical point in time. Early action will save money. The OBR estimates that if Britain delays decisive action on decarbonisation to the 2030s, the eventual total cost could increase its debt-to-GDP ratio by 45%²⁹.

The energy transition brings into focus the importance of social justice. Decarbonisation should be implemented with awareness of the costs to society through lay-offs, increased cost of living and other negative impacts, otherwise a backlash from those hit hardest will stop decarbonisation in its tracks. As a start, displaced workers in declining industries must be incentivised and retrained so that they can re-join the workforce.

How are we going to pay for all this?

In answering this question, a historical picture is warranted because this has been blocking progress on climate action for three decades. Today, most cumulative emissions come from the US, China, Europe and India, but North America and Europe are responsible for more than 50% of cumulative net anthropogenic CO₂ emissions over approximately the last 270 years³⁰.

Yet, the regions most impacted by climate change are in the Global South, particularly South Asia and parts of Africa³¹. The poorest people in these regions are paying the price for centuries of emissions produced by rich countries thousands of miles away. Moreover, the richest 10% of the global population are responsible for around 46% of total emissions growth in recent decades³².

Hence developed economies have historical responsibility to cut their emissions and are also the most economically and financially able to decarbonise their economies the fastest. The earlier developed countries invest in green technology and reduce their cost (such as with solar and wind) the more likely emerging economies can adopt them and leapfrog oil and gas.

In our view, the current energy crisis will accelerate the energy transition and high fossil fuel prices (which essentially act as a carbon tax) should boost installed renewable capacity. As The Economist has noted, in normal times the argument for debt financing climate investments is strong as opposed to a green splurge with higher taxes. But with inflation high and economies overheating, it is not a good time to increase

²⁸ SEC.gov | SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors

²⁹ The energy transition will be expensive | The Economist

³⁰ Who has contributed most to global CO₂ emissions? - Our World in Data

³¹ 10 of the countries most affected by climate change | Concern Worldwide

³² The inequality-emissions link and what it means for the 1.5°C goal - SEI

deficits. Rather, governments around the world should consider, depending on their economies, how they can best enable the private sector to invest in the green transition³³.

Climate action requires a global vision of governments working together to pursue the net zero transition from a humanitarian and financial perspective. After all, we only have one planet and a single global carbon budget³⁴. All else equal, a low carbon global economy would be more resilient, and less conflict ridden. It is undeniable that the world has been rocked by a series of unforeseen events that have thrown a spanner in the works. The geopolitics of the energy transition has become even more complex and challenging. But if we can use the current crisis to reduce our fossil fuel usage and accelerate green investments by enabling the private sector rather than financing "green new deals" by government borrowing, we could turn this energy crisis into opportunities while also reducing the long-term cost of the energy transition.

We do not underestimate the incredibly difficult balancing act that today's political leadership must perform, between satisfying the needs of the population in a time of crisis, while also ensuring the welfare of future generations. Yet, climate change will not disappear, rather it will become increasingly more costly and deadly. The longer we take to transition to a low carbon world, the more expensive and devastating climate impacts will be.

We believe appropriate mechanisms and carbon prices implemented in a way that best fit different countries and/or states would send the right signals that to emit carbon emissions you have to pay a price. The price of emissions must rise sufficiently over time and the common objective must be to reduce pollution. This will ultimately change the behaviour of all market participants – companies, investors and consumers. Without it, the overriding economic incentive will always be to pollute more, as it has been since the Industrial Revolution. A new approach should recognise our shared future and the urgent need to remain within our global carbon budget.

³³ The energy transition will be expensive | The Economist

³⁴ <https://www.ipcc.ch/sr15/chapter/chapter-2/>

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FN 8079:

Net zero refers to greenhouse gas production being balanced by removal from the atmosphere.

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