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Can the Biggest Emitters Set Up a Climate Club?

A Review of International Carbon Pricing Debates

Carole MATHIEU (ed.)
Arnault BARICHELLA
Christian DE PERTHUIS
Monica NAGASHIMA
Kevin Jianjun TU

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Ifri

27 rue de la Procession 75740 Paris Cedex 15 – FRANCE

Tel.: +33 (0)1 40 61 60 00 – Fax: +33 (0)1 40 61 60 60

Email: accueil@ifri.org

Website: Ifri.org

Authors

Arnault Barichella is finishing his PhD in Political Science at Sciences Po Paris and was a Visiting Fellow at Harvard University in 2018-19. His research focuses on a comparative analysis of climate and energy policies in Europe and the United States. He previously worked at United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations Environment Programme (UNEP) in preparation for the COP21, and was also a parliamentary assistant at the French Senate. Arnault Barichella received his undergraduate degree from Oxford University (Bachelor of Art – BA – in History 2008-11) and his Master's degree in European Affairs from Sciences Po Paris (2012-14).

Christian de Perthuis is a Professor of economics at Paris-Dauphine-PSL University and founder of the Climate Economics Chair. He is a member of the CEDD, the advisory committee of the French Minister of Environment. He started his career in the agricultural sector, then went on to work in leading French research and forecasting institutes: first, at Rexecode, where he served as the Deputy Director, then at Bipe where he held the position of General Director. From 2004 to 2008 he headed the Mission Climat of Caisse des Dépôts. Since 2004, his research has focused on the economics of climate change.

Carole Mathieu is a Researcher and Head of EU policies at Ifri's Center for Energy & Climate. Her research areas primarily cover the geopolitical dimension of the European Union's (EU) low-carbon transition, with a focus on energy and transport systems. Before joining Ifri, she was a policy officer at the French Energy Regulator (CRE), in charge of representing CRE in discussions with EU institutions, network operators and market players. She holds a Master's degree in Public Administration/Energy from Sciences Po Paris.

Monica Nagashima is Engagement Manager Asia at the Tokyo office of InfluenceMap, a UK based independent think tank that provides data and analysis on how business and finance are affecting the climate crisis. Prior to that, she was a Researcher at the Institute of Energy Economics, Japan (IEEJ) and focused on liquified natural gas (LNG) and hydrogen policy. She holds a Master's degree in Environmental Policy and Energy from Sciences Po Paris, a

Master's degree in International Relations from Peking University, and a BA in Environment and Information Studies from Keio University.

Kevin Jianjun Tu is a Non-resident Fellow at Ifri's Center for Energy & Climate, and also a Senior Advisor at Agora Energiewende, an adjunct professor at the School of Environment of Beijing Normal University, and a non-resident fellow at the Center on Global Energy Policy of Columbia University. Prior to his affiliation with Ifri, Kevin led the China energy & climate programs at International Energy Agency (IEA) and Carnegie Endowment for International Peace. He was also earlier in key managing positions in the energy consulting business and the oil and gas industry. His research interests cover the full spectrum of energy issues including fossil fuel value chains, energy transitions, energy sector reforms as well as climate change, with a focus on EU-China relations and U.S.-China relations. Kevin Tu obtained a Master's degree in Resource & Environmental Management from Simon Fraser University in Canada, and a Bachelor's degree in Chemical & Mechanical engineering from Zhejiang University in China.

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Executive Summary

With the Glasgow climate conference (COP26) approaching, the concept of putting a price on carbon is generating unprecedented interest in all industrialized countries, including Canada and the United States (US), China and Japan. But the EU still stands as an exception; it is the only regional trading bloc that is determined to leverage the full potential of its emissions trading system (ETS). To date, others have lacked the political backing to deploy nationwide carbon pricing initiatives with a design robust enough to drive meaningful emission reductions. The carbon cost discrepancy with the EU is expanding dramatically as EU ETS prices have hit the €50/t (euros per tonne) mark, representing a growing burden on European industries that is unmatched elsewhere in the world (except in the United Kingdom – UK). Moreover, EU's ETS also has the largest sectoral coverage and is expected to be expanded further.

In North America, Canada has made significant progress with the adoption of a national framework for carbon pricing in 2018, setting minimum standards for provinces and a "backstop" rate in case of non-compliance. Going further, draft regulations foresee the introduction of a federal ETS as of 2022 and a gradual increase in carbon prices, but Canada's ambitions risk being upset by the lack of consistent efforts in the US, its largest trading partner. The Biden administration shows support for the principle of carbon pricing and US business groups have recently signaled their endorsement. However, the White House considers that sectoral standards, public funding targeting nascent low-carbon industries and green public procurement strategies are more likely to gain broad-based support. Given US political divides, a federal carbon pricing scheme is unlikely to materialize in the short run. In China, the long-delayed national ETS has finally been launched. However, its scope is restricted to the power sector for now, and the reliance on both technology-specific benchmarks and free allowances suggest a modest impact on coal use. Looking forward, the ETS' embedded complexity, the challenge of setting high standards for monitoring, reporting and verification (MRV) and the investment uncertainty that price fluctuation creates may discourage China from fully extending its ETS as planned, and rather argue in favor of introducing a complementary carbon tax. Japan has also engaged an expert debate on the benefits of

introducing carbon pricing at the national level. Now embracing the green growth narrative, the Japanese government is however struggling to find a balance between the risk of worsening competitiveness in a context of high energy-import prices, and the need to mobilize investment in clean technologies with a clear long-term price signal. If Ministries can find an agreement by the end of 2021, it will likely reflect a very gradual approach to carbon pricing.

For the EU, the upcoming reform of the EU ETS is an opportunity to introduce a truly demanding cap reduction for the 2023-2030 period and make this flagship instrument more robust, predictable, and fair. To initiate in-depth decarbonization of its industry, the EU will need to move progressively to a completely auction-based system. Therefore, other measures addressing unfair competition will have to be introduced and a smart carbon border adjustment mechanism (CBAM) could be part of the solution and linked to the ETS reform. Setting aside legal, trade and geopolitical challenges, a unilateral application of CBAM is however no panacea and the risk of undermining the competitiveness of downstream sectors should not be underestimated (as possibly in the aluminum and iron & steel industries). In addition, exporters will be penalized if compensation schemes are excluded. For these reasons, the EU should move cautiously with its design and start implementing the CBAM to electricity, fuel refining, cement and fertilizers only. This also means that the challenge of leveling the playing field with non-EU producers will remain largely unresolved and will need to be addressed through other tools.

Despite Brussels' repeated calls for a transatlantic agenda on climate change, the recent launch of a "Green Alliance" with Japan, and years of cooperation with China on the technicalities of ETS, there is little chance that an international alliance on carbon pricing can be set up within a timeframe compatible with the climate emergency. Yet, the EU's CBAM proposal encourages trading partners to accelerate decision-making on carbon pricing, at least to obtain partial exemption. In addition, having a concrete anti-leakage proposal on the table leads to a sense of the inevitable mismatches between the global trade and climate agendas. By measuring the relevance and limitations of unilateral CBAMs, industrialized countries are starting to acknowledge the need for a multilateral discussion on how to decarbonize industries while maintaining a level playing field and preserving open trade.

The next step should be to kickstart an open discussion in all possible multilateral fora (G20, International Energy Agency, global industry associations, etc.) and mandate the World Trade Organization (WTO) to develop guidance on a wide range of instruments (CBAM, but also eco-design labelling and standards, differentiated tariffs based on CO_2 intensity, etc.), including a common exemption approach for Least Developed Countries. Exploring a set of workable options should be more attractive to trade partners than pushing for a uniform solution, but results would still take time to materialize. Hence, establishing a level playing field with imports will likely require the EU – and all countries with an aggressive decarbonization agenda – to strengthen their financial and regulatory support for the deployment of innovative low-carbon manufacturing processes. Again, this almost-unavoidable resort to State aid would strongly benefit from WTO guidance. To decarbonize global industries, it is time to find a proper articulation between climate and trade rules in a spirit of multilateral trust.

Table of contents

Introduction

In the last few years, a growing number of countries have committed to reach climate neutrality by mid-century: that is to reduce drastically their territorial greenhouse gas (GHG) emissions and achieve a balance with the amount of GHGs that can be absorbed by domestic carbon sinks. In late 2019, the EU declared its ambition to become the first carbon-neutral continent by 2050 and launched the race to "net zero" among major emitters. At the time, climate neutrality pledges covered only one-sixth of the global economy. Six months later, China's President Xi Jinping caught the United Nations General Assembly by surprise and announced that his country would reach climate neutrality "before 2060". The election of Joe Biden as President of the US has further contributed to making net zero pledges a matter of international standing, and they now cover two-thirds of the global economy and 61% of global GHG emissions.[1]

This alignment of long-term targets with climate science is a major sign of progress in the implementation of the Paris climate Agreement. Yet, in the months leading up to the Glasgow climate conference (COP26) the challenges are having more super emitters joining the carbon neutrality pledge, such as Australia, and demonstrating the credibility of climate neutrality pledges by ramping-up 2030 decarbonization targets and presenting robust policy packages in support of this higher level of mid-term ambition. In their move from commitments to decisive action, industrialized countries are strongly encouraged to give a fresh look at carbon pricing initiatives.[2] These are widely viewed as the most economically efficient approach to allocate decarbonization efforts, but they only covered 22% of global GHG emissions in early 2021 and have largely failed to deliver a meaningful price signal, until only very recently in the EU and the UK.[3]

In the EU, the conversation is now shifting from the design of the green recovery packages to the review of all climate-related policies and recovery plans to make them fit the -55% target for GHG

1. R. Black *et al.*, *Taking Stock: A Global Assessment of Net Zero Targets*, ECIU and Oxford Net Zero, March 2021, available at: https://ca1-eci.edcdn.com.
2. See for example the final communiqué of the June 5, 2021 meeting of G7 Finance Ministers and Central Bank Governors, available at: www.gov.uk.
3. World Bank Group, State and Trends of Carbon Pricing 2021, May 2021, available at: https://openknowledge.worldbank.org.

emission reductions by 2030. On July 14, 2030, the European Commission (EC) will present a package of 12 legislative proposals, with the reform of the EU ETS set to be the cornerstone of Europe's overhaul of climate policy. Emission allowances are now traded at above €50/t and setting the EU ETS cap trajectory in line with the new climate ambition for 2030 will likely support further price gains, with significant cost implications for domestic industries and EU citizens. In addition, the impact of a strengthened EU ETS will be felt globally since EU leaders called for the introduction of a CBAM to mirror the internal carbon price, and ultimately shore up domestic support for an aggressive decarbonization agenda.

At first, the EU's CBAM proposal generated hostile reaction from the bloc's main trading partners. Despite the EU's commitment to opt for a design which would be fully WTO-compatible, the idea itself is seen as confrontational and in contradiction with diplomatic efforts to secure a multilateral response to climate change. Nonetheless, the EU's CBAM proposal could also spur global discussions on carbon pricing as countries have the possibility to avoid the levy if they match the EU's internal carbon price with a domestic equivalent. Likewise, the EU's move signals the urgency to deal with the heterogeneity of national climate policies. This should become a shared concern for all countries with ambitious decarbonization targets, and anti-leakage instruments such as CBAM are thus likely to gain traction beyond the European context.

This new momentum around carbon pricing could be an opportunity to follow up William Nordhaus' 2015 recommendation to set up a climate club between industrialized countries to fix a minimum domestic carbon price and introduce penalties for non-members to incentivize their participation.[4] Compared to unilateral approaches, this option may reduce the potential for global trade frictions but the central question is whether domestic debates on carbon pricing have reached a sufficient level of maturity to support coordinated efforts. In the run-up to COP26, this collective study takes stock of carbon pricing developments in Canada, the US, China, Japan, and the EU, and assesses progress in domestic debates in favor of an internationally coordinated approach to carbon leakage and competitiveness concerns.

4. W. Nordhaus, "Climate Clubs: Overcoming Free-Riding in International Climate Policy", American Economic Review, Vol. 105, No. 4, April 2015, available at: www.aeaweb.org.

New Developments for Carbon Pricing Initiatives in the US and Canada

Arnault Barichella

Background of carbon pricing initiatives in North America

The US and Canada provide salient examples of how national governments have struggled to enact carbon pricing initiatives. For example, the Clean Energy and Security Act (ACES) was introduced by Senators Waxman and Markey in 2009, with the aim of establishing a national US emissions trading system that would have been similar to the EU's ETS. While the bill was approved by the House, it was never brought to the Senate for discussion or vote. Due to considerable lobbying pressure, its Republican backers in the Senate switched support and blocked the initiative. Democrats had already been through very partisan votes on Health Care, and most were not in the mood for another political struggle. Likewise, President Obama did not play a strong role in trying to push it through, due to concern that this would jeopardize Democrats in upcoming elections. Regardless of the reasons, Obama would not get another chance, since the Democrats lost their majority in the House in 2010, and in the Senate in 2014. This was followed by Trump's election in 2016, which resulted in the most aggressive climate policy rollback in US history. In Canada, the election of Stephen Harper's Conservative Party in 2006 dashed hopes for an ambitious climate policy agenda. For nearly a decade and up until Justin Trudeau's election in 2015, Canadian conservatives blocked proposals on carbon pricing, and Harper even chose to withdraw from the Kyoto Protocol in 2011.

Due to such obstacles at the national level and the fact that both the US and Canada are federations whereby states and provinces enjoy a high degree of autonomy, progress on carbon pricing has mainly taken place at the sub-national level (at least until recently). For example, California's State Legislature passed the "Global

Warming Solutions Act" in 2006, outlining plans to cut emissions through both regulation and market tools, which led to the development of a regional cap-and-trade program. Launched in 2007 with Arizona, California, New Mexico, Oregon and Washington, the initiative had expanded by July 2008 to include two more US states (Montana and Utah), as well as four Canadian provinces (British Columbia, Manitoba, Ontario and Quebec), comprising 20% of US gross domestic product (GDP) and 76% of Canadian GDP. The "Western Climate Initiative" (WCI) rapidly grew into a multi-sectorial program[5] and initially laid the foundations for a North American carbon market by accepting emission offsets from across the region. However, all US states except for California withdrew in 2011, followed by the Canadian provinces of Manitoba in 2013, and Ontario in 2018. This was partly linked to the onset of the global financial crisis in 2009, when cap-and-trade was accused of imposing too many restrictions.[6] Still, Nova Scotia became a new member in 2019, and the state of Washington has also expressed interest in rejoining following the recent enactment of ambitious state-level cap-and-trade legislation. Indeed, the WCI continues to yield positive results, with members surpassing the initial objective of reducing GHG emissions by 15% below 2005 levels by 2020.

Another notable initiative is the "Regional Greenhouse Gas Initiative" (RGGI). While California's WCI is multi-sectorial and economy-wide, RGGI became the first mandatory cap-and-trade program in the US to limit CO_2 specifically from the power sector. RGGI was established in 2005 and administered its first auction of CO_2 emission allowances in 2008. By the end of 2020, it had helped members reduce annual power-sector emissions by around 45% below 2005 levels, with a goal of cutting them further by 30% up to 2030. Through consecutive 3-year trading phases, RGGI had generated close to $5 billion in total revenue by the end of the 4th phase in 2020. Members successfully cut emissions while growing their economies, with a sharp drop in electricity prices.[7] RGGI states account for one sixth of the US population and one fifth of national GDP. The 11 states currently participating are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, New Jersey and Virginia; Pennsylvania is scheduled to join later in 2021.

5. This includes industry, power, transportation and buildings, representing around 80% of California's GHG emissions.
6. New Republican governors were also elected in several participating states at the time, strongly opposed to cap-and-trade.
7. See the Regional Greenhouse Gas Initiative: www.rggi.org.

Potential for new carbon pricing initiatives in the US under Biden

The US rejoining the Paris Agreement under Joe Biden, together with Democrats' unexpected success in winning a majority in the Senate following the two Georgia run-off elections, have opened-up new prospects for national-level carbon pricing initiatives. Biden's "Clean Energy Revolution" plan sets out very ambitious climate targets, and a number of Democrats see carbon pricing as an effective policy tool for reducing GHG emissions. Carbon taxes would help to supplement federal climate regulations across a range of different sectors; yet, it should be noted that Biden is likely to face substantial obstacles. For instance, Democrats lost ten seats in the House during the 2020 elections, and the Party has become very divided between moderates and progressives. This may impede efforts to find bipartisan compromises over climate legislation, which will be needed due to the configuration of the Senate. The upper chamber is now split in half with each Party holding fifty seats, and Democrats only have a majority through Vice-President Kamala Harris casting the deciding vote in the event of a tie. Hence, Democrats lack enough seats to circumvent a "filibuster" from Republicans, an obstruction technique that relies on Senators' right to speak continuously.[8] While some progressive legislators have recommended abandoning the filibuster, a number of moderate Democrats are opposed to this, and are also lukewarm towards some of the more far-reaching proposals on carbon pricing.

For these reasons, it is likely that Democrats will not be able to pass legislation to create a national cap-and-trade program similar to the EU's ETS, or even extensive domestic carbon taxation, and bipartisan consensus will be needed for other types of carbon pricing initiatives.[9] However, it should be noted that in the context of current discussions over a Clean Electricity Standard, the linchpin of Biden's proposed Infrastructure Plan, US business groups have gradually come to see carbon pricing and market-based tools as a lesser evil, instead of direct government mandates on emissions. Likewise, a number of centrist legislators from both Parties are open to the prospect of enacting some form of carbon border tax on imports, in

8. A. Barichella, "United States Climate Politics under Biden: Is the Clean Energy Revolution Under Way?", *Édito Énergie*, Ifri, January 13, 2021, available at: www.ifri.org.
9. Another obstacle facing Democrats is that three Supreme Court Justices were nominated under Trump, which means that conservatives now enjoy a strong majority in America's highest Court. The latter had already blocked Obama's Clean Power Plan in 2016, at a time when the Court had a more balanced membership.

order to protect national industries from unfair foreign competition under ramped-up domestic climate policies. Carbon border taxes have grown more popular amongst moderate Republicans such as Susan Collins or John Barrasso as a way to avoid "carbon leakage", whereby production moves offshore to developing countries like China or India with lower environmental standards, without reducing overall emissions.[10] Yet, while there are reasonable prospects for enacting some form of bipartisan legislation on carbon border taxes, disagreements remain over the subject and rate of taxation, and how this would impact the Environmental Protection Agency's regulatory authority. Likewise, the window of opportunity may be short, since Democrats could lose their House majority in the 2022 mid-term elections, and more conservative Republicans might enter Congress.[11]

However, it is worth noting that Biden will also be able to rely on executive action to enact carbon border taxes, including via Section 232 of the 1962 Trade Expansion Act[12], or Section 301 of the 1974 Trade Act.[13] While carbon border adjustment has already been emphasized in the administration's new trade agenda, ensuring WTO compliance of a US carbon border tax will still be extremely challenging in the absence of a federal carbon price. At the same time, the fact that extensive sub-national initiatives are already in place (see above) could potentially serve as a facilitator in this regard, as long as Biden succeeds in establishing close multi-level coordination. For instance, California's ETS already requires carbon border adjustments for electricity imports from jurisdictions without a carbon trading system. Yet, the latter has not been able to fully resolve the issue of carbon leakage, in part because of "resource shuffling",[14] which has led to discussions about the possibility of extending it to other sectors.

10. It should be noted that under Obama and even Trump, a number of bipartisan bills containing proposals for carbon border taxes were introduced by legislators; none were approved, however.
11. Last February, Biden restored an Obama-era calculation on the economic cost of GHGs known as the "social cost of carbon", a step that will make it easier to launch new carbon pricing initiatives. Experts are working out a final updated figure for early next year.
12. Section 232 of the 1962 Trade Expansion Act gives the President authority to "adjust the imports" of any product that "threatens to impair the national security" of the US. Trump had relied on this to pass tariffs on steel and aluminum, for example.
13. Section 301 of the 1974 Trade Act authorizes a President to impose tariffs on countries that engage in acts that are "unjustifiable" or "unreasonable" and burden US commerce.
14. "Resource shuffling" refers to the fact that imported electricity is contractually low-carbon, leaving high-carbon generation sources to be consumed by users in jurisdictions without high-carbon costs.

New developments in Canada under Trudeau

Unlike in the US, prospects for enacting new carbon pricing initiatives in Canada over the next few years look far more promising. Justin Trudeau's election in 2015 at the head of a new Liberal majority raised high hopes in terms of climate policy. After quickly ratifying the Paris Agreement, Trudeau introduced the "Pan-Canadian Framework on Clean Growth and Climate Change" in 2017 as the primary federal climate strategy, where carbon pricing initiatives play a central role. The Canadian Parliament subsequently approved the Greenhouse Gas Pricing Act in 2018 as a national framework for carbon pricing that sets minimum standards for provinces, which may also choose to implement their own systems. The law gives the federal government the ability to apply a carbon tax (or backstop) on provinces that fail to meet national minimum standards; at present, 7 out of 13 provinces pay the backstop rate, currently priced at C$30/t$CO_2$ (Canadian dollars per tonne of CO_2) and set to reach C$170 in 2030.

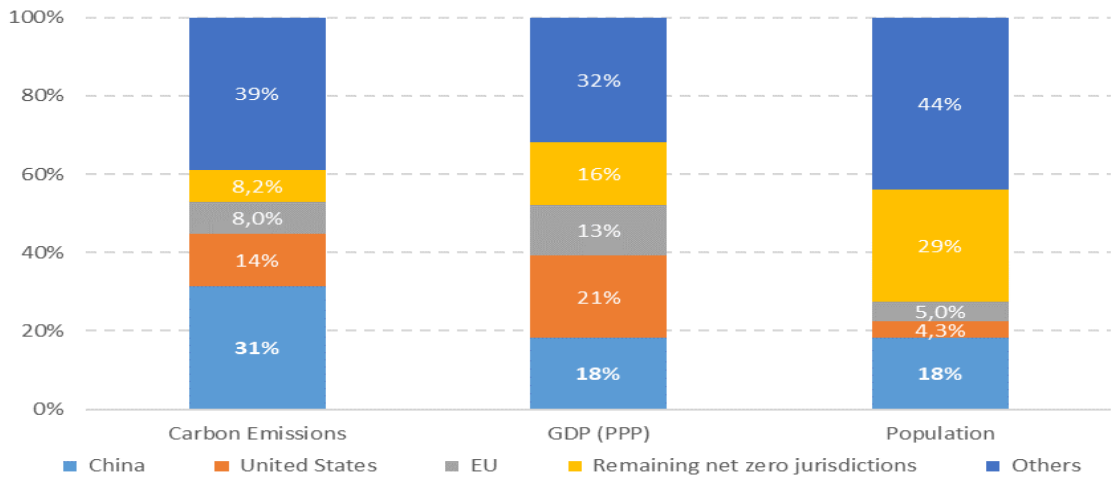
Hence, it is interesting to note that climate policy initiatives in Canada, including those on carbon pricing, are not subject to the same level of domestic constraints as in the US; for instance, the GHG Pricing Act was recently upheld by the Canadian Supreme Court in March 2021. Likewise, even though Trudeau's Liberal Party has had to form a minority government following the results of the 2019 federal elections, climate action tends to enjoy broad-based support in Canada, unlike in the US. Thus, although they have refused to support Trudeau on many issues, three of the other main Parties, including the *Bloc Québécois*, New Democratic Party and Green Party of Canada, have agreed to support new climate initiatives. Thus, Trudeau's government has been able to recently introduce draft regulations that aim to create a national carbon trading system to be launched in 2022, building on sub-state initiatives developed over the last few years (see above). Canada's proposed national ETS will establish a multi-sectorial credit system involving the buying and selling of carbon emissions, covering a range of different sectors such as agriculture and forestry. The open question, however, is whether a robust proposal can be developed in the absence of comparable developments on the US side.

China's Long Quest for an Appropriate Carbon Pricing Regime

Kevin Jianjun Tu

Against the backdrop of an ongoing COVID-19 pandemic, China was the only major economy that witnessed positive economic growth in 2020. While the world economy shrank by 3.3% last year, the Chinese economy grew by 2.3%. Unfortunately, China's impressive recovery brought about at least 1.3% growth of national carbon emissions. Thus in 2020, China accounted for about 31% of global carbon emissions, two-percentage points higher than in 2019.

China's share in global net zero pledges in 2020



Source: K. Tu and Z. Yang, "COVID-19 China Impact Tracker Issue 3: A Recap of 2020", Agora Energiewende, 2021.

Luckily, in September 2020, Chinese president Xi Jinping announced that China would aim to cap national carbon emissions before 2030, and achieve carbon neutrality before 2060, representing an effort equivalent to decarbonizing the entire French economy annually for 30 consecutive years starting from 2030. Following president Xi's carbon neutrality pledge, the Chinese Ministry of Ecology and Environment soon released its "Measures for the Administration of National Carbon Emissions Trading (trial)" in December 2020, aiming to kick off China's long-delayed national carbon ETS in the power sector the following year.

As China's national ETS is expected to eclipse that of the EU to become the world's largest one, the potential evolution of China's carbon pricing regime has caught rising attention from the international community. This chapter reviews the history of carbon pricing in China, followed with a simplified comparison of the ETS and carbon tax option. Finally, concluding remarks explore what should be the appropriate carbon pricing regime in China.

The history of carbon pricing in China

Carbon pricing in China dates back to the Clean Development Mechanism (CDM), a special emissions trading arrangement developed under the Kyoto Protocol. At the time, developing countries could issue Certified Emission Reduction (CER) credits based on GHG mitigation projects carried out on their national territories. CER credits were then sold to developed countries (referred to as Annex 1 parties) to offset part of their domestic emissions. Since the start of CDM projects in 2007, China alone has accounted for nearly half of total global transactions.

Anticipating the end of CDM projects by the end of the first commitment period of the Kyoto Protocol in 2012, Chinese experts actively discussed what carbon pricing mechanism could be introduced in replacement. Since the end of 2011, the politically powerful National Development and Reform Commission (NDRC) initiated pilot ETS schemes in eight Chinese provinces and municipalities. As indicated in Table 1, the eight pilot ETSs primarily target key carbon-intensive sectors. By March 2021, they covered more than 20 industries, and nearly 3,000 major emitters, with cumulative trade totaling about 440 million tonnes (MT) of CO_2 emissions and transaction turnover of 10.47 billion yuan (€1.34 billion), or the equivalent of an average carbon price of 23.8 yuan/tCO_2 (or \$3.7tCO_2).[15]

15. Z. Dan and S. Jie, "China to Launch Nationwide Carbon Trading Market by June", *Global Times*, May 26, 2021, available at: www.globaltimes.cn.

Overview of the eight pilot ETS in China

Region	Sector coverage	Emissions allocation	Threshold (tCO_2/annum)	No. of entities	Emissions allowance	Average price (yuan/tCO_2)
Beijing	EI, PC, BM, HS, transport	Free	3000 (industrial)	903	50	78.6
Tianjin	EI, IS, PC, BM, AV, PM, CM, HS	free+ auction	10000	113	160-170	13.69
Shanghai	EI, NFM, IS, PC, BM, AV, PM, CM, hotel, finance	free+ auction	20000 (industrial)	29	158	40.46
Chongqing	EI, NFM, IS, BM, PM, CM, VM, HS, food, PI	Free	20000	195	100	9.74
Hubei	EI, NFM, IS, PC, BM, PM, CM	free+ auction	60000	338	256	32.05
Guangdong	EI, IS, PC, BM, AV, PM	free+ auction	20000	279	465	23.2
Shenzhen	EI, BM, port, HS, transport	Free	5000 (non-industrial)	794	31.45	13.7
Fujian	EI, NFM, IS, PC, BM, AV, PM, CM, porcelain	free+ auction	10000	255	200	16.25

Note: EI – electric industry, NFM – non-ferrous metals, IS – iron and steel, PC – petrochemical, BM – building materials, AV – aviation, PM – paper manufacturing, CM – chemical manufacturing, HS – heating supply, VM – vehicle manufacturing, PI – pharmaceutical industry. At the time of the writing, 1.0 € = 7.8 yuan.

Source: Trust Forward (2021) History and Characteristics of Carbon Emissions Trading in China and Implications for Industrial and Financial Markets. Available at: www.sohu.com.

In December 2017, the NDRC released a "Development Plan" for a national ETS starting with the power sector. Yet in early 2018, China undertook a major government reshuffle, after which the climate change portfolio was transferred from the NDRC to a politically less powerful Ministry of Ecology and Environment,

leading to subsequent delay in introducing the national ETS.[16] However, the President's carbon neutrality pledge generated new momentum on climate action, and the decision was taken to enable the trading of national ETS allowances by June 2021, with trading to take place in Shanghai and registration in Wuhan.

Currently, the national ETS regulates 2,245 companies from the power sector with annual emissions of more than 26,000 tCO_2. The Chinese national ETS is estimated to cover more than four billion tCO_2, accounting for about 40% of national carbon emissions. Regulated entities will need to surrender allowances to cover their 2019 and 2020 emissions in 2021. this is an intensity based ETS where the amount of free allowances allocated to each plant is calculated according to their actual electricity and heat output, multiplied by the CO_2 emission-intensity benchmarks defined for each power production technology. Contrary to the European and North American ETSs, no allowance cap is adopted ex ante; instead, it is adjusted ex-post based on actual generation levels.

China's national ETS should drive emissions reductions mainly by improving the efficiency of coal-fired power generation, particularly between 2020 and 2030, and by enlarging the deployment of carbon capture, utilization and storage (CCUS) in the power sector from 2030. With technology-specific benchmarks and free allocation, the impact of the ETS on fuel-switching away from coal is nevertheless limited.[17] In other words, China's national ETS is expected to play a relatively modest role in decarbonizing the power sector over the next decade. By comparison, the 14th Five-year Plan (FYP) target for coal-fired power plants, if any, would be a much more important policy instrument in this regard.

While the system's originally planned scope also included iron and steel, petrochemical, chemical, building, paper, non-ferrous metals and civil aviation, it has first been limited to power due to data quality-related constraints, with cement, and iron and steel manufacturing likely to be covered next.[18]

In the past, international cooperation especially with the EU and California has been key to helping China build its national capacity on emissions trading. Nevertheless, as China's intensity

16. T. Voïta, "China's National Carbon Market: A Game Changer in the Making?", *Édito Énergie*, Ifri, June 1, 2021, available at: www.ifri.org.
17. *The Role of China's ETS in Power Sector Decarbonization*, International Energy Agency, April 2021, available at: www.iea.org.
18. "National ETS to Launch Soon, with Cement, Iron and Steel Likely to Be Targeted Next", May 15, 2021, available at: www.nbd.com.cn.

benchmark-based ETS differs significantly with mass-based ETS, such as the EU ETS and California's Cap-and-Trade Program that have a predetermined absolute cap on emissions levels covered, the possibility for linkage is extremely limited in the near future. China's political ambition with regards to its ETS is unlikely to be easily resolved through international cooperation focusing only on the technical aspects of carbon pricing.

A simplified analysis: ETS vs. carbon tax in China

The length of the national ETS development process and the low ambition reflected in its current design suggest that China has not yet established a robust carbon pricing strategy. This significant issue therefore deserves further elaboration. Explicit carbon pricing policies are enacted by a government mandate and impose a price based on carbon content: in the case of a carbon tax, the government determines the price and lets market forces function to result in emission reductions. With emission trading, companies buy or sell government-granted allowances of GHG emissions with pricing levels determined by market forces. Given China's vastly different regional circumstances, it is natural to ask why only an ETS has been implemented in China so far. This simplified analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT) can guide the choice between ETS and a carbon tax in the Chinese context.

Strengths of an ETS compared with a carbon tax: an ETS provides more certainty about emission reduction trajectories and little certainty about the level of carbon pricing, which is set by emissions trading. Since the inception of its open-door policy in 1978, China has become increasingly market-oriented. Nevertheless, compared with their counterparts in advanced economies, the Chinese government plays a much more decisive role in intervening in the market. Even after the announcement of the carbon neutrality pledge, China has not yet imposed a cap on national carbon emissions. In this regard, a carbon tax could have been easier to introduce under China's national circumstances.

The weaknesses of an ETS compared with a carbon tax: an ETS is much more complex to design than a carbon tax, which can rely on existing administrative structures for taxing fuels and can therefore be implemented in a relatively short timeframe. By comparison, from baseline emissions benchmarking to allowance allocation, an ETS is more vulnerable to lobbying, loopholes and

gaming. In particular, MRV standards are key for the credibility of the ETS, so quality requirement with regards to statistical reporting concerning energy is much higher for the implementation of an ETS compared to a carbon tax. China's system for collecting energy statistics was initially developed under a planned economy. As China became more market-oriented, the system stumbled. China's national coal output in 2000, originally reported as 998 Mt, was eventually adjusted upward by 39% , which hurt China's energy policy planning. Following the first three rounds of the National Economic Census in 2004, 2008, and 2013, China repeatedly made substantial statistical adjustments, especially for coal. But the fourth round in 2018 improved drastically: no adjustment to the national coal output was required ex post.[19] Still, from the perspective of MRV requirement, a straightforward carbon tax is easier to implement in China.

The opportunities that the ETS can bring, compared to a carbon tax: to encourage global carbon mitigation and prevent carbon leakage, a global price for carbon should ideally be formulated to realize cost efficiencies across borders. Though the world is far away from this ideal system, an ETS possesses great potential to allow international linkages across trading systems in different jurisdictions, provided countries can agree on essential design elements. In comparison, as carbon taxes are less popular than ETS schemes, an international carbon tax is widely considered as politically unrealistic. Today, weighing strongly on China is a bipartisan consensus in Washington and China-US tensions are set to continue under the Biden presidency. To make matters worse, once-warm relations between the EU and China have taken a sharp turn for the worse in 2021, punctuated by a series of tit-for-tat sanctions imposed by Beijing and Brussels. Luckily, climate change has remained a rare area for China's international cooperation with both the US and the EU, and although in its infancy, China's ETS holds out the promise of future international linkages.

The threats that an ETS can create, compared to a carbon tax: as the first ever "hybrid superpower" in the modern era, China arguably sits right in the middle of a typical developing country and an advanced economy.[20] Given China's unique development status, it is particularly difficult for the country to set an appropriate carbon pricing level. Currently, the relatively low carbon pricing level

19. K. Tu and Z. Yang, "COVID-19 China Impact Tracker Issue 3: A Recap of 2020", Agora Energiewende, April 2021, available at: https://static.agora-energiewende.de.
20. P. Benoit and K. Tu, "Is China Still a Developing Country? And Why It Matters for Energy and Climate", Center on Global Energy Policy of Columbia University, July 23, 2020, available at: www.energypolicy.columbia.edu.

of China's ETS offers Chinese manufacturers a noticeable cost advantage over EU competitors. To ease leakage and competitiveness concerns, the EU is considering the introduction of a WTO-compatible CBAM, which is sometimes perceived as disguised protectionism and risks arousing global trade frictions, including with China. However, if the carbon price on China's national ETS becomes too high, the pace of manufacturing capacity leaving China to lower-cost countries may further accelerate. With China implementing more stringent climate policies, carbon leakage is also likely to occur as manufacturers could move their production abroad to countries such as India and Vietnam where climate policies are less stringent. Given the rising anxiety over carbon leakage in both international and domestic context, China could not only learn from jurisdictions with similar experience, but also work proactively with its key trading partners to explore a global solution to resolve carbon leakage-related challenges. In addition, opting for a carbon tax would allow Beijing to directly set a tailor-made carbon price and thus eliminate excessive price fluctuations on an ETS that might lead to substantial investment-related uncertainty.

Medium-term perspectives

Following President Xi Jinping's recent pledge to strictly control China's coal-fired power capacity from 2021 to 2025 and then reduce it, carbon pricing is expected to play an increasingly important role in decarbonizing the Chinese power sector, although it is not yet fully-defined. Meanwhile, due to the high standards imposed on MRV requirements for any meaningful ETS, the formal launch of China's national ETS is expected to give new momentum to further improving quality of statistical reporting on energy across the country. Since the Chinese government has already concluded emission reporting and verification of more than 7,000 enterprises from 2013 to 2019 in the power, building materials, non-ferrous metals, iron and steel, petrochemical, chemical, paper and civil aviation sectors, an extension of the national ETS to cover cement, and iron and steel is plausible, since MRV is relatively easy to improve in these sectors.

Nevertheless, given the ETS's vulnerability to lobbying, loopholes and gaming, the time needed to set up high standards for MRV and the investment uncertainty that price fluctuation creates, China should seriously consider supplementing this scheme with carbon taxes targeting sectors that are difficult to cover with the national ETS. If so, China would be better positioned to reconcile its carbon pricing regime with jurisdictions that have more ambitious climate policies, especially the EU.

Long debated in policy circles but considered too controversial and complex to be implemented, this past year has witnessed some jurisdictions especially the EU seriously consider the unilateral introduction of CBAM. Given CBAM's potential impacts on global trade, and the extreme sensitive timing ahead of the forthcoming COP26 in November 2021, China should proactively initiate dialogues with the EU in order to eliminate misunderstandings. Above all, it is in the interest of both China and the EU to explore mutually acceptable mechanisms to avoid a potential CBAM-initiated trade war, and to help prevent possible carbon leakage to jurisdictions with less stringent climate policies.

Last but not least, no matter how well it is designed and implemented, carbon pricing regimes should only serve as part of a comprehensive climate policy package to deliver each jurisdiction's net zero emissions goal. Ideally, international cooperation instead of geopolitical rivalry should become the mainstream consensus to bring forward the global climate agenda in the years to come.

Japan's Hesitant Approach to Carbon Pricing Strategies

Monica Nagashima

Japan's recent pledge for carbon neutrality by 2050, and the enhanced nationally-determined contribution for 2030 (a reduction of GHG emissions by -46% from 2013 levels) have added momentum to the ongoing national debate on the need for stronger carbon pricing. In the December 2020 Green Growth Strategy, the Japanese government pledged to evaluate the expansion of market mechanisms such as carbon pricing, to enable industrial competitiveness, innovation, investment and economic growth in line with the country's net zero ambitions. Then, in a speech in January 2021, Prime Minister Yoshihide Suga underscored that environmental policies were no longer seen as limitations on the economy but as key enablers of growth, and reiterated his government's commitment to carbon pricing.

Since the start of 2021, expert committees have been held in parallel by the Ministry of Environment (MOE) and the Ministry of Economy, Trade and Industry (METI) on various carbon pricing mechanisms for Japan. Policy tools such as taxes, emissions trading, carbon offset credits, as well as the role of government versus voluntary internal pricing measures are being examined. The Ministries are also reviewing the potential impact of international trends on Japanese industries, notably the CBAMs deliberated in the EU and proposed in the US. Cooperation on carbon pricing is also mentioned as a priority in the context of the new EU-Japan "Green Alliance" launched on May 27, 2021.[21] Following these discussions, the Japanese government aims to issue interim findings in mid-2021 and a final position before the end of the year.

21. EU-Japan Summit, "Towards a Green Alliance to Protect Our Environment, Stop Climate Change and Achieve Green Growth", May 27, 2021, available at: www.consilium.europa.eu.

Fragmented and excessively cautious attempts to put a price on carbon

Carbon pricing initiatives have been led by the MOE after the adoption of the Kyoto Protocol in 1997. Throughout the following decade, the Ministry's proposals have been continuously rejected by the Japanese business community.[22] The final rate of ¥289($2.6)[23]/$tCO_2$ (which was initially introduced at one third of the price and gradually increased) was at last accepted in 2012, at a significantly lower rate than the ¥655/tCO_2 proposed during 2004-2008 and the ¥1,064/tCO2 proposed in 2009.[24] Known as the Global Warming Countermeasures tax, it covers about 66% of total CO_2 emissions in Japan and represented revenues of ¥260 billion ($2.36 billion) in 2019.[25]

The Global Warming tax is levied as part of the Petroleum and Coal tax on upstream fossil fuels. Together, they are applied at different rates according to the type of fuel: ¥2,800($25.45)/kl (kiloliter) of petroleum, ¥1,860($16.9)/t of LNG and LPG, and ¥1,370($12.45)/t of coal. In terms of pricing per unit of emissions, coal enjoys a lower rate compared to oil and gas. Additionally, there are also energy taxes on downstream consumption of petrochemical products such as diesel and gasoline, as well as taxes on power consumption. About ¥4.3 trillion ($40 billion) were collected in upstream and downstream fossil fuel taxes in 2018, and ¥2.4 trillion ($22 billion) in renewable energy levies in 2020.

A number of sectors are currently exempted from the Petroleum and Coal tax and the Global Warming tax. For instance, the coal required in steelmaking, coking, and cement production is considered to have no viable alternative, while the cost of the commodity makes up a high share in the price of the final product. Similarly, crude oil used by the petrochemical sector, coal used in power plants by the caustic soda and salt industries, and fuel oil used in agriculture are eligible for tax exemptions or rebates.[26]

22. S. Kojima and K. Asakawa, "Expectations for Carbon Pricing in Japan in the Global Climate Policy Context" *in* T. H. Arimuraand S. Matsumoto (eds.) *Carbon Pricing in Japan: Economics, Law, and Institutions in Asia Pacific*, Springer, Singapore,.2021, available at: https://doi.org; https://link.springer.com.
23. ¥110 (yen) = $1.00.
24. *Ibid*.
25. M. Sugino, "The Economic Effects of Equalizing the Effective Carbon Rate of Sectors: An Input-Output Analysis" *in* T. H. Arimura and S. Matsumoto (eds.), *Carbon Pricing in Japan: Economics, Law, and Institutions in Asia Pacific*, *op. cit.*
26. *About Carbon Tax*, Ministry of the environment of Japan, available at: www.env.go.jp (in Japanese).

In addition, regional ETS have been in place in Tokyo since 2010 and in the Saitama prefecture since 2011. The ETS targets commercial buildings and factories that consume large amounts of fossil fuel energy. Office buildings make up 80% of the target facilities in the Tokyo region and their indirect emissions from electricity consumption are also included in the scope. Around 1,400 facilities are covered by the Tokyo ETS which accounts for roughly 40% of GHG emissions from the commercial sector, or 20% of all emissions in Tokyo.[27] Both jurisdictions have successfully met their emission targets thanks to ETS to some degree. Only around 11% of the target facilities in Saitama participated and in Tokyo only 3% of allowances were traded, while the rest achieved it through other measures like energy efficiency. The low trading volume has not yielded sufficient pricing signal needed to drive emissions reductions. In Tokyo, initially in 2011 carbon allowances were priced at almost ¥10,000($125) per tCO_2, then fell to approximately ¥4,500($37) in 2015, and to ¥540($4.9)/$tCO_2e$ in 2020.[28]

Finally, it is worth noting that MOE introduced a subsidy-based voluntary emissions trading program in 2012. Called the ASSET program, it served the purpose of being a demonstration project for domestic emissions trading. To be eligible for an ASSET subsidy, entities set baselines based on emissions over the last three years, establish an emissions reduction target, and proposed implementing new technologies to achieve that target. The current list of technologies specified by MOE eligible for a subsidy rate of up to one-half of costs includes over 3,500 types of new technologies, such as high-efficiency heat pumps, transformers, and co-generation systems. From 2012 to 2016, 366 entities have been listed as ASSET participants with targets. Entities that cannot meet their target are allowed to purchase credits from other participating entities or offset credits. Entities may also join as participants only to trade credits.[29] The budget for 2020 was ¥3.3 billion ($30 million).

27. Introduction to Emissions Trading, Bureau of Environment, Tokyo Metropolitan Government, October 2019, available at: www.kankyo.metro.tokyo.lg.jp (in Japanese).
28. "CO_2 Emissions Trading, Price Trends, New Power Net", available at: https://pps-net.org (in Japanese).
29. "Japan: Market-Based Climate Policy Case Study", Institute for Global Environmental Strategies, Environmental Defense Fund, IETA, August 2016, available at: www.edf.org.

Mitigating cost concerns while stimulating low-carbon investments

Given the aforementioned levies on energy, emissions trading schemes, and Japan's high energy import costs, some argue that the country already pays enough for carbon. The Organisation for Economic Co-operation and Development (OECD) has analyzed the combined costs of energy use across multiple sectors in 41 OECD and non-OECD economies and published the comparable figures as Effective Carbon Rates (ECR). In terms of cross-sectoral national average for 2016, Japan's ECR was $\$38.3/tCO_2$, lower than the average of countries in the analysis ($48.3/tCO2).[30] With new non-ETS carbon pricing measures adopted recently in many EU Member states, Japan's comparative position is expected to fall further behind.

In addition to how much Japanese companies pay to emit carbon, another question is how much tax revenue will be allocated towards the energy transition instead of being reinjected into the existing carbon assets. Currently, only the Global Warming tax and the renewable energy levies have the explicit purpose of financing renewables and energy efficiency measures. Previous proposals to ease the burden of corporate taxes, social welfare, or income taxes in lieu of carbon levies have been unsuccessful. While similar sentiments are being echoed in the ministerial committees today, such a redesign of the national tax framework would require significant negotiations between various agencies and ministries.

Both MOE and METI agree that a clear long-term price signal is key to business confidence and mobilizing investment for green growth. The MOE committee suggested introducing a step-by-step taxation plan that starts at a low rate and increases incrementally in line with improvements in decarbonization technology.[31] Nobuo Tanaka, former executive director of the IEA, has suggested that Japan should announce a carbon tax or a carbon price of $100/t by 2030, saying this "would act as a standard to help [companies] making investment decisions even when the hydrogen economy is being developed".[32]

30. S. Kojima and K. Asakawa, "Expectations for Carbon Pricing in Japan in the Global Climate Policy Context", *op. cit.*
31. About Carbon Tax, Ministry of the environment of Japan, available at: www.env.go.jp.
32. T. Kumagai and E. Yep, "Japan's New Climate Pledge to Boost Renewable, Nuclear Share in 2030 Energy Mix", S&P Global Platts, April 23, 2021, available at: www.spglobal.com.

Some committee members suggested that the primary goal of carbon pricing is to encourage the growth of efficient sectors of the economy. At the same time, protections must be offered to low-income and vulnerable members of society to guarantee a fair and just transition for everyone. Public and business support for carbon pricing is recognized as critically important by both ministries and likely to be a major challenge ahead. At the government hearing in December 2020, the Japan Chamber of Commerce and Industry (JCCI) strongly opposed pricing that would result in higher energy costs for Japanese companies.[33] Japan's largest business federation, Keidanren has also historically been opposed to carbon pricing. In 2012, the group urged the government to "kill" the Global Warming tax for fear it would drive Japanese companies offshore and lead to job losses.[34] In a major shift in position, in February 2021, Keidanren Chairman said that discussions on carbon pricing must not start with the premise that it will raise energy costs and that Keidanren would propose measures that would incentivize companies.[35]

Carbon border adjustment mechanisms (CBAMs) currently under consideration in the EU and the US add a new dimension of pressure to Japanese industries. What used to be a domestic issue now looms as a potential barrier to one-third of Japan's exports. The official position of the government is to keep an eye on how the proposed CBAMs will align with WTO trade rules and how other global powers will respond. In the meantime, the Japanese industrial and manufacturing sectors fear losing equal footing in the global market, insisting that the high energy costs shouldered by Japanese industries today (compared to Germany for instance) have to be accounted for in their spending on carbon.[36] Furthermore, to make sure Japanese products are not locked out of key markets, the government will be actively involved in the development of international standards through the International Organization for Standardization (ISO) or other organizations that focus on carbon data transparency and accounting.

Finally, both METI and MOE continue to support the Joint Crediting Mechanism (JCM), a project-based bilateral offset crediting mechanism launched in 2013. In essence these credits allow Japan to

33. See InfluenceMap, "Carbon Tax: Japan Chamber of Commerce and Industry (JCCI)", available at: https://influencemap.org.
34. See InfluenceMap, "Carbon Tax: Japan Business Federation (Keidanren)", available at: https://influencemap.org.
35. Keidanren, "Summary of remarks by President Nakanishi at the regular press conference", February 8, 2021, available at: www.keidanren.or.jp (in Japanese).
36. Nippon Steel, "The Reality of Carbon Pricing Overseas", May 2021, available at: www.env.go.jp.

reduce emissions by transferring technology or project implementation to partner countries. The JCM was not included as a basis of the bottom-up calculation of Japan's 2020 Nationally Determined Contribution (NDC), but given the recent increase in its ambition – of a cut by -46% by 2030 – as well as the net zero pledge for 2050, the role of JCM is likely to be re-examined. In a similar vein, the Japanese government is keen to see an agreement on Article 6 negotiations to enable deeper international cooperation through market mechanisms.

Lessons Learnt from the EU ETS and its Role on the Road to Climate Neutrality

Christian de Perthuis and **Carole Mathieu**,
based on a study for Confrontations Europe and ID4D[37]

In 2005, the EU introduced the world's largest emissions trading scheme, capping GHG emissions from power stations, large industrial installations, and domestic flights (since 2013), thus covering about 45% of EU's GHG emissions. The EU ETS operates in all EU Member States as well as Iceland, Lichtenstein, and Norway, and it is now linked to the Swiss ETS since January 2020. Following its exit from the EU, the UK set up its own trading system and is currently in talks with Brussels to re-establish ties with the EU ETS.

During its first fifteen years of existence, the EU ETS has experienced many ups and downs. Though often disparaged, it has withstood these various shocks: the great recession of 2008-2009, attacks by cyber-criminals, the euro crisis, the delaying tactics of lobbies to avoid the constraints, Brexit, etc. Yet for too long, allowance prices have been too low to deliver the right investment signal for breakthrough technologies. The emissions caps were too relaxed, and thus the EU ETS market was permanently over-allocated. With the EU committing to a much more ambitious target of -55% net emissions reduction by 2030, the next logical step is for the EC to finally introduce a truly demanding annual rate of cap reduction for the 2023-2030 period.

This perspective is already having a significant impact on the market's perception of future scarcity of allowances and, combined with a bullish trend affecting all commodities, the price of EU ETS allowances has reached a record high of €55/t. Energy-intensive industries have expressed concerns about the pace of the price increase, external competition, and the detrimental impact on their ability to invest in low-carbon solutions. But this price level is still in

37. C. de Perthuis, *15 Years of Carbon Market: Six Lessons for Strengthening the System*, Confrontations Europe and ID4D, April 20, 2021, available at: https://confrontations.org.

the lower range of what economists deem necessary to trigger significant CO_2 reductions. Yet, strengthening the emissions cap should not be the only priority of EC's reform proposal, to be published on July 14, 2021. Building on lessons learnt, this reform is a historic opportunity to make the EU ETS a robust, predictable, and fair instrument supporting the EU's climate neutrality pledge.

Strengthening the governance of the EU ETS

In the first place, adjustment to the cap reduction rate should be accompanied by a thorough review of governance to make the ETS simpler, more manageable and more comprehensible to citizens. The ETS operating rules are defined with an almost surreal degree of precision before the start of each phase, and for a period that grows longer over time (ten years for the 4th phase, which began in January 2021). Once adopted, they leave the EC very little room for manoeuvre to react to unforeseen circumstances.

This shortfall has been partially addressed with the introduction of the Market Stability Reserve (MSR), which started operating in 2019. Based on predefined thresholds relating to the overall quantity of allowances in circulation, the MSR adjusts the number of allowances to be auctioned with the objective to keep the market surplus within an acceptable range. However, using a quantity indicator instead of prices to regulate a market gives rise to various problems. Quantities are only known with a time lag: more than a year in the case of CO_2 allowances.[38] Moreover, regulation by quantities risks encouraging strategic gaming behavior by market participants.[39]

The way forward would be to assign the market supervision role to an independent authority, on the model of a central bank which manages the money market through its sovereign power to create or withdraw money.[40] The corollary of this change in governance would be to operate the MSR with a price indicator, establishing a de facto floor and ceiling. The floor price could be set in such a way that it would never be profitable to burn coal instead of natural gas to

38. C. de Perthuis, S. Quemin and R. Trotignon, "Hausse du prix européen du carbone : feu de paille ou changement durable ?", *The Conversation*, April 13, 2018, available at : https://theconversation.com.
39. G. Perino *et al.*, "EU ETS Stability Mechanism Needs New Design", *Policy Brief*, Climate Economics Chair, February 2021, available at: www.chaireeconomieduclimat.org.
40. C. de Perthuis and R. Trotignon, "Governance of CO_2 Markets: Lessons from the EU ETS", *Energy Policy*, No. 75, November 2014, available at: www.researchgate.net.

generate electricity or reflect a target for 2030 that allows producing green hydrogen without subsidy, instead of using hydrogen derived from hydrocarbons. These considerations suggest a minimum price ranging from €45/t in 2023 to €100 in 2030. The ceiling price could simultaneously be set at twice the floor price.

Another governance challenge relates to the redistribution of the carbon rent. In 2020, the auctioning of carbon allowances generated almost €19.16 billion in revenues,[41] compared with €3.17 billion in 2013. If the current price recovery is maintained, it will considerably increase the financial resources available for climate policies. If we assume that auctions are held in 2023 at the minimum price of €45/t and cover all CO_2 emissions from fossil fuel combustion, this will increase their revenue to over €130 billion. The 50% that Member States are required to earmark for climate action can be retained, provided that the actions are better defined and reporting obligations are strengthened. The remaining 50% should be returned to households in the form of a straightforward flat-rate per capita redistribution.

Extending the scope of the EU ETS

Today, about 60% of the EU's total GHG emissions are not covered by the EU ETS. Three groups can be distinguished in decreasing order of importance: emissions from transport (excluding domestic flights); emissions from fossil fuel combustion in buildings and small industrial, artisanal and agricultural installations; and methane and nitrous oxide emissions from agriculture and waste management. While estimating emissions from the agricultural and waste sectors can be technically challenging, the reasons for not including road transport and buildings are primarily political. Powerful lobbies are joined in their opposition by many environmental NGOs, who fear that such inclusion would come at the cost of relaxing existing regulations.[42]

Economically, however, a carbon price would in fact reduce the cost of implementing these regulations and facilitate their tightening rather than easing. An additional argument is sometimes offered: it would take much higher CO_2 prices than with energy production to generate emission reductions in land transport and buildings. But the argument is misleading, because the efficiency gains from carbon

41. *2021 State of the EU ETS*, ERCST, Wegener Center, Bloomberg NEF and Ecoact, April 2021, available at: https://secureservercdn.net.
42. CAN Europe's Position on the Post-2020 ETS Reform, March 2021, available at: https://caneurope.org.

pricing are all the greater when there is a wide spread of costs among the entities subject to it.

The real obstacle to such an enlargement, which is highly desirable for speeding up the decarbonization of the economy, concerns its redistributive implications. To extend the cap-and-trade system to diffuse emissions, it is essential to redistribute most of the additional proceeds to the most vulnerable households, to prevent backlashes arising, such as happened with the *gilets jaunes* (yellow vests) movement in France.

Introducing CBAM as part of a proactive commercial policy

To avoid the risk of carbon leakage, energy-intensive and trade-exposed industries have long benefitted from the free distribution of allowances. They are calculated based on sectoral benchmarks, ranking installations in order of increasing efficiency (in terms of the amount of CO_2 emitted per unit produced) and allocating allowances to the most efficient 10%. This approach has led to a high degree of complexity favoring the action of the best technically equipped lobbies, and it has not helped reduce the proportion of free allowances, as initially intended. Free allocation continues to be used for more than 90% of the allowances allocated to the industry.

Maintaining a large volume of free allowances has greatly weakened the system. In the manufacturing industry, changes in emissions have been driven by economic and oil price fluctuations rather than by action to reduce CO_2 emissions. From 2005 to 2019, most large industrial companies received more free allowances than they surrendered for compliance. The scheme was designed to give them an incentive to reduce their emissions. Instead, it generated net subsidies for the largest CO_2 emitters. If we want to initiate in-depth decarbonization of the industrial sector, we should be more tenacious and switch to a system where all allowances are allocated by auction. And one way to ensure that the phase out of free allocation does not generate carbon leakage is to introduce a CBAM.

Given the levels of the CO_2 price to date and the distribution of free allowances, empirical studies find no evidence of carbon leakage.[43] However, this risk could become more serious with the planned strengthening of the ETS. Therefore, the EU plans to establish a buffer between the global prices of products produced

43. OECD, *Climate Policy Leadership in an Interconnected World: What Role for Carbon Border Adjustments?*, December 23, 2020, available at: www.oecd-ilibrary.org.

without carbon pricing and the EU price, in which the cost of the allowances is incorporated. This would involve applying a levy on imports of goods produced without carbon pricing in proportion to the quantity of CO_2 emissions incorporated. Symmetrically, exporters should benefit from a refund to compensate for the additional production costs stemming from the ETS, if allowed by international trade rules.

As such, the EU's CBAM would be similar to the one long-practiced by the Common Agricultural Policy (CAP), which disconnects European guaranteed prices from world prices. One of the CAP's major lessons concerns processed products, as it has effectively protected cereal producers but has profoundly disrupted the livestock feed industry. This has increased the European protein deficit (soya) and encouraged poultry farms (one chicken = 2.5 kilograms of processed grain) to set up outside the EU. The same type of dysfunction could occur with a carbon levy at the border. The risk would be that protecting European producers subject to allowances would harm the client industries buying their products. For example, the protection of steelmakers could be to the detriment of car production lines or could induce wind turbine manufacturers to relocate to where steel is cheaper. It is in fact European companies using the goods concerned as intermediate consumption who will pay, and not the EU's trading partners. Located downstream in the production chains, the user sectors are often more strategic for European competitiveness than the upstream sectors.

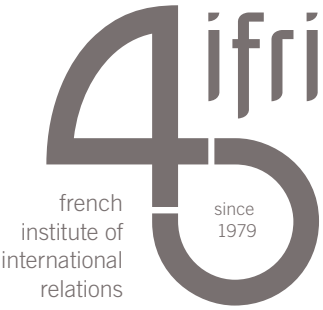
Such considerations should lead to starting the implementation of a CBAM for electricity, fuel refining, cement, and fertilizers for which the volume of foreign trade is relatively small. For other industries such as steel, fertilizers, chemicals or non-ferrous metals, the proceeds of the auctions should be used to finance low-carbon conversion plans, with a non-amendable timetable for phasing out free allowances before 2030. To avoid unfair competition from the rest of the world, the EU will need to come up with specific regulations at the border, using tariffs or other instruments to protect its industry against carbon dumping. The use of a CBAM can be one of them, but only if the risks of shifting carbon leakage downstream and of penalizing exporters are contained.

Conclusion

In the global cacophony provoked by the escalating trade dispute between the US and China, the EU must make its voice heard. It should continue advocating for an international carbon club and promote the long-term ambition of linking the different carbon pricing schemes. Yet, this perspective should be complemented with a diplomatic offer more likely to be accepted by trade partners, and which involves mandating the WTO to explore a wide set of options with the potential to trigger a race to the top in decarbonizing global industries.

To gain the support from China, North America and Japan, the EU will need to move very ambitiously on ETS reform and propose a gradual and narrow application of its unilateral CBAM. The point will be to demonstrate that the CBAM is workable and in line with the EU's international commitments, but also to convince trade partners that they have much more to gain in agreeing on coordinated responses to the competitiveness challenge that all climate-concerned countries will face sooner or later. It is in the interest of all industrialized countries to avoid the proliferation of unilateral measures to address climate dumping.

Most importantly, the EU should put forward a new doctrine that departs from its traditional positions, based on the dogmas of neoliberalism inherited from the 1980s. It is time to explicitly subordinate free trade to higher climate standards, while preserving the spirit of multilateral trust embodied in the Paris Agreement.



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