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The Implications of Cross-Border Carbon Taxes on Geopolitics and International Trade



Sustainability Research Paper

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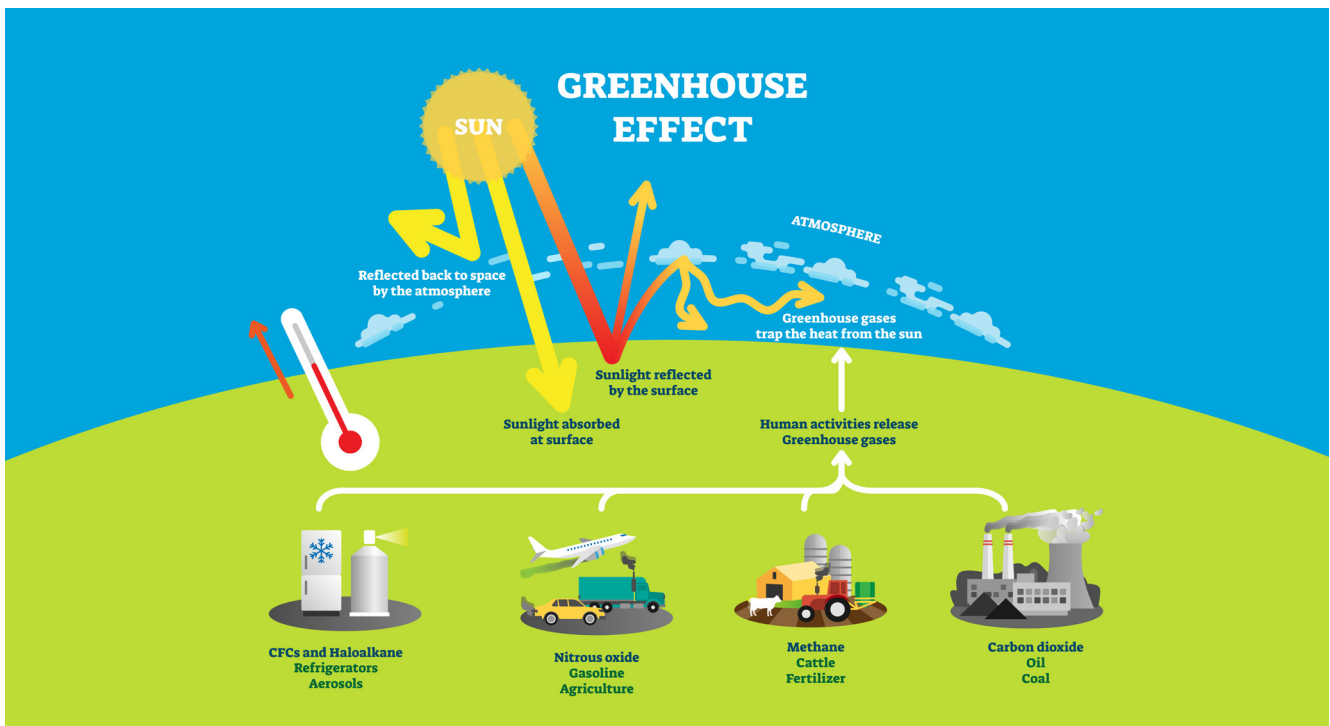


Climate change mitigation through greenhouse gas (GHG) reduction or removal from the atmosphere is a global public good that requires significant investments by governments and businesses. Although benefits accrue to all humans, the problem of free-riding arises from such practices. How can the free-riding problem related to climate change mitigation action be resolved? What role do cross-border carbon taxes play in the climate change policy landscape? Who are the front-runners in terms of implementing cross-border carbon taxes and how will they influence shifts in trading flows?

These are some of the questions addressed in this month's Al-Attiyah Foundation research paper.

SUSTAINABILITY RESEARCH PAPER

This research paper is part of a 12-month series published by the Al-Attiyah Foundation every year. Each in-depth research paper focuses on a current sustainability topic that is of interest to the Foundation's members and partners. The 12 technical papers are distributed to members, partners, and universities, as well as made available on the Foundation's website.



- Climate change mitigation through greenhouse gas (GHG) reduction or removal from the atmosphere is a global public good that requires significant investments by governments and businesses. Although benefits accrue to all humans, the problem of free-riding arises from such practices.
- Climate clubs have been proposed as a promising approach to help overcome the collective action problem that arises with climate change mitigation by creating a smaller group of countries that are willing to act together. However, climate clubs also have limitations, as they may exclude developing and smaller countries and could trigger trade disputes.
- Currently, different countries and regions have implemented various types of carbon pricing policies, resulting in a patchwork of approaches across the globe with different levels of pricing, underlying ambition, coverage and thus varying overall effectiveness.
- This lack of a level playing field can create challenges for businesses operating in multiple regions with different carbon pricing regimes. This in turn may result in carbon leakage, i.e., relocation of highly GHG-intensive industries from jurisdictions with ambitious policies to jurisdictions without or only laxist climate policies compromising competitiveness of the former.
- Border carbon taxes are suggested to address the issues of free-riding, carbon leakage and competitiveness. The European Union, a front-runner, introduced the Carbon Border Adjustment Mechanism (CBAM) in 2023 to apply a carbon price on certain imports into the EU starting in 2026. The mechanism aims to prevent carbon leakage and to level the playing field for EU companies competing internationally.
- However, these initiatives also occur at a time of renewed friction within international trade relationships and growing geopolitical tensions shown by spreading of military conflicts, triggering increased protectionism and related industrial policies, as well as rising inflation. These factors may to a varying degree-affect the success of the CBAM or lead to a new round of trade wars.



Climate change mitigation is a global public good (GPG) since greenhouse gas (GHG) emission reductions occurring anywhere in the world have the same effect on climate. The nature of the global public good entails two basic properties: non-excludability and non-rivalry. Non-rivalry denotes that the consumption of the public good by one person does not reduce the quantity available for consumption by another person while non-excludability denotes that nobody can be excluded (except at high exclusion costs) from benefiting from or being affected by the GPG. Climate change mitigation therefore requires coordinated international action. However, it also requires significant investments by individual governments, businesses, and individuals, while the benefits accrue immediately to all humans, resulting in strong incentives for free-riding.

Free-riding occurs when some parties benefit from the emission reductions of others (due to non-excludability) without proportionally participating in mitigation actions⁰¹. Indeed, there is no legally binding enforcement mechanism by which reluctant sovereign nations can be coerced to enter into any agreement for the provision of GPGs. While the Paris Agreement is a landmark treaty aimed at solving the climate crisis, not all its provisions establish legal obligations e.g., the achievement of nationally determined contributions (NDCs)⁰².





Economic theories further indicate that without sanctions countries will not make large emission cuts in the near term to deal with climate change if doing so creates a disadvantage relative to others, particularly in the case of free-riding⁰³. To overcome the challenge of free-riding in international climate agreements, Nobel Prize winner William Nordhaus has proposed the "climate club" mechanism to induce cooperation on climate policy and incentivize emission reductions⁰⁴. In general terms, clubs are by nature exclusionary, such that specific benefits are only available to its members.

Nordhaus suggests that climate clubs can contribute to climate change mitigation by supporting the alignment of carbon pricing systems for a restricted group of countries in the absence of a global carbon price. Climate club participants may provide rebates or exemptions for domestically produced goods that are exported to other participants with similar carbon pricing or emissions reduction measures while non-participants are penalised, e.g., through tariffs on the imports (border carbon adjustments) into the club region for lack of comparable carbon pricing or climate policy⁰⁵.

Currently, no such climate clubs exist but carbon pricing instruments – in the form of emission trading systems (ETS) and taxes – have already been adopted as a key climate policy measure in an increasing number of jurisdictions including on a regional scale. For instance, the European Union ETS (EU ETS), the largest and oldest cap-and-trade system, introduced in 2005, covers carbon emissions from heavy industry (e.g., steel, iron, aluminium, cement, glass, etc.), electricity production and aviation (for flights within the EU). The EU ETS has cost-effectively reduced carbon emissions and spurred the development of new low-carbon technologies⁰⁶.

However, right from its introduction, concerns particularly from industry lobby groups were raised on the potential impacts of the EU ETS on the international competitiveness of regulated businesses, where firms regulated under the EU ETS may shift production to countries with less stringent policies, causing policy-induced carbon leakage⁰⁷. Conversely Porter (1991)⁰⁸, hypothesised that environmental regulations such as the EU ETS might boost the economy by incentivising environmentally friendly innovation and improving the regulated firms' international competitiveness. This hypothesis has been confirmed in various studies on the economic performance of firms since the introduction of the EU ETS and there has been no empirical evidence of carbon leakage occurring in practice^{09, 10, 11}.

Nevertheless, because of these concerns strongly voiced by lobbies, heavy industry sectors (e.g., iron, steel, and cement) receive a certain number of free emissions allowances while the power sector has to purchase them at auctions¹². However, free allocation is incompatible with the long term demands of deep decarbonization and the goals of the Paris Agreement and will

therefore have to be phased out over time¹³. While for many years, the price of EU allowances was low, reaching a nadir of about 5 € in 2016, prices have skyrocketed since then, exceeding 100 € in early 2023.

Other national and subnational ETSs include New Zealand, some states and provinces in the US and Canada respectively, and, more recently, China, Kazakhstan, and Mexico. Prices and coverage of sectors vary strongly, but overall, prices are much lower than in the EU ETS.

The effectiveness and efficiency of carbon pricing is lower the more fragmented the approaches are. This is exacerbated by spreading of military conflicts, and a global energy crisis following hard on the heels of the COVID-19 pandemic. Moreover, as demonstrated by the Inflation Reduction Act (IRA) of the US, a general tendency by countries towards protectionism and "all out competition", e.g., by bolstering the manufacturing capabilities of domestic firms against foreign competition by means of tariffs and subsidies, does exist.



The EU considerably increased the scale of its climate ambition with the announcement of the European Green Deal in 2019. The Deal contains a set of policy initiatives^a for the bloc to reduce GHG emissions by at least 55% compared to 1990 levels by 2030 and achieve carbon neutrality by 2050 in line with the European Climate Law¹⁴. The EU ETS also entered its fourth phase in 2021, with prospects of a more rapid decline of the annual emissions cap and more stringent benchmarks for free allocation, potentially increasing the risks of carbon leakage¹⁵.

In this light, the European Green Deal proposed the EU Carbon Border Adjustment Mechanism (EU CBAM) explicitly designed to replace the free allocation of allowances as the chosen policy option to address carbon leakage. The EU CBAM aims to equalise the carbon price paid by EU producers operating under the EU ETS and the one for imported goods. This will be achieved by obliging companies that import into the EU to purchase so-called CBAM certificates to pay the difference between the carbon price in the country of production and the price of allowances in the EU ETS¹⁶.

The CBAM is expected to enter into force for a transitional period starting 1 October 2023. By then, importers in the sectors covered by the CBAM must be able to fulfil their monitoring, reporting and verification (MRV) obligations. The full pricing mechanism will be launched in 2026. In the meantime, the EU countries are setting up the new systems required for the sale of CBAM certificates. The EU CBAM will then be phased in from 2026-2034, while free allocation of allowances under the EU ETS will be gradually phased out¹⁷.

The CBAM will cover the most emission-intensive sectors: iron and steel, cement, fertilizers, aluminium, electricity production hydrogen, certain precursors (e.g., agglomerated iron ores and concentrates) and some downstream products (e.g., screws and bolts made of iron and steel). The CBAM will not apply to imports from countries that are covered by the EU ETS (i.e., European Economic Area countries) and countries with a domestic ETS fully linked with the EU ETS (i.e., Switzerland). Reporting of the emissions embedded in products will be the responsibility of the importer, and importers will have the opportunity to claim reduced CBAM fees based on the lower emission intensity of imports.

Similar instruments are under consideration in other jurisdictions. For example, the US in response to the EU CBAM has expressed nascent interest in a carbon border adjustment even in the absence of an explicit domestic carbon price^{18,19}. A slight variation of the carbon border adjustment is already in place at subnational level under California's cap-and-trade system for imported electricity. The Canadian government has recently concluded a consultation process on establishing a CBAM (Department of Finance Canada 2022)²⁰.

On the international level, Nordhaus' "climate club" idea, though generic and significantly watered down, was adopted by the Heads of State and Government of the G7 in December 2022 following an announcement at the 2022 World Economic Forum by Federal Chancellor of Germany Olaf Scholz²¹. The Terms of Reference states that the club will be built on three pillars: (1) advancing ambitious and transparent climate mitigation policies, (2) reducing GHG emissions within member states

a. Commonly referred to as the "Fit for 55 in 2030 package"

and transforming industries jointly to accelerate decarbonization, and (3) boosting international climate cooperation and partnerships. Notably, under the first pillar, club members would “engage in strategic dialogue on industrial carbon leakage mitigation, to identify possible strategies to mitigate carbon leakage risks”²².

FEASIBILITY OF THE EU CBAM

Political feasibility and pushback by exporting countries

Discussions on the CBAM became more focused in March 2020, as part of the EU Green Deal, which directed the revision of all climate-related policies, including the EU ETS, through the “Fit for 55” package. In Europe, industry stakeholders showed overall acceptance on the prospect for a carbon border adjustment, however, different groups raised concerns over additional bureaucratic procedures, the lack of clarity on how carbon leakage would be addressed and the phasing out of the free allowances^{23, 24, 25}.

Before reaching an agreement in December 2022, the three main EU institutions (the EU Commission, Council and Parliament) entered a triadialogue on the reform of the EU ETS to find a common position and iron out the finer details of the CBAM design. Initial proposals by the three institutions differed on: the transition period for phasing out free allowances and phasing in the CBAM, its scope and coverage (sectors, emissions, and trade flows) and the use of revenues accrued from the CBAM once operationalised²⁶.

At the onset of the discussions on CBAM in the EU, there was already push back from its key trading partners. The BRICS countries (Brazil, Russia, India, China, and South Africa) called the CBAM “discriminatory” framing it as a unilateral trade barrier²⁷. Australia accused the EU of protectionism that would be detrimental to global trade and growth²⁸. Developing countries in Africa and South-East Asia contended that the CBAM would apply an unfair economic and administrative burden on them, underscoring that the EU would be using climate policies as a guise for installing a levy on imports that would in turn limit their right to development^{29, 30}.



Many developing countries demonstrate a relatively high exposure and vulnerability to the CBAM due to a single-sided export orientation towards the EU market and low GDP. For example, an impact assessment by the EU demonstrates that Mozambique's economy would be materially affected as Mozambique exports 54 % of its aluminium to the EU (5.8% of EU imports) and the CBAM impact could lead GDP to fall by 1.6%³¹.

In response to these concerns, the EU committed to provide technical assistance to developing countries and Least-Developed Countries (LDCs) to comply with the requirements created under the CBAM and stated that financial support for decarbonization in these countries should continue to come from the EU budget. The EU Commission will further assess the impact of the CBAM on both developing countries and LDCs in 2027³².

Further issues have been raised on how to deal with countries that lack carbon pricing. The passage of the US IRA further introduced a new challenge in the final shaping of the EU ETS and the CBAM particularly on the slow phasing out of the free allocation of allowances³³. The US suggested the use of equivalent measures to exempt US products from having to comply with the EU's CBAM requirements. However, the agreement by the EU seemingly excludes this by basing on equivalence of carbon costs, rather than comparable incentives to reduce emissions, emissions intensity, or national climate targets, which may effectively introduce a challenge for US producers³⁴.

Despite the initial pushback, there has been a reluctant acceptance demonstrated by the proliferation of more stringent climate policies. Prior to the war in Ukraine, Russia was the most exposed to the CBAM. Russia subsequently announced a carbon neutrality target for 2060 and had been engaging in laying the groundwork for a future carbon monitoring and regulation system³⁵. However, it is unlikely that Russia will stick to these commitments given the current geopolitical tensions.

At the 26th Conference of Parties (COP26), Turkey ratified the Paris Agreement and announced the design of a national ETS similar to the EU's to counteract the threat of the CBAM³⁶. China also launched its national ETS in 2021, having maintained a close working relationship with the EU in the drafting and pilot stages of its ETS program³⁷. Similarly, some African countries have made announcements to develop carbon pricing systems, e.g., Kenya and Nigeria³⁸.

The recent increase of fossil fuel subsidies within the EU following Russia's invasion of Ukraine, however, may undermine the EU's efforts to meet the ambitious climate targets it has set. The increase in fossil fuel subsidies is also problematic from a geopolitical standpoint, as it undermines the EU's credibility to promote similar ambitions to support climate change mitigation and reduce dependence on fossil fuels globally³⁹.



The EU and several scholars maintain that the CBAM is compatible with international trade law^{40, 41}. However, other observers are doubtful and there is an increasing likelihood that the CBAM will be challenged under international trade legislation. For the CBAM to comply with the World Trade Organisation (WTO) rules it must be (1) non-discriminatory and (2) reciprocal.

The foundational provisions of the WTO, namely Article I (most-favoured-nation) contained in Article I of the General Agreement on Tariffs and Trade (GATT) requires that a concession made to one must be made to all and thus forbids discrimination among countries^b. Article III of the GATT further requires that any internal rules not provide preferential treatment or protection for domestic "like" goods or production over imported products. The CBAM could thus encounter difficulties by treating foreign-produced goods differently and by extending protection for domestic industry through subjecting foreign products to an import tariff.

The EU argues that the tax paid by the importer will be equivalent to the cost of allowances the EU producers will be required to pay, such that the CBAM is not inherently discriminatory. Furthermore, it is anticipated that the EU will likely argue that goods produced in a more carbon-intensive manner are not "like" goods. The EU has also explicitly excluded export rebates from the CBAM design to ensure compatibility with the WTO rules and avoid creating perverse incentives for European producers.

India has already openly opposed the CBAM, questioning its compatibility with the basic rules of the WTO (WTO 2021⁴²). According to India, the CBAM is discriminatory and contradict the principles of equity and common but differentiated responsibilities (CBDR). However, the WTO dispute settlement process has been under threat recently following a stalemate to reconstitute the Appellate Body⁴³. As the Appellate Body is unable to hear new appeals, currently no disputes can be resolved⁴⁴.

b. Although an enabling clause allows some discrimination in favour of LDCs if the main aim is to aid development



The results of various assessments carried out to evaluate the impact of the EU CBAM on export volumes from different world regions indicate that the countries expected to be strongly affected by the CBAM include Russia, Turkey, China, and Ukraine^{45,46}. Depending on price elasticity of the imported goods, these countries may lose part of their market share to the EU producers or to countries with lower carbon intensity of their exports.

Prior to the war in Ukraine, the sectors most affected based on the value of exports from Russia were fertilisers (26.9% of EU imports), iron and steel (13.9% of EU imports) and aluminium (12% of EU imports). While exports are low on the Ukraine agenda following the invasion by Russia, the CBAM was estimated to have an impact on exports of cement (10.6% of EU imports) and iron and steel (9.6% of EU imports) and had already elevated climate

policy in the country's political agenda in recent years⁴⁷. The main Chinese imports into the EU covered by the CBAM are aluminium (7.9% of EU imports), and iron and steel (12.1% of EU imports). However, given the implementation of the Chinese ETS, the country may be exempt them from CBAM if it links it to the EU ETS and covers the CBAM-related sectors. The effects of the CBAM on Turkish exports to Europe are estimated to significantly affect the prices of cement (38.6% of EU imports), and aluminium and steel (12.6% of EU imports).

However, despite these impacts, as already mentioned, the CBAM has already had a positive impact in some of these countries by supporting the scaling up of ambition to address the climate crisis and sparking debates about the potential introduction of carbon pricing.

Some critics of the EU CBAM contend that the EU should be less rigid in its approach to using the CBAM to promote carbon pricing globally⁴⁸. Several compromise proposals have been put forward with the underlying objective to ensure the EU CBAM balances the EU's climate goals with its trade relations and the interests of other countries.

One suggestion is to allow the use of carbon credits as offsets against the CBAM⁴⁹. So far, the role of carbon credits in the EU CBAM remains to be seen and will likely remain contentious due to a range of factors, including the credibility of different offsetting schemes. The EU banned the use of international credits from the Kyoto Mechanisms in the EU ETS on the grounds of questionable environmental integrity and is therefore similarly unlikely to allow them to offset CBAM⁵⁰. Another proposal is the adoption of a loose definition of "equivalent measures"⁵¹ where the EU allows trading partners to select the most appropriate instruments to support their decarbonisation efforts beyond carbon pricing. Finally, given the impact the CBAM will have on developing countries, a third proposal includes the full or partial exemption of countries currently covered by unilateral preference schemes, to avoid unfairly penalising nascent industries especially in LDCs.

At the EU level the low volumes of imports from LDCs minimizes the risk that a blanket exemption would encourage carbon leakage⁵². The legality of this proposal is premised on the EU already applying the WTO's enabling clause to grant some developing countries preferential access to its market unilaterally. For example, in the 'Everything but Arms' scheme for LDCs, countries receive duty and quota-free access to the EU market and would qualify for full exemption from the CBAM.

Moreover, in the EU's Generalised System of Preferences (GSP and GSP+) schemes lower-middle income countries receive conditional (and partial) preferential access and can be exempted from the CBAM to a pre-determined threshold^{ibid}. Finally, countries like Ukraine, suffering from the aftermath of violent conflicts, need exports to generate resources for reconstruction could be exempted from CBAM.



The ongoing multi-crisis including the impacts of the COVID-19 pandemic, climate change, rising inflation, economic inequality, and geopolitical tensions has put enormous pressure on governments around the world to act. One possible outcome of this pressure is an increased willingness among governments to implement policies that address climate change, such as carbon pricing. On the other hand, the current crises have also led to significant economic disruptions and challenges, and many governments may be more focused on addressing these immediate concerns rather than implementing new policies that are seen by powerful interest groups as further disrupting economic activity. Overall, it is difficult to predict whether the current multi-crisis will make border carbon taxes more or less likely given that the EU CBAM has already proven resilient to several roadblocks and potentially driving the proliferation of climate policies in various jurisdictions.

Large trading partners of the EU, such as India and China, could introduce countermeasures to address the possible negative impacts of the CBAM. With political will, China may consider the sectoral expansion of the Chinese national ETS to cover the CBAM sectors and increasing the carbon price to reduce the impact of the CBAM on Chinese producers. China may also consider the national ETS linking to the EU ETS effectively addressing the leakage and competitiveness concerns of the EU, and the cost barriers the CBAM introduces to Chinese producers.

At the same time, producers in these countries could also engage in 'resource reshuffling', by exporting low carbon content products to the EU, while maintaining high carbon content products for domestic or non-EU markets. Countries may also seek to introduce import tariffs or border taxes of their own making a trade war imminent. While this may happen in the case of China and India, the threat of Russia's countermeasures however may be less relevant given the sanctions imposed on the country following its invasion of Ukraine that will most likely lead to output contraction and a collapse of its imports.

To ensure smooth implementation of the CBAM the EU will need to negotiate robust deals, taking into account the concerns of emerging economies. Creative approaches may be explored in this regard, for example, by allowing the use of high-quality emissions credits from Article 6.2 and 6.4 activities as offsets against the CBAM. Moreover, full, or partial exemptions of the CBAM could be granted for the implementation of Just Energy Transition Partnership (JETP) programs, which have already started in large middle-income countries, such as South Africa, Indonesia, and Vietnam.

The EU may consider linking the CBAM to these partnerships, which support coal-dependent emerging economies to make a just energy transition. This may help ensure that the CBAM does not create winners and losers but rather opens up additional opportunities to accelerate progress towards reaching the goals of the Paris Agreement.

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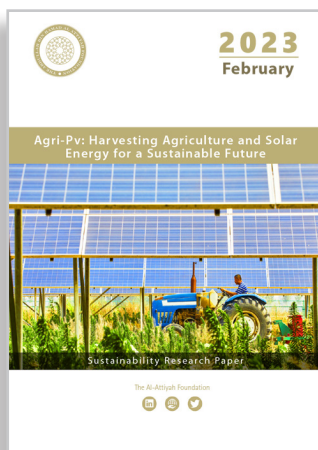
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Several challenges prevent the widespread uptake of Agrivoltaics (Agri-PV) including existing farming practices, high initial investment costs due to low market penetration and awareness, lack of government incentives and limited technical knowledge of best practices for adoption.



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January – 2023

The impact of high interest rates on sustainable investments

- How sensitive are sustainable investments to interest rate changes compared to non-sustainable investments?
- What role did low interest rates play in the growth of sustainable investments in the past decade?
- Do rising interest rates pose a threat to further growth of sustainable investments and the low-carbon transition?
- What policy measures can be implemented to cushion the effect of rising interest rates on sustainable investments?



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December – 2022

COP27: Taking Stock

Negotiations at COP27 revolved around the remaining prospects of avoiding a global temperature increase of 1.5°C; the provision of climate finance to assist developing countries to mitigate and adapt; and the establishment of new funding to compensate vulnerable countries for loss and damage.



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Our partners collaborate with The Al-Attiyah Foundation on various projects and research within the themes of energy and sustainable development.





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