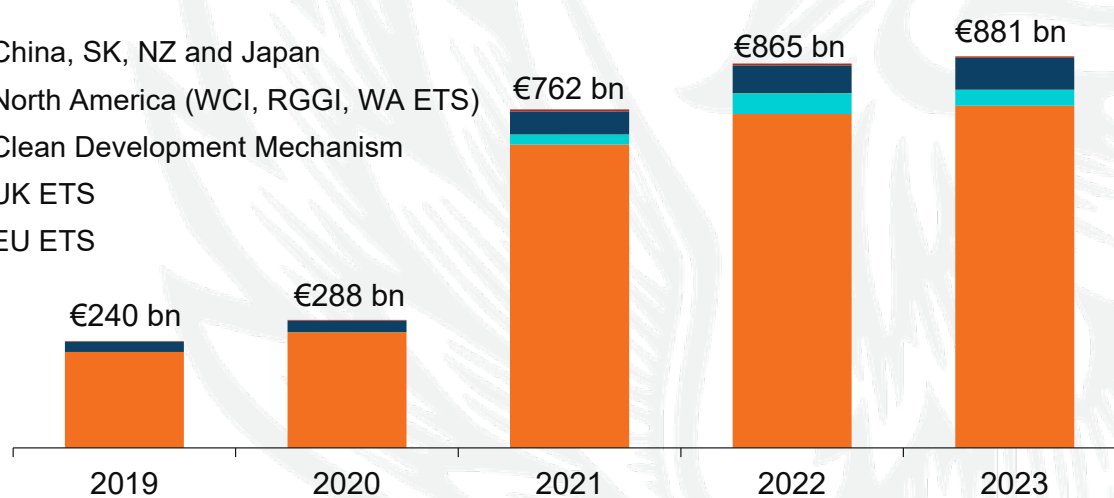


# CARBON MARKET YEAR IN REVIEW 2023: GROWTH AMID CONTROVERSY

## World Carbon Markets - Total value by segment

- China, SK, NZ and Japan
- North America (WCI, RGGI, WA ETS)
- Clean Development Mechanism
- UK ETS
- EU ETS



## YIR 2023 in brief:

- Prices fell across most carbon markets in 2023 after a banner year in 2022 amid sluggish global growth, political challenges, and receding volatility in the global gas market. The two notable exceptions to this trend were in China and the US, where prices increased. In China, the second compliance deadline saw a surge in buying interest in the second half of the year, prompting prices in both the listed and OTC markets to hit record highs. Elsewhere, carbon prices fell – often heavily – amid continued oversupply and demand destruction.
- The United States' latest carbon market, the Washington Cap-and-Invest Program, started the year with a bang, posting ever-higher prices over its first three auctions, before the government stepped in with a change in policy, prompting prices to fall back throughout the fourth quarter. Meanwhile, the California-Quebec WCI market saw prices steadily increase throughout the year to hit new record highs as the California Air Resources Board explored scenarios to tighten the allowance cap in the coming years. RGGI prices also increased to new highs, despite on-going uncertainty about the participation of either Virginia or Pennsylvania in the program.
- The European Union pursued an ambitious environmental policy agenda throughout 2023, including substantial reform of the EU ETS. This boost in activity and tighter allowance plan saw prices briefly peak above the €100/t level in February, and they remained elevated throughout Q3 before a weak winter gas market and economic headwinds prompted them to drop sharply throughout Q4. The EU is facing European Parliamentary elections in 2024, which could frustrate further climate legislation in the short-to-medium term.
- Carbon markets continued to expand into new jurisdictions in 2023, with Egypt, Japan, Indonesia and Taiwan all launching new schemes. Indonesia's carbon market is a voluntary carbon market where participation is heavily encouraged, covering the power sector that uses carbon credits, while Japan and Taiwan are both voluntary markets. India, Brazil and Turkey have all taken steps in 2023 to launch their own domestic schemes, which are due to begin trading within the next one to three years; most of these are set to be credit-based and voluntary to start, before transitioning to compliance-based schemes towards the end of the decade.
- The Voluntary Carbon markets had a rough year amid concerns about credit quality, prompting prices to tumble to below \$1/tCO<sub>2</sub>e on many standardized instrument contracts; the spot market was somewhat more resilient given that buyers adopted a project-by-project approach to purchasing decisions. Nowhere was this impact felt more than among REDD+ projects, which faced substantial media scrutiny throughout the year; long-running Zimbabwe forestry project Kariba was eventually dropped by certifier Verra and project developer South Pole. Industry initiatives like the IC VCM and VCMI have released new guidance to address integrity concerns about carbon credits that have so far been well-received by the industry.
- Carbon markets were punted to 2024 at the COP 28 conference in Dubai after Parties failed to reach an agreement on rules underpinning trading for both Article 6.2 covering bilateral ITMO agreements and Article 6.4 covering credit trading between countries. This means that there are unlikely to be new UN-approved credits in the market ahead of 2025 at the earliest, a full 10 years on from the Paris Climate Agreement. The delay is also likely to put more pressure on Voluntary Markets where buyers, sellers and Standards alike are already in the process of setting up Article 6-compliant credits using Corresponding Adjustments.



**LSEG**

## ABOUT THIS REPORT

This report presents LSEG's assessment of the world's major carbon markets in 2023. The aim is to show the main market trends and policy developments in global emission trading systems, and areas where such systems are emerging. We collect data from official sources, primarily carbon trading platforms such as ICE, Nodal, EEX, CME, CBL, KRX, JPX and the Chinese carbon exchanges. When relevant, we estimate and add the size of bilateral (over-the-counter) transactions. This gives us an estimate of the actual volume traded.

Our analysis covers the main regions in which there are existing or emerging emission markets. Chief among these is Europe with its EU ETS and also, since 2021, the UK ETS. We do not include data from the Swiss ETS. In North America, we look at the WCI, RGGI and newly launched Washington Cap-and-Invest markets. In China, we include the National ETS, the Pilot ETS systems, and offset trading in the CCER market. We also include analysis of the South Korean carbon market (KETS), New Zealand market (NZ ETS), and the voluntary Japan ETS which launched in October 2023. As of 2024, we have also included smaller sections on emerging global carbon markets in Brazil, Indonesia, India, Egypt and Turkey.

Finally, the report also comments on developments in international aviation emissions and related offset trading, trading in the voluntary carbon markets, and updates on international carbon negotiations, particularly in relation to Article 6 of the Paris Climate Agreement.

This report was written by the following team of analysts: Maria Kolos (Ukraine), Paula VanLaningham (UK), Yan Qin (Norway), Ryan Dawson (Norway), Luyue Tan (Norway), Daria Kyshko (Poland), Yutong Song (China), Wanqi Huang (China), Xuewan Chen (China), Boyang Jin (China), Yoko Nobuoka (Japan), Aishwarya Gogoi (USA), and Peter Ruvalcaba (USA).

LSEG Global Carbon Research Team: [carbon\\_research@lseg.com](mailto:carbon_research@lseg.com)

**For the full report, please contact [market.response@lseg.com](mailto:market.response@lseg.com)**

# 1. Executive summary

Carbon markets continued to expand in 2023, although prices fell across most markets, particularly as the year drew to a close. The **European Union Emissions Trading System (EU ETS)** remained the largest global market by far, accounting for around 87% of the value of the global carbon market in 2023. A rally in prices early in the year – briefly peaking above the €100/t mark in February – followed by a sustained hold over €80/t meant that market value in the EU ETS actually ticked up slightly by about 2%, despite a 2% decline in overall turnover. However, EUAs finished the year on a decidedly bearish note, dropping sharply throughout Q4 amid weak winter gas prices and a less-than-compelling economic outlook.

The European Commission has continued to pursue an ambitious climate and environmental policy through its Fit for 55 program, which it largely managed to pass in 2023, including substantial ETS Reform (for more details, please see the EU section below). The long-term outlook for EUAs remains broadly bullish but is likely to stay flat-to-bearish in 2024 given current economic conditions, a weak gas market, and an extremely generous auction calendar due to the front-loading of allowances under the REpowerEU program.

Trading actually increased by nearly 20% in the **UK Emissions Trading System**

(UK ETS) throughout 2023, even as prices tumbled sharply; it accounts for about 4% of the total value of the global carbon market. Since it was split out of the EU ETS in 2021 as a consequence of Brexit, the UK ETS has struggled somewhat with liquidity, and many market participants have continued to hedge forward carbon exposure in the much more liquid EUA market. UK environmental policy diverged from the EU sharply in 2023, with Rishi Sunak's government walking back a number of green pledges and pursuing a much less ambitious ETS reform agenda, all of which had a decidedly bearish impact on UKA prices, particularly over the second half of the year.

UKAs had spent much of 2022 at a premium to EUAs, but the shift in dynamics prompted them to tumble relative to their EU-counterparts to sharp discounts of more than €25/t at the end of Q4. This is particularly noteworthy for UK industries, which could be exposed to the EU's new Carbon Border Adjustment Mechanism if carbon prices remain at steep discounts in the UK relative to the EU. While further reforms to the UK ETS are likely in the coming years – the country is also facing a General Election – current outlook is very bearish, with the oversupply of allowances set to persist well into the next decade; without further reform, the discount to EUAs is expected to widen out to 2030.

**North American** trading activity dropped slightly in 2023 despite the addition of a brand new market in the form of the **Washington Cap-and-Invest** program in February. However, prices across the North American Carbon markets actually rose overall throughout the year, accounting for approximately 8% of the value in the global carbon market.

Prices for CCAs in the **California-Quebec market** hit new highs, with each auction posting progressively higher settlements throughout the year; the California Air Resources Board (CARB) has been actively exploring scenarios to tighten the overall cap in the WCI market, which had a decidedly bullish impact on prices. Prices in the **Regional Greenhouse Gas Initiative (RGGI)** market also rose over the course of the year to new highs, despite a fair amount of uncertainty about the future makeup of the program, with participation of Virginia and Pennsylvania – two large states – still up in the air. While it is likely that Pennsylvania will withdraw after the State's Supreme Court ruled against its participation, Virginia's status is much murkier, and both battles are expected to be drawn out into 2024, an election year in the US. Washington's new market proved much more volatile, posting the highest-ever carbon prices in North America over its first three auctions, before

Table 1.1 Global carbon market size 2021-2023

LSEG assessment of volume and value of the major carbon markets from 2021 to 2023. Millions of tonnes (Mt), millions of euros \*

	2021		2022		2023		Volume change 2022-2023	Value change 2022-2023	Share of total value 2023
	Mt	€ million	Mt	€ million	Mt	€ million			
Europe (EUAs, aviation EUAs)	12,214	682,501	9,277	751,459	9,105	769,903	-2%	2%	87%
UK ETS	335	22,847	512	46,626	607	36,353	19%	-22%	4%
North America (WCI, RGGI, WA ETS)	2,680	51,736	2,488	62,441	2,428	71,359	-2%	14%	8%
China	412	1,289	112	755	294	2,264	163%	200%	<1%
South Korea	51	798	39	618	89	639	128%	3%	<1%
New Zealand	81	2,505	60	2,845	17	596	-72%	-79%	<1%
CERs	38	151	42	157	22	35	-48%	-78%	<1%
Japan	0.7	10.4	0.6	12.3	0.5	8.7	-20%	-29%	<1%
Total	15,812	761,838	12,531	864,913	12,563	881,158	0%	2%	

All non-European transactions are priced in local currencies, for the sake of consistency we have converted values into euros. The units traded in the Regional Greenhouse Gas Initiative are short tons, which are 0.907 metric tonnes. For unit consistency, we have converted RGGI's total volume figures to metric tonnes.

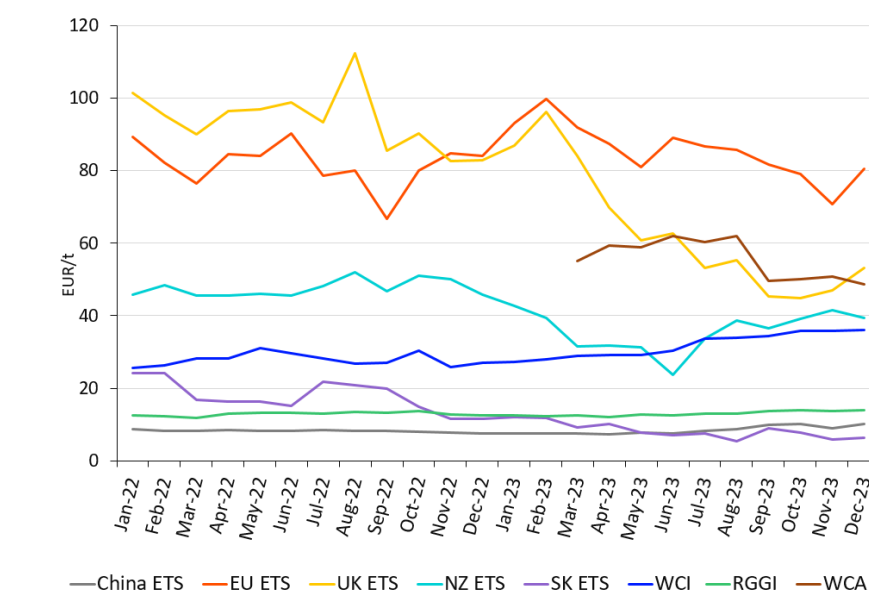
Source: LSEG, February 2024

a sudden change in policy prompted prices to tumble in the fourth quarter. Officials are already exploring the possibility of linking the new Washington market with the much larger California-Quebec market.

Trading in **China's National and pilot ETS** markets rose, particularly in the national market ahead of the second compliance deadline at the end of the year, with total trading volume in China up 163% and market value up 200%. CEAs hit fresh all-time highs in Q3, and while they dipped slightly towards the tail end of the year, they have gone into 2024 – a non-compliance deadline year – at much higher levels. Authorities in China have been moving to strengthen the ETS ahead of likely expansion to new sectors in the near term; currently the National ETS only covers the power sector, although other sectors are captured in various Pilot ETS programs. The Shanghai Environment & Energy Exchange (SEEE) split CEAs into compliance year categories in 2023, which raised market speculation that future compliance obligations will not be able to be met with older vintage CEAs, potentially as a way to manage allowance surpluses as the market expands, although no such policy has been announced. China has also been in the process of relaunching its China Certified Emission Reduction (CCER) credit program, with new credits expected to be released in 2024. CCERs can be used to meet a limited percentage of compliance under the National ETS, but the program has been suspended for the last seven years as authorities looked to restructure it and tighten some of the methodologies. Old CCER credits will no longer be available for use against compliance obligations after 2025, the announcement of which prompted a surge in trading of credits as the year drew to a close. The Pilot markets remained largely unchanged in 2023 in terms of coverage and size, although prices fell across the majority of them. China's carbon markets remain small in global terms, but its share is expected to continue to increase, particularly ahead of the third compliance deadline at the end of 2025.

Carbon markets expanded across the **Asia Pacific region** in 2023, although they remain very small in terms of overall global value. Prices fell in both of the established APAC markets, the **South Korea Emissions Trading System (K ETS)** and the **New Zealand Emissions Trading System (NZ ETS)**, although Korea's total market value actually rose by 3% amid a 128% trading increase as liquidity in Korean Allowance Units (KAUs) rose sharply. There

Figure 1.1 Emission allowance (permit) prices in key markets 2023 (by month), (Local prices converted to euros)



Source: LSEG

is still a significant surplus of allowances in the KETS, and while the South Korean government has been discussing adopting stricter environmental and emissions targets, that has not translated into significant ETS reform so far. The NZ ETS had a much more volatile 2023 amid a protracted debate about the state of its forestry methodologies – which have been accused of favouring exotic plantations over native species – as well as concern about oversupply and possible reform. All four of the country's auctions failed. Additionally, national elections unseated the long-running Labour government, ushering in a Center-Right Coalition led by the National Party, who indicated that they would pursue no further ETS reform. Trading dropped 72% from 2022, and overall market value fell 79%, while prices ended the year largely where they started it. Elsewhere in APAC, **Japan's voluntary ETS** launched in October on the Tokyo Stock Exchange; liquidity has so far been muted but is expected to pick up in 2024 as the market finds its feet. **Indonesia** also launched its own domestic carbon market, which uses credits rather than allowances to meet offsetting obligations, although trading has yet to fully take off. **Taiwan** also launched its own voluntary carbon market in December, and **India** has started preparations to begin its own voluntary carbon market with plans to transition it into a compliance market at some point down the line.

**International carbon markets** had a challenging 2023, with the negotiations at COP 28 in Dubai unable to come to a conclusion on the trading terms for Article 6,

which governs international carbon trading between Parties. Both Article 6.2 and Article 6.4 remained undecided as the conference drew to a close, likely delaying further action for a year or more. While bilateral carbon trading between countries will probably continue much the way it has now, the lack of a formal agreement governing the process under the UN will likely slow the development of new partnerships. Meanwhile, the lack of a decision on Article 6 will put additional pressure on the **Voluntary Carbon Market (VCM)**, which spent much of 2023 struggling under a cloud of poor press coverage and concerns about project integrity. Prices across the VCM standardized contracts dropped heavily throughout 2023, with most dropping to below \$1/t, although over-the-counter transactions proved marginally more resilient as buyers adopted a project-by-project approach to purchases. There have been a number of initiatives introduced in the VCM to manage integrity concerns, both through voluntary best practice standards, as well as through alignment with Article 6 principles under the Paris Agreement; initial market reaction to these has been cautiously optimistic, but the supply of these credits is not yet large enough to fully gauge the impact, which will make 2024 an important year for the market.

**For the full report, please contact [market.response@lseg.com](mailto:market.response@lseg.com)**