HSBC Global Research

3 January 2024

The climate in 2024

The waiting game

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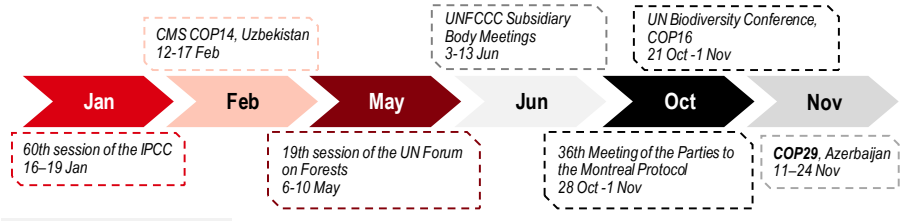
- Warming could exceed 1.5°C for large periods of 2024 as we wait for the beginning of the end of fossil fuels to effect change
- As many wait for election outcomes and prepare to update country climate pledges, climate impacts will become clearer
- Watch and wait for net zero integrity, the evolution of energy, the rise of insurance & health and new climate technologies

Climate games: If 2023 was a *game of cat and mouse* (for fossil fuel phase outs and carbon credits), then 2024 will be *a game of waiting* (for elections & updated climate pledges). COP28 gained a progress medal on paper, but many climate issues *did not finish* last year and there will possibly be a false start again in 2024 as the climate baton passes from the UAE to Azerbaijan, before the sprint to Brazil in 2025. The science is clear that the climate won't wait, as warming hit 1.5°C for a third of days in 2023. The steady rise in global emissions will accelerate climate impacts under El Niño conditions; many scientists expect the temperature record to be broken in 2024 (taking the record from the current holder, 2023). An eventful 52 weeks lies ahead.

A spectator sport: Politics will be important in 2024 as we await crucial elections. Team US will be the election to watch for climate policy direction, but also elections in the EU and India for the pace of climate action. Team ASEAN will be looking to expand its efforts in grid distribution; the MENA region will try to keep the climate spotlight after COP, but this would require more ambitious pledges (led perhaps by the UAE). Team Africa is a growing voice (in adaptation and financing), but Brazil will be seeking to be more visible as it prepares to lead LatAm into a major climate meet.

It's a race: Although transitioning away, we do not expect major strategy changes from fossil fuel companies this year. Instead, eyes will be on the implementation of corporate net zero and the integrity with which they do this (use of credits, CCS, etc.). Climate finance remains in the limelight as do climate disclosures, Scope 3, changes to electricity grids, methane, and hydrogen, as well as the disruptive potential in AI & climate technology. Note that *Biodiversity* COP16 will take place in October, just before **climate COP29** in November; we expect the linkages to be more

Figure 1: Climate milestones in 2024



Source: UNFCCC, IPCC, UNEP, HSBC

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2023 in review – a political sandwich of climate and economics

Climate progress in 2023 was slow, but extreme events broke many new records

2023 was paradoxical in the sense that expectations and reality seemed to be running on parallel tracks. Emissions continued to rise, extreme events broke records (again) and it was officially **the hottest year on record**. On the other hand, global politics, distracted by war and inflation, moved slowly in terms of climate progress; geopolitical tensions also continued to rise. There was marginally more cohesion towards the end of the year as COP28 marked the beginning of the end for fossil fuels. However, implementation (and finance) are always key.

COP28 – The UAE Consensus

For full details, please see *COP28: The UAE Consensus: Fossil fuel exit not in time for 1.5°C*; 14 December 2023

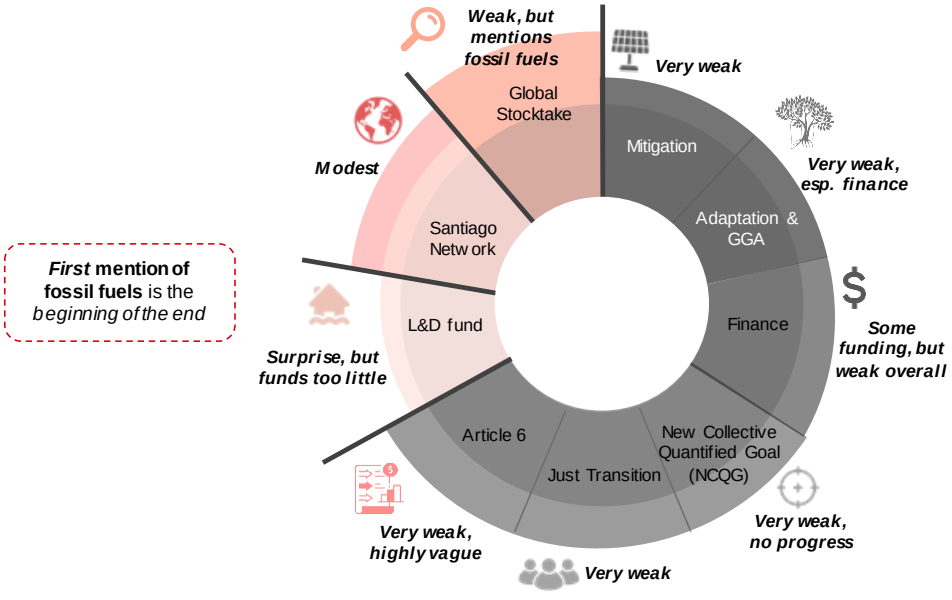
COP28 saw a transition away from fossil fuels – but this is not likely in time for 1.5°C

The fact that fossil fuels were mentioned in a UN climate text for the first time meant COP28 was considered a success by many politicians, however the lack of progress across most other climate issues means that the overall success was considered as very weak by most other stakeholders. The key phrase **"Transitioning away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science"** recognises the main cause of climate change, yet gives fossil fuels companies considerable leeway in how they will transition.

Most climate issues saw very weak progress at COP28

The overall progression in ambition of mitigation was not strong. Adaptation and the lack adaptation finance was weak, even as the Global Goal on Adaptation set broad (and vague) collective goals. Other key decisions on Article 6 were not made at COP28. However, the informal part of COP28 saw a number of initiatives relating to energy, food, health, finance and others. Since participation is not universal, the implementation of these going forward is crucial.

Figure 2: Our view on the overall strength of outcomes and discussions at COP28



Source: HSBC (based on UNFCCC, COP28 decisions)

Voluntary carbon market scrutiny; carbon border taxes begin

Carbon pricing could see increased scrutiny over its integrity in 2024

There was considerable scrutiny over carbon pricing, especially the voluntary carbon markets. A series of revelations highlighted less than ideal conditions for carbon credit and offset schemes. In our view, this adds to the pressure for corporates to have credible implementation strategies for their own climate (and specifically net zero) strategies. The integrity of projects and implementation plans was under the spotlight – and we expect this to continue in 2024.

The EU's carbon border adjustment mechanism began its reporting phase in October. While not setting off immediate panic, it did cause many sectors and countries to reflect on their own strategies. As a result, many countries have begun to look not just at their exposure to EU carbon tariffs but domestic carbon policies. We think this is a good thing and expect more reflection this year.

The politics of cooperation and competition

The EU unveiled its Net Zero Industry Act (NZIA) in early 2023 as a policy counter to the US Inflation Reduction Act (IRA). However, we think direct comparisons are unhelpful as they address different aspects of the climate economy. The IRA focuses on bringing immediate investment to its shores via tax credits; the NZIA looks at speeding up approvals and building up the longer-term skills to transform the bloc. It's similar to comparing weather with climate.

The economics and politics of climate change are not always aligned

The UK and others hinted at plans to roll back climate policies, but we see this mainly as political rhetoric as opposed to a major shift in climate strategy. Economic reality may sometimes slow down the pace of the low-carbon transition, then again, raw economics affects the speed of transition as well. For example, in some countries, the cost of installing solar panels is higher than the cost of the panels themselves. The politics of trade then kicks in as protectionism and jobs, etc. become greater factors in implementation than the cooperative needs of the planet. These will continue to be issues in the coming year.

Climate linkages - health and biodiversity

There were many more linkages made in 2023 between climate change and other issues. Although the linkages have been known for some time, the conversations are being discussed more in public – for example, health, deforestation and biodiversity. While these are science related, we noticed more mentions across our monitoring of mainstream media and would expect this to continue throughout 2024.

State of the climate – warming, heating, boiling?

The raw impacts of warming are beginning to emerge

As the world breached 2°C for the first time for two days in November 2023 and 1.5°C for a third of last year, the impacts of heatwaves are being examined more closely. Heatwaves may be less physically destructive compared with storms, floods or wildfires but they cause long-term adverse effects on health, and we have begun to see more legislation on halting economic activity during extreme heat. UN Secretary-General Antonio Guterres said in July 2023 that "**The era of global warming has ended. The era of global boiling has arrived.**" As the effects of El Niño continue this year, 2024 could itself become the warmest year on record.

Figure 3: Some key extreme events in 2023

Extreme event	Month	Country/region	Comments
Heatwave	July	US	Phoenix in the US saw 27 days with maximum temperatures exceeding 110°F (43°C) while Texas suffered for 42 consecutive days at or above 100°F (38°C).
Heatwave	April - Oct	Spain	Spain experienced four heat waves in 2023, marking it as the hottest year ever recorded for the country
Heatwave	June-August	India	During June-August 2023 , 11 states/UTs experienced higher temperatures that were made at least three times more likely by the climate crisis
Wildfire	July	Greece	Greece's wildfire that burned more than 300 sq. miles of land was declared as the largest ever recorded wildfire in EU
Wildfire	July	Canada	By mid-July Canada experienced 29 mega-fires, each exceeding 100,000 hectares.
Floods	July	US	An historic flash flood occurred over portions of Kentucky and Illinois after some areas received up to 12 inches of rainfall, causing significant damage
Floods	September	Libya	At least 11,000 people were killed and 10,000 went missing during a massive flood in Libya's northeast region
Floods	July	India	Heavy monsoon rains triggered floods and landslides in India's Himalayan region, killing at least 41 people and trapping many others.
Floods	December	India	Hundreds of people were stranded as Tamil Nadu flooded after receiving 50mm of heavy rain

Source: NASA, NOAA, The Independent, CSE, The Guardian, Natural resource Canada, CNN, Aljazeera, US News

Key climate issues in 2024

- Key elections in the US, the UK (expected), India and the EU could shift climate ambition levels as COP29 will mainly be preparatory
- Climate disclosures will expand with eyes on the US; Scope 3 will see more visibility; the bifurcation of carbon pricing should continue
- We expect scrutiny upon the implementation of corporate net zero plans, Just Transition & Climate Tech as science remains key

COP29 in Azerbaijan – preparation, wait and see

COP29 is likely to be a preparation COP in our view – as ambition awaits the outcomes of elections

COP28 left many, many issues on the table. COP29 will take place in Baku, Azerbaijan in November 2024. There were limited choices of venue given the COP rotation fell upon Eastern Europe, but the politics and ongoing conflicts clouded consensus. Nonetheless, Azerbaijan, with its close ties to Russia and the fossil fuel economy, will be expected to lay the groundwork for ambitious climate pledges (Nationally Determined Contributions of NDCs) updates which are due in early 2025 but to be prepared throughout 2024.

A key finance issue, the NCQG is due for completion at COP29

For all the talk of finance at COP28, we do not expect a significant ramp up of fund flows at COP29 although it will continue to be a point of contention for many Parties. The focus instead will turn to the new collective quantified goal on climate finance (NCQG) which is due for completion at COP29. The Global Stocktake (GST) of COP28 set up a dialogue on implementing the global stocktake outcomes and so COP29 will play an important role in making this dialogue meaningful. The various issues which surround Article 6 are in a state of flux – neither agreed nor disagreed. We do not expect meaningful progress on Article 6 at COP29.

The growing importance of the green zone, where announcements on climate initiatives and cooperation are often made, could be less significant at COP29 in our view because many stakeholders will be waiting to see the ambition levels of country climate pledges.

Politics – key elections in 2024

Around 40 countries will be holding elections around the world in 2024 (according to *Bloomberg*) – each with varying significance for the global climate transition (note: this number is closer to 60 if we include regional jurisdictions, according to *Politico*). Most will subtly impact the pace of climate transition through policy shifts – but a few could have a major influence on the rest of the world and the overall thinking on climate change.

The US Presidential election will be pivotal in US climate direction

United States: The 2024 US Presidential elections are scheduled for **5 November 2024**. The US has a net zero target of 2050, and the next President enters office around January 2025, leaving the country only 25 years to achieve its goal. The political scenario will continue to impact the speed of transition and policy implementation in 2024 in the country. The two frontrunners; Joe Biden (current President) and Donald Trump have contrasting views on

climate change. Through his presidency, Trump reversed many national climate commitments including the withdrawal from the Paris Agreement. Biden on the other hand has referred climate change as '*the existential threat to humanity*' and has allocated billions in green infrastructure and climate friendly policies.

Other candidates such as Nikki Haley (former US ambassador to the UN) and Robert F. Kennedy Jr. have said they believe in climate emergency but may prioritise economic development over stricter climate policies. Florida Governor and presidential candidate Ron DeSantis believes that '*there has been an attempt to stoke "fear" around global warming'*. [1]

The UK election is less pivotal from a climate perspective, but could affect the speed of transition

United Kingdom: The next general elections are scheduled no later than 28 January 2025. The Climate Change Committee has warned that the UK is off track in meeting its climate targets, therefore irrespective of the outcome, the focus needs to shift on implementation of existing policies. To manage 'unacceptable costs' of going green, Prime Minister Rishi Sunak announced some climate-related policy changes in 2023, including pushing back the phase-out of petrol and diesel cars by five years to 2035. The opposition Labour Party, meanwhile, has advanced a number of green policy proposals, including a commitment to invest GBP28bn per year on green projects to 2030, which is attracting much political scrutiny.

We expect India to maintain its climate position regardless of the election outcome

India: Climate change was talked about in India's G20 presidency, and the country showcased leadership in mitigation and energy transition panels across the summit. The Lok Sabha (lower Parliament house) election is scheduled to be held in April-May 2024. The current tenure of the Lok Sabha ends on 16 June 2024. The two leading parties, i.e., Bharatiya Janata Party (BJP) and the Indian National Congress (INC), have both made climate-related promises and several members of Parliament (MPs) have raised climate-change related issues. With growing heatwaves, increasing extreme events, pollution and other climate-related disasters, we think both the parties will consider India's strategy for transitioning to cleaner energy, dealing with air and water pollution, and adapting to extreme events. However, as ever, implementation remains the key.

EU elections could focus on domestic issues, to the detriment of a bloc-wide focus on climate leadership

EU Parliament: European elections are scheduled from 6-9 June 2024. The elections will choose 720 Members of European Parliament (MEPs), who can influence various decisions across all aspects of the European Union, from supporting the economy to fighting against climate change, until 2029. The Parliament also approves the EU budget, elects the EU commission President and becomes key in overlooking policies assisting transition to a cleaner economy.[2] There have been growing concerns about high energy prices and declining living standards in the EU, which may drive a shift in the interests of political parties, to cater to other national issues. Nevertheless, to achieve the 2030 climate target of at least 55% emission reductions (compared with 1990 levels), the elected MEPs will be key to transforming this target into action.

Climate pledges – preparation in 2024

The preparation for strengthening NDCs begins in 2024

Not as expected: While the Global Stocktake (GST) outcome at COP28 was not as strong as many hoped – e.g., countries were only "encouraged" to update their NDCs in line with the GST, developed and emerging economies, in particular, will be under pressure in 2024 to strengthen their NDCs in line with the spirit of the GST. For example, the world will be watching to see clear commitment to a transition away from fossil fuels and a significant ramp-up in renewable energy capacity. Countries will also be under pressure to accelerate the implementation of policy to achieve their existing NDC commitments and targets.

Current NDCs, if implemented, are consistent with a close to 3°C rise in global average surface temperature by 2100 (50/50 chance). NDCs in 2024 need to demonstrate that the world is going

[1] Here's where the 2024 presidential candidates stand on climate change, ABC News, 4 October 2023
[2] European elections 2024, European Parliament, 04 December 2023

to significantly bend the emissions curve and bring future temperature increases down, including minimising a 1.5°C overshoot. As stated in the GST, this involves a 43% cut in global emissions 2019-2030.

Developed countries are expected to take the lead

Which countries strengthen their NDCs will be important. Developing countries want advanced countries to take the lead and significantly strengthen their NDCs (achieving net negative emissions). The EU and US may increase ambition; this will largely depend on the outcome of 2024 elections. China will be the economy to watch. Given its progress building out a clean economy, it is getting more confident it will be able to cut peak emissions before 2030 and then significantly cut. Key to watch will be its domestic economic performance and whether this distracts decarbonisation efforts.

Climate policies are delivered differently across regions

Problems in the policymaking process: As stated, translating commitments into policy action will also be a focus in 2024. We live in a world of rapidly proliferating and uncoordinated climate policy; countries are doing the climate response in their own way, which is consistent with the Paris Agreement principles, but from an economic perspective is less efficient than coordinated global action. For example, the IMF has called for a global carbon price floor.

Irrespective of the lack of coordination, we expect to see a continued rise in unilateral interest in carbon pricing in 2024, which is in part spurred by learning from the experiences of other countries and capacity building efforts, e.g., stronger tax systems, but also countries seeking to limit any impact of the EU CBAM.

Using subsidies to drive climate policy is becoming more common

The use of subsidies is also increasing across countries, but the subsidies are being delivered in different ways – e.g., the IRA vs a complex array of EU policies including state aid. Expect more scrutiny about the real cost of subsidies vs other policy options in 2024, especially under a potential Trump administration. The IMF has shown that, for countries relying on subsidies to drive climate policy, debt-to-GDP ratios could rise 50%, while countries that also use a carbon price will only see a rise of 10-15%). Climate policy in Emerging and Developing Economies (EMDEs) is also increasing – e.g., Indonesia ETS.

These debates are important as they will be key to understanding if new NDCs and LT-LEDs have credibility – e.g., a climate policy of subsidies may quickly become unaffordable for the public purse and face pushback. As these policy debates continue in 2024, it will be important to come up with a method that allows us to track where countries are at on their transition to net zero across the key sectors of energy/electricity, transport, buildings and agriculture and monitor the speed of change over time.

Climate finance – still on the agenda in 2024

The focus on reform will be heavily on the IFIs, e.g., the multilateral development banks (MBDs)

Reforms in development banks: International Financial Institutions (IFI), local and regional development bank reform will be on the agenda again in 2024, spurred on by a range of announcements and commitments at COP28. Rich countries increasingly rely on the development banks to manage climate funds, e.g., the Loss & Damage fund will be hosted by the World Bank, and to leverage private finance for clean investment in developing countries. The pace of reform could slow with a potential Trump presidency, given it is a significant shareholder of the World Bank. What will become clearer in 2024 is the important role of local and regional development banks.

Climate finance is not an issue solely the remit of the major MDBs. Capacity building and reform of local and regional development banks is equally important. They have local knowledge and better appreciation of the risks and returns from local projects and are also more trusted by local stakeholders. They also have a lot more sway in convincing their governments that clean development is a more attractive way to deliver sustainable, inclusive growth and development,

and fossil fuels are high risk from many perspectives, including climate impacts and economic cost more broadly. Local and regional development banks can target climate funding more effectively and ensure it gets to the right people on the ground (an issue holding back adaptation finance now, where international adaptation finance is not reaching local communities most impacted and fund disbursement is hindered by a lack of capacity and project delays).

Private sector will engage in financing more green projects in 2024

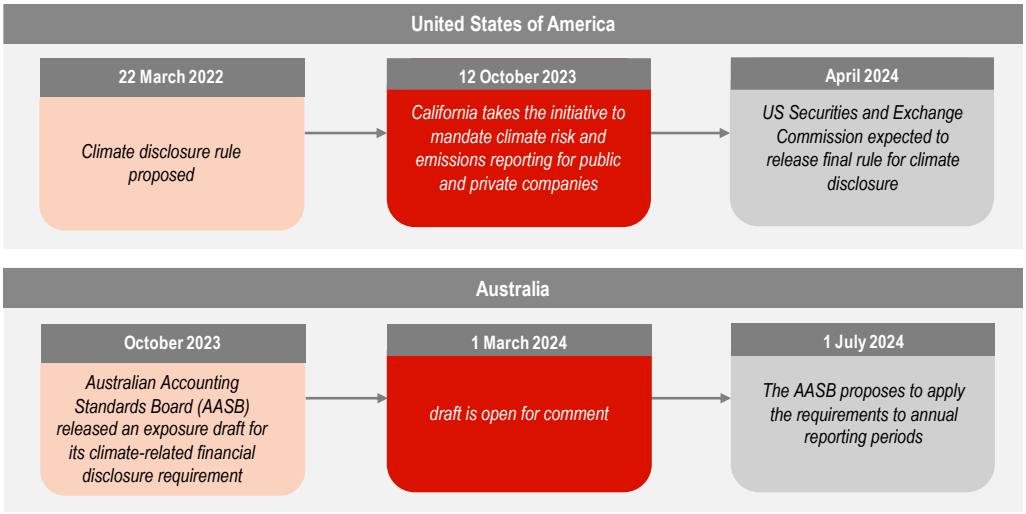
In addition, in the complex world of increasing international public sustainable financial flows, there is a growing role for the private sector in 2024. Most projects will be delivered and majority funded by the private sector, with benefits and opportunities emerging – e.g., for construction companies with sustainability expertise, for architects able to build sustainability into their designs, and for banks with the expertise to assess and finance clean projects. In fact, there are benefits for anyone in the project delivery supply chain with genuine sustainability know-how. There is also a growing role for investors looking for attractive returns in low-carbon infrastructure projects. Innovative financial instruments – e.g., blended finance – and new project delivery vehicles – e.g., country platforms – will help to de-risk projects and leverage private capital. There is also an opportunity for the private sector to scale up lending to the development banks directly.

Climate disclosures – coming to America?

The US SEC is expected to release final climate disclosure rules in April

As mentioned in *Corporate Net Zero Implementation*, we think more regulators will embrace stricter climate disclosures, led by markets like the EU and New Zealand. That said, markets are also under pressure to develop their own climate disclosure rules. The US and Australia are expected to release the final rule for climate disclosure in 2024.

Figure 4: Timeline for climate disclosure rules in the US and Australia



Source: The Securities and Exchange Commission of the US, Australian Accounting Standards Board, HSBC

We think the Basel framework will increase transparency of global banks' climate risks

Banks: The Basel Committee on Banking Supervision launched a consultation on a Pillar 3 disclosure framework for climate-related financial risks in November 2023. The consultation will end on 29 February 2024. The Committee targets to implement the new disclosure framework in 2026. We believe the framework will increase transparency about banks' and banking systems' exposure to climate-related financial risks. Also, it could provide more information to the Committee and other central banks if they should adjust capital reserve requirements to address climate risks.

Scope 3 – the unstoppable rise of value chain emissions scrutiny

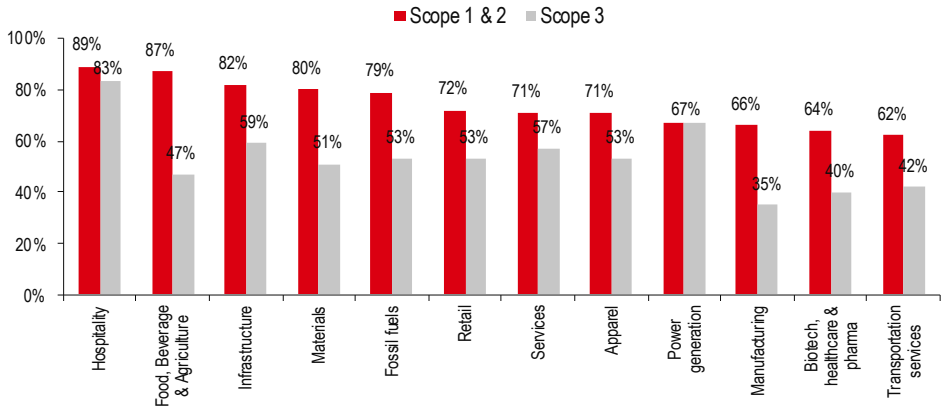
Scope 3 emissions will continue to be the focal topic of interest in 2024

Regulations and policies coming into effect: We have seen regulators increasing their scrutiny over value-chain emissions to facilitate better disclosures and lessen the risk of greenwashing. For instance, the proposed regulations in the US and Canada, which include Scope 3 emissions disclosures, are expected to be enacted in 2024. The UK and the International Sustainability Standards Board (ISSB) requires voluntary disclosure of Scope 3 emissions from 2025. Stock exchanges in Hong Kong and Singapore have proposed to mandate climate-related disclosures aligned with the ISSB by FY26. California state in the US has made Scope 3 disclosure mandatory from 2026 for private or public companies having more than USD1bn revenue. Similarly, the Securities and Exchange Commission in the Philippines is preparing to adopt ISSB standards, but the timeline and guidelines are still under review and not finalised.

Corporates are likely to face a higher risk of financial penalties from new regulations due to the implementation of stricter policies for emissions reporting. For example, California's Climate Corporate Data Accountability Act stipulates penalties for companies which fail to file Scope 3 emissions data between 2027 and 2030. Hence, identification of Scope 3 emission hotspots across the value chain will be increasingly important. Corporates will need to be more aware of the more stringent regulations and undertake to reduce their emission footprints going forward.

The need for greater focus on Scope 3 applies across industries

Figure 5: UK companies disclosing emissions, by scope, as a percentage of all UK companies



Source: The Road to Net Zero Starts with Your Core Business, CDP & Capgemini Invent Report, July 2023

More needs to be done on Scope 3 emissions disclosures and regulations will bring about this change

Room for improvement: We believe Scope 3 disclosures have been improving recently – in terms of both historical assessments and forward targeted reductions. However, we think much more needs to be done. Disclosure rates are improving - we observe that the proportion of UK companies disclosing absolute Scope 3 emissions and Scope 3 emissions intensity targets through CDP questionnaires has increased from 43% in 2020 to 54% in 2022. But target reductions remain at low levels - only 15% of UK companies had Scope 3 targets at the end of 2022. With Scope 3 emissions disclosure rates improving and regulatory frameworks becoming clearer, we expect increasing standardisation of peer reporting. Over time, this should lead to higher transparency and increase comparability of Scope 3 data across geographies and industries.

Figure 6: Potential Scope 3 disclosure requirements around the world

Timetable	Event
2024	Regulations expected in US and Canada, both requiring Scope 3 emissions disclosures
2025	UK requires mandatory disclosure of Scope 3 emissions
2025	ISSB requires voluntary disclosure of Scope 3 emissions
2025	India mandates value-chain disclosures for top 250 listed companies by market cap on a comply-or-explain basis
2026	Stock exchange in Singapore have proposed to mandate climate-related disclosures aligned with the ISSB
2026	Scope 3 disclosure mandatory for private or public companies having more than USD1bn in revenue in California state
2026	Stock exchange in Hong Kong has proposed to mandate Scope 3 emissions disclosures
TBD	Securities and Exchange Commission in the Philippines is preparing to adopt ISSB standards

Source: Government stock exchanges, ISSB, HSBC

Climate taxonomy – updates in several markets in 2024

Newcomers: Several markets have updated their climate taxonomy in 2023, including Hong Kong, ASEAN, the EU and Singapore. We think countries are likely to continue to develop their taxonomy to better define sustainable economic activities and align taxonomy definitions globally in 2024. There are also countries that are expected to publish their new climate taxonomies in 2024:

Australia will undertake a consultation on its Taxonomy's technical criteria

Australia: The Australian Sustainable Finance Institute (ASFI) has released two methodology reports of the Australia Sustainable Finance Taxonomy[3]. The papers outline the definition of green and transition, and sustainability objectives and social consideration in the Taxonomy. The ASFI expects to launch a public consultation on technical screening criteria for all eligible activities across energy, minerals and mining, and construction and built environment sectors under the Taxonomy in Q2 2024.

The UK expects to publish the long-anticipated draft green taxonomy in 2024

UK: The UK government-backed independent expert group, Green Technical Advisory Group released the final advice paper on the design and implementation of a UK Green Taxonomy in October 2023. However, the UK Treasury has delayed the publication of its draft taxonomy to 2024[4]. It was initially planned to be released in Q1 2022.

Carbon pricing – expansion and contraction?

New schemes in 2024

Expanding the coverage: Carbon pricing is slowly gaining traction around the world with 23% of global emissions now covered by some form of carbon tax. **New schemes due to start or make significant progress in 2024 include Türkiye**, which will review its climate policy, **Vietnam** where a pilot a National Crediting Programme will begin and lead to a pilot ETS in 2026 and **the EU ETS will be expanded to cover shipping from 2024**.

In addition to low coverage of global emissions, carbon prices around the world are still low, at an average of around USD5-10/tCO_2, but these are expected to rise in 2024, as they did in 2023, resulting in another year of record high revenues from carbon pricing for governments.

[3] Introducing the methodological design features of the Australian Sustainable Finance Taxonomy, ASFI, 5 December 2023
[4] UK delays 'green' taxonomy consultation until next year, Environmental Finance, 11 December 2023

Figure 7: Emission Trading System: Who's next?

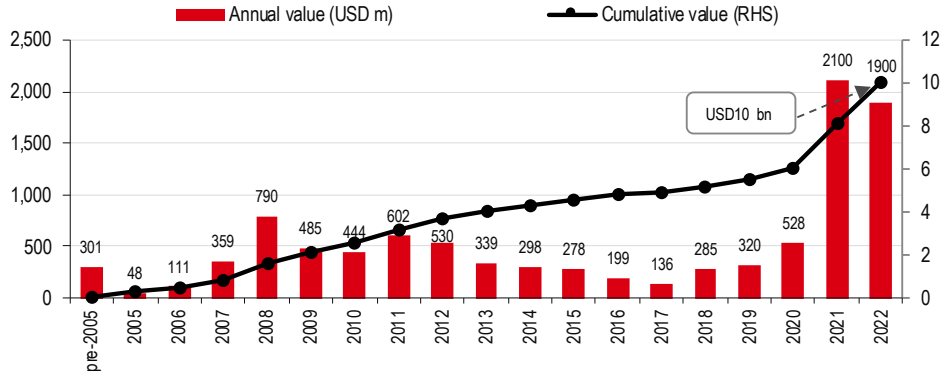
Brazil
• In September 2023, The Brazilian National Congress proposed a new legislation for the establishment of its GHG emission trading system (ETS). • It would establish a mandatory ETS and would impose compliance obligations on entities emitting more than 25,000 tCO2e per year, along with reporting obligations to all entities emitting more than 10,000 tCO2e per year. • Sectoral scope is yet to be defined. The draft law is currently in discussion phase by both the houses, and we think adoption should happen in 2024. It would begin with two years of reporting obligations only; the ETS could become fully operational in four to five years
Mexico ETS & crediting mechanism
• Within the LatAm region, Mexico was one of the first countries to launch a pilot ETS in 2020, with a pilot phase in 2020-21 and a transition phase in 2022. • The ETS compliance is now delayed into 2024 due to delay in establishing the final regulations. • In the coming year(s), the country is working on a domestic crediting mechanism, focusing on the development of offset protocols in priority sectors
Indonesia
• In Feb 2023, the Ministry of Energy and Mineral Resources (MEMR) announced the launch of a mandatory, intensity-based ETS for the power sector. • It will initially cover 99 coal-fired power plants and expects to see a reduction of 500,000 tCO2e over the course of 2024.
New Zealand EST & agriculture carbon tax
• The government launched a series of public consultations on the future of the New Zealand Emissions Trading System (NZ ETS) in June 2023. • The consultation closed in August and the results are due to be presented to the new government. There are also talks about an agriculture carbon levy, which the new government needs to take into consideration. We think the coming year can be monumental in the country's carbon pricing landscape .
Japan
• Japan launched its emissions trading system in April with voluntary participation from companies, followed by a full-scale operation from around 2026
Chile
• As a part of the country's 2022-26 Energy agenda (2022), Chile announced its intention to develop a pilot ETS for the energy sector. We think there could be a development towards this

Source: Carbon Pricing Dashboard, World Bank, HSBC

We expect more scrutiny on the integrity of carbon credits and the voluntary carbon markets

Voluntary carbon market (VCM) will remain in the spotlight in 2024, in particular, given that Article 6 negotiations failed to make any meaningful progress at COP28, the hope was that Article 6 rules would be a clear signal to improve VCM market integrity. Further scandals and crises are expected as emissions avoidance projects – e.g., some REDD+ projects, with poor environmental integrity are exposed to risk. It is still unclear how the various private sector offset market integrity initiatives – e.g., VCMI rules – will influence the existing VCM industry in practice. With new types of avoidance offsets proliferating around the world, including offsets for shutting coal fired power stations, offsets for reducing plastic use, and so on, we expect the supply of cheap avoidance offsets with varied levels of environmental integrity to continue to grow, with higher quality removal offsets significantly more expensive and in short supply.

Figure 8: VCM size, by value, pre-2005-22



Source: Ecosystem Marketplace 2023, HSBC

Also, the Energy Transition Accelerator (ETA) was announced at COP28 to help developing countries decarbonise their energy sectors by using money from the voluntary carbon market. It is set to be launched in April 2024.

> **In 2023, regional, national, and sub-national carbon pricing initiatives would cover 11.66 $GtCO_2e$, representing 23% of global GHG emissions**
>
> **Carbon Pricing Dashboard 2023, The World Bank**

Carbon capture and storage, & removals – expectation vs reality

CCUS is not the silver bullet that the fossil fuel industry hope for, in our view

Falling short of expectations: In our view, carbon capture, utilisation and storage (CCUS) is at best an expensive distraction to the alternative of direct decarbonisation and phase out of fossil fuel production and use. Recent research demonstrates the high cost of relying on CCUS compared with alternative renewable energy pathways and expresses concerns around its feasibility at scale and potential for cost reduction. Given climate risk and the financial and other benefits of the alternative renewable energy path, a rapid phase down and out of fossil fuels is the most "pragmatic" way to reduce emissions in line with a 1.5°C path and maintain and improve living standards across countries.

A niche reality: CCUS will have some niche applications – e.g., to help achieve deep decarbonisation of some hard-to-abate sectors such as cement – although low-carbon innovation here may even displace the need for CCUS in the long term. The fossil fuel industry has had several decades to develop a commercial CCUS technology, but rather has simply used it to enhance oil recovery in depleted wells. In any event, the economics of renewable energy is so compelling that it is likely to drive out oil & gas in the medium to long term. To add to the false promise of CCUS, the fossil fuel industry's commitments at COP28 remain inconsistent with a 1.5°C path – e.g., the commitments made by 50 companies through the Oil & Gas Decarbonisation Charter add up to just 30% of the emissions cuts necessary by the sector.

The performance of CCUS will be under scrutiny

Expect a heightened focus on removals, given their importance for net zero targets, and a scaling up of capital to these types of projects to bring down costs and ensure strong environmental integrity (including permanence). How to ensure permanence of removal offsets is a question that will continue to be debated in 2024, with new research proposing how high standards of removal governance can be achieved[5].

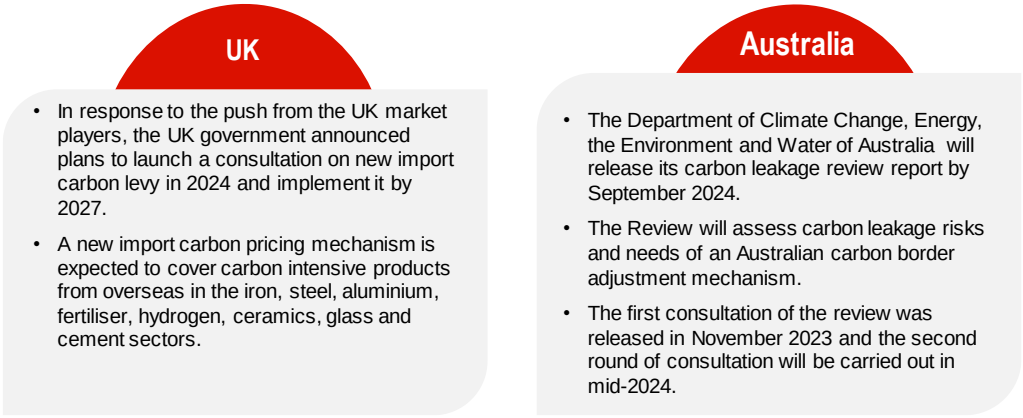
Carbon border taxes

The start of the first-ever carbon border tax: The world's first carbon border adjustment mechanism started on 1 October 2023 in the EU, its carbon border adjustment mechanism. EU importers of iron & steel, aluminium, cement, fertiliser, electricity and hydrogen are required to submit their first quarterly report of embedded emissions from imports by 31 January 2024. The European Commission expects to release secondary legislations on accreditation of emissions verifiers, the sale of CBAM certificates and exempted countries (if necessary) in 2024. We believe the secondary legislations will bring more clarity to corporates and investors on the implementation of the CBAM.

[5] Burke, J and Schenuit, F., Governing permanence of Carbon Dioxide Removal: a typology of policy measures, CO2RE – The Greenhouse Gas Removal Hub, 2023

In response to the EU CBAM, various markets have stated a plan or an intention to establish domestic carbon pricing mechanisms (see *Carbon Pricing*) and/or their own carbon border taxes.

Figure 9: Australia and the UK are planning to establish their own carbon border tax



Source: Financial Times, The Department of Climate Change, Energy, the Environment and Water of Australia

Corporate net zero – implementation is harder than was first thought

As per the *Net Zero Stocktake Report 2023*[6], 929 publicly-listed companies now have a net zero target, more than double the 417 figure from last year. The company net zero target-setting pace continues to grow, highlighting a growing momentum through 2024 as well. However, as per the fossil fuel pilot indicator within that report, none of the covered companies are making necessary commitments to fully transition away from fossil fuel extraction or production.

Actions are required to achieve net zero goals

Another push: With economies approaching their net zero target deadlines, there are growing calls for companies to do more in contributing to net zero commitments. Some of the key topics that are likely to be discussed in 2024 are:

- **'Set and measure' targets**: Companies need to set and measure their environmental performance goals by measuring their carbon footprints, impact on diverse communities, etc sooner and more efficiently.
- **Scope 3 emissions**: We think value chain emissions will continue to be a priority in 2024 – especially since several economies are likely to include Scope 3 emissions in their upcoming standards. The adoption of Scope 3 emissions is rising as more companies include Scope 3 emissions in their climate targets. Still, more action is needed on Scope 3 targets and disclosure. A thorough audit of value chain emissions will help companies to identify areas which make the biggest impact. Also, companies across sectors need to strive harder to implement stricter emission regulations across their value chain.
- **Stricter regulations:** In 2024, we expect new and stricter reporting regulations to go into effect across economies – e.g., the European Union's *Corporate Sustainability Reporting Directive* (CSRD), requiring companies to report on 2024 value chain emissions in 2025. Financial institutions, such as banks and insurance providers, will also be under growing pressure to disclose under the Task Force on Climate-related Financial Disclosures (TCFD) framework. Both US SEC and the Canadian Securities Administrators (CSA) have proposed rules to enhance corporate climate disclosures, with provisions related to Scope 3 regulation. With a few delays in the US, these rules are now expected to be released in both jurisdictions in 2024. Therefore, companies need to tighten their grip on better understanding emissions.

[6] Net Zero Stocktake 2023, Net Zero Tracker, June 2023

- **The challenge around net zero and offsets:** Achieving net zero requires companies to reduce Scope 1-3 emissions to near zero and offset the residual with permanent carbon removals. This is not yet fully understood by corporates, with many purchasing avoidance offsets and counting these towards achieving their net zero targets today. *Carbon Brief* analysis finds that 34 of the 50 largest global companies purchased a range of carbon credits to offset 38 million tonnes of CO_2 over the period 2020-2022, with little confidence around the environmental integrity of these (largely avoidance) offsets.[7]
- **More removals?** In 2022, an alliance of tech companies, including Alphabet, Meta, and Stripe, pledged to purchase USD925 million of carbon dioxide removals from start-ups over an 8-year period, with the aim of bringing costs down and increasing supply. Major global companies with credible net zero targets and strategies will continue to design and fund their own removal projects – e.g., Microsoft.
- **For hard-to-abate sectors**, debate around the type of carbon removals needed will grow in 2024. The key question will be around the use of carbon capture and storage v purchasing other types of removal offsets – e.g., nature-based or engineering solutions.

Just transition & Just Energy Transition Partnerships (JETPs) – understanding the reality

COP28 highlighted the importance of Just Transition

Just transition in COPs: Just Transition has been gaining prominence over the years. This can be evidenced by the *COP26 Just Transition Declaration* that was signed by over 30 countries, and the *COP27 High-Level Roundtable on Just Transitions*. As of 31 October 2022, UNDP analysis indicates that 38% of Nationally Determined Contributions (NDCs), and 56% of Long-term Strategies (LTS) now incorporate Just Transition principles[8].

Last year at COP28, Just Transition was a key crosscutting theme for the COP28 presidency. The first annual high-level ministerial *round table* on just transition took place during COP28 to discuss the scope and direction of the work programme for the coming years.

Figure 10: Key elements being discussed for implementation of the work programme

Modalities	Institutional arrangements	Time frame	Decision-making
• Improving collective understanding and facilitating implementation • Workshops, dialogues reports, and platform containing actionable tools and information • Political engagement through high-level events	• Operationalised through a joint contact group under the subsidiary bodies • Divergent views on using Katowice Committee of Experts on the Impacts of the Implementation of Response Measures (KCI) for technical work • Some Parties deemed it premature to discuss institutional arrangements	• Diverse opinions: long-term with regular reviews, 2-3 years with possible continuation, no time frame, or aligned with Paris Agreement goals • Proposal for short-term work programme due to insufficienct knowledge with continuation after end of initial time frame	• Annual CMA decisions to provide inputs to the work programme • High-level ministerial round table to provide guidance and encourage countries to follow the just transition pathways

Source: Report on the workshop on the work programme on just transition pathways, UNFCCC, 29 November 2023

[7] How some of the world's largest companies rely on carbon offsets to 'reach net-zero', Carbon Brief, 28 September 2023
[8] How Just Transition can help deliver the Paris Agreement, UNDP, 2022

Box 1: Informal consultations on the *draft* CMA decision on Just Transition Work Programme during COP28 highlighted concerns on several issues including scope, modalities, and timeline. Very little progress was made on the work programme, with a *decision* taken in the closing plenary, broadly defining the objective as, "the discussion of pathways to achieving the goals of the Paris Agreement", which in our view is vague. A minimum of two dialogues will be convened in 2024, with one planned for June 2024, prior to the 60th session of the subsidiary bodies, and the other in November 2024. The implementation of the work programme will begin immediately with a review in 2026 to consider its continuation.

In our view, it will be important to make meaningful progress on these issues in 2024 to support deepening of "Just Transition" in the next series of NDC updates for 2025.

JETP catalyses green transition in emerging markets

Emergence of JETP: Since COP26, four countries – South Africa, Indonesia, Vietnam and Senegal – have entered into Just Energy Transition Partnerships (JETPs) agreements.

South Africa was the first country to launch a JETP. However, only one coal-fired power station had been closed after two years and the country is considering delaying the closure of 5 more by 2032, as originally announced, in part due to the ongoing electricity supply crisis and energy security priorities. Criticisms of the deal – from both South African ministers and civil society – include that it had too little ambition, too-slow implementation and too little provided by donors.

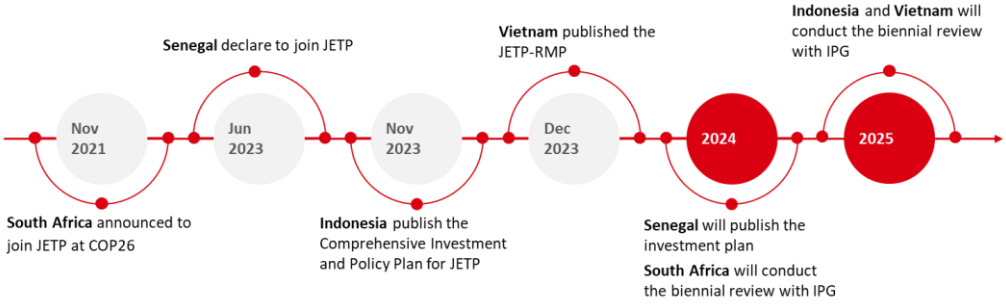
Figure 11: Financing difficulties faced by South Africa and potentially for other countries

Source: HSBC

JETP is key for accelerating the energy transition in EMDEs

Key to watch now will be whether the investment project proposals and ongoing energy reforms lead to further fund transfers. We note that in November, Germany signed a second policy loan agreement for a further EUR500m in concessional financing related to ongoing energy sector reforms. We also think it will be worth watching whether the challenges encountered by the South African JETP are taken into consideration and addressed up front in other countries' proposed Partnerships. That said, **Indonesia** and **Vietnam** published their investment plans in late 2023 and are facing similar difficulties in securing finance in implementing "Just" Transition.. We expect conversations over the financing structure of JETP and definition of a 'Just' Transition are likely to continue in 2024. Also, this will be closely watched in 2024 to avoid fossil fuel lock-in and stranded assets.

Figure 12: Timeline for Just Energy Transition Partnerships (JETPs)



Source: HSBC

Climate litigation – setting precedents

Quietly, a rising issue: We expect climate litigation will continue to rise in prominence in 2024. There have been some recent high-profile cases finding against governments and corporates alike. In 2022, for example, the UK High Court ruled that the UK government must revise its net zero policy as it was not consistent with its legislated carbon budgets. In a landmark 2023 case, a judge in the US ruled in favour of the group of young plaintiffs who had accused Montana state officials of violating their right to a healthy environment, as a result of the officials' pro-fossil fuel policies which contributed to climate change.

We expect more publicity around climate litigation in 2024 …

Not quite a liability yet: On the other hand, the action brought by ClientEarth against the board of directors of Shell – alleging that the company's energy transition strategy was flawed, and its directors were personally accountable – was rejected by the UK High Court. Similarly, the case brought by a coalition of NGOs and local authorities against TotalEnergies in France, alleging insufficiency of the company's plan to curb emissions, was rejected by the court. The latter three cases have been subject to appeal by the losing party, with some outcomes (e.g., that of the Total case) expected in 2024 (although ClientEarth already had its appeal rejected towards the end of last year).

Litigation in 2024: We think other key developments to watch in 2024 will include the outcome of the case brought by six young people from Portugal, against 32 European countries, over what they see as government inaction regarding climate change (the hearing took place at the European Court of Human Rights in September 2023), as well as progress in the case of the Peruvian farmer suing RWE for the costs of preventing the glacial Lake Palcacocha from flooding his hometown of Huaraz. The sum being claimed in the latter case is minimal (only cUSD20k), so its real interest lies in its potential to set a precedent.

… however, the implications are far from clear

Unclear implications: What is also still unclear when it comes to corporate climate cases in particular is whether they will ever have a significant impact on share prices (the data to date shows that on average the impact is limited[9]). Even if they don't, however, it is nevertheless possible that they will serve as a nudge that has the potential to shape values and hit reputations. The jury is still very much out on whether Oil & Gas companies may suffer their own "tobacco" moment, although a key case to watch in this regard is the one being brought by the state of California against five oil majors, alleging that they deceived the public by downplaying the risks posed by fossil fuels.

The spirit of the law: We think it is likely that NGOs and others will keep testing the waters through various cases and various different strategies in 2024. And, despite the failure of the ClientEarth case against the Shell directors, we expect the focus on attempting to establish whether board members have a personal responsibility on climate to continue. Also, watch for a challenge on over-relying on carbon removals, with one possible case arguing that this could breach international law.

Other issues could also become litigious

The reach of the law: Lastly, we also expect that climate litigation may begin to expand beyond the topic of greenhouse gas emissions, to encompass the topic of biodiversity loss in particular, due to the increasing recognition of the climate-biodiversity nexus.

[9] Sato, M. et al. 2023. Impacts of climate litigation on firm value. Centre for Climate Change Economics and Policy Working Paper 421. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science.

The importance of science – understanding and aligning

1.5°C vs 1.8°C: As we start the new year, 2024 is expected to be another year of temperature records and extreme weather events, with a high chance that global average surface temperatures will exceed 1.5°C for prolonged periods of time; they breached 1.5°C above the pre-industrial level for around one third of the number of days in 2023, and with the lingering effects of El Niño in 2024, could exceed 1.5°C for much longer. This will increase the focus on the science, including on tipping points, with new research making for worrying reading[10].

Weak COP28 outcome will spark debates over the 1.5°C target

In our view, given the relatively weak COP28 outcome, discussion will also intensify around a view that the 1.5°C target is lost. Will this view take hold and the world reassess its temperature target upwards? There are a number of routes this debate may take; we highlight three:

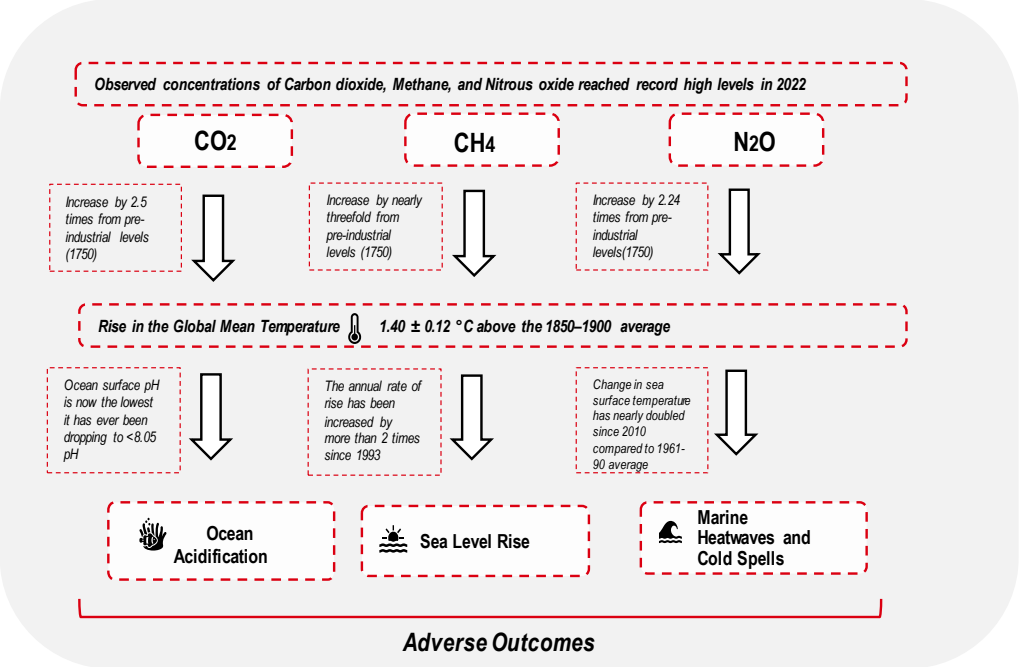
- **Risks and reductions:** First, the COP28 Global Stocktake agreement, and recognition of the immense risks, is enough to keep policy makers focused on the 1.5°C target, with the focus firmly on more ambitious climate pledges (NDCs) in 2024 that aim to reduce emissions rapidly and minimise the extent of temperature overshooting (the world recorded its first days of average temperatures over 2°C on 17 and 18 November 2023). This would involve radical cuts in emissions (43% by 2019-2030 – in contrast, COVID-19 saw global emissions fall only 6.5%, and then rebound) and a growing reliance on high quality removal offsets to keep 1.5°C alive. However, given the failure of Article 6 negotiations at COP28, there will be intense debates in 2024 on whether the "net" in net zero is credible or possible at scale in the time frames needed. In the absence of adequate Article 6 rules, attention will turn to various national legislation – e.g., the EU carbon removal bill – to define a market of high integrity.
- **Realism and pragmatism:** Second, the world decides 1.8°C (or something around this) is a more realistic target and collectively shifts to this less stringent goal (still technically Paris compliant) and collectively accepts much higher climate risk compared with 1.5°C (50/50 chance). This is an argument likely to be promoted by those who believe we need to be "pragmatic". They will maintain that this is a transition, and we can't switch off fossil fuels and new fossil fuel investment before the clean energy system is built out, a position that implies emissions levels that are at odds with the science.
- **No clear direction:** Third, we end up with a muddle of 1 and 2 where no clear direction is found in 2024. COP28 gave us a good steer on what the world is thinking collectively, which is that we recognise a transition away from fossil fuels is needed in line with the science, but we aren't quite ready to put firm dates and transition plans in place that unlock the finance and investment needed. In 2024 the world will be in a place where the new clean and old polluting systems are coexisting and in constant tension, with attention drawn to the uncomfortable fact fossil fuels power much of the manufacturing of clean technologies.

Aerosols offsetting will be a topic of interest

Aerosols & geoengineering: With global emissions still rising and the global emissions budget for a 1.5°C path nearly exhausted, interest in the role of aerosols and prospects for geoengineering will gain more interest. On geoengineering, as was identified back in 2009 by the Royal Society (the first major report on geoengineering), safety/risk and governance issues are challenging to resolve. They are no closer to being satisfactorily resolved today than they were back then. Aerosols will also become a greater focus as they appear to be limiting temperature rises, but cleaning up air pollution may reduce aerosols and remove the break on temperature rises that they provide. As the IPCC shows, warming impacts of different GHGs since the pre-industrial period is actually over 2°C, with aerosols offsetting this by around 1°C. If we reduce aerosols without reducing GHG emissions, especially methane, we could quickly accelerate to over 2°C.

[10] Lenton, T. et al., Global Tipping Points, University of Exeter, Global Systems Institute, 2023

Figure 13: Flow of climate change



Source: NASA, WMO, HSBC

Sectors in focus in 2024

- Implementation of the climate transition in the real economy will pick up pace, with a focus on key sectors that can enable decarbonisation
- Discussion on a coal-phase out will start to encompass fossil fuels as energy discussions shift more to grids, hydrogen and nuclear
- We also expect more focus on insurance (risk transfer) and health (risk receiver), & novel climate technologies (risk monitor/reducer)

Sectoral transition

COP28 has accelerated the pace of transition

A change of direction: The electricity transition is well under way and has arguably passed a tipping point in many of the major emitting countries. The COP28 pledge to triple renewable energy capacity by 2030 and transition away from fossil fuels will help to align expectations on the direction of change and could give a further boost to the transition. Supporting this signal are advances in key technologies including falling costs – e.g., grids and storage are challenging the economics of gas as a transition fuel. The future appears to be renewables, grids and storage. Expect supply chain bottlenecks around wind energy to dissipate in 2024. The cost of capital will remain a closely-monitored theme in the sector.

The COP28 pledge to triple renewable capacity also **called upon countries to double the rate of energy efficiency improvement** by 2030. Countries will now have to go beyond the power sector directly and extend their decarbonisation efforts to energy efficiency in end-use sectors, such as buildings, transport, and industry. In 2024, we will see various policy initiatives in transport, buildings and industry sectors.

Figure 14: Policy initiatives in transport, building and industry sector

Transport

- Major actions here in 2024 including extending the EU ETS to the **maritime sector**
- **Cargo and passenger ship of/above 5000 GT** will be the first batch to be included in the EU ETS
- The voluntary phase of **Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)** will start from 2024 and last for 3 years.
- **Airlines** will have to offset excess emissions by **purchasing carbon credits** under the CORSIA from 2027

Buildings

- The European Parliament and Council reached a **provisional agreement** on reduction of emissions and energy use of buildings, in December 2023
- The new legislation is expected to be **formally adopted and published in 2024**
- All new residential and non-residential buildings **must not have any on-site emissions from fossil fuels** as of **1 January 2030**
- For existing buildings, they will need to **install solar energy gradually from 2027**

Industry

- The **US** and the **EU** will continue their **negotiations** in 2024 to agree on the **Global Arrangement on Sustainable Steel and Aluminum (GASSA)** which was originally targeted to be concluded in 2023.
- The agreement could set a **clearer definition of green or sustainable steel and aluminium,** providing clarity to manufacturers to evaluate their capacity to build or transition to greener production.
- The GASSA could potentially form **a "green steel/aluminium club"** which might penalise countries with more emission-intensive steel industries with trade barriers such as tariffs and quota

Source: HSBC

Coal-fired power plant (CFPP) phase out in Asia

Asia is likely to reduce its reliance on fossil fuels…

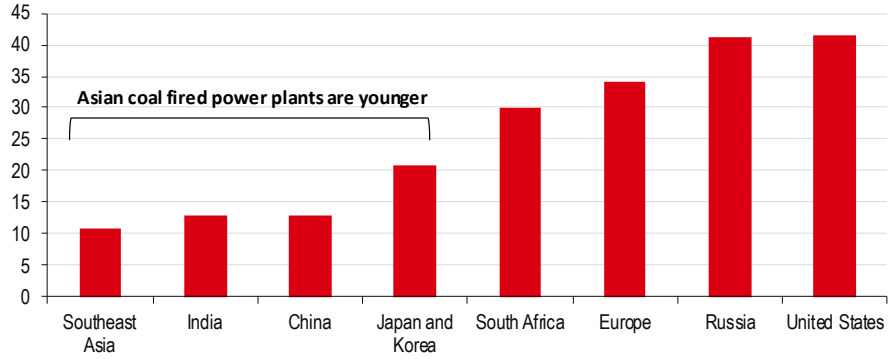
The COP28 Global Stocktake (GST) also calls on countries to accelerate the phase-down of unabated coal power and transition away from fossil fuels in energy system. Asia accounts for approximately 80% of global coal power capacity[11]. With rapid economic development in the region, energy demand has been increasing and the trend is expected to continue, according to the International Energy Agency's World Energy Outlook 2023. Given that the average lifetime of a coal plant is 46 years[12], Asian coal fleets are very young with an average age of around 15 years[13]. This means there will be a huge amount of locked-in emissions for the next thirty years.

… amidst financial difficulties

Global Energy Monitor estimates that 125 GW of coal power (equivalent to 6% of global coal power capacity in 2023) must be retired annually for the next 17 years to keep the 1.5°C goal alive. However, early retirement is technically and financially challenging due to existing power purchase agreements and un-recovered initial investment. Therefore, we think demand for transition finance will increase with an aim to facilitate early retirement of CFPPs by narrowing the gap between investors' returns and climate benefits.

In December 2023, the Monetary Authority of Singapore (MAS) launched the *Singapore-Asia Taxonomy for Sustainable Finance* which provides the first framework to phase out coal fired power plants (CFPPs). The MAS also launched pilot coal phase-out projects which will be funded with transition credits. We believe the momentum will continue and expect to see more early coal retirement projects in 2024.

Figure 15: Average age of exiting coal power plants in selected regions in 2020



Source: IEA

O&G – the "transition away from"…

In theory, it's the beginning of the end; in reality, change is very slow; in practice, we may be waiting a long time

As we wrote in *COP28: The UAE Consensus*, the Global Stocktake (GST) agreed text of "**Transitioning away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade, so as to achieve net zero by 2050 in keeping with the science**", although it recognises the main cause of climate change, gives fossil fuel companies leeway to determine how and when they will take part in this transition.

Strategic planning of fossil fuel companies: A key focus for 2024 will be how each fossil fuel company chooses to translate this global agreement into its own specific strategy, preferably in a quantified and time-bound manner, with multiple check-points on the way to 2050. Within that,

[11] Global Energy Monitor, Global Coal Plant Tracker, July 2023

[12] Cui, R.Y., Hultman, N., Edwards, M.R. et al. Quantifying operational lifetimes for coal power plants under the Paris goals, 18 October 2019

[13] Average age of existing coal power plants in selected regions in 2020, IEA, Paris https://www.iea.org/data-and-statistics/charts/average-age-of-existing-coal-power-plants-in-selected-regions-in-2020, IEA. Licence: CC BY 4.0

a key item to track will be investment in new production, and the rationale provided for doing so, especially if projected peak fossil fuel demand keeps on being brought forward by the likes of the IEA.

National oil companies will be under pressure after GST

National oil? Of particular interest will be how NOCs (National Oil Companies) react, given that the Global Stocktake was signed at a country level. Hitherto, NOCs have typically been under less pressure to engage in the energy transition than their IOC (Independent Oil Company) brethren, primarily due to the fact that they are either non-public or with only a minority public shareholding and therefore not subject to the same level of investor engagement on the topic.

How committed are the fossil fuel companies/producers?

In addition, as we have touched upon in the *Africa bloc section*, the attitude of individual fossil fuel companies and/or fossil fuel producer nations towards the potential development of African fossil fuel dependency versus the alternative of a leapfrog straight to renewables will be a crucial test of their depth of commitment to the transitioning away from fossil fuels. We think any arguments that such encouragement of fossil fuel use is in accordance with the just, orderly and equitable manner of the transition prescribed in the text will be subject to very detailed scrutiny.

Look out for possible announcements from OGDC

Direct emissions from oil & gas: Turning to O&G company-level emissions reduction (Scope 1 and 2), the COP28 Oil and Gas Decarbonization Charter (OGDC), although having broadly the same aims as the Oil and Gas Climate Initiative (OGCI) launched in 2014 (in particular regarding achieving net zero within own operations, and near-zero methane emissions and zero routine flaring by 2030) has a significantly greater number of signatories – 50 as at the time of the announcement, representing more than 40% of global oil production, and with NOCs accounting for 60 percent of signatories. This compares with only 12 signatories to the OGCI (albeit all of significant size). Key to watch will be whether OGDC members make new announcements in 2024 to honour their pledge. Also key will be whether the OGDC publishes an annual progress report in the same way that the OGCI does.

Lastly, climate litigation aimed specifically at O&G companies will likely continue to proliferate in the coming year, and increasing numbers of cases will go to trial – 20 in the US alone according to the London School of Economics.

Methane – key in the short term

Momentum in methane emissions reduction is likely to continue in 2024

Oil and gas sector under spotlight: Methane emissions in the oil and gas sector were a focus last year at COP28, where over 50 companies, which represent more than 40% of global oil production, signed the Oil and Gas Decarbonisation Charter. This includes a commitment to zero out methane emissions by 2030. With the global temperature rising and the need to find quick and cost-effective solutions to buy more time, methane is the obvious focus given its high global warming potential. Most commitments made on methane emissions from the oil and gas sector originated at COP26 with the Global Methane Pledge. The COP26 pledge, COP28 and other country commitments will start to drive real **action to reduce methane emissions in 2024**.

Helping to spur action are technological advances in methane leak detection, including detection satellites and aircraft-based monitoring. These are more reliable and transparent than previous estimation methods, with public scrutiny and pressure likely to increase on the worst emitters. This is going to force countries to review their policies, remove obstacles and take stronger action on companies, including through regulation.

Figure 16: Methane regulations announced by countries ahead or during COP28

Country	Regulation
Brazil	Announced that its National Council of Energy Policy will establish guidelines on methane reduction in the oil and gas sector by the end of 2024 and the National Agency for Petroleum, Natural Gas and Biofuels (ANP) aims to finalise regulations by the end of 2025 based on these guidelines
Canada	Revealed draft regulations to achieve an ambitious reduction of methane emissions in the upstream oil and gas sector by at least 75% below 2012 levels by 2030
Egypt	Announced its intention to develop internal methane regulations in its oil and gas sector by the end of 2024, as part of developing the sector's detailed methane emission reduction roadmap
European Union	Adopted its first-ever methane regulations, setting ambitious monitoring and abatement criteria for domestically produced and imported fossil oil, gas and coal including establishing a methane import standard by 2030
Kazakhstan	Announced cooperation with the United States to develop national standards to eliminate non-emergency venting of methane and require leak detection and repair in the oil and gas sector as soon as possible before 2030 and joined the Global Methane Pledge
United States	Announced final standards to sharply reduce methane emissions from oil and gas operations, which will reduce over 1.5 Gt of CO_2 equivalent and achieve a nearly 80% reduction below future methane emissions expected without the rule

Source: Government sources, HSBC

Agriculture-related emissions might be the next focal point

Also, **we anticipate agricultural-related methane emissions will be more widely discussed in 2024**. Sustainable food systems, including the reduction of livestock emissions, were under the spotlight in COP28. Countries will be looking to make stronger commitments on reducing food system emissions, including methane, in NDCs. The fragility of the current food system and the COP28 commitments to reduce anthropogenic methane emissions will accelerate the progress on reducing agricultural methane emissions.

Hydrogen – key in the long term?

Expect more focus on demand-side policies

Supply and demand balance: Hitherto, much of the focus has been on the supply side, with policies (such as the US Inflation Reduction Act) primarily focused here and a steady stream of ever-bigger projects being announced. However, very few projects have been able to achieve financial close, especially when it comes to those aimed at the export market – according to the IEA's 2023 Global Hydrogen Review only 3 of these had moved into execution, with Saudi's NEOM project being the only one of GW size. A key blocking factor for FID (Final Investment Decision) is the lack of an off-taker for the project, and one of the key reasons that off-takers are loathe to sign up today is because they expect the cost of low-carbon hydrogen to fall in the future. To kick-start demand, therefore, demand-side policies need to be scaled up to match those supporting supply; we expect to see increasing recognition of this in 2024.

> **"The hydrogen market ramp-up is characterised by the specific challenge of scaling up supply, demand and infrastructure at the same time**
>
> **Adrian Odenweller, Potsdam Institute for Climate Impact Research**

The final outcome of the US Treasury rules for green hydrogen tax credits is still pending

Turning back to a specific supply side policy, however, we note that the draft US Treasury guidance for green hydrogen released on 22 December 2023 includes extremely stringent requirements for being able to claim the USD3/kg tax credit under the IRA, including – most controversially – in 2028, we could see *hourly matching* (i.e., needing to certify that production is powered by renewables hourly, not annually). The draft rules are open for public comment for 60 days and we expect to see strong lobbying against them from those who believe they will make projects too expensive.

Hydrogen infrastructure starting to receive more attention

Three key areas: Other areas that will require more focus are: i) the development of infrastructure for transporting the hydrogen to where it is needed (whether in the form of shipping terminals and conversion/reconversion plants for transport in the form of ammonia, or pipelines for transporting it as a gas); and ii) the regulatory framework for defining what exactly constitutes low-emission hydrogen.

On the **infrastructure** side, watch whether more countries/regions start to plan development of hydrogen infrastructure, either in a holistic fashion similar to the European Hydrogen Backbone initiative, or via a more targeted approach such as the US Port Infrastructure Development Program.

Also watch for progress on mutual recognition of different certification schemes…

With regard to the **regulatory framework**, in order for the export market in particular to function effectively, this will require mutual recognition of individual country- or bloc-level certification schemes. An initiative to achieve exactly this was launched at COP28, with participants including key hydrogen exporter countries such as Australia and Egypt and key importers such as France, Germany and Japan. The progress of this initiative will be key to watch.

… and keep an eye on electrolyser orders

Lastly, keep an eye on **electrolyser** manufacturer order books as a measure of how individual green hydrogen projects are progressing, noting in particular whether orders are firm (e.g., NEOM's with thyssenkrupp nucera) or conditional (e.g., Fortescue's with Plug Power, which is dependent on the associated project achieving FID).

Nuclear – fission in other countries

Making its comeback: Nuclear energy is possibly the most controversial low-carbon energy source due to public concerns over radiation safety. Some countries such as Germany and Austria strongly oppose nuclear energy, while some, such as China and India, have been scaling up nuclear capacity. With the growing urgency of decarbonisation and national priorities on energy security, discussions of nuclear energy's role in net zero transition have been rising in recent years.

Nuclear showed signs of revival in 2023

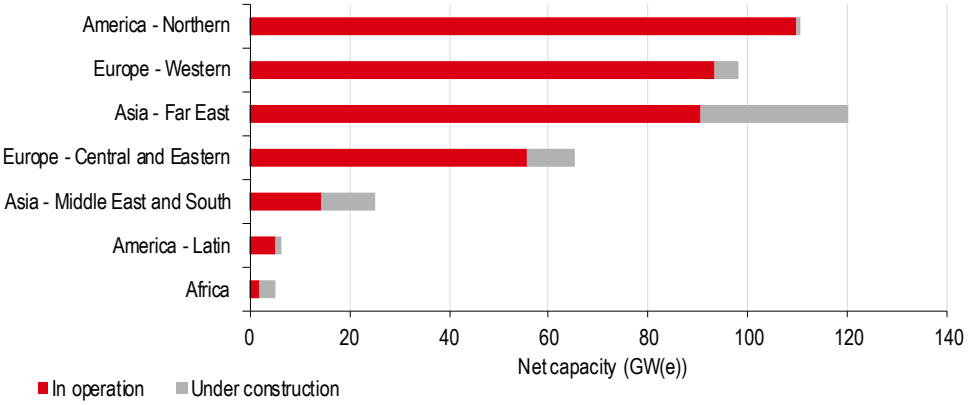
We think 2023 was a milestone for nuclear energy development. The European Commission officially adopted a complementary delegated act and add nuclear energy into the *EU Taxonomy* in June 2023. It means that the EU considers certain nuclear power plants to be environmentally sustainable, enabling more green capital flow into the field. In light of this, EDF issued the first green bond in Europe for nuclear energy in November 2023[14]. Another key initiative was the *Declaration to Triple Nuclear Energy* launched during COP28. The Declaration was endorsed by at least 22 countries including the US, Japan and Korea, aiming to triple nuclear power capacity by 2050. However, countries that have the most nuclear reactors under construction – China and India – are absent from the Declaration.

We expect to see more nuclear-related updates in 2024, particularly from Asia

More to come in 2024? We believe the momentum will continue in 2024, especially in Asia. Currently, three-quarters of the reactors under construction in the world are in Asia[15]. We think more Southeast Asian countries will follow the major Asian economies (namely China, India, Japan and Korea), to develop nuclear energy as baseload power, even though there is currently no operational reactor in the bloc – Indonesia, Vietnam and Philippines have shown their intention to put nuclear in their future energy mixes.

[14] EDF Is Selling Europe's First Green Bond for Nuclear Energy, Bloomberg, 28 November 2023
[15] World Nuclear Performance 2023, World Nuclear Association, 17 July 2023

Figure 17: Regional distribution of nuclear power capacity



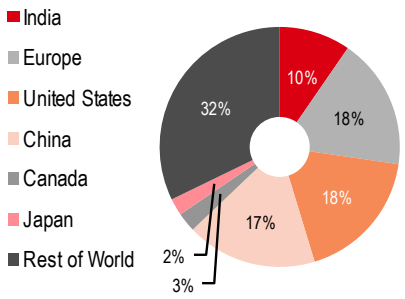
Source: IAEA Power Reactor Information System

Grids – agnostic to generation, critical to distribution

Efforts to mobilise grid financing and improve grid planning in 2024

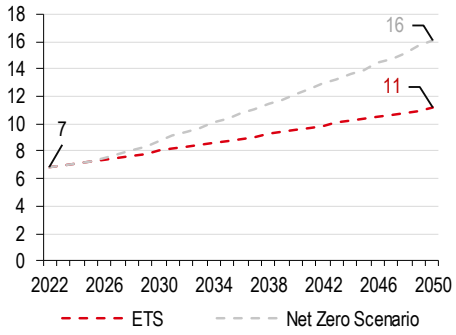
Importance of grid: Grid infrastructure plays a pivotal role in supporting the decarbonisation of the power sector and the global transition to net zero. The result of increased electrification across industries is higher power demand and a consequence of more variable wind and solar power is rising imbalances on production and consumption of energy. To prepare for greater levels of variable power flow and higher power consumption, **we expect a rising urgency in 2024, across jurisdictions, to improve on grid planning and network strategies, and mobilise financing for grid infrastructure.** Indeed, investment in grids must increase continuously over the coming years and decades to ensure secure delivery of clean electricity. According to Bloomberg, some USD21trn of global investment is required in power grids to 2050, from a base of USD300bn in 2022 in a 2050 net zero scenario, of which the European region, China and the US will need the largest grid investment (Figure 18).

Figure 18. Global grid investment breakdown in net zero scenario, by region (2022-50)



Source: Bloomberg, HSBC

Figure 19. Global installed transmission length estimated by 2050 (thousands km)



Source: Bloomberg, HSBC

Countries need to invest more on grid projects to meet their net-zero goal

Investment required: There have already been signs of grid congestion and bottlenecks in connecting renewable projects in 2023. In advanced economies, such as the US and EU we are seeing increased investment but also long lead times for transmission projects and challenges to development planning. In developing economies, such as China and Brazil, significant investments to expand grids are evident, but more is needed. Indeed, according to the IEA, advanced economies would need to increase their annual grid investments (2022) by 50% to reach net zero 2050 scenario, compared with developing economies that would require a doubling of their annual investment (2022) to meet net zero goals.

Insurance – the march towards a cliff-edge

Wildfires and floods driving Australian home insurance sharply higher

More expensive: Extreme weather events such as wildfires and floods are driving property insurance premiums sharply higher. In Australia, for example, median home insurance premiums rose nearly 30% in the year to March 2023; for homes in areas at high risk of climate disaster the figure was closer to 50%. With no near-term end in sight to the ever-increasing frequency and severity of climate events this trend looks set to continue, leading to concerns that households may abandon insurance altogether as it becomes prohibitively expensive. In Australia, nearly 1 in 8 households is already 'affordability stressed' when it comes to home insurance, meaning that they spend more than 4 weeks of annual income on it.

7 of California's top 12 insurers no longer writing new property insurance

Unavailable: In California, since 2022, the regulatory stance on insurance has led to 7 of the state's top 12 insurers halting or restricting new property insurance business in response to the devastating wildfires over the past few years. Although the California Insurance Commissioner has now taken steps to allow property insurers to factor climate risks – including wildfires – into their rates, this may simply result in it becoming unaffordable for many, as in Australia.

Extreme heat insurance on the rise, in DM as well as EM

Novel solutions: On the other side of the coin, extreme weather is also driving demand for new types of insurance to tackle it. Parametric heat insurance is one such example, where pre-set amounts are paid out to policyholders when temperatures reach certain thresholds. Although the market is currently still in its infancy, we are seeing increasing numbers of product offerings, with target populations ranging from self-employed women in India (protecting against loss of income when it is too hot to work, to dairy farmers in the UK (protecting against the effects of heat stress on their herds' productivity and welfare). We expect this market to grow rapidly as the world continues to warm, especially in DM, where it is likely to prove more affordable and where the harsh effects of heat are now increasingly being felt.

Box 2: Parametric insurance insures the policyholder against the occurrence of a specific event by paying out a set amount based on the magnitude of the event (as opposed to the magnitude of the losses as in the case of traditional policies). It has typically been used to protect against natural disasters such as earthquakes, hurricanes and typhoons and has the benefit of offering pre-specified and immediate pay-outs.

Technology is a key enabler of novel insurance products

Another example of targeted weather insurance is the pilot programme launched by Nestlé to protect smallholder coffee farmers in its supply chain against too much, or too little, rainfall. éhe programme uses satellite-based climate data to determine if coffee output has been impacted by the wrong amount of rainfall and automatically issues payments to farmers based on the severity. We see this as an example of how improved technology is enabling the development of novel types of insurance that can be very precisely targeted; we expect rapid growth here as well.

Health – collective recognition vs collective effort

In 2024, health challenges might be exacerbated by more frequent and intense extreme weather events

Climate-related health problems: The warming El Niño event prevalent in 2023, is likely to further increase the level of heat in the subsequent year increasing the chances of extreme weather events such as heatwaves, droughts, storms, and flooding. As El Niño events and changing weather patterns present a suitable environment for many infectious diseases to spread in different regions, the risk of vector borne diseases such as dengue and malaria are on a rise. In the past year, dengue cases in Brazil went up by 73% against the five-year average while Bangladesh also had a severe dengue outbreak.[16] We anticipate that the year 2024 is poised to bring forth unprecedented health challenges associated with extreme weather events particularly heatwaves, becoming more frequent and intense.

On the other hand, climate change and air quality are interconnected and cannot be treated separately. In 2023, we witnessed major wildfires across Australia, the US, Canada and the UK

[16] Reuters, Explainer: How climate change is making the world sick, 04 December 2023

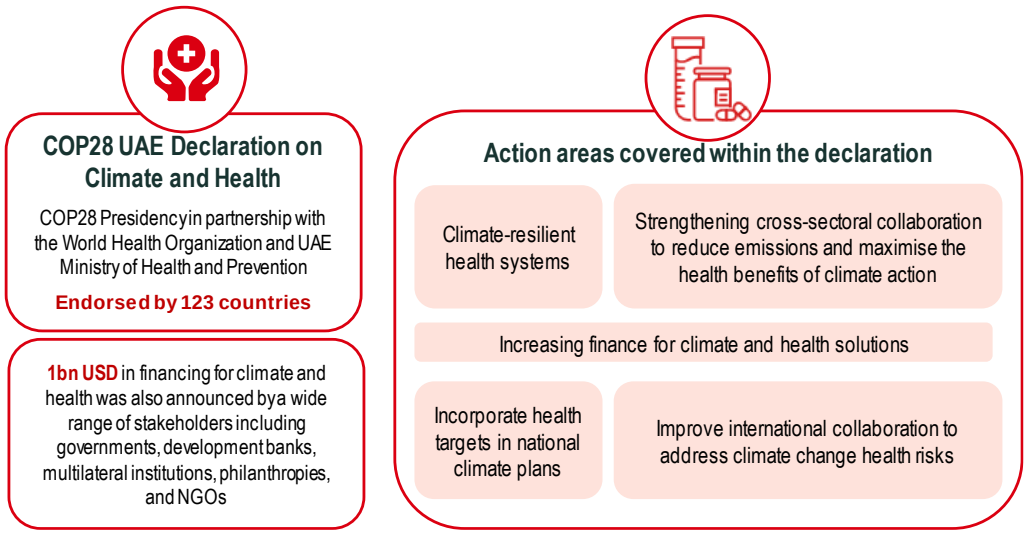
due to extreme temperatures, worsening the air quality and increasing health complications. This issue is expected to further accelerate in the coming years if proper measures are not deployed to fight rising cases of wildfires globally.

Countries have to collaborate to solve climate-related health problems

International effort: In 2023, 20 countries urged the European Union to proactively prepare for the health hazards induced by climate change[17]. In the coming year, we expect increased collaboration and strategic planning at the international level to mitigate these challenges.

At COP28, 123 countries signed the *Declaration on Climate and Health* endorsing the need for governments to protect communities and prepare healthcare systems to cope with climate-related health impacts. This marks a slow progress towards incorporating health into the UN climate conference agenda.

Figure 20: Summary of the Declaration on climate and health



Source: HSBC, (based on various announcements from COP28)

Climate tech is a key area to watch in 2024

Technologies plays a key role in climate change mitigation

Closely tied: The technology sector's influence on climate change is increasing. Looking ahead, increasing focus on Artificial Intelligence (AI) solutions, which includes chatbots, image processors and generators, OpenAI cloud computing, and similar technologies, could draw investors' and regulators' attention towards their rising energy use and the sector's overall carbon footprint. Developments across emission monitoring via AI technology, highlights the opportunity to collate global climate data and measure progress towards emission reduction targets across countries and sectors alike. In addition, technology developments for Carbon Capture, Utilisation and Storage (CCUS), deforestation mapping, clean/renewable energy, smart agriculture and circular economy enablers provide solutions for reducing emissions and overall climate impact.

However, technology also brings climate impacts

Likewise, amid increasing the pace of digitalisation, the demand for data-centre services, which accounted for around 1% of global electricity use in 2019 (as per the IEA), is also growing rapidly. Opportunities lie in renewable energy sources, circular approaches via resource recycling, water and energy monitoring and sustainable cloud computing. We think that investors' focus on companies that offer energy-efficient solutions across various Technology related sub-sectors could grow over coming years and these corporates represent a potential investment opportunity.

[17] Reuters, Twenty countries ask EU to prepare for climate change health hazards, 20 November 2023

Regions to watch in 2024

- Funding is key to implementation of the EU Green Deal but elections could shift focus to domestic issues; climate leadership is at stake
- All eyes will be on the climate rhetoric of the US Presidential election in November; the outcome could shape climate ambition elsewhere
- ASEAN continues its quiet transition; MENA contemplates life after COP; LatAm picks up COP energy; Africa makes its voice heard

Besides elections, major emitters will hone domestic legislation and prepare for upcoming updates to their climate pledges. In our view, it will take one key developed market (likely the EU) and one key developing market (likely Brazil) to bring about peer pressure on raising ambition levels of climate pledges. On the other hand, if politics goes the other way, peer pressure could be significantly reduced. We highlight some key issues for major regions and economies to watch from a climate perspective in 2024.

EU – elections and legislation in 2024

Block the bloc? EU Parliament elections in early June 2024 will usher in a new generation of political leaders that will have a major influence on the implementation of the EU Green Deal. We have seen mixed signals around Europe's overall political direction in 2023 – e.g., the Netherlands elections saw a leap to the right, while Poland confounded expectations and saw a coalition government replace a right-wing administration. The elections in 2024 will be decisive for investment and Europe's competitive economic future.

Key deal: The Green Deal is Europe's flagship strategy to achieve its net zero 2050 goals. It encompasses all of the EU's efforts to align exiting law and adopt new law to achieve its 2030 emissions targets and 2050 net zero. A significant push in late 2023 saw most key pieces of EU Green Deal legislation agreed by the EU Parliament and the EU Council.

A shift in gear? After a frantic legislative period negotiating and pushing climate policies through, the EU will likely shift gear in 2024 to implementation, especially post the June EU Parliament elections. Implementation efforts will determine if the EU is able to scale up investment and accelerate the transition.

Funding the machine: On implementation, key to watch in 2024 will be how the EU acts to simplify its hugely complicated state funding machine. Watch for how the Strategic Technologies for Europe Platform (STEPS) develops, if state aid rules continue to be relaxed to support the objectives of the EU Net Zero Industry Act, how other initiatives to simplify EU finance develop – e.g., the Net Zero Europe Platform – and which companies tap the ETS-financed Innovation Fund – e.g., petrochemicals. Hydrogen auctions will also be key to watch. The pressure will be firmly on the EU in 2024 to provide clear support for its net zero investment objectives and to compete with the US and other countries in the accelerating green race.

Carbon definitions: Also key for net zero is the new EU-level *certification framework for carbon removals*. We expect policy makers to reach an agreement on this framework in 2024. We believe the certification framework will ensure the quality of both technological and natural carbon removals and this will help to reduce greenwashing risks around the use of removal offsets. If agreed, these will likely influence other jurisdictions around the world.

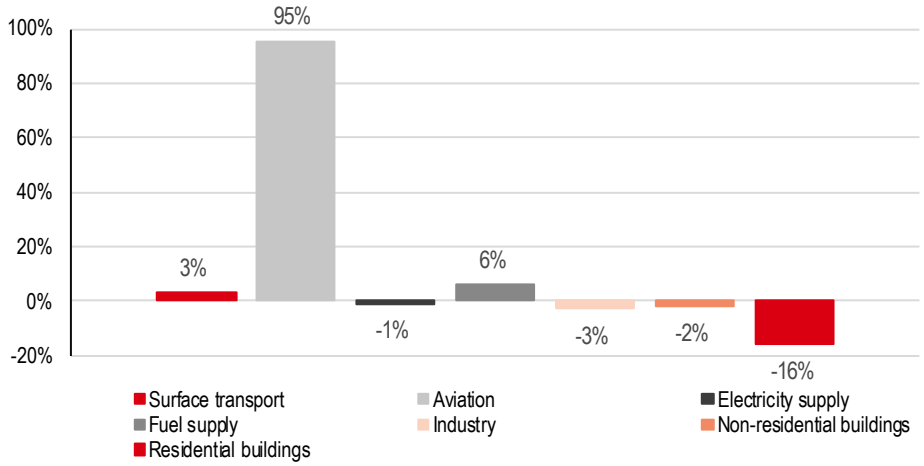
Climate targets: The EU is also expected announce its 2040 emissions target in February 2024, with experts suggesting this should be a 90% reduction in GHG emissions on 1990 levels.

UK – slow progress could change with a new government

Climate progress has been slow in the UK, according to its own climate watchdog

Slow progress: The UK Climate Change Committee (CCC) has highlighted that the UK's emissions reductions are too slow and immediate policy actions are needed to achieve the UK's legislated carbon budgets[18]. The UK CCC's assessment of progress towards the UK's 2030 emissions target (now just 7 years away) has worsened over the past year due to delays in policy development and implementation, as well as long lead times for key parts of emissions reduction plans – for example, hydrogen storage and carbon capture and storage (CCS). To meet 2030 targets, the UK must increase emissions reductions from 1.2% annually to 4.7% annually.

Figure 21: Change in UK emissions for key sectors (2021-2022)



Source: Climate Change Committee (CCC)

This year, irrespective of the forthcoming UK election, we expect developments around electricity and gas price reform, a decarbonisation plan for the iron and steel industry, continued support for CCS and hydrogen, new energy from waste (EfW) approaches, and a framework for airport expansion and demand to address rising aviation emissions (Figure 21). As mentioned above, in 2024 the UK will also start consultations on **the design of a Carbon Border Adjustment Mechanism**, to come into force in 2027. We expect a stronger focus on adaptation planning and funding given recent reports that the UK's flood defences are in a poor state and need urgent investment. Lastly, with the government increasing the strike price in offshore wind auctions and supply chain issues abating, we expect wind auctions to be more successful in 2024. Alongside this, we expect significant new investment to modernise and expand the national grid.

Election outcomes could deliver a very different path for climate policy in the UK

Elections could change the pace: With some media reports suggesting the country could go to the polls as early as May, the outcome of the election is likely to have a significant impact on climate policy in 2024. A conservative government is likely to continue a "pragmatic" approach

[18] 'Progress in reducing emissions: 2023 Report to Parliament', Climate Change Committee (CCC), June 2023

to net zero policy, which in our view is sending a weak clean investment signal. Notably, prior to COP28, the UK government put nature at the forefront of efforts to tackle climate change, with a new package including new National Parks, landscape recovery projects and forest development. We expect the shift in focus to nature restoration to continue post-election if there is a conservative government elected. In contrast, a Labour government is likely to shift gear on climate action. Early signs are it would set a strong investment signal and recommit to achieving the county's climate targets – e.g., it has indicated that it will commit £28bn in climate projects each year until 2030 (although this may be amended).

The United States – elections cloud the climate outlook

The US Presidential election could significantly shift domestic climate policy

Awaiting the election outcome: In 2023 we saw the deployment of the Inflation Reduction Act, and other large spending bills, bring hundreds of clean energy project announcements. Indeed, at least 186 major clean energy projects were announced in 2023, totalling over USD61trn in investments[19]. In addition, the Biden Administration continued to push forward its climate agenda. However, **we are expecting a shift in the atmosphere around climate action this year**.

The political divide on climate change has never been clearer and presidential elections bring significant risk to the longevity of US climate ambition. While a victory for President Joe Biden (Democrat) would likely mean continued global climate cooperation, a Republican win – depending, of course, on the party's candidate – could set in motion the withdrawal by the United States from its global climate involvement, including its international commitments to the Paris Agreement and the disassembly of US climate efforts made in recent years. We think the Biden administration will prioritize climate change as a central part of its re-election campaign in 2024. However, given the uncertainty around the future of US climate policy, we could see lacklustre climate efforts in 2024 by businesses awaiting the election outcome.

IRA debates leading up to the US election could impact the scale of clean tech interest in 2024

The Inflation Reduction Act has notably spurred clean energy investment since its adoption, including from foreign investors, but it has also received significant criticism by the Republican Party. Indeed, there have been a number of attempts in Congress to repeal certain clean energy provisions of the IRA in 2023 and we expect the debate around the IRA leading up to the 2024 election. Rolling back the IRA would be very difficult, nonetheless any attempt to do so could bring financial uncertainty. Indeed, industrial companies that are investing in low carbon projects need the long-term certainty around tax credits. We think low carbon projects will continue to progress amid global decarbonisation efforts in 2024, however the surrounding IRA debates may dampen the ambition which investors have for taking on new projects.

Beyond the US elections, other key developments we will be watching in 2024 include:

- **Grid strategies** - The growing backlog of renewable projects seeking to connect to the electric grid brings grid challenges in focus for the US. Limited transmission capacity, meticulous interconnection evaluation processes and grid reliability challenges bring hurdles for the expansion of clean energy. While some progress has been made towards removing these obstacles, efforts by regulators and grid operators to mitigate grid challenges will be evident.
- **Sources of materials** – The US has focused on localising supply chains for low carbon technology. For example, the IRA incentivises domestic supply chains through domestic content provisions for battery components and critical minerals that wish to be eligible for tax credits. As these incentives become reality, there are clear cost and supply shortages

[19] Clean Economy Works: Tracking new clean economy projects, expansions and production across America since the Inflation reduction Act, 28 November 2023

concerns, which could impact the pace of US decarbonisation. In 2024 we expect more conversations to be had around domestic supply chains for low carbon technologies.

- **Climate disclosures for corporates and funds:** While we anticipated a climate risk disclosure rule by the SEC last year, the climate disclosure rule is now expected to come in early 2024. Given the polarisation around the rule, and US elections, finalising this rule in 2024 may bring heighten controversy. Nonetheless, the EU's European sustainability Reporting Standards (ESRS) starting in 2024 and California's new climate disclosure rule puts pressure on the SEC to make a decision this year, in our view, despite the political challenges. Enhanced disclosures rules for fund around their ESG strategies are also expected in April of 2024, according to the SEC agenda.

China – new phase, new face, new transition finance

Reform of China's carbon markets could accelerate in response to the EU's CBAM

A new phase for carbon markets in China: We believe the national voluntary carbon market in China is very close to a restart. China's Ministry of Ecology and Environment released a draft Voluntary Greenhouse Emissions Reduction Trading Management Approach and *methodologies* for four CCER activities – forestry, grid-connected solar energy, grid-connected offshore wind energy, and mangrove plantation last year. With new sets of rules for trading and activity registration, we expect rising activity in 2024. On the other hand, the Chinese government has expressed its intention of expanding its national ETS coverage to other emissions-intensive sectors such as building materials. Despite an absence of concrete timeline, we think the discussions will continue in 2024 in response to the EU CBAM which has already started its reporting phase.

New face for China's climate envoy? China's climate envoy and the lead negotiator at UN climate conferences, Xie Zhenhua has retired. His role is likely to be replaced by Liu Zhengmin[20]. The close relationship between Xie and the US's climate envoy John Kerry had facilitated the US-China cooperation on climate effort and catalysed the adoption of major international deals including Paris Agreement. It will be a challenge to the former vice-minister for Foreign Affairs of China to build another close working relationship with his new counterpart in the US regardless of the results of the upcoming US election. How Liu fits into Xie's shoes will be key to any updates to China's climate targets and to international climate cooperation.

We expect more focus on transition finance in China in 2024

Eye on transition finance: To boost China's green transformation, the government needs to open more financing channels or incentives to the private sector to decarbonise. In addition to the existing green project catalogue, **China will likely develop another classification system for transition finance** which can make up for the lack of green finance's support for the transition of high-carbon-emission industries such as steel, coal and electricity, construction materials, and agriculture. Investors should keep an eye on the development of transition taxonomy in 2024.

India – little steps of progress but distracted by elections

Still on track: The 2024 general elections in India hold major significance for climate action. Last year, India used its G20 presidency to emerge as the collective voice of the global south, and is likely to continue this in 2024.

The elections in India should not significantly change its climate trajectory

More little steps: We expect India to continue making progress towards its 500GW renewable energy target, in 2024. The Ministry of Power estimates an 83% increase in **renewable energy** investments in 2024, reaching USD16.5bn[21]. Despite not formally backing the Global

[20] Reuters, China's veteran climate envoy Xie to step down in December - govt source, 1 November 2023
[21] Renewable energy investments to surge 83% to $16.5 billion in 2024, Money Control, 26 December 2023

Decarbonisation Accelerator at COP28, India, in our view, is committed to advancing renewable energy and decarbonising its economy. This can be substantiated by the country's achievement of its initial NDC target of reducing its GDP's emission intensity by 33% between 2005 and 2019, and its achievement of 40% non-fossil based electric capacity. Technologies such as green hydrogen and CCUS are also poised to gain traction in India's pursuit to decarbonise in the coming years. Also, India is likely to continue championing the issue of MDB reforms, with the subject expected to feature at the UN Summit of the Future 2024[22].

Election distraction? While there is a risk that the 2024 election focus could divert attention from climate action, we view 2024 as a pivotal year for India to lay the groundwork for hosting the COP33 in 2028, as proposed by Prime Minister Modi during COP28[23]. Hence, we expect India to continue making little steps of progress.

ASEAN - Transition on its way

The ASEAN bloc is cooperating on the transition

Investing in national grid: Indonesia and Vietnam have entered JETP to accelerate the development of renewable energy capacity and reduce coal reliance in power generation. However, the current weak grid infrastructure has led to a slow adoption of renewable energy in these two countries. In 2024, we think the expansion of transmission and distribution system will be prioritised in both countries to handle the increasing variable renewable capacity.

Figure 22: National grid capability

Country	Grid's current ability to accommodate RE	Alignment of country's grid upgrade and RE expansion plans	Remarks
Indonesia	Insufficient/ not aligned	Insufficient/ not aligned	Current grid is congested, and inter-island connectivity is inadequate
Malaysia	Sufficient/ aligned	Sufficient/ aligned	Grid is sufficient for current relatively low RE penetration
Philippines	Sufficient/ aligned	Sufficient/ aligned	Grid is sufficient for current relatively low RE penetration
Thailand	Sufficient/ aligned	Sufficient/ aligned	Grid is sufficient for current relatively low RE penetration
Vietnam	Insufficient/ not aligned	Moderately sufficient/ aligned	Current grid is congested

Source: Bain & Company, Temasek, GenZero, and Amazon Web Services, Southeast Asia's Green Economy 2023 Report: Cracking the Code

There could be more discussion on integrating grids within ASEAN

ASEAN power grid: Apart from that, we think JET investment plans revealed by Indonesia and Vietnam respectively are likely to spark more discussions over regional collaboration to build an ASEAN power grid. Renewable energy technical potential varies across the bloc (Figure 22). Thus, to achieve a successful energy transition in the bloc, would require renewable energy trading in the region. In 2023, Malaysia lifted the export ban on renewable energy and the government showed an interest to implement cross-border renewable energy trade[24]. We think ASEAN will accelerate the building of ASEAN Power Grid by enhancing multilateral renewable power trade in 2024.

[22] Prime Minister's meeting with the United Nations Secretary-General, PIB, 01 December 2023
[23] PM Modi proposes to host COP33 in India in 2028, The Economic Times, 01 December 2023
[24] Malaysia to lift export ban on renewable energy in accelerated transition plans, Reuters, 9 May 2023

Figure 23: Renewable energy (RE) technical potential (GW)

	PV	Onshore Wind	Offshore Wind	Biomass	Hydro	Geothermal	Total RE resources (GW)	2050 electricity demand (GW)	RE sufficiency to meet demand
Indonesia	2898	20	589	43	95	30	**3674**	**261**	Sufficient to meet >10 times of the demand
Malaysia	337	-	53	4	29	-	**424**	**63**	Sufficient to meet <10 times of the demand
Philippines	123	4	69	0.2	11	4	**210**	**90**	Sufficient to meet <10 times of the demand
Singapore	0.3	0.1	-	-	-	-	**0.4**	**18**	Insufficient
Thailand	3509	32	30	18	15	-	**3604**	**116**	Sufficient to meet >10 times of the demand
Vietnam	844	31	322	9	35	0.3	**1241**	**126**	Sufficient to meet <10 times of the demand

Source: Bain & Company, Temasek, GenZero, and Amazon Web Services, Southeast Asia's Green Economy 2023 Report: Cracking the Code

Aftermath of the CBAM: Developed countries with strict climate policies already in place have started to address carbon leakage risks through various measures such as *CBAM*. As a major supplier to developed economies, ASEAN in general will be subject to these leakage policies and may be impacted if they do not have equivalent carbon prices. However, only Indonesia and Singapore have carbon pricing mechanisms in place so far. In 2024, we expect carbon pricing schemes in the region to develop and expand:

- **Singapore**: From 2024, carbon tax in Singapore will be increased to SGD25/tCO_2e (cUSD19), five times higher than the current rate (SGD5/tCO_2e).
- **Thailand**: The Thai Excise Department is planning to impose carbon tax on the energy, transport sectors. More details are likely to be unveiled in 2024[25].
- **Malaysia:** The Malaysian Ministry of Investment, Trade and Industry will complete its study on carbon pricing instrument. The review will evaluate the needs and impacts of establishing a domestic carbon pricing mechanism[26].

MENA – life after COPs

Two recent COPs have accelerated climate action in the MENA region

COPs were positive for MENA: The region has witnessed some positive momentum in setting its climate ambitions over the past couple of years, which is mostly driven by the fact that it hosted two consecutive COP events – COP27 in Egypt and COP28 in the UAE, over this period. Barring Qatar and Egypt, all remaining countries in the region (in our coverage) set their net-zero goals over the last two years and most countries also revised/set their near-term climate goals over this period. Recently in December, at the city level, Dubai announced a very ambitious target of a 50% reduction in emissions by 2030, from a 2018 baseline. This is well ahead of the UAE country-level target of a 19% reduction from a 2019 baseline and implies that the UAE target could be upgraded again next year (as had already been suggested).

However, progress could shift unless momentum is maintained

Now, risk of climate momentum stalling: However, with the next COP to be held in Baku, Azerbaijan (i.e., not in the Middle East again, as was previously a possibility) ,we see risk that the recent climate momentum may fade. We think therefore it will be important to track progress on various key aspects of the emissions reduction roadmap, such as large-scale hydrogen projects; decarbonising transport sector through EV roll-outs and investments in mass-transport solutions; and ramping up renewables capacity.

Fossil-fuels still powering ahead: Though some national oil companies in the region have set their corporate level net-zero targets, they continue to raise their fossil-fuel investments and oil production over the coming years. ADNOC, for instance, has plans to increase its oil production

[25] Excise Department mulls carbon tax, Bangkok Post, 6 September 2023
[26] Bursa Malaysia, Miti: Study on Carbon Pricing Instrument to Be Completed Next Year, 2 November 2023

capacity by 7% over the next four years. Likewise, we think that Saudi Arabia would also raise its oil and gas production capacities, aiming for over 13mbd of sustainable capacity by 2027. At the same time, we expect both companies to continue to invest in lowering the carbon intensity of their production processes. As one of the outcomes of COP28, we think that rising emphasis on phasing out of fossil-fuels could drive investors' scrutiny on investments in this space.

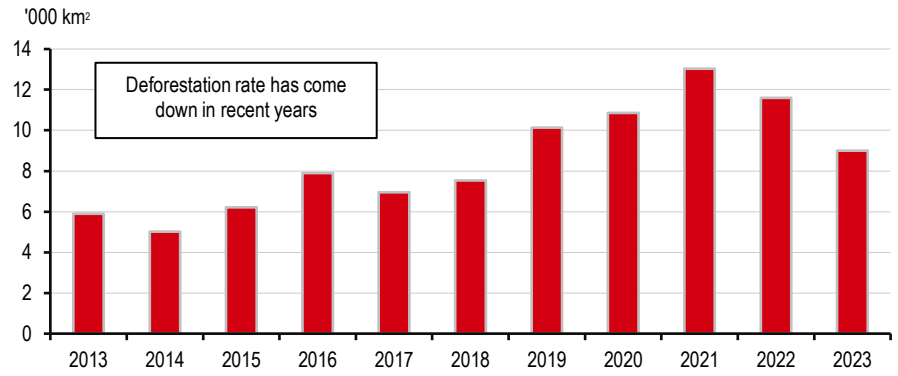
Green steel increasingly gaining traction: Over the past couple of years, a number of green steel projects related announcements have been made in the region. The UAE's Emirates Steel Arkan, for instance, started incorporating green hydrogen into its manufacturing process[27] and developing a green hydrogen project with Masdar which is expected to be commissioned in early 2024. Likewise, Oman Jindal Shadeed Iron and Steel is investing USD3bn in a green steel plant (in the Duqm Special Economic Zone). We think this makes sense given the region's abundance of renewable power (especially solar) which can be harnessed to produce the green hydrogen necessary to make the green steel itself. And, unlike green hydrogen export projects, there is no need to find an off-taker for the hydrogen as the off-taker is already in place in the form of the steel manufacturing plant. The fact that these projects are getting financed suggests there is confidence that there will be a ready market for the green steel produced, though it will be interesting to watch whether buyers start signing up as the projects progress.

LatAm – an all-round development

LatAm will be a region to watch in 2024 as the fossil fuel phase out is pushed by Colombia

Fossil fuels and forests: Colombia was the first LatAm country to join the Fossil Fuel Non-Proliferation Treaty (during COP28) and now supports the phase out of fossil fuel. This is part of the government's push towards cleaner energy source and to reduce its reliance on fossil fuels. This is notable as the economy heavily relies on oil and mining revenue; the sector contributes up to 8% of the country's GDP[28]. Thus, **we think policy reform to mobilise climate finance for energy transition in Colombia should be closely watched in 2024**. Also, Brazil has proposed to set up a global fund that hopes to raise USD250bn to finance forest conservation at COP28. In our view, LatAm countries are likely to continue to **work towards stopping and reversing forest loss in 2024**, especially under the pressure of EU deforestation law and increasing attention on biodiversity.

Figure 24: Deforestation rate in the Legal Amazon



Source: Terra Brasilis

Show time for Brazil: Brazil has been actively playing a leading role in climate talks for Latin America in the run up to COP30 in 2025. More specifically, the focus has been on the topic of deforestation and Brazil has successfully established dialogues and targets in the region. Since

[27] Oxford Business Group

[28] Can Colombia's green energy plan succeed without fossil fuel cash?, Reuters, 14 March 2023

Brazil's president, Luiz Inácio Lula da Silva's (Lula), took office in January 2023, he pledged to end deforestation by 2030 and deforestation of the Amazon has fallen to 2018 levels[29]. We think the administration will continue to focus on deforestation in 2024, but also shift its focus to other issues, such as Just Transition and methane emissions reductions.

Brazil has announced a number of regulatory changes to support a range of climate ambitions. This includes its plans to establish guidelines on methane reduction in oil and gas sector by the end of 2024 and its plans to publish the draft of the sustainable finance taxonomy at COP29 next year. In our view, Brazil would like to extend its leadership on combating climate change in Latin America by forming international partnership on climate solutions and formulating climate policies that are aligned with international standards.

Australia and New Zealand – Making progress

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Australia – heading in the right direction …

After a comparatively-slow start in making the energy transition, Australia is now making positive progress. Last year, 2023, is likely to have been a record year for renewables, following from 2022's record of renewables contributing 32% of Australia's total electricity generation.

Two key factors have supported Australia's progress recently. First, federal policymakers have taken more concerted policy actions – an important development after a previously-piecemeal effort from state policymakers, businesses, and households. The government has committed over AUD40 billion so far, covering over 50 policies and measures, including infrastructure and investment. Key legislative milestones have been the Climate Change Act 2022, the reforms to Australia's safeguard mechanism in July 2023, and Australia's second-ever Annual Climate Change Statement in November 2023.

Second, has been the shifting economics of renewables, particularly given the relatively-high price of coal, oil, and natural gas commodities recently, which have likely incentivised faster adjustment away from fossil fuels. In Q3 2023, rooftop solar generation was up by 31% y-o-y, touching a record high in September, with the Australian Energy Regulator expecting this to be surpassed in Q4.

The opportunities for Australia are clear. Australia is already a net energy exporter and has an abundance of the natural resources that are essential for the local and global energy transition, such as the second largest reserves of lithium, and key critical minerals and rare earths. The country also has a lot of empty space, sunshine, and wind resources. Australia has around 40% of all globally announced hydrogen projects, with a pipeline valued at around AUD300 billion.

… but much more work is still needed

Australia will still not meet its own 2030 target without further action

However, to meet its own stated target, more policy adjustment still needs to be done. Australia has two main emissions targets: 1) by 2030, reduce greenhouse gas emissions by 43% below 2005 levels; and 2) by 2050, achieve net zero emissions.

The latest baseline projections from the government's Department of Climate Change, Energy, the Environment and Water (2023) have improved upon prior years, but still project that Australia will not achieve its 2030 target, with only a 37% reduction in emissions compared with 2005 levels. With 'additional measures', Australia could get close to its goal. However, this would require the 82% renewables target to be met and implementation of the government's recently-announced Capacity Investment Scheme to support 32GW of capacity and renewable generation.

In December 2023, at COP28, Australia signed up to the Statement on International Public Support for the Clean Energy Transition Partnership (CETP). The Climate Change Authority

[29] Brazil could reach historic low deforestation in 1-2 years, official say, Reuters, 24 November 2023

also provided 42 recommendations to the government, including a call for a set of agreements with the state and territory governments for coordination and cooperation.

New Zealand – new government faces a hefty methane challenge

Like Australia, New Zealand is also not yet on track to meet its 2030 emissions target (Ministry for the Environment, 2023). A positive factor is that a large share of New Zealand's energy supply already comes from renewable sources, with 87% of electricity in 2022 coming from renewables, including hydro (60%), geothermal (18%), and wind (6.5%). However, transport and industrial sectors still rely heavily on fossil fuels.

New Zealand's new government could change the climate change landscape

The agricultural sector poses the key challenge to meeting New Zealand's emissions reduction goals. Agriculture accounts for around 49% of New Zealand's gross emissions, mostly comprised of methane (from livestock) and nitrous oxide (from soils). Agricultural emissions are closely related to the national dairy herd size, and, in 2019, New Zealand had 6.3 million dairy cattle and 26.8 million sheep (relative to a human population of only 5 million people).

Lowering livestock numbers would be the simplest way to New Zealand to reduce its emissions. However, agriculture is a key growth driver for the New Zealand economy, including local employment and exports, and this would hamper economic growth. Instead, other options are on the table. For instance, last year New Zealand proposed a world-first tax on cow emissions.

A more recent development is the recent election of the centre-right national-led coalition government in November 2023, which may change the policy landscape. For instance, the coalition has stated that it will 'review' the goals set for methane emissions reduction. The government has also promised to revoke the previous government's ban on offshore oil exploration in coastal waters.

Africa bloc – gaining more attention

Africa is a voice to be listened to in 2024

A growing African voice on the world stage: The Africa bloc took significant steps in 2023 in terms of elevating its combined voice, both in general (e.g., having its G20 membership approved) and in terms of climate change (e.g., the adoption of the Nairobi Declaration setting out its domestic climate ambition). In regard to the latter, a key development to watch in 2024 will be the rate of execution towards the target of 300GW of renewable generation capacity by 2030. We think capacity building and institutional reform will be necessary preconditions for delivering the required level of renewable energy investment, so evidence of these will also be key to watch.

A leapfrog straight to renewables will be challenged: There is also likely to be increasing focus on the debate as to whether those parts of Africa that are still reliant on wood-burning for energy should leapfrog the fossil fuel stage altogether and go straight to renewables. The World Bank, for example, argues that developing countries avoiding the "emissions-intensive model" followed by the developed countries is essential to achieving emissions reduction targets (*Reuters*, 11 June 2023). On the other side are those – often with oil & gas interests – who argue it is simply not possible for Africa to skip the fossil fuel phase. Which way African countries choose to jump will likely depend on the relative ease of the two pathways, meaning that those in favour of the leapfrog will need to ensure sufficient support is in place to enable it.

'Carbon colonisation' is another risk: Another development to keep an eye on is the potential for 'carbon colonisation' of African countries – i.e., third parties acquiring rights to large tracts of land and planning to use carbon credits derived from forest conservation projects on these lands to sell to other countries to put towards meeting their 2030 emissions targets under as yet unfinalised UN carbon pricing framework. The failure of progress for Article 6 discussions at COP28 mean further uncertainty for land rights and carbon pricing in Africa. Aside from the overarching questions that have always existed in relation to the validity of credits derived from protecting a

forest from hypothetical future deforestation (questions that have now been shown to have solid grounds[30]), other issues associated with these types of deal include the level of transparency, the nature of the revenue-sharing agreement, the land rights of affected communities, and the potential impact on the host countries' ability to hit their own emissions reduction targets.

The global climate calendar: upcoming events

2024	Location	Event
21-23 February	Nairobi	Climate and Clean Air Conference 2024
4 March	London, UK	Energy Transition Summit
25-27 March	Montreal, Canada	Fourth meeting of the Compliance Committee under the Nagoya Protocol on Access and Benefit-sharing
22-25 April	Rotterdam, the Netherlands	26th World Energy Congress
13-17 May	Washington, DC	World Bank Land Conference 2024
22-23 September	NA	The Summit of the Future in 2024
21 October – 1 November	Türkiye	Sixteenth meeting of the Conference of the Parties (COP16) to the Convention on Biological Diversity
11-24 November	Azerbaijan	UN Climate Change Conference (COP 29)
18–19 November	Rio de Janeiro	G20 Rio de Janeiro summit

Source: HSBC

This is a Free to View version of a report with the same title published on 3-Jan-24. The full note also contains sections on how climate stocks fared in 2023 and factors that may impact their performance in 2024. Please contact your HSBC representative or email AskResearch@hsbc.com for more information.

[30] Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows, The Guardian, 18 January 2023

Disclosure appendix

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