International Carbon Action Partnership

ICAP

EMISSIONS TRADING WORLDWIDE

STATUS REPORT 2025

EMISSIONS TRADING WORLDWIDE

INTERNATIONAL CARBON ACTION PARTNERSHIP STATUS REPORT 2025

CITE AS:

ICAP (2025). **Emissions Trading Worldwide: Status Report 2025**.
Berlin: International Carbon Action Partnership.

EDITORIAL TEAM:

Katja Biedenkopf, Zhibin Chen, Stefano De Clara, Baran Doda, Leon Heckmann, Iryna Holovko, Martina Kehrer, Stephanie La Hoz Theuer, Trevor Laroche-Theune, Andrés Olarte Peña, Victor Ortiz Rivera, Santiago Ramírez Niembro, Anastasia Steinlein, Lewis Stevens, Theresa Wildgrube.

The ICAP Secretariat expresses its gratitude to policymakers from the ICAP membership and further collaborators from the emissions trading field, who provided insightful written contributions and/or carefully reviewed the report:

Government of Alberta – Ministry of Environment and Protected Areas, Agustina Cundari (Argentina), Department of Climate Change, Energy, the Environment and Water of the Government of Australia, Michael Grabner (Austria), Fengjv Yu (Beijing), José Pedro Bastos Neves (Brazil), Beatriz Soares (Brazil), Scott Cutler (British Columbia), Amanda Engel (British Columbia), Erik Davies (California), Rachel Gold (California), Amy Ng (California), Rajmir Rai (California), Stephen Shelby (California), Mark Sippola (California), Environment and Climate Change Canada, Juan Pedro Searle Solar (Chile), Isabella Villanueva García (Chile), SinoCarbon (China and Chinese Pilots), Clay Clarke (Colorado), Andrew Gruel (Colorado), Shannon Hill (Colorado), Alek Kahn (Colorado), Megan McCarthy (Colorado), Matthew Twyman (Colorado), Cecilia White (Colorado), Raymond Zeng (Colorado), Luz Alcántara (Dominican Republic), Sara Gonzalez (Dominican Republic), Shakira Jimenez (Dominican Republic), Ruben Vermeeren (European Commission), Julia Ziemann (European Commission), Daniel Detzer (Germany), Frederik Lettow (Germany), Sophia Stüber (Germany), Dirk Weinreich (Germany), Saurabh Diddi (India), Mandeep Kaur (India), Meenakshi (India), Anandini Mayang (Indonesia), Government of Japan – Ministry of the Environment and Ministry of Economy, Trade and Industry, Botagoz Akhmetova (Kazakhstan), Muhamad Ridzwan Bin Ali (Malaysia), Ahmad Farid Mohammed (Malaysia), Chris Hoagland (Maryland), Mark Stewart (Maryland), Allison Tjaden (Maryland), William Space (Massachusetts and RGGI), Jelena Ban (Montenegro), Neno Jablan (Montenegro), New Brunswick Department of Environment and Local Government, Jonathan Binder (New York State), Lois New (New York State), Charlotte Berg (New Zealand), Daniel Boczniewicz (New Zealand), Cathy Lawless (New Zealand), Cheryl Moir (New Zealand), Government of Newfoundland and Labrador – Department of Environment and Climate Change, William Brooke (Nova Scotia), Michelle Miller (Nova Scotia), Anthony Weatherby (Nova Scotia), Nicole Singh (Oregon), Matt Steele (Oregon), Hadika Jamshaid (Pakistan), Pennsylvania Department of Environmental Protection, Rommel M. Reyes (Philippines), Jonathan Beaulieu (Québec), Jean-Yves Benoit (Québec), Mitémo Chevalier (Québec), Julie Côté (Québec), Steve Doucet-Héon (Québec), Nicolas Garceau (Québec), Olivier Lacroix (Québec), Mourad Ziani (Québec), Maureen Lee (Ecoeye, Republic of Korea), Hyeonjeong Kim (Ecoeye, Republic of Korea), Government of Saskatchewan – Ministry of Environment, Silvan Aerni (Switzerland), Thomas Kellerhals (Switzerland), Reto Schafer (Switzerland), Adrian Schilt (Switzerland), Krittaya Chunhaviriyakul (Thailand), Asako Suyama (Tokyo Metropolitan Government), Masaru Tsuritani (Tokyo Metropolitan Government), Eyüp Kaan Moralı (Türkiye), Aydın Sargın (Türkiye), Mykhailo Chyzhenko (Ukraine), Igor Onopchuk (Ukraine), Olga Yukhymchuk (Ukraine), Rufina Acheampong (United Kingdom), Ishtar Ali (United Kingdom), Matthew Davies (United Kingdom), Felix Grey (United Kingdom), Alise Karcevska (United Kingdom), Charlie Lewis (United Kingdom), Hannah Lewis (United Kingdom), Bethany Parker (United Kingdom), Rosanna Pellarin (United Kingdom), Chris Ramsay-Collins (United Kingdom), Huy Luong Quang (Vietnam), Brian Woods (Vermont), Clara Harig (Washington), Mike Johnson (Washington), Eli Levitt (Washington), Derek Nixon (Washington), Jordan Wildish (Washington).

The ICAP Secretariat is grateful to the Federal Ministry for Economic Affairs and Climate Action, Germany, for funding this report. adelphi consult GmbH lends scientific and technical support to the ICAP Secretariat and coordinated the compilation and production of the report.

We wish to thank Katie Kouchakji (KKE Communications) for her careful editing and proofreading of the report, as well as for her communication advice.

A special thanks to Hermia Chan, Ezgi Güler, Kamil Matusiewicz and Analia Quiñones Ayala for editorial assistance.

FOREWORD

ADVANCING EMISSIONS TRADING SYSTEMS: CHALLENGES AND OPPORTUNITIES ON THE PATH TO DEEP DECARBONIZATION

This year marks the 10th anniversary of the adoption of the Paris Agreement, a landmark moment in international cooperation, where nations from all around the world came together to address climate change and its adverse impacts. Over the past decade, we have seen notable progress, yet we remain distant from achieving our 1.5°C target. Notably, 2024 has been confirmed as the warmest year on record globally, marking the first calendar year that the average global temperature was more than 1.5°C above its pre-industrial level. To bridge this gap, we need enhanced collaboration, increased international exchanges and greater ambition. Emissions trading systems (ETSs) can play a crucial role by assisting countries in setting clear emission reduction targets, promoting cost-effective decarbonization, and fostering innovation. Achieving this goal will necessitate concerted efforts from governments and all actors to drive the systemic change our planet needs. This is precisely the mission of the International Carbon Action Partnership (ICAP).

ICAP is an international forum for governments worldwide, providing the tools and knowledge needed to navigate the complexities of emissions trading. Since its establishment in 2007, ICAP has fostered a collaborative space where governments exchange insights on market-based solutions to address climate change. Its capacity-building programs, technical dialogues, and annual reports have supported members and observers, but also non-member jurisdictions in designing and refining ETS frameworks that align with their unique contexts.

This year's Status Report reflects the growing momentum in ETSs worldwide, with an increasing number of systems being adopted and developed. As of January 2025, 38 systems are in force globally, two more than last year, with another 20 under various stages of development or consideration. Middle-income countries around the world, such as Brazil, India, Chile, Colombia, and Türkiye, have accelerated their efforts to establish emissions trading frameworks. Progress is also evident in expanding coverage beyond traditional sectors, with maritime transport, fuel use in road transport

and buildings, and waste management now included or considered for inclusion in an increasing number of jurisdictions. The share of global emissions covered by an ETS increased to 23%, as the additional coverage provided by new systems and sectoral expansion is balanced by reductions under ETS caps.

While we celebrate these developments, we recognize that achieving net-zero emissions demands even greater ambition. Policymakers must accelerate the adoption of ETSs, and must refine policy synergies to support both near-term reductions and the broader structural transformations required for long-term decarbonization. As emissions caps tighten and goals become more ambitious, it is crucial for ETSs globally to adopt innovative strategies that address challenging sectors, leaving no one behind. ETSs play a vital role by providing the long-term price signals and market frameworks necessary to guide investments, unlock technological breakthroughs, including net-zero technologies, and build a resilient pathway to a net-zero future.

This year, ICAP embarks on a new chapter in its mission to promote and expand emissions trading globally.

DIRK WEINREICH

Co-Chair of ICAP & Head of Division, Climate Legislation, Emissions Trading at Federal Ministry for Economic Affairs and Climate Action, Germany

JEAN-YVES BENOIT

Co-Chair of ICAP & Director General, Carbon Market Division, Ministry of the Environment and the Fight against Climate Change in Québec

This year, ICAP embarks on a new chapter in its mission to promote and expand emissions trading globally. We are thrilled to witness the growth of ICAP Membership and eagerly anticipate continued collaboration, knowledge sharing, and innovation within an expanding circle of ambitious members and observers. We also express our deepest gratitude to Rajinder Sahota, who served as Co-Chair from 2019 to 2024, for her leadership and invaluable contributions to advancing ICAP's goals. We are excited that her expertise will continue to guide us and, building on her legacy, we are committed to ensuring emissions trading remains a robust, equitable, and effective instrument to contribute towards the achievement of the Paris Agreement goals.

The Emissions Trading Worldwide Status Report 2025 captures the dynamism and progress of ETSs across the globe. It is a reminder that through strengthened partnerships, shared knowledge, and collective determination, we can achieve ambitious and progressive climate action.

CONTENTS

01 EXECUTIVE SUMMARY

EMISSIONS TRADING IN NUMBERS

38 Emissions Trading Systems are in force

Covering

12 $GtCO_2e$

or over

23% of global GHG emissions

USD **70** Billion raised in 2024

Totaling almost

USD **373** Billion since 2007

11 ETSs are currently under development

And **9** more are under consideration

Almost **1/3** of the global population lives under an ETS in force

Jurisdictions making up

58%

of global GDP are using emissions trading

TRENDS AND OUTLOOK

A SUMMARY OF GLOBAL ETS DEVELOPMENTS, TRENDS, AND FUTURE PROSPECTS

Countries worldwide are witnessing the escalating impacts of climate change in real time — intense heatwaves, devastating floods, and catastrophic wildfires are no longer sporadic threats but daily realities. Yet, the world remains off track to meet the Paris Agreement's targets, and rising national self-interest threatens collective efforts. Parties to the Paris Agreement are expected to submit updated Nationally Determined Contributions (NDCs) ahead of COP 30, and this deadline offers governments an opportunity to recalibrate ambition, strengthen policies, and integrate market mechanisms for deeper decarbonization. Emissions trading systems (ETSs) play an increasingly prominent role in the global climate policy landscape, balancing domestic economic growth with emission reductions in the path to net zero.

THE GROWING ROLE OF EMISSIONS TRADING IN GLOBAL DECARBONIZATION

ETSs have emerged as a preferred policy tool for many governments worldwide, with 38 systems covering over 12 $GTCO_2e$, or 23% of global GHG emissions, in force globally. These systems span jurisdictions that collectively account for one-third of the global population and 58% of global GDP. Seventeen of the G20 countries already have or are planning for an ETS, either at the national or sub-national level, reinforcing the role of carbon pricing in major economies.

The momentum will continue to build as 20 governments worldwide are at various stages of considering or developing ETSs. While ETSs have historically operated in developed countries, emerging economies are now driving the next wave of system development and implementation. These systems are not only expanding in number but are also evolving in design. Some governments, particularly in the developing world, are looking beyond conventional cap-and-trade models and choosing intensity-based systems. Others are adopting hybrid approaches that leverage different carbon pricing instruments, integrating emissions trading with carbon taxes or crediting mechanisms, creating flexible pathways to reduce emissions.

In the Asia-Pacific region, ETS developments are progressing rapidly. India has adopted regulations to establish an intensity-based baseline-and-credit system for energy-intensive industries, alongside a carbon crediting mechanism. China has started expansion beyond the power sector to selected industrial sectors and is considering the transition to an absolute cap. Indonesia's intensity-based ETS for the power sector has been operational for two years, with plans to implement an innovative "cap-tax-and-trade" hybrid system for the power subsector this year. Türkiye and Vietnam are developing regulations for the launch of pilot ETSs in the near future. Meanwhile, Malaysia, the Philippines, and Thailand are actively considering emissions trading as part of their climate policy toolkit.

Emerging economies are now driving the next wave of system development and implementation.

In Latin America, Brazil has established the legal foundation for a federal ETS and has entered the initial phase of implementation, focusing on regulatory development. Chile is developing sectoral emissions limits and preparing a pilot ETS for the energy sector. Colombia has launched a public consultation on ETS regulations, marking a step forward toward the system's phased implementation. Mexico is transitioning its pilot ETS to full implementation, while the Dominican Republic appears in this year's Status Report for the first time, as it explores the feasibility of a pilot ETS.

Developed economies are also advancing their ETSs. The European Union has recently completed an extensive reform to its ETS and is set to introduce a separate one for buildings, road transport, and additional sectors from 2027, potentially doubling the share of covered emissions. Canada has published draft regulations for a federal cap-and-trade system targeting upstream oil, gas, and LNG production emissions. Meanwhile, in the United States, Oregon has reinstated its ETS following its 2023 invalidation, and Colorado launched its system in 2024, initially covering large in-state manufacturers, with expansions planned for 2028. New York State is in the process of developing program rules for an economy-wide ETS, while Maryland is actively considering the establishment of its own economy-wide system.

PRICE AND REVENUES DECREASED IN KEY SYSTEMS, BUT A CONTINUED SHIFT TO AUCTIONING REMAINS A KEY INTEREST FOR ETSs WORLDWIDE

Despite the promising advances at the global level, 2024 saw increased market volatility in established ETSs, with most systems recording lower average prices compared to 2023. The EU ETS, which had reached record highs in 2023, saw a decline in early 2024, stabilizing at a lower level throughout the year. The UK ETS followed a similar trajectory, while California and Washington's cap-and-invest programs saw price drops, reflecting market recalibrations and adjustments in regulatory expectations. However, some markets witnessed upwards trends. The Chinese national ETS experienced a moderate but steady price growth compared to 2023, and prices in the Korea ETS and RGGI remained relatively stable. The decline in some of the major systems was influenced by a mix of different factors, including economic uncertainty, regulatory adjustments, and shifting market sentiment, while jurisdictions with fixed price trajectories, like Germany and Canada, experienced continued price resilience and growth.

Lower prices in key markets resulted in the first annual decline in auction revenues after several years of steady increases and record levels. In 2024, global revenues stood at approximately USD 70 billion, which is USD 4 billion less than the previous year. Despite this, emissions trading revenues remain an important stream of climate finance, providing governments with resources to fund additional decarbonization efforts or support vulnerable groups. Jurisdictions are increasingly refining auction-based allocation models, shifting away from free allocation to enhance market efficiency and bolster price signals. The EU, California, Québec, Korea, New Zealand and the UK are implementing reforms to reduce free allocation. Newer systems, like in Germany and Austria, along with the upcoming EU ETS 2, are designed so that covered entities must purchase all allowances from the outset, reinforcing the broader trend towards market-based distribution of allowances.

Newer and up-and-coming systems, such as Washington State, New York State and the EU ETS 2, are putting the reinvestment of auction proceeds at the core of the system design. The strategic use of auction revenues is indeed reshaping ETS policy worldwide. The establishment of EU's Social Climate Fund, and reinvestment strategies in California, Québec and New Zealand, among others, underscore the growing emphasis on directing ETS

Offsets and crediting mechanisms are gaining prominence in ETS design, especially in the new generation of ETSs.

proceeds toward climate mitigation, consumer protection, and technological innovation. Various governments are prioritizing revenue recycling mechanisms to mitigate economic burdens on vulnerable communities, with the aim of reinforcing public support for emissions trading as a socially equitable and politically sustainable tool for decarbonization.

THE ROLE OF EMISSIONS TRADING IN THE ROAD TO NET ZERO

As ETSs continue to diversify, and caps tighten in alignment with 2030 and 2050 climate targets, policymakers around the world are grappling with critical design and implementation questions. ETSs are increasingly seen as essential tools to achieving net-zero goals, with discussions focusing on the role of removal credits and negative emissions, cap-setting, market dynamics, and market stability under various possible pathways, including net-zero and net-negative caps. Ongoing and upcoming reforms in the EU and the UK are starting to explore ETS alignment with net-zero trajectories, while California and Quebéc are in the process of advancing their policy reforms to meet net-zero.

Offsets and crediting mechanisms are gaining prominence in ETS design, especially in the new generation of ETSs. Out of the 38 ETSs in force today, 24 allow for the use of carbon credits as a compliance option, in most cases with strict qualitative and quantitative limits. Key emerging economies such as China, Indonesia, India, and Brazil are incorporating domestic carbon credits to broaden the reach of incentives generated by their ETS price signals. While these developments suggest an increasingly central role for carbon credits in emissions trading and growing convergence between compliance and voluntary markets, some elements warrant caution. First, international credit demand remains limited, with only South Korea accepting international credits as alternative compliance units. Although the Article 6 outcomes from COP 29 in Baku open possibilities for greater international cooperation in the future, the current focus appears to be on domestic crediting. Second, the market for compliance-grade carbon credits remains highly fragmented. Beyond the fragmentation introduced by the 'domestic only' approaches, eligibility criteria and recognized crediting standards vary widely from system to system. Additionally, even though new and developing systems are likely to create significant demand for carbon credits, generous free allocation levels and low allowance prices may reduce the incentive for covered entities to utilize offsetting provisions.

Expanding ETS coverage is another key driver of impact. In the European Union, the "Fit for 55" reforms included the expansion of the EU ETS to the maritime sector and the upcoming launch of a separate ETS for emissions not covered by the existing system. In the United Kingdom, the government is exploring broadening the UK ETS to cover domestic maritime emissions from 2026 and non-pipeline transport for CCS. Meanwhile, China extended the sectoral coverage of the national ETS to include the steel, cement, and aluminum smelter sectors. This scope expansion brings an additional 1,500 companies into the Chinese national ETS, increasing the system's emissions coverage by an estimated 3 $GtCO_2e$, corresponding to approximately 5% of global GHG emissions. Additionally, several regional pilot ETSs in China are advancing sectoral expansion, with provinces such as Hubei, Shenzhen, Guangdong, Shanghai, and Tianjin incorporating new industries, including data centers, solid waste, ceramics, ports, aviation, and road transport, into their regulatory scope.

At the same time, attention is turning to the challenge of carbon leakage and the need to protect competitiveness in the face of increasingly stringent emissions targets. Mechanisms like the EU's and the UK's Carbon Border Adjustment Mechanisms (CBAMs) reflect a shift away from free allocation of allowances, which becomes unsustainable as caps decline. Border adjustments, as an alternative, seek to align trade policies with climate ambitions, but also raise implementation challenges and pushbacks from global trading partners. In response to the introduction of CBAM, several countries have also voiced proposals for such mechanisms, highlighting the role that this tool will have in the coming years. Competitiveness considerations will become increasingly pressing going forward and policymakers will need to carefully navigate these complexities to ensure that climate policies support both environmental and economic objectives.

As new systems emerge and existing ones evolve, closer cooperation will be essential to ensuring that carbon markets remain effective, resilient, and aligned with the overarching goal of a net-zero future.

Finally, the issue of public acceptability and just transition remains central to the success of carbon pricing policies. As carbon prices rise and caps are declining, governments are adopting strategies that build public support, such as using revenues for direct compensation or reinvesting in programs that promote equity and sustainability. Framing carbon pricing as an opportunity for a just transition has gained traction, emphasizing the need to balance public support with competitiveness and equity considerations.

INTERNATIONAL COOPERATION WILL PLAY A KEY ROLE GOING FORWARD

As ETSs continue to expand and diversify, international cooperation remains key in aligning ETSs and preventing market fragmentation. Global initiatives such as the International Carbon Action Partnership, together with the Global Carbon Pricing Challenge, the World Bank's Partnership for Market Implementation, the Carbon Pricing in the Americas initiative and others are facilitating cross-border collaboration and policy coordination.

ICAP remains dedicated to supporting capacity-building, technical knowledge-sharing, and policy dialogue among jurisdictions implementing emissions trading. As new systems emerge and existing ones evolve, closer cooperation will be essential to ensuring that carbon markets remain effective, resilient, and aligned with the overarching goal of a net-zero future.

A YEAR OF ETS DEVELOPMENTS

A BRIEF OVERVIEW OF THE KEY UPDATES FROM EACH JURISDICTION

EUROPE AND CENTRAL ASIA

AUSTRIA: Austria's national emissions trading system launched in October 2022, covering fossil fuels not included in the EU ETS. In 2024, the government revised the NEHG to align with the upcoming EU ETS 2. Austria will "opt in" fuels used in agriculture and forestry, expanding coverage to match the current national ETS. The Austrian system will conclude by 2026, with EU ETS 2 starting in 2027, although a one-year delay is possible. The government introduced enhanced relief measures for industries, including agriculture, in 2024.

EUROPEAN UNION: The EU ETS continues to be the largest system in force in terms of trading value and volume. Following 2023 reforms, important changes to the system's ambition and scope took effect in 2024, including a downwards adjustment to the cap. Furthermore, annual reductions in the cap from 2024 onwards have been increased. The scope of the EU ETS has been expanded to emissions from maritime transport and from most flights to and from the EU's nine outermost regions. A new separate ETS for buildings, road transport and additional sectors (ETS 2) is underway, with full transposition into the EU Member States' law to be finalized soon following the 2024 deadline.

GERMANY: Germany launched its national ETS in 2021, covering heating and transport fuels not included in the EU ETS. The system, initially phased in with a fixed price until 2025, will introduce a price corridor in 2026 before transitioning to the EU ETS 2 in 2027. In 2025, the government adopted a transition law, confirming the phase-out of the national ETS for most sectors by the end of 2026. Germany has decided to opt-in fuels used in agriculture and rail transport but has not included waste incineration, pending further EU-wide analysis on carbon pricing in the sector.

KAZAKHSTAN: Kazakhstan's ETS entered its 13th year of operation. In January 2024, the government updated an allocation plan for 2022 to 2025, decreasing the caps for 2024 and 2025, while benchmarking remains the main method of allowance allocation since 2021.

MONTENEGRO: Montenegro's national ETS was launched in February 2020 and covers large installations in the power and industrial sectors. However, two of the initially three covered installations have ceased operations, and currently only one installation remains in the scheme. The Montenegro government is currently revising the national "Climate Law" and a revision of the "ETS decree" is expected by the end of 2025.

SWITZERLAND: The Swiss ETS, established in 2008, has been linked with the EU ETS since 2020. In 2024, the legislature introduced significant reforms, including a revised "CO_2 Act" that aligns the Swiss ETS with the EU ETS for the 2025 to 2030 period. New measures include the reduction of the cap with the introduction of new linear reduction factors, and CCS and foreign biogas are now eligible for inclusion. Additionally, free allowances for aviation operators will be phased out by 2026.

TÜRKIYE: Türkiye is preparing to launch its ETS, with the long-awaited pilot phase planned for 2026. The government completed technical analysis for the draft climate law in 2024, with final parliamentary adoption steps expected in early 2025. The government released its "Long-Term Strategy" during COP 29 and initiated international cooperation projects to support system design and implementation. Development of the technical and regulatory framework continues, building on the country's existing emissions monitoring system.

UKRAINE: Ukraine continues to prepare the regulatory framework for its national ETS, and the pilot phase is expected to start in 2028. In December 2024, the Ukrainian Parliament approved the "Law on Basic Principles of Climate Policy", which mandates an ETS. The draft Action Plan for the ETS up to 2033 went through the public consultation process in 2024. Mandatory reporting under the MRV system, which was suspended in 2022 due to the Russian war of aggression against the country, was reintroduced by the Parliament in January 2025, with covered entities being required to report their emissions data for 2024.

UNITED KINGDOM: The UK ETS underwent significant reforms in 2024 to align with the jurisdiction's net-zero by 2050 target. The cap was reset, reducing available allowances by 30% between 2021 and 2030. Consultations began on expanding the system to include waste incineration and energy from waste by 2028. The UK government announced the introduction of a carbon border adjustment mechanism in 2027 to address carbon leakage risks. Further consultations explored expanding the scope to domestic maritime emissions from 2026 and on non-pipeline transport for CCS in the UK ETS.

NORTH AMERICA

ALBERTA: In 2007, Alberta introduced the first industrial carbon pricing instrument in North America. In 2020, the third iteration of the mechanism began, the Technology Innovation and Emissions Reduction Regulation. Compliance is based on intensity of output of each covered facility. TIER system amendments, effective January 2023, saw full implementation across regulated facilities for the year 2024, including, among others, an increase in the carbon price following federal requirements and a tightening of benchmarks.

BRITISH COLUMBIA: The BC Output-Based Pricing System began operations in April 2024, replacing the voluntary CleanBC Industrial Incentive Program. Compliance is required for certain products at facilities that emit over 10,000 tCO_2e per year. Compliance is based on emissions that exceed an allowable intensity of output of each covered facility.

CALIFORNIA: California operates one of the largest and most comprehensive cap-and-trade programs worldwide, linked with Québec since 2014. The government advanced significant program reforms throughout 2024, proposing new emissions reduction targets and market design changes. It released an impact assessment of the proposed amendments in April, while discussions about potential linkage with Washington's carbon market gained momentum through a joint statement.

CANADA FEDERAL: The federal OBPS has been in place since 2019 as one part of the federal carbon pollution pricing "backstop" system. The backstop system applies to provinces and territories where the carbon pricing system for the 2023 to 2030 period does not meet the federal benchmark criteria, set at CAD 95 (USD 69.38) per tCO_2e in 2025. In November 2024, Canada published draft "Oil and Gas Sector Greenhouse Gas Emissions Cap Regulations" which would establish a federal cap-and-trade system for GHG emissions from upstream oil and gas and LNG production. The proposed system would be phased in between 2026 and 2029 with the first compliance phase set for 2030 to 2032. Final regulations are expected in 2025.

COLORADO: In October 2023, the Colorado government introduced regulations for an ETS for in-state manufacturers, effective from 2024. In 2024, the government finalized guidance on GHG credit trading between covered facilities. The trading system was launched in November, allowing facilities to register, and trading is set to begin in mid-2025. In December, the government expanded the ETS to cover emissions from oil and gas midstream operations starting in 2028.

MARYLAND: Maryland is exploring an economy-wide cap-and-invest program to meet its emissions reduction goals. A 2023 plan highlighted the potential benefits of such a system, including new revenues for clean energy and consumer rebates. In 2024, a state commission recommended a study to assess the program's design. It also suggested a reporting rule for major polluters, with data collection beginning in 2027.

MASSACHUSETTS: The Massachusetts ETS started operating in 2018 as a complement to RGGI: electricity generators in the state must comply with both RGGI and the Massachusetts program. In 2024, auction prices remained stable, reflecting sufficient allowances for compliance. The government is considering raising the minimum reserve price and sought stakeholder input on the proposal. Revenues continue to support emissions reduction and community programs.

NEW BRUNSWICK: New Brunswick transitioned large industrial emitters from the federal OBPS to a provincial OBPS from January 2021. It is an intensity-based ETS in which each covered entity must surrender compliance units for emissions that exceed its annual emissions limit. In 2024, the New Brunswick government published the list of projects that have been awarded funding by the Minister of Environment and Climate Change from the Climate Change Fund in FY2025.

NEWFOUNDLAND AND LABRADOR: Newfoundland and Labrador's Performance Standards System (PSS) came into effect in 2019. It is an intensity-based ETS for large industrial emitters, in which each covered entity must surrender compliance units for emissions that exceed its annual emissions limit. In line with the federal OBPS pricing trajectory, the price rose to CAD 80 (USD 58.42) per tCO_2e in 2024 and to CAD 95 (USD 69.38) per tCO_2e in 2025.

NEW YORK STATE: New York's Cap-and-Invest Program (NYCI) is under development to reduce statewide GHG emissions while promoting economic stability and equity. The program, rooted in the 2019 "Climate Leadership and Community Protection Act", will cover all emitting sectors and decrease emissions in line with state targets. In 2023 and 2024, the Department of Environmental Conservation and the New York State Energy Research and Development Authority held stakeholder sessions to guide development. In September 2024, a market registry and auction platform were secured through the Western Climate Initiative, while design considerations continue, including regarding NYCI's interaction with RGGI.

NOVA SCOTIA: The Nova Scotia OBPS for Industry began in 2023, replacing the province's cap-and-trade program. Compliance is based on emissions that exceed an allowable intensity of output of each covered facility. In 2024, the government released final regulations and standards around reporting, applicable performance standards for industry, and the electricity generation sector.

ONTARIO: Ontario's Emissions Performance Standards (EPS) program came into effect in January 2022, replacing the federal OBPS that operated from 2019 to 2021. It is an intensity-based ETS for large industrial emitters. In 2024, Ontario made amendments to the EPS and GHG Reporting Programs to clarify program requirements, improve program implementation and administration, and address fundamental changes in some industries.

OREGON: In November 2024, Oregon reinstated its Climate Protection Program (CPP) after its 2023 invalidation. The Department of Environmental Quality led an extensive rulemaking process with public engagement through 2024. The adopted CPP sets enforceable, declining emissions caps on fossil fuels and emissions-intensive industries. The program targets a 50% reduction by 2035 and 90% by 2050, compared with a baseline of 2017 to 2019.

PENNSYLVANIA: In October 2019, Pennsylvania's governor signed an executive order directing the state's environmental agency to develop a proposal for an ETS covering emissions from the power sector and for its linkage to RGGI. The regulation, published in 2022, faced legal and legislative challenges. In 2024, lawmakers introduced competing bills: one to repeal the ETS and another to create a state-run carbon reduction program which would be structured similarly to the originally-proposed system. The state Supreme Court is reviewing an appeal on the regulation's constitutionality.

QUÉBEC: Québec operates a comprehensive cap- and-trade system covering most of the jurisdiction's emissions, linked with California since 2014. Throughout 2024, the government progressed system reforms following earlier stakeholder engagement, with draft regulations expected in early 2025. Discussions about potential linkage with Washington's carbon market gained momentum through a joint statement.

REGIONAL GREENHOUSE GAS INITIATIVE: RGGI is currently undergoing its Third Program Review, with the latest developments from September 2024 focusing on an updated exploratory scenario. This scenario includes a higher annual base cap reduction from 2027 to 2033, alignment with a zero-by-2035 cap trajectory, and a proposed increase to the cost containment reserve. The RGGI states received stakeholder feedback on this scenario in October 2024, and Model Rule updates are ongoing. Meanwhile, Virginia's participation in RGGI remains uncertain, as in November 2024 a county circuit court deemed a 2023 repeal of its ETS regulation was unlawful.

SASKATCHEWAN: Saskatchewan's OBPS Program came into effect in 2019. It is an intensity-based ETS for large industrial emitters. In May 2024, the "Performance Credit Standard" was updated to reflect that, if a performance credit is found to be invalid, the original seller (i.e., the regulated facility that originally generated the credit) assumes the risk that it may be revoked. Other standards underwent minor edits.

VERMONT: In June 2024, Vermont's legislature passed an act requiring a study of a cap-and-invest program to help meet the state's climate goals. The study will explore the potential benefits of expanding the program to sectors beyond the power sector, which is already covered by RGGI. Results from the study, including scenario analyses and public engagement, will inform a policy recommendation to the legislature in 2025.

WASHINGTON: Washington's cap-and-invest program, launched in 2023, covers most of the state's emissions. The program achieved several milestones in 2024, including successfully completing its first compliance event with near-perfect participation. A public vote in November decisively rejected an initiative to repeal the legislation underpinning the program, securing its future. The jurisdiction advanced its carbon market cooperation through a spring joint statement, while new legislation facilitating potential linkage with California and Québec took effect in early 2025.

ASIA PACIFIC

AUSTRALIA: The Australian Safeguard Mechanism is a baseline-and-credit system that assigns mandatory emissions baselines to the largest facilities in the industry and transport sector. Facilities that emit above their baselines are required to offset excess emissions, and facilities that exceed their baseline targets are issued credits. FY2024 was the first full compliance year under the reformed Safeguard Mechanism.

CHINA: China launched its national ETS in 2021, covering more than 5 billion tCO_2 in its power sector. In 2024, the State Council published the "Interim Regulations for the Management of Carbon Emissions Trading," which establishes a robust legal foundation for the national ETS. The Ministry of Ecology and Environment (MEE) launched the domestic offset scheme and completed the compliance of 2023 in late 2024, after shifting to a one-year cycle. In March 2025, following a 2024 consultation, the MEE released a work plan to expand coverage to the steel, cement, and aluminum smelting sectors over two phases. Phase 1 (2024–2026) focuses on familiarization and data improvement; Phase 2 (from 2027) targets emission intensity reductions. This scope expansion brings 1,500 additional companies into the ETS, and increases coverage by 3 billion tCO_2e.

CHINESE PILOTS: All Chinese regional pilots continued trading, ensuring compliance, and updating ETS management measures. In addition to routine activities, the Hubei Provincial government lowered the inclusion threshold following public consultation. The Shenzhen pilot was expanded to data centers, solid waste, and the service industry. The Guangdong pilot is planning to expand coverage to ceramics, ports, data centers, airports and textiles. The Shanghai pilot requires 17 logistics companies in the road transport sector to report and verify their emissions. The Tianjin government is set to announce its final decision on expanding coverage to maritime, domestic aviation and data center sectors into the current ETS scope, following a public consultation.

INDIA: The Indian government adopted detailed regulations for the planned compliance mechanism under the Carbon Credit Trading Scheme (CCTS) in 2024. It will take the form of an intensity-based baseline-and-credit system, with mandatory GHG emissions intensity targets set for regulated entities each year. The first compliance period should start from FY2026, with nine industrial sectors transitioning to the CCTS from the existing Perform, Achieve and Trade (PAT) energy efficiency scheme.

INDONESIA: Indonesia introduced a mandatory, intensity-based ETS for the power sector in 2023. In its first phase, it covers only coal-fired power plants connected to the grid of the state-owned utility PLN. In 2024, the scope of the ETS expanded to cover installations with a capacity of 25 MW or more, bringing an additional 47 coal-fired power plants under the scheme.

JAPAN: Japan launched a voluntary ETS (GX-ETS) in 2023 that is planned to become mandatory in 2026. The GX-ETS started as a voluntary baseline-and-credit system during its first phase, which runs from 2024 to 2025. More than 700 companies, accounting for more than 50% of national emissions, participate. The system is expected to transition to a mandatory ETS from FY2026 after its first compliance deadline. From FY2033, auctioning will be introduced for high-emitting entities in the power sector. A study group was established to clarify legal and regulatory aspects of the GX-ETS, including free allocation, auctioning, and cap setting.

MALAYSIA: Malaysia is in the process of establishing a domestic carbon market, starting with a voluntary carbon exchange that was launched in 2022 and potentially complementing this with a domestic ETS in the future. The government is currently preparing a draft bill that would provide the legal basis for the introduction of a domestic ETS in Malaysia. It is expected to be tabled in the Malaysian parliament in 2025.

NEW ZEALAND: The New Zealand Emissions Trading Scheme was launched in 2008 and covers half of the country's GHG emissions, including the forestry sector. In 2024, the government tightened unit supply and increased the auction reserve price. Agricultural emissions no longer face reporting requirements under the ETS, nor are there plans to price agricultural emissions through the ETS.

PHILIPPINES: In February 2025, the House of Representatives approved a Bill on second reading proposing the introduction of an ETS. The Bill is awaiting passage on third reading by the House of Representatives in June 2025, before being put to Senate's consideration. If adopted, the Bill would establish an ETS covering the energy, transport, industry, AFOLU, and waste sectors. Meanwhile, the Department of Finance is leading a technical working group to assess the feasibility of carbon pricing.

REPUBLIC OF KOREA: The Korean Emissions Trading System was East Asia's first national ETS, launched in 2015 and covering the electricity, industrial, building, waste, transport, domestic aviation, and maritime sectors. In 2024, the government implemented several changes to increase liquidity in the market, most notably relaxing the banking rules, introducing carbon price-linked financial products, introducing consignment auctioning, and annual adjustments of the auction volume. The government announced additional rules to be applied in 2025 and for the period 2026 to 2035. The changes for 2025 include: allowing more non-compliance actors to join the market, revising market stabilization measures, and tightening the regulations for cancelling allowances. On the last day of 2024, the government adopted the fourth "Basic Plan for the Korean ETS", detailing further planned changes for 2026 to 2035.

SAITAMA: The Saitama Prefecture's ETS, launched in 2011, covers commercial buildings and industrial sectors. In 2024, the prefectural government announced that most covered facilities achieved their targets in the second compliance period (FY2015 to FY2019). The system completed its third compliance period (FY2020 to FY2024) and will enter its fourth (FY2025 to FY2029) with significant updates. The compliance factor will rise for office buildings and factories. To boost the use of renewable energy, off-site renewable energy, including self-consignment and PPA, will count as zero emissions, and certificates derived from renewable energy can be deducted from energy-related CO_2 emissions. Second, actual emission factors will replace fixed ones for calculating emissions from utilities. Third, a new system for excess emission reductions will limit credits to those achieved through energy efficiency or renewable energy; credits will no longer be awarded for certification improvements or emission factor adjustments. These updates will take effect in April 2025.

THAILAND: A "Climate Change Act" is set for cabinet submission in Thailand, aiming to start the legislative process in 2025. The proposal includes an ETS, a carbon tax, and a carbon credit market. Under the current draft bill, planned allocation updates every few years will drive gradual emissions reductions.

TOKYO: The Tokyo Metropolitan Government Cap-and-Trade Program, Japan's first mandatory ETS, was launched in April 2010. It covers CO_2 emissions from large buildings, factories, heat suppliers, and other facilities that consume large quantities of fossil fuels. In 2024, it completed its third compliance period and announced reforms for its fourth compliance period beginning in 2025. First, the compliance factor will rise for office buildings and factories. To boost the use of renewable energy, off-site renewable energy, including self-consignment and PPA, will count as zero emissions, and certificates derived from renewable energy can be deducted from energy-related CO_2 emissions. Second, actual emission factors, instead of fixed emission factors, will be used to calculate emissions from electricity, heat, and city gas supplied by retailers, based on contracts at the facilities. Third, a new system for excess emission reductions will limit credits to those achieved through energy efficiency or renewable energy; credits will no longer be awarded for certification improvements or emission factor adjustments.

VIETNAM: A pilot ETS is set to launch by June 2025, focusing on high-emitting sectors. Full implementation is planned by 2029. The Ministry of Natural Resources and Environment will issue enabling regulations throughout 2025 to support the rollout and prepare the infrastructure and capacity building activities.

LATIN AMERICA AND THE CARIBBEAN

ARGENTINA: The government is working to implement carbon market mechanisms under a national strategy introduced in 2023 in Argentina. A proposal for an ETS faced legislative resistance and was removed from a key framework law in early 2024. Despite this setback, the government continues to explore policy options to advance an ETS. A new congressional bill aims to operationalize carbon markets, signaling ongoing efforts to establish a regulatory pathway for both voluntary and compliance markets.

BRAZIL: The Brazilian Greenhouse Gas Emissions Trading System (SBCE) was established in December 2024. The law lays out the governance framework and the legal foundation for obligations by covered entities, with key design elements (such as scope, cap, and allocation) to be determined in the coming years. The ETS will impose compliance obligations on entities emitting more than 25,000 tCO_2e per year, with reporting obligations applying to those emitting more than 10,000 tCO_2e per year. The implementation of the law will occur in five stages. The next two years will see the enactment of regulation to implement the system, and first compliance obligations are expected in five or six years.

DOMINICAN REPUBLIC: The government is advancing carbon pricing efforts as part of its climate strategy. A roadmap for an ETS was developed in 2020, followed by a national simulation exercise in 2023. The government, with support from the UN's Regional Collaboration Center, is now preparing the design of a pilot ETS aligned with its climate goals.

CHILE: In June 2022, Chile enacted its "Framework Law on Climate Change". Article 14 of the law provides the basis for a system of GHG emissions limits set by technology, sector, or activity, while Article 15 specifies that installations that perform better than their benchmark will have their surplus emissions reductions certified, which may then be used by other regulated entities for compliance with their respective emissions limits. Rules to develop the limits and to have the overachievement of the limits recognized as credits are under development.

COLOMBIA: In 2018, Colombia adopted a "Climate Change Law" which outlines basic provisions for the establishment of an ETS (Programa Nacional de Cupos Transables de Emisión de Gases de Efecto Invernadero – PNCTE). On September 2024, the Colombian government opened a public consultation on the Decree project for the regulation of the PNCTE. The draft Decree would establish the preliminary phase in accordance with the graduality principle of the PNCTE.

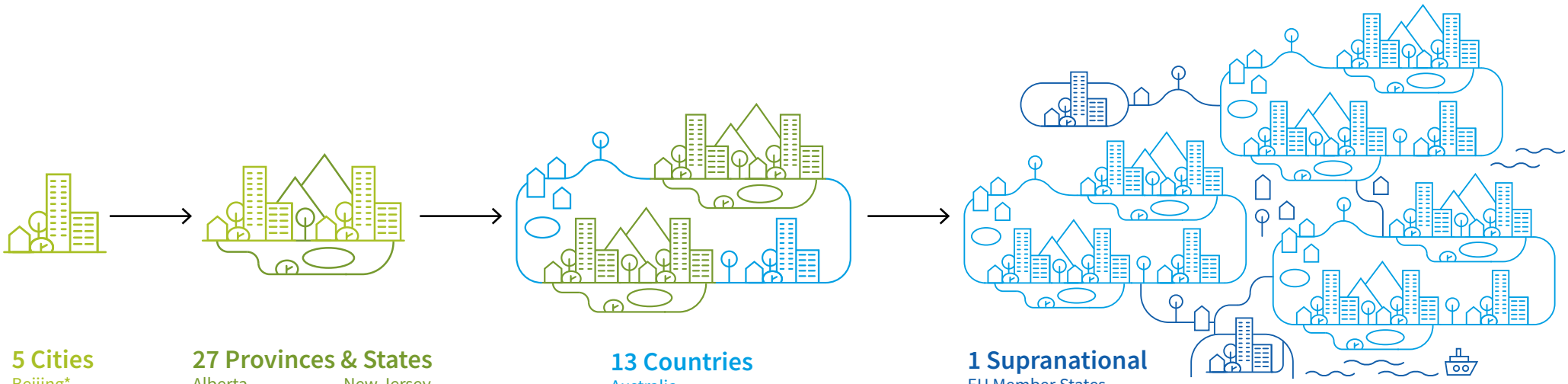
MEXICO: The Mexico ETS, the first in Latin America, started its pilot phase in January 2020. It covers direct CO_2 emissions from fixed sources in the energy and industry sectors emitting at least 100,000 tCO_2 per year, representing around 40% of national GHG emissions. SEMARNAT prepared a draft regulation in coordination with the Consultative Committee of the Emissions Trading System.

02 INFOGRAPHICS

FROM SUPRANATIONAL TO LOCAL

EMISSIONS TRADING SYSTEMS OPERATE AT EVERY LEVEL OF GOVERNMENT

Emissions trading can be implemented at several levels of government. At one end of the spectrum, city-level ETSs are in operation, for example, in Shenzhen. At the other end, the EU ETS operates supranationally in all EU Member States plus Iceland, Liechtenstein, and Norway. Multiple ETSs may be in force in the same jurisdiction, such as Germany and Austria, where some emissions are covered by the EU ETS and others by the German or the Austrian National ETS. Similarly, the China National ETS currently covers power sector emissions while other province- and city-level ETS pilots regulate emissions from a variety of sectors. In North America, many provincial or state-level ETSs exist, with some linked domestically or internationally. In the rest of the ICAP Status Report 2025 you can find a wealth of information about these individual systems that are already in force as well as many others that are under development or under consideration.



5 Cities

Beijing*
Chongqing*
Shanghai*
Shenzhen
Tianjin*

27 Provinces & States

Alberta
British Columbia
California
Colorado
Connecticut
Delaware
Fujian
Guangdong
Hubei
Maine
Maryland
Massachusetts
New Brunswick
New Hampshire
New Jersey
New York
Newfoundland and Labrador
Nova Scotia
Ontario
Oregon
Prefecture Saitama
Québec
Rhode Island
Saskatchewan
Tokyo
Vermont
Washington

13 Countries

Australia
Austria
Canada
China
Germany
Indonesia
Kazakhstan
Mexico
Montenegro
New Zealand
Republic of Korea
Switzerland
United Kingdom

1 Supranational

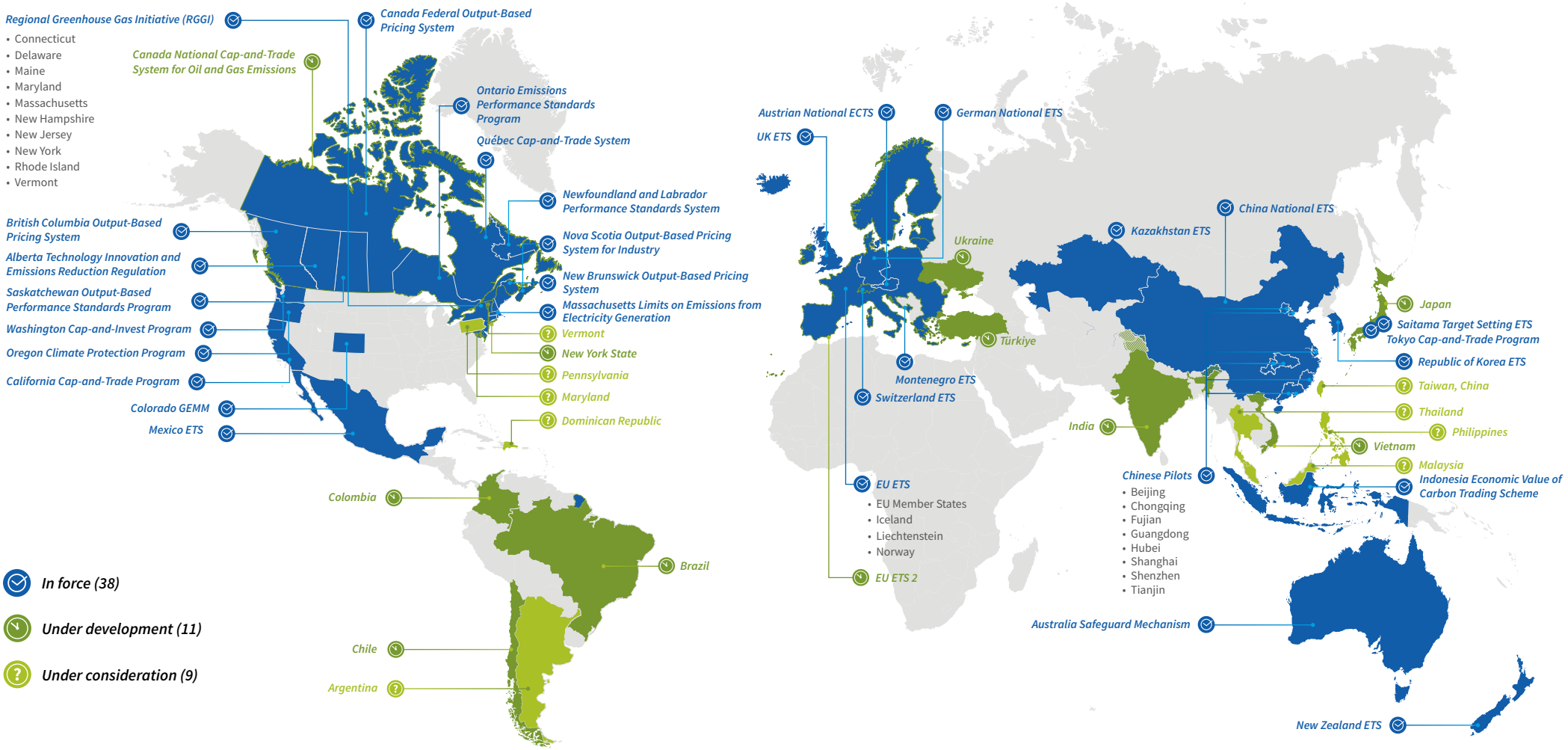
EU Member States
+ Iceland
+ Liechtenstein
+ Norway

* Beijing, Chongqing, Shanghai and Tianjin are provincial-level municipalities in the Chinese administrative system.

EMISSIONS TRADING WORLDWIDE

THE CURRENT STATE OF PLAY IN EMISSIONS TRADING

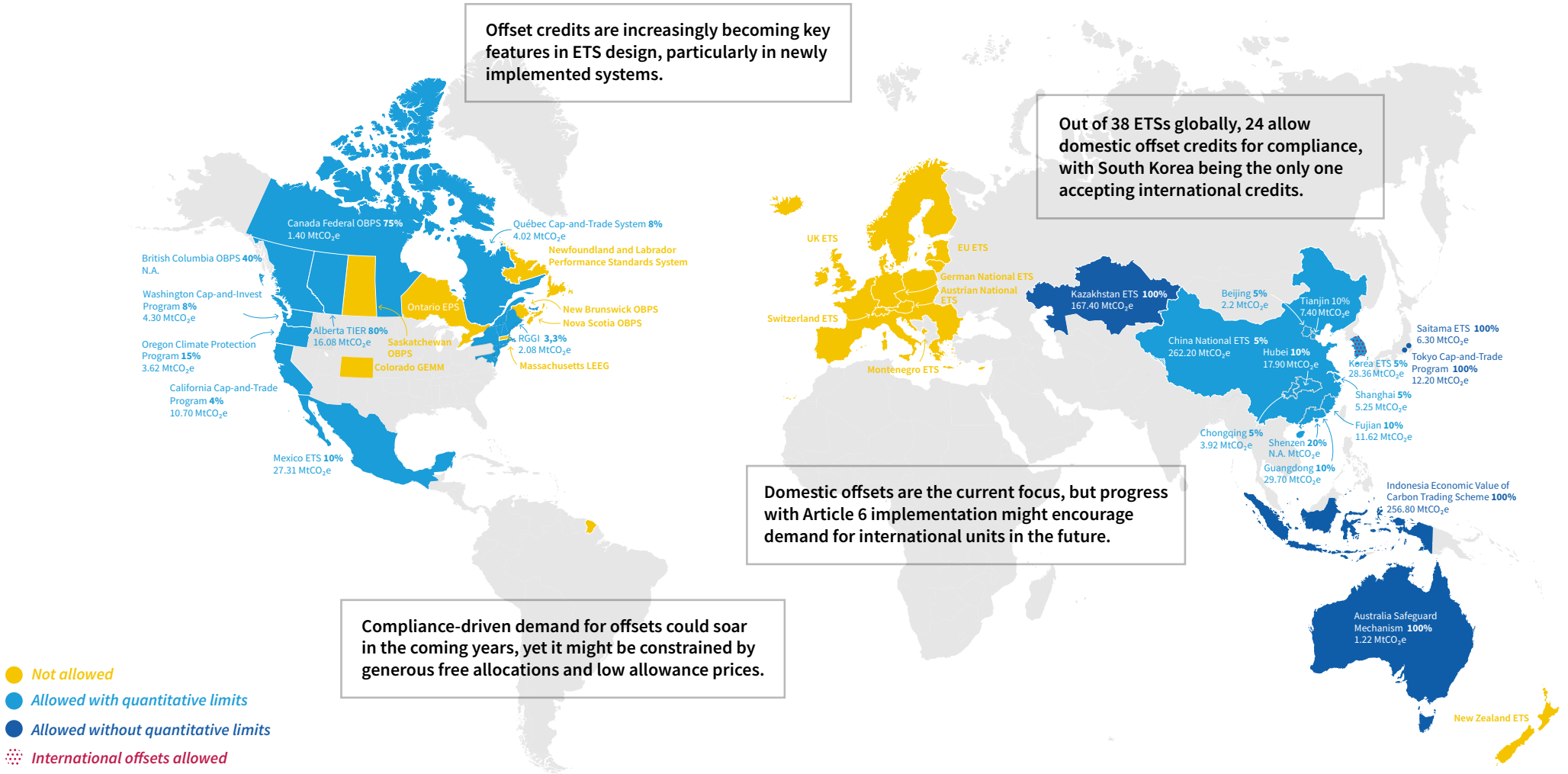
The ICAP ETS world map depicts emissions trading systems currently in force, under development or under consideration. As of January 2025, there are 38 ETSs in force. Another 11 are under development and expected to be in operation in the next few years. These include ETSs in Colombia, Türkiye, and Vietnam. 9 jurisdictions are also considering the role an ETS can play in their climate change policy mix. If a jurisdiction has multiple systems in force, it is depicted in blue, with the borders of the jurisdiction representing the layered systems (e.g. Germany and Guangdong). If, however, it has a system in force but is also developing an additional system, it is depicted in blue but also features a green border (e.g. the EU).



OFFSET USE IN EMISSIONS TRADING WORLDWIDE

EMISSIONS TRADING SYSTEMS INCREASINGLY FEATURE DOMESTIC OFFSETS

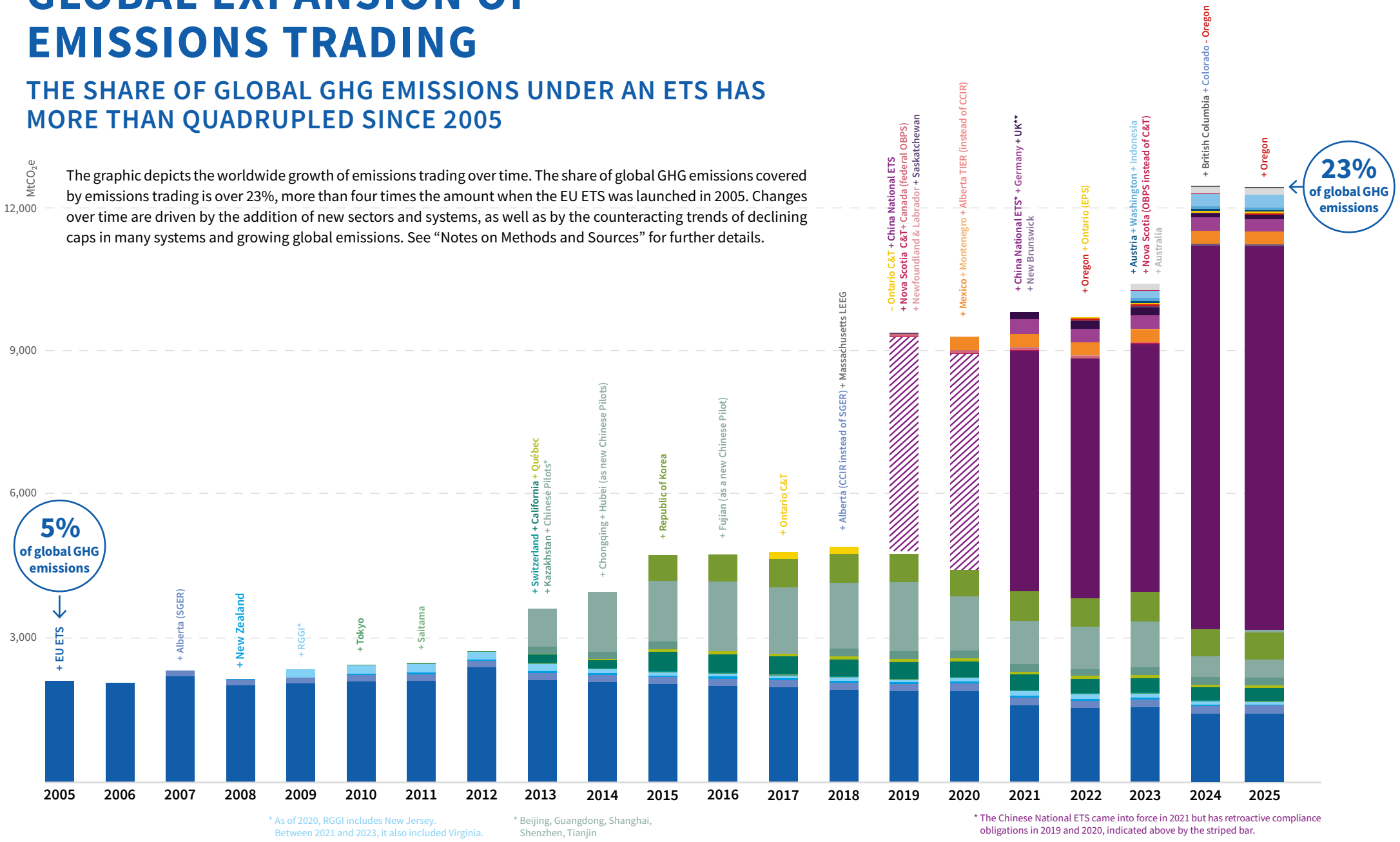
The graphic groups ETSs currently in force by their approach to offset use. If a jurisdiction does not allow the use of offsets for compliance, it is depicted in yellow. The jurisdictions allowing domestic offsets with quantitative limits are coloured light blue while those that allow unlimited offsets are coloured in dark blue. The overlaid pink dots indicate that international offsets are also allowed. The percentages next to a system name indicate the share of compliance obligations that can be met using offsets and the number below the system name indicate the potential size of compliance demand for offsets in the jurisdiction. See “Notes on Methods and Sources” for further details.



GLOBAL EXPANSION OF EMISSIONS TRADING

THE SHARE OF GLOBAL GHG EMISSIONS UNDER AN ETS HAS MORE THAN QUADRUPLED SINCE 2005

The graphic depicts the worldwide growth of emissions trading over time. The share of global GHG emissions covered by emissions trading is over 23%, more than four times the amount when the EU ETS was launched in 2005. Changes over time are driven by the addition of new sectors and systems, as well as by the counteracting trends of declining caps in many systems and growing global emissions. See “Notes on Methods and Sources” for further details.



* As of 2020, RGGI includes New Jersey. Between 2021 and 2023, it also included Virginia.

* Beijing, Guangdong, Shanghai, Shenzhen, Tianjin

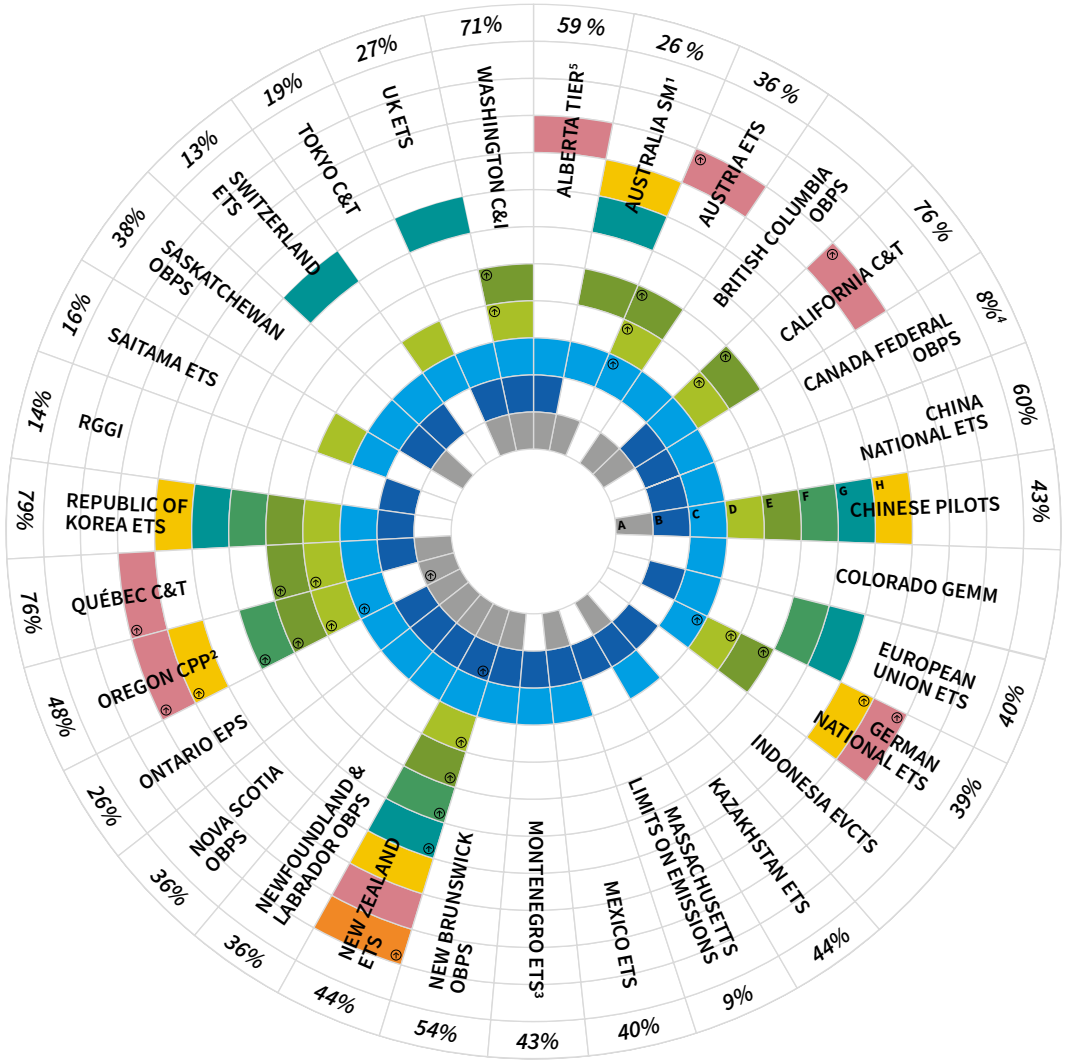
* The Chinese National ETS came into force in 2021 but has retroactive compliance obligations in 2019 and 2020, indicated above by the striped bar.

** In 2021, the UK launched its own ETS which required an adjustment in the EU ETS cap.

SECTOR COVERAGE

SECTORS COVERED BY EMISSIONS TRADING ACROSS SYSTEMS

The graphic shows sectors (types of economic activity) covered by an ETS in force in 2025. Systems are listed clockwise alphabetically, with the numbers in the outermost ring indicating the share of aggregate emissions covered by the system as per the most recent available data. Upstream coverage in a sector is indicated with an arrow. Sectors are considered covered when at least some entities in the sector have explicit compliance obligations. Typically, not all facilities in the sector are regulated because of limits like inclusion thresholds. In addition, not all gases or processes of a given sector may be covered. The jurisdictions' respective factsheets provide more information on system coverage. The graphic includes only sectors which are covered by at least one ETS. See "Notes on Methods and Sources" for further details.



- A Tianjin
- B Beijing*, Shanghai*
- C Beijing, Chongqing, Fujian, Guangdong, Hubei, Shanghai, Shenzhen, Tianjin
- D Beijing, Shanghai, Shenzhen
- E Beijing, Shanghai, Shenzhen
- F Shanghai
- G Fujian, Guangdong, Shanghai
- H Shenzhen

* The Beijing ETS covers one power company. The Shanghai ETS covers oil-fired generators

↑ indicates which sectors are covered upstream

1 Only a very small share of emissions (>5%) from the waste and transport sectors are covered by the Safeguard Mechanism.

2 Emissions resulting from fuels used in petroleum and natural gas production are excluded.

3 While only one power sector entity is currently operational, Montenegro has explicitly included industrial processes within the scope of its ETS.

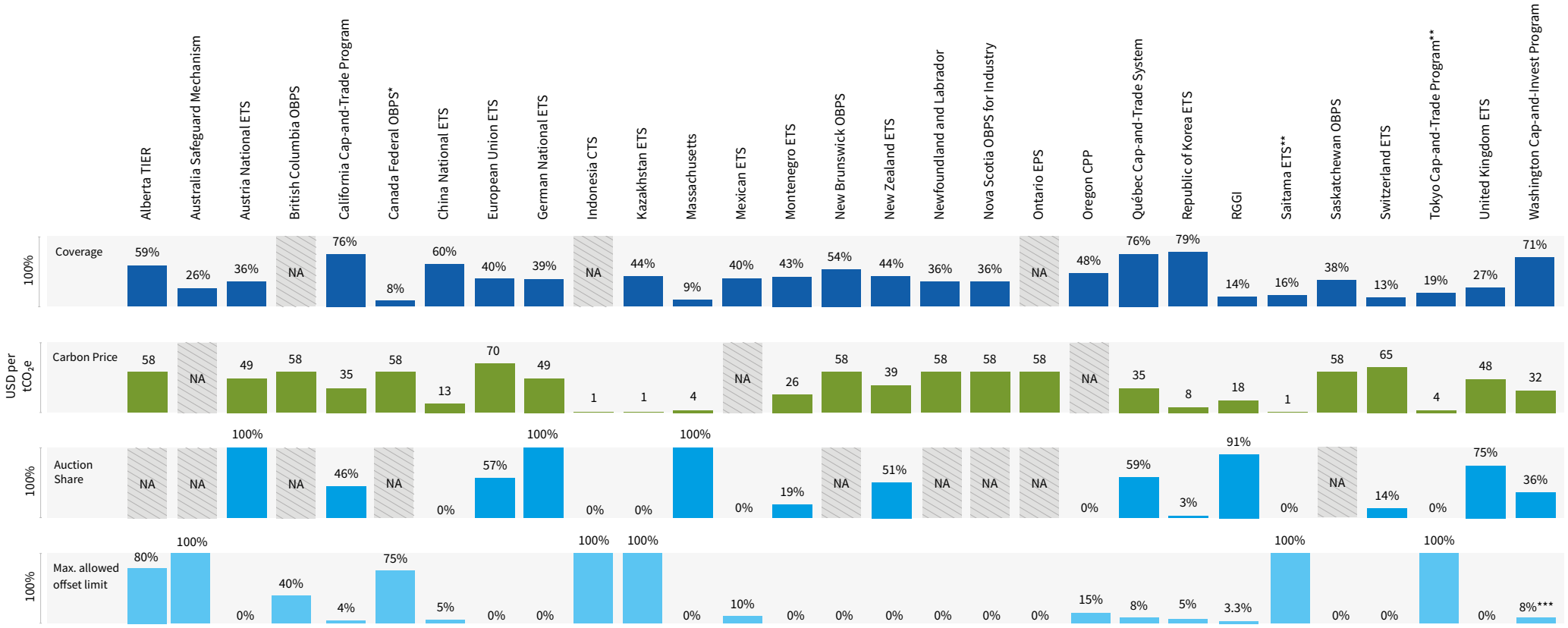
4 The 2021 value of 8% is not consistent with the current application of the federal OBPS. In 2021, the federal OBPS applied in Manitoba, Ontario, Prince Edward Island, Yukon, Nunavut and partially in Saskatchewan. The federal OBPS no longer applies in Ontario and Saskatchewan.

5 The Alberta TIER system covers forestry fuel use.

DIFFERENT DIMENSIONS OF EMISSIONS TRADING

A COMPARATIVE LOOK AT KEY METRICS FROM CARBON MARKETS

The bars below display information on different metric across ETSs in force. **Coverage** (in dark blue) shows the share of the jurisdiction's GHG emissions covered under the ETS. **Carbon price** (in dark green) is measured in USD per metric tonne of CO_2e and averaged over 2024. **Auction share** (in blue), expressed as a share of the 2024 cap, denotes the share of allowances that have been offered for auction in the primary market. **Max. allowed offset limit** (in light blue) indicates the share of a compliance entity's obligations that can be met using approved offsets. The size of the bar represents the numerical value of the corresponding dimension. Given lack of available information, the Colorado GEMM Regulation is not depicted here. See "Notes on Methods and Sources" for further details.

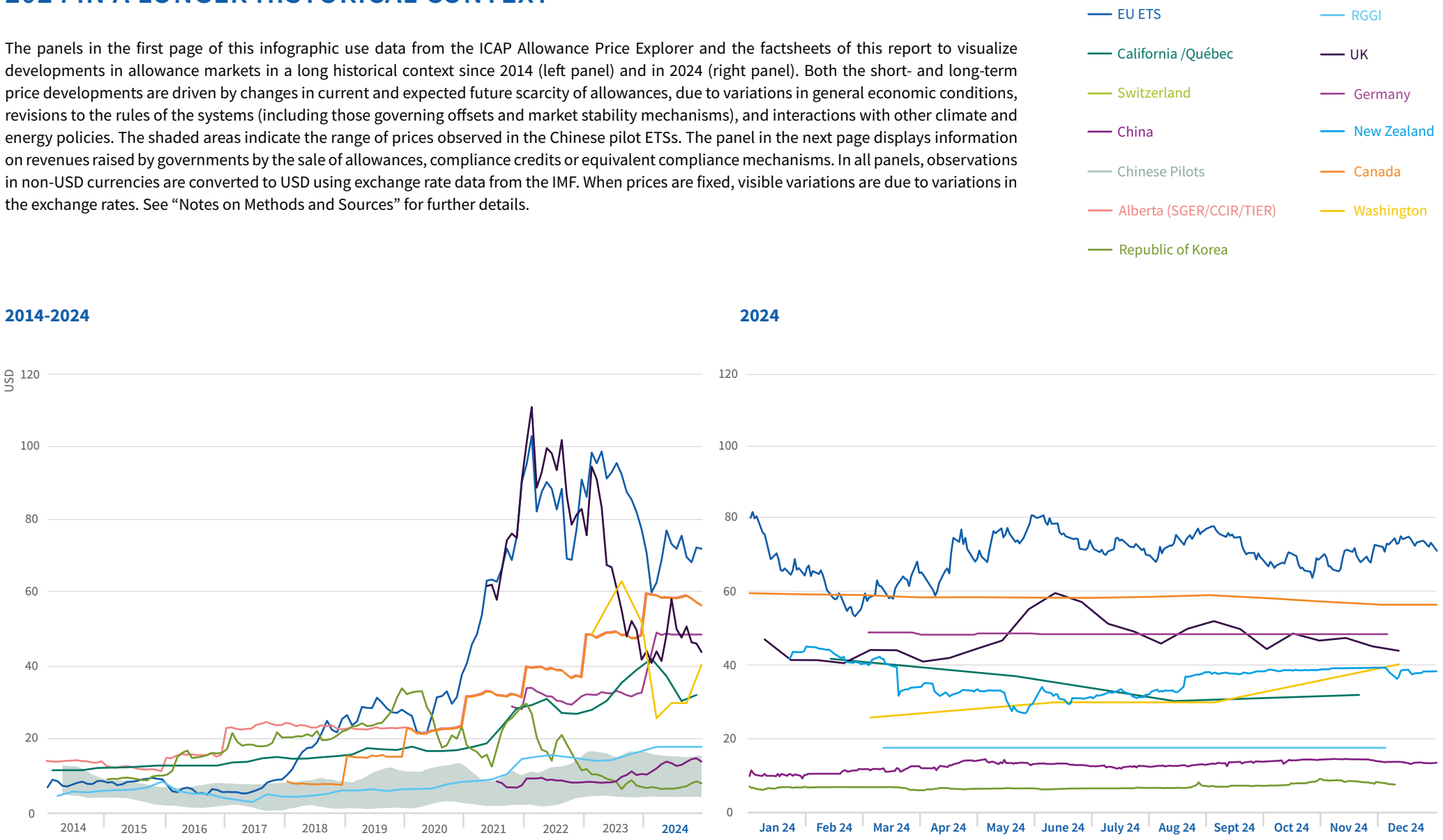


* The coverage value refers to 2021, when the Canada Federal OBPS applied in Manitoba, Ontario, Prince Edward Island, Yukon, Nunavut and partially in Saskatchewan. The federal OBPS no longer applies in Ontario and Saskatchewan.
** In Saitama, quantitative limits apply for "outside Saitama" credits. In Tokyo, quantitative limits apply for "outside Tokyo" credits.
*** Up to 5% of the compliance obligation can be met with offsets. An additional 3% can be met from projects located on federally recognized tribal land.

ALLOWANCE PRICES AND REVENUES

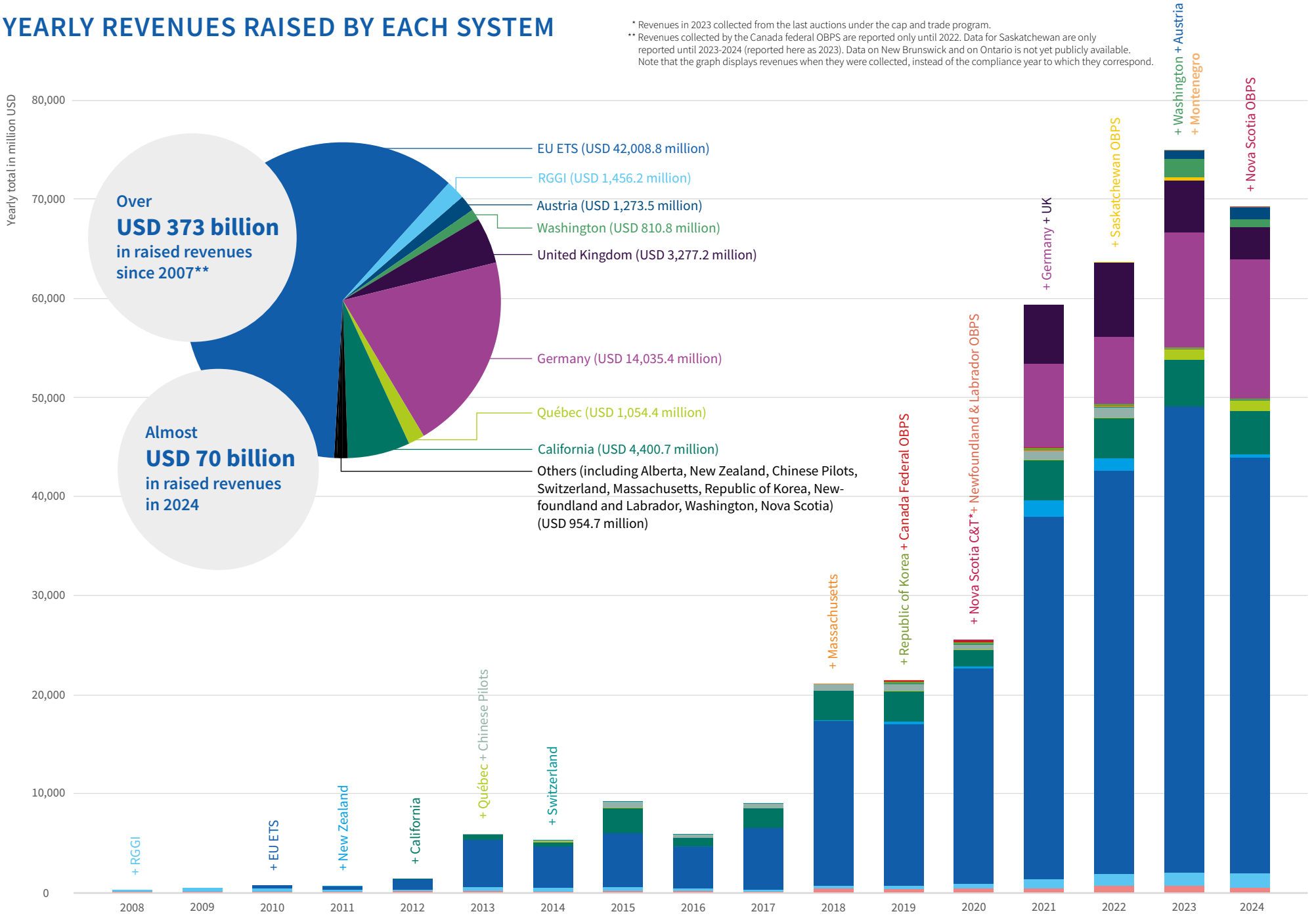
2024 IN A LONGER HISTORICAL CONTEXT

The panels in the first page of this infographic use data from the ICAP Allowance Price Explorer and the factsheets of this report to visualize developments in allowance markets in a long historical context since 2014 (left panel) and in 2024 (right panel). Both the short- and long-term price developments are driven by changes in current and expected future scarcity of allowances, due to variations in general economic conditions, revisions to the rules of the systems (including those governing offsets and market stability mechanisms), and interactions with other climate and energy policies. The shaded areas indicate the range of prices observed in the Chinese pilot ETSs. The panel in the next page displays information on revenues raised by governments by the sale of allowances, compliance credits or equivalent compliance mechanisms. In all panels, observations in non-USD currencies are converted to USD using exchange rate data from the IMF. When prices are fixed, visible variations are due to variations in the exchange rates. See “Notes on Methods and Sources” for further details.



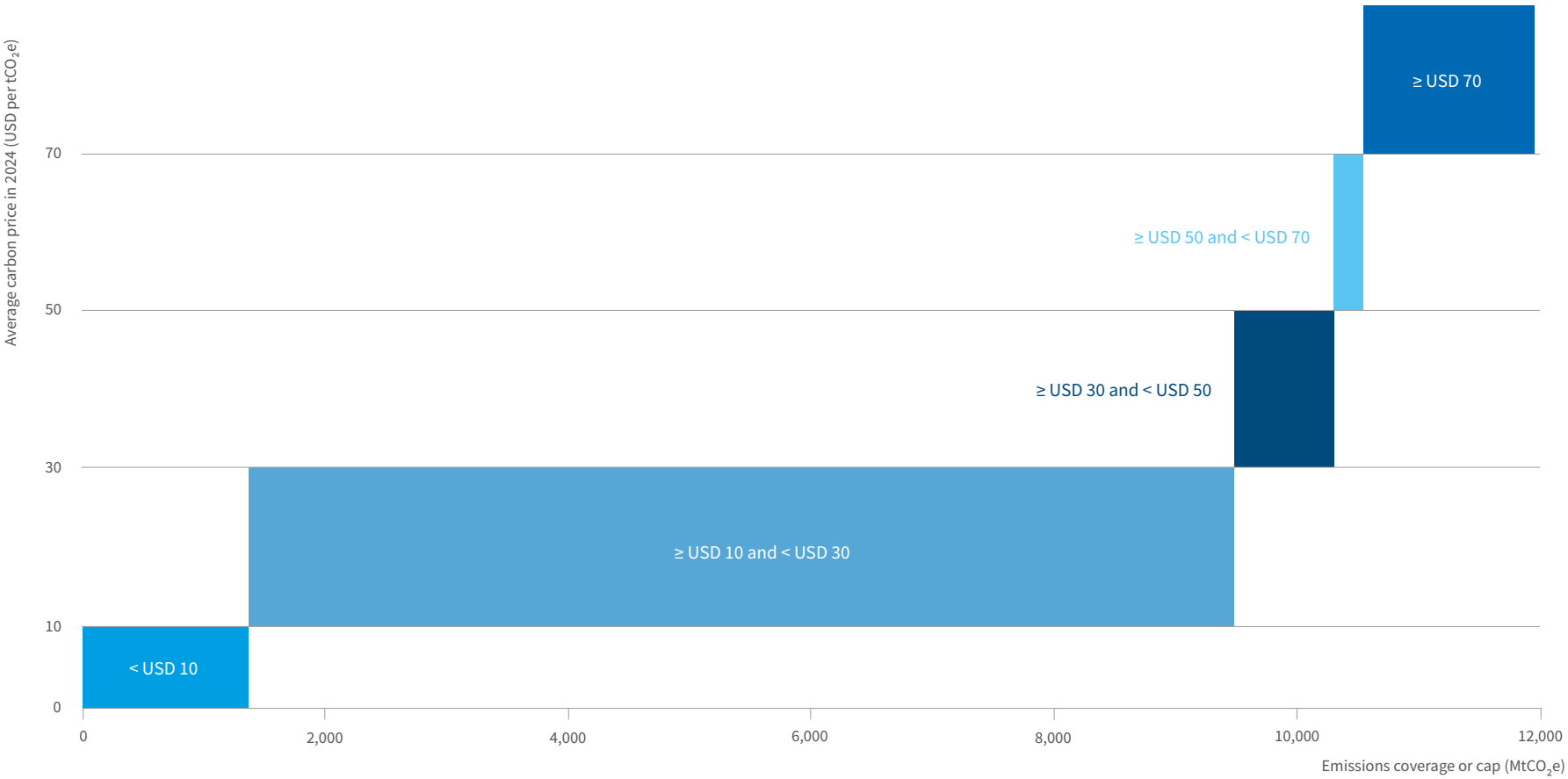
YEARLY REVENUES RAISED BY EACH SYSTEM

* Revenues in 2023 collected from the last auctions under the cap and trade program.
** Revenues collected by the Canada federal OBPS are reported only until 2022. Data for Saskatchewan are only reported until 2023-2024 (reported here as 2023). Data on New Brunswick and on Ontario is not yet publicly available. Note that the graph displays revenues when they were collected, instead of the compliance year to which they correspond.



PRICES OF COVERED EMISSIONS

This infographic shows the range of carbon prices in 2024 in ETSs in force, and the volume of emissions that systems with those price levels cover. Around 10% of ETS-covered emissions are in systems where prices averaged below USD 10 in 2024. Over three-fourths of ETS-covered emissions were in systems where average prices in 2024 were between USD 10 and USD 70, whereas around 10% were in systems with an average allowance price above USD 70 (the EU ETS). Differences in allowance prices are driven by, among others, changes in current and expected future scarcity of allowances in each system, variations in general economic conditions, system design and policy reforms.



03 FACTSHEETS

EUROPE AND CENTRAL ASIA

NORTH AMERICA

LATIN AMERICA & THE CARIBBEAN

ASIA-PACIFIC

EUROPE AND CENTRAL ASIA

AUSTRIA

AUSTRIAN NATIONAL EMISSIONS CERTIFICATE TRADING SYSTEM

- **National carbon pricing introduced in 2022, covering fuel consumption upstream**
- **Fixed price per tonne CO_2e from 2022 to 2026**
- **Replacement of NEHG by EU ETS 2 foreseen for January 2027**

ETS DESCRIPTION

Austria launched its national emissions certificate trading system (*Nationales Emissionszertifikatehandelsgesetz* – NEHG) for fossil fuels not already covered by the EU ETS in October 2022.

Although the NEHG does not establish a carbon tax, the carbon pricing instrument follows in central parts the logic of existing energy taxes (fuel tax, coal tax, and natural gas tax). Thus, if a certain event is taxable under the existing energy taxes regime, an obligation to buy allowances arises under the NEHG. Taxable events are the production, import, or release of energy products from a tax warehouse in Austria or the supply of coal and natural gas to consumers. In practice, only a limited number of energy distributors and oil companies are subject to the NEHG, while the majority of (end) consumers are not directly liable.

The NEHG aims to cover emissions outside the EU ETS, encompassing predominantly emissions in the buildings and transport sectors. Between 2022 and 2026, the system will operate with an annually increasing fixed price and without a cap.

The NEHG will end in December 2026 and will be replaced by the EU ETS 2 from January 2027 (see the 'EU ETS 2' factsheet for more).

YEAR IN REVIEW

In June 2024, Austria revised its NEHG to prepare for the EU ETS 2, which will replace the national ETS. The draft foresees making use of the "opt-in" option, which allows Member States to add sectors into their national ETS not covered in the European system. In December 2024, the European Commission approved the Austrian request for the opt-in. In addition to fuels used in transport, buildings, and small industries, the NEHG also covers fuels used in agriculture and forestry, to maintain the same scope as the current national ETS.

The Austrian ETS will conclude at the end of December 2026, with the EU ETS 2 scheduled to commence from January 2027. However, if implementation of the EU ETS 2 is postponed to 2028 due to exceptionally high energy prices, the Austrian system will continue through 2027. During the transition phase from 2025 to 2027, entities will report under both systems. Reports, reporting deadlines and calculation methods for the NEHG and EU ETS 2 have been synchronized to streamline compliance. The launch of the market phase in 2026 is no longer foreseen.

Also in June 2024, Austria enhanced relief measures for industries beyond the agricultural and forestry sectors. By November 2024, eligible companies from various industries could apply for partial relief for 2022 and 2023 to mitigate additional costs, prevent carbon leakage, and address specific financial hardships.

SECTORS

- INDUSTRY
- BUILDINGS
- TRANSPORT
- AGRICULTURE AND/OR FORESTRY FUEL USE

CAP

No cap

GREENHOUSE GASES

Several gases

ALLOCATION

Fixed price until 2026

AVERAGE 2024 PRICES

Fixed price: EUR 45 (USD 48.71)

TOTAL REVENUE

EUR 2 billion (USD 2.19 billion) since the beginning of the program
EUR 1.18 billion (USD 1.27 billion) in 2024

EMISSIONS & TARGETS OF AUSTRIA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	48.5	67%
Industrial processes	15.9	22%
Agriculture	7.3	10%
Waste	1.2	2%
Total	**72.8**	

Energy industries	8.5	11%
Manufacturing industries and construction	10.6	15%
Transport	20.7	28%
Commercial, institutional, and residential	8.3	11%
Other energy	0.3	0%

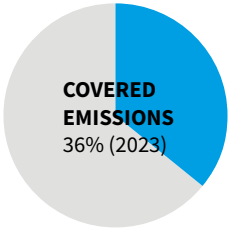
GHG REDUCTION TARGETS

By 2030: 48% reduction from 2005 ("EU Regulation 2023/857")
By 2040: Climate neutrality (foreseen to be established in the current legislative program; not legally binding)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2023

Verified ETS emissions: 26 $MtCO_2e$



PHASES

PHASE 1: Five years (2022 to 2026), including:
Introduction phase (2022 to 2023)
Fixed-price phase (2024 to 2026)

CAP OR TOTAL EMISSIONS LIMIT

There is no cap foreseen in the NEHG.

SECTORS AND THRESHOLDS

TYPES OF FUELS COVERED: The NEHG covers all distributors (producers/importers) of fossil fuels used in transport, buildings, and agriculture, as well as in small industries. This essentially concerns the following fossil fuel sources: petrol, gasoil (diesel), heating oil, natural gas, liquefied gas, coal, and kerosene. Fuels blended with biogenic ones receive a lower emissions factor than purely fossil fuels.

Aviation and navigation in international inland waters as well as certain fuels like sustainable LNG are exempt from the surrender of allowances during the fixed-price phase.

Provisions are in place to avoid unnecessary double burdens for installations covered by the EU ETS. Emissions that arise from fuel delivered to and used in an EU ETS-covered installation must be reported by said installation and can then be exempted from the NEHG. Exemption can be granted in advance, although a subsequent refund is also possible.

In addition, companies that are particularly affected by the NEHG (e.g., in the transport sector) can also apply for a partial refund of the carbon price to avoid "hardship" cases. The NEHG also foresees compensatory measures for economic sectors that are at particular risk of relocating their production to countries with less stringent climate policies (carbon leakage) and for firms facing additional costs in the agricultural and forestry sectors. In June 2024, Austria enhanced relief measures for industries, merging carbon leakage and hardship provisions to support energy-intensive companies. By November 2024, eligible companies could apply for partial relief for 2022 and 2023.

INCLUSION THRESHOLDS: Trading participants that emit less than one tCO_2e emissions per year are exempt from the obligations.

POINT OF REGULATION

Upstream

TYPE OF ENTITIES

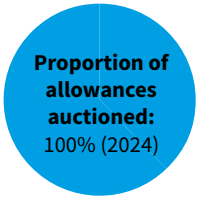
Entities releasing fuels for consumption (e.g., fuel distributors)

NUMBER OF ENTITIES

300

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



Introduction and transition phases (2022 to 2026): The number of available allowances is unlimited. Allowances are sold for an annually increasing fixed price:
2022: EUR 30 (USD 32.47)
2023: EUR 32.50 (USD 35.18)
2024: EUR 45 (USD 48.70)
2025: EUR 55 (USD 59.53)
2026: TBC[1]

USE OF REVENUES

Assistance for individuals, households, and businesses

Revenues are recycled to consumers via the Regional Climate Bonus (see 'Year in Review' section). In 2024 about EUR 1.96 billion was redistributed via this mechanism.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is not allowed during the introduction and transition phases. Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is not allowed.

LINKS WITH OTHER SYSTEMS

The NEHG will be replaced by the EU ETS 2 from 2027 (see the 'EU ETS 2' factsheet for more).

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS (supranational): European Union Emissions Trading System (EU ETS)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities have until the end of July to surrender allowances to cover the reported emissions of the previous year.

MRV

REPORTING FREQUENCY: Annual self-reporting in the form of an emissions report (*Treibhausgasemissionsbericht*) based on electronic templates is to be submitted by the end of June. During the introductory phase, a simplified emissions report, which is based on the already available data of the energy tax declarations, was to be submitted.

The emissions report must be based on a previously approved monitoring plan. Every modification to the monitoring plan needs to be addressed to the competent authority by the end of each calendar year. During the introductory phase, a simplified registration and emissions reporting regulation applied. In this phase, no monitoring plan needed to be submitted.

VERIFICATION: The emissions report must be accompanied by a verification report by an independent verifier, a requirement which was absent during the introductory phase.

PENALTIES AND ENFORCEMENT

Entities must pay an increased certificate price for each tCO_2e for which no allowance has been surrendered, set at two times the fixed price, in addition to a financial penalty.

For other instances of non-compliance, e. g., misreporting, or late reporting, entities can be fined.

1 The price for 2026 has not been established in the current legal framework. However, the law specifies that if no price is determined for 2026, the price for 2025 will remain in effect until the start of EU ETS 2.

MARKET REGULATION

MARKET DESIGN

The NEHG will no longer enter into a market phase. Hence no provisions are expected for market design.

MARKET STABILITY PROVISIONS

PRICE STABILITY MECHANISM

Instrument type: Price-based instrument

Functioning: Introduced as an accompanying measure for the introduction of the national ETS. If the average energy price increases by more than 12.5% within one year, the allowance price increase for the next year decreases by 50% compared to the initially planned increase. Likewise, if the average energy price decreases by more than 12.5%, the allowance price will also increase by 50% in the following year.

Triggers: In 2023 and 2024, the changes in energy prices did not trigger the price stability mechanism. Thus, allowance prices remained on their foreseen path.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Austrian Federal Ministry for Finance (BMF): Responsible for establishing the regulatory framework of the ETS.

Office for National Emissions Allowance Trading at the Austria Customs Office: Implementing authority, e. g., responsible for receiving emissions reports.

EVALUATION/ETS REVIEW

The NEHG has already been amended and aligned with the EU ETS 2 to ensure a smooth transition. However, adjustments to the corresponding regulations are still forthcoming.

The current framework ensures that the market phase is aligned with Austria's climate targets and supports the transition to the second EU ETS, covering the buildings and road transport sectors. Additionally, provisions regarding exemptions for certain sectors are addressed within the existing legislative framework.

REGULATORY FRAMEWORK

→ National Emissions Trading Act 2022 – NEHG 2022
→ Amendments to National Emissions Trading Act 2022 adopted in 2024
→ Eco-social tax reform 2022

EUROPEAN UNION

EUROPEAN UNION EMISSIONS TRADING SYSTEM

- **The oldest ETS in force and the largest, in terms of trading volume and value**
- **By 2023, covered emissions were around 47.6% below 2005 levels and well on track to achieve the 2030 target of -62%**
- **Historic annual emission reduction from stationary ETS installations in 2023 of 16.5%**

ETS DESCRIPTION

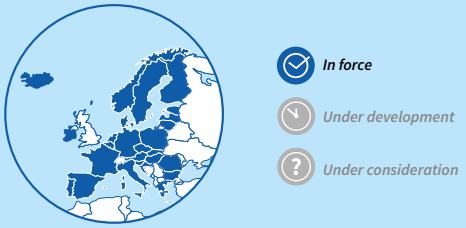
Operational since 2005, the European Union Emissions Trading System (EU ETS) is the oldest cap-and-trade system in force and the largest in terms of the trading volume and value. It remains a cornerstone instrument of the EU's policy framework to combat climate change and reduce GHG emissions cost-effectively.

Until 2023, the EU ETS covered emissions from electricity and heat generation plants, manufacturing installations in Europe, and aircraft operators flying between airports in the European Economic Area (EEA) and from the EEA to Switzerland and to the UK. In January 2024, the EU ETS was extended to cover emissions from maritime transport and in aviation, emissions from most flights to and from the EU's nine outermost regions as well as departing flights from these outermost regions to Switzerland and the UK. Overall, the EU ETS covers around 40% of the EU's total emissions.

The EU ETS is currently in its fourth trading phase (2021 to 2030). Every year, covered entities must surrender allowances for their emissions under the EU ETS. Auctioning is the main method of distributing allowances, with free allocation, based on benchmarks, used to address the risk of carbon leakage.

The EU ETS was revised in 2023 in the context of the "European Green Deal" to align the system with the EU's 2030 climate target of at least a 55% net emissions reduction compared to 1990 levels. The revision is now in force and included:

- an increased ambition and expanded scope of the EU ETS, to maritime transport, and introduced a new, separate emissions trading system for buildings, road transport and additional sectors[5] (ETS 2, to start in 2027 or 2028)[6];
- a strengthened the Market Stability Reserve (MSR);
- an update to the EU ETS regarding aviation;
- updated rules for monitoring and reporting of emissions from maritime transport;
- the creation of the Social Climate Fund (starting in 2026) to complement the new EU ETS 2; and
- the establishment of a Carbon Border Adjustment Mechanism (CBAM) to address the risk of carbon leakage from specific sectors under the EU ETS (to gradually replace free allocation).



SECTORS

POWER
AVIATION[1]
INDUSTRY
MARITIME[2]

CAP

1,386 $MtCO_2e$ (2024, electricity and heat generation, industrial manufacturing and maritime transport)
27.6 $MtCO_2e$ (2024, aviation)

GREENHOUSE GASES

CO_2, N_2O, HFCs, PFCs

OFFSET CREDITS

Not allowed

ALLOCATION

Auctioning
Free Allocation: Fixed Benchmarking

AVERAGE 2024 PRICES

Average auction price: EUR 64.74 (USD 70.07)
Average secondary market price: EUR 65.23 (USD 70.60)

TOTAL REVENUE

EUR 184 billion[3] (USD 206 billion) since the beginning of the system
EUR 38.8 billion[4] (USD 42 billion) in 2024

MEMBER STATES

All EU Member States, plus Iceland, Liechtenstein and Norway (plus power generators in Northern Ireland)

1 Within the European Economic Area (EEA) and on routes from the EEA to Switzerland and to the UK.
2 Emissions from all large ships entering EU ports are included, regardless of the flag they fly, covering 50% of emissions from voyages starting or ending outside the EU and 100% of emissions that occur between two EU ports and when ships are in EU ports.
3 Includes revenues from Iceland, Liechtenstein, Norway, and the UK, as well as of the Innovation and Modernisation Funds funded by the EU ETS.
4 Includes revenues from Iceland, Liechtenstein, Norway, and Northern Ireland, as well as of the Innovation and Modernisation Funds funded by the EU ETS.
5 Mainly industry sectors not covered under the existing EU ETS.
6 See 'EU ETS 2' factsheet.

YEAR IN REVIEW

The EU ETS in 2023 saw a historical year-on-year reduction in emissions. This reduction was largely driven by the power sector, where renewable electricity production (primarily from wind and solar) increased substantially, and the trend of gas replacing coal in power generation was resumed. With this development, emissions from installations at the start of 2024 were around 47.6% below 2005 levels and well on track to achieve the 2030 target of a 62% reduction. Emissions from aviation under the EU ETS continued to increase in 2023. The emissions data for 2024 will be reported in 2025.

In 2023, the EU ETS raised EUR 43.6 billion (USD 47.2 billion) for the EU's green transition. This revenue went primarily to national budgets, but also the Innovation and Modernisation Funds as well as the Resilience and Recovery Fund, which EU Member States use to advance the clean energy transition, roll out low- and zero-carbon innovative solutions and technologies in ETS sectors, and improve energy security. Since June 2023, EU Member States are obliged to use all relevant ETS revenue (or an equivalent financial value) to support climate action and energy transformation. In 2024, the EU ETS raised EUR 183.6 billion.

Important changes to the system's ambition and scope took effect in 2024. The 2024 cap on emissions has been rebased downwards and the annual reductions in the cap from 2024 onwards have been increased. At the same time, the scope of the EU ETS was expanded:

- The scope of the EU ETS has been expanded to CO_2 emissions from maritime transport, which accounted for 3–4% of EU emissions in 2023. This extension covers all emissions occurring between two European Economic Area (EEA) ports and when ships are in EEA ports, and half of emissions from voyages starting or ending outside the EEA. Maritime operators will surrender allowances under the EU ETS for the first time in 2025.
- The scope of the EU ETS for aviation has been expanded to emissions from most flights to and from the EU's nine outermost regions as well as departing flights from these outermost regions to Switzerland and the UK. This represents an extension of carbon pricing coverage of 7%. At the same time, free allocation to aircraft operators has been reduced by 25%.
- Installations for the incineration of municipal waste must now monitor and report their emissions under the EU ETS. They are not, however, required to surrender allowances for their emissions.

EMISSIONS & TARGETS OF THE EUROPEAN UNION

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), 2022[7]

(in $MtCO_2e$, share of total in %)

Energy	2,603.8	77%
Industrial processes	291.8	9%
Agriculture	365.7	11%
Waste	109.7	3%
Other (indirect CO_2)	3.6	<1%
Total (EU-27)	**3,374.7**	

Energy industries	866.7	26%
Manufacturing industries and construction	392.6	12%
Transport	803.3	24%
Commercial, institutional, and residential	405.3	12%
Other energy	136.0	4%

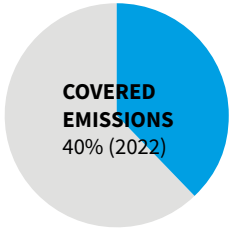
GHG REDUCTION TARGETS

By 2030: Reduce net emissions to at least 55% below 1990 GHG levels ("European Climate Law")
By 2050: Net-zero (European Climate Law)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 1,362 $MtCO_2e$



PHASES

PHASE 1: 3 years (2005 to 2007)
PHASE 2: 5 years (2008 to 2012)
PHASE 3: 8 years (2013 to 2020)
PHASE 4: 10 years (2021 to 2030)

7 National emissions for the EU-27 reported to the UNFCCC and to the EU in April 2024 under the "EU Governance Regulation.

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system. It is set to reduce covered sectors' emissions by 62% compared to 2005 levels by 2030.

PHASE 1 and PHASE 2: The cap was calculated bottom-up, based on the aggregation of the national allocation plans of each Member State. Phase 1 started with a cap of 2,096 $MtCO_2e$ in 2005; Phase 2 with a cap of 2,049 $MtCO_2e$ in 2008.

PHASE 3:
Installations: A single EU-wide cap was calculated based on emissions monitoring and set at 2,084 $MtCO_2e$ in 2013. It was reduced annually by a linear factor of 1.74% (applied to the midpoint of 2008 to 2012 baseline emissions). This translated into a year-on-year reduction of around 38 million allowances and resulted in a cap of 1,816 $MtCO_2e$ in 2020.

Aviation: Included in the EU ETS in 2012, with a cap calculated separately. Legally, the system covers all outgoing and incoming flights to the EEA. The 2012 cap for aviation amounted to 221 million $MtCO_2e$ (95% of 2004 to 2006 emissions). In 2013, however, the EU temporarily limited ETS obligations to flights within the EEA to support the development of a global market-based measure to reduce aviation emissions by the International Civil Aviation Organization (ICAO). The number of aviation allowances put into circulation in 2013 to 2016 was reduced to 38 million allowances annually. This 'stop-the-clock' limited scope of the EU ETS for aviation was extended until the end of 2026.

PHASE 4:
From Phase 4, the linear reduction factor applies annually to the overall cap. The factor is set at 2.2% per year (of 2008 to 2012 baseline emissions) for the period 2021 to 2023, 4.3% for 2024 to 2027 and 4.4% from 2028. In addition, the cap is also reduced in two steps, by 90 million allowances in 2024 and 27 million allowances in 2026.

Installations: A single EU-wide cap reduced annually. Following the 2023 ETS revision, the cap in 2024 amounted to 1,386 $MtCO_2e$. From 2021, the UK was no longer part of the EU ETS (except for electricity generators in Northern Ireland).

Maritime: The 2024 cap was increased by 78.4 million allowances based on the sector's average emissions reported for 2018 and 2019.

Aviation: The aviation cap in 2024 amounted to 27.6 $MtCO_2e$.

From Phase 4, a Member State may cancel allowances from their auction share if they take additional policy measures that result in a closure of electricity generation capacity. The quantity of allowances cancelled shall not exceed the average verified emissions of the installation from five years preceding the closure.

SECTORS AND THRESHOLDS

The EU ETS scope in terms of activities and GHGs is specified in Annex I and Annex II of the "ETS Directive".

PHASE 1: Power stations and other combustion installations with >20 MW thermal rated input (except hazardous or municipal waste installations), industry (various thresholds) including oil refineries, coke ovens, and iron and steel plants, as well as production of cement, glass, lime, bricks, ceramics, pulp, paper, and cardboard.

PHASE 2: Several countries included NOx emissions from the production of nitric acid. The EU ETS also expanded to include Iceland, Liechtenstein, and Norway.

Aviation: Emissions from international aviation were included in the EU ETS in 2012 (>10,000 tCO_2/year for commercial aviation; >1,000 tCO_2/year for non-commercial aviation since 2013). However, the EU temporarily limited the scope of the EU ETS for aviation to flights within the EEA. Exemptions for operators with low emissions were introduced.

PHASE 3: Carbon capture and storage installations, production of petrochemicals, ammonia, nonferrous and ferrous metals, gypsum, aluminum, as well as nitric, adipic, and glyoxylic acid (various thresholds) were added to the scope.

Aviation: In 2017, the limited scope for aviation was extended until 2023 to support the development of a global measure for aviation emissions under ICAO. Under the "Linking Agreement" between the EU and Switzerland, from 2020, the EU ETS covers emissions from outgoing flights to Switzerland.

PHASE 4: Amendments introduced in view of the UK's departure from the EU and in the 2023 revision of the EU ETS.

Power and industry: The scope of ETS and benchmarks used for free allocation was broadened from 2024 to remove barriers for the deployment of new technologies such as green hydrogen or hydrogen-based steel.

Aviation: Under the "Trade and Cooperation Agreement" between the EU and the UK, the EU ETS applies to emissions from flights departing from the EEA to the UK from 2021 (the UK ETS applies to flights departing to EEA airports).

Emissions from most flights to and from the EU's nine outermost regions as well as from departing flights from these regions to Switzerland and the UK were added to the scope from 2024.

Maritime: From 2024, emissions from all large ships (of 5,000 gross tonnage and above) entering EU ports are covered by the EU ETS, regardless of the flag they fly, covering:
- 50% of emissions from voyages starting or ending outside the EU;
- 100% of emissions that occur between two EU ports and when ships are in EU ports.

Initially, the scope extension to maritime transport covers only CO_2 emissions. From 2026, CH_4 and N_2O emissions will also be covered.

The obligation for maritime companies to surrender allowances for their emissions is being gradually phased in.
- 2025: for 40% of emissions reported in 2024;
- 2026: for 70% of emissions reported in 2025;
- 2027 onward: for 100% of emissions reported in 2026 and later years.

To ensure environmental integrity during the phase-in, Member States will cancel the number of allowances equivalent to the difference between the surrendered allowances and the verified emissions in 2024 and in 2025.

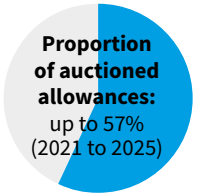
POINT OF REGULATION
Point source

TYPE OF ENTITIES
Installations (energy and industry); companies (aviation and maritime transport)

NUMBER OF ENTITIES
8,554 installations, 379 aircraft operators, 2251 shipping companies (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



PHASE 1: Allocation was based on Member States' national allocation plans. Allowances were allocated through grandparenting. Some Member States used auctioning and some used benchmark-based allocation.

PHASE 2:
Auctioning: Eight Member States (Germany, United Kingdom, the Netherlands, Austria, Ireland, Hungary, Czechia, and Lithuania) held auctions corresponding to ~3% of the total allowance allocation.

Free allocation: ~90% of allowances were allocated for free.

PHASE 3:
Auctioning: The main method of distributing allowances was via auction, accounting for up to 57% of the cap. Of the share of allowances to be auctioned, 88% were distributed to Member States based on verified 2005 or average 2005 to 2007 emissions; 10% were allocated between 16 lower-income Member States under the solidarity provision; and the remaining 2% were allocated between the Member States that had reduced their emissions by at least 20% compared to the applicable base year under the Kyoto Protocol.

Free allocation: A significant volume of allowances was allocated for free to address the risk of carbon leakage, based on sector-specific performance benchmarks. As the demand for free allowances exceeded the volume of allowances available, the free allocation of each installation was subject to a uniform cross-sectoral correction factor — which was revised in 2017.

Power: Auctioning, with an optional transitional free allocation for the modernisation and diversification of electricity generation in ten lower-income Member States. At the end of Phase 3, eligible Member States could decide to continue using this option in Phase 4 (2021 to 2030), monetize remaining allowances, or transfer them to the Modernisation Fund, created under the EU ETS in 2018.

Industry: Free allocation based on sector-specific performance benchmarks, which reflect an average emissions intensity per unit of product of the most efficient 10% of installations in each sector. The European Commission established 54 benchmarks in 2011, using 2007 and 2008 activity data and literature sources (when data was missing). Sectors deemed at risk of carbon leakage received free allocation at 100% of the relevant benchmark. Sub-sectors deemed not at risk of carbon leakage had free allocation reduced gradually from 80% of the respective benchmark in 2013 to 30% by 2020.

The carbon leakage risk was assessed against emissions intensity and trade exposure:
- direct and indirect cost increase >30%; or
- non-EU trade intensity >30%; or
- direct and indirect cost increase >5% and trade intensity >10%.

Cost intensity was determined by the formula:
[Carbon price × (direct emissions × auctioning factor + electricity consumption × electricity emission factor)]/ gross value added

Trade intensity was determined by the formula:
(imports + exports)/(imports + production)

New Entrants' Reserve (NER): 5% of the cap for Phase 3 was set aside to assist new installations or to cover installations whose capacity significantly increased since their free allocation had been determined. 300 million allowances from the reserve were allocated to the NER300, a large-scale funding program for innovative low-carbon energy demonstration projects.

Aviation: 15% of allowances were auctioned and 82% were allocated to aircraft operators for free. The remaining 3% constituted a special reserve for new entrants and fast-growing airlines. The number of allowances put into circulation for the aviation sectors was reduced to reflect the temporary limitation of the scope of the EU ETS to flights within the EEA.

PHASE 4:
Auctioning: The main method of distributing allowances remains auctioning, accounting for up to 57% of the cap. Of the share of allowances to be sold, 90% are distributed to Member States based on their share of verified emissions, with 10% distributed among the lower-income Member States under the solidarity provision.

Free allocation: A significant volume of allowances is allocated for free to address the risk of carbon leakage, based on sectors-specific performance benchmarks. Benchmark values are updated twice in Phase 4 to reflect technological progress in different sectors. In 2021, the European Commission updated benchmark values for the first time[8] and they apply for 2021 to 2025. The values are adjusted for technological progress on a yearly basis. An annual reduction rate is determined for each benchmark. For the steel sector, which faces high abatement costs and leakage risks, a fixed reduction rate applies.

The uniform cross-sectoral correction factor for the adjustment of free allocation is one for 2021 to 2025.

The Phase 4 cap includes a buffer of more than 450 million allowances, initially earmarked for auctioning, which can be made available if the initial free allocation volume is fully absorbed (thereby avoiding the need to apply the cross-sectoral correction factor).

Free allocation for 2026 to 2030 will become conditional on the implementation of energy efficiency measures (based on audits or energy management systems) and of carbon neutrality plans for the worst performing installations, in order to incentivize decarbonization.

Power: Auctioning, with an optional transitional free allocation for the modernization and diversification of electricity generation in ten lower-income Member States. Three of the eligible Member States decided to continue using this option in Phase 4, which could have been used until the end of 2024. After this time, any leftover allowances will be either added to a Member State's share of allowances to be auctioned or its share of the Modernisation Fund.

Industry: Updated benchmark values that apply for 2021 to 2025 were calculated based on activity data for installations over 2016 to 2017, supplied by Member States.

The updated values were compared to the original benchmarks to determine the reductions to be applied over the 15-year period between 2007/08 and 2022/23. Benchmarks could be reduced between 3% and 24% over this period. In total, 31 out of 54 benchmarks have been reduced by the maximum rate of 24%.

There are revised rules covering adjustments to free allocation when an installation makes a significant change to its production. These rules apply from Phase 4. The threshold for adjustments is a 15% increase or decrease in production. Adjustments to free allocation are issued based on yearly production data reports that operators submit to national competent authorities. Adjustments to the level of free allocation are made from the New Entrants' Reserve.

Carbon leakage rules: The third carbon leakage list, adopted in February 2019, applies for 2021 to 2030. The list includes a reduced number of sectors classified at risk of carbon leakage. Free allocation for other sectors will be discontinued by 2030 (except for district heating).

Carbon leakage is assessed against a composite indicator of trade intensity and emissions intensity, according to the following criteria:

Trade intensity x emissions intensity > 0.2

Trade intensity x emissions intensity > 0.15 but < 0.2; qualitative assessment will follow based on abatement potential, market characteristics, and profit margins.

Emissions intensity is determined by:
[direct emissions + (electricity consumption x electricity emission factor)]/ gross value added

Trade exposure is determined by:
(imports + exports)/(imports + production)

8 Revised benchmark values for free allocation of emission allowances for 2021 to 2025.

Carbon Border Adjustment Mechanism: Free allocation to specific sectors will be gradually phased out from 2026 to 2034, in parallel to the phase-in of the EU's CBAM for third-country imports. Those sectors are iron and steel, cement, aluminum, fertilizers and hydrogen. The mechanism applies equally to imports from all countries outside the EU (except Liechtenstein, Iceland and Norway as they are participating in the EU ETS; and Switzerland which has an ETS that is linked with the EU ETS).

The transitional, data-collection phase of CBAM started in October 2023, with only reporting obligations but no charges due.

The phase-out of free allocation to sectors covered by the CBAM will take place by applying a 'CBAM factor', which will decrease gradually from 97.5% in 2026, to 51.5% in 2030 and down to 14% in 2033.

The CBAM will also apply to electricity imports.

New Entrants' Reserve (NER): The initial volume of the NER at the start of Phase 4 amounted to 331.3 million allowances. This included unallocated allowances from Phase 3 and 200 million allowances from the MSR.

Aviation: Phase 3 breakdown applied until 2023. Free allocation to aviation will be phased out gradually – reduced to 75% in 2024, 50% in 2025 and eventually to 0% from 2026 onward.

USE OF REVENUES

- General budget, including debt reduction
- Climate mitigation
- Low-carbon innovation
- Assistance for individuals, households, and businesses

Revenue from the auctioning of allowances under the EU ETS accrues primarily to national budgets. As of June 2023, countries are required to use all ETS revenue (or an equivalent financial value) to support climate action and energy transformation, except for any revenue used as aid for electricity-intensive industries for indirect carbon costs.

EU Member States can use their ETS revenue to finance State aid to certain electricity-intensive industries to compensate for the additional electricity costs they face as a result of the carbon price pass through. They do so under State aid schemes that are approved by the European Commission. Every year, countries must publish the total compensation amounts paid out, including a breakdown by recipient sector and subsector. The overall spending under a scheme should not exceed 25% of collected ETS revenue.

EU Member States report annually to the European Commission on how they used their auction revenue in a preceding year. Of the revenue spent in 2023, Member States reported having supported projects in energy supply, grids and storage (43%), public transport and mobility (23%), social support and just transition (12%), energy efficiency, cooling and heating in buildings (10%) and industry decarbonisation (3%) as well as other purposes (9%).

A share of EU ETS allowances is auctioned to supply the Innovation and Modernisation Funds – two funds established to support decarbonization and modernisation investments in ETS sectors.

Innovation Fund: One of the world's largest funding programmes for rolling out low- and zero-carbon innovative solutions and technologies in energy, industry and net-zero mobility, funded entirely by the EU ETS. The fund provides grants for projects aimed at commercialising innovative low-carbon technologies and bringing industrial solutions to market to decarbonize Europe and support the transition to climate neutrality. It has an estimated budget of EUR 40 billion (USD 43.3 billion) until 2030 (dependent on the carbon price).

Modernisation Fund: A solidarity programme financed by the EU ETS. The fund supports lower-income Member States in financing projects that modernize energy systems, improve energy efficiency and help advance a socially just transition to climate neutrality. It has an estimated budget of EUR 56 billion (USD 60.6 billion) from 2021 to 2030 (allocated among the beneficiary Member States according to a fixed key).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed (since 2008).

Borrowing is not allowed.

OFFSET CREDITS

PHASE 1: The use of Clean Development Mechanism (CDM) and Joint Implementation (JI) credits was allowed without limitation. In practice, no offset credits were used in Phase 1.

PHASE 2:

The use of offset credits was allowed. 1,058 $MtCO_2e$ of international credits were used.

Qualitative limits: Most categories of CDM/JI credits were allowed, except for LULUCF and nuclear power. Strict requirements applied for large hydropower projects exceeding 20 MW.

Quantitative limits: In Phase 2, operators were allowed to use JI and CDM credits up to a certain percentage limit determined in the respective country's National Allocation Plan. Unused entitlements were transferred to Phase 3.

PHASE 3:
The use of offset credits was allowed with strict limitations.

Qualitative limits: Newly generated international credits (post-2012) had to originate from projects in least developed countries. Credits from CDM and JI projects from other countries were eligible only if registered and implemented before the end of 2012. Projects from industrial gas credits (projects involving the destruction of HFC-23 and N_2O) were excluded regardless of the host country. Credits issued for emission reductions that occurred in the first commitment period of the Kyoto Protocol (2008 to 2012) were no longer accepted after March 2015.
Quantitative limits: The total use of credits for Phase 2 and Phase 3 was capped at 50% of the overall reduction under the EU ETS in that period (~1.6 $GtCO_2e$).

PHASE 4:
The use of offset credits is not allowed.

LINKS WITH OTHER SYSTEMS
The EU ETS and the Swiss ETS have been linked since 2020. A direct link was created between the registries of both systems. It allows regulated entities to transfer allowances from an account in one system to an account in the other system. Allowances issued in one system can be surrendered for emissions generated in either of the two systems.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION
Fuel ETS (national): in Austria and Germany, to be replaced by the EU ETS 2 from 2027 onward.
Carbon tax (national): in Denmark, Estonia, Finland, France, Hungary, Latvia, Netherlands, Norway, Poland, Slovenia, Spain, and Sweden.

COMPLIANCE

COMPLIANCE MECHANISM
Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD
One calendar year.

MRV
A harmonized framework of monitoring, reporting, verification and accreditation requirements underpins the EU ETS functioning. Every year, Member States report on implementation of this framework:
- "Monitoring and Reporting Regulation (2018/2066)"
- "Accreditation and Verification Regulation (2018/2067)"
- "Monitoring and Reporting Regulation for maritime transport (2015/757)"

MONITORING: Each installation, aircraft operator and shipping company is required to have an emission monitoring plan, approved by a national competent authority. The deadline for submitting an emissions report is the end of March (for the preceding calendar year).

REPORTING: Emission reports are submitted annually using templates.

VERIFICATION: Emission reports are verified by independent accredited verifiers before the end of March of the following year. Once verified, operators must surrender the equivalent number of allowances by the end of September.

In addition to the details above, a dedicated MRV framework for non-CO_2 aviation effects has started to apply from January 2025.

PENALTIES AND ENFORCEMENT
Regulated entities must pay an excess emissions penalty of EUR 100 (USD 108.24), adjusted for inflation, for each tCO_2e emitted for which no allowance has been surrendered, in addition to buying and surrendering the equivalent number of allowances. The name of the non-compliant operator is also made public. Member States may enforce different penalties for other forms of non-compliance.

MARKET REGULATION

MARKET DESIGN
MARKET PARTICIPATION: Compliance entities and non-compliance entities.

MARKET TYPES:
Primary: Uniform price auctions with single rounds and sealed bids, conducted daily by EEX. Germany has opted out of the common auctioning platform, instead running national auctions through the EEX. Poland has also opted out but continues to participate on the common auction platform at the EEX until further notice.

Secondary: Spot, futures, options, and forward contracts are traded on the secondary markets, both on exchange and over the counter. Besides the EEX, futures are traded on ICE, ENDEX and Nasdaq.

LEGAL STATUS OF ALLOWANCES:
Classified as financial instruments. The associated derivatives can hence be traded on secondary markets.

MARKET STABILITY PROVISIONS

MARKET STABILITY RESERVE (MSR)

Instrument type: Quantity-based instrument
Functioning: The MSR was created in 2015 as a long-term measure to address a growing surplus of allowances in the EU ETS. It adjusts auction volumes according to pre-defined thresholds of the total number of allowances in circulation (TNAC), fostering balance in the EU carbon market and resilience to demand shocks. The MSR started operating in 2019.

Triggers: The Commission publishes the TNAC communication every year.
- If the TNAC is above 1,096 million, 24% of its volume is withdrawn from future auctions and placed into the MSR over a period of 12 months.
- If the TNAC is between 833 million and 1,096 million, to mitigate threshold effects a smaller share of allowances is deducted from auction volumes and placed in the MSR.
- If the TNAC is less than 400 million allowances, 100 million allowances are released from the MSR and auctioned.

Invalidation: From 2023, allowances in the MSR above a certain threshold are invalidated annually. In 2023, the applicable threshold was the 2022 auction volume. From 2024 onward, the applicable threshold is fixed at 400 million allowances.

At the end of December 2023, the MSR contained 809 million allowances, of which 27 million were set aside for the Innovation Fund. This led to the invalidation of 382 million allowances in January 2024.

Swiss ETS allowance supply is not considered in the TNAC, and Swiss auction quotas are not affected by the MSR.

BACKLOADING

Instrument type: Quantity-based instrument
Functioning: Implemented in Phase 3 as a short-term measure to address a growing surplus of allowances in the EU ETS. Auctioning of 900 million allowances was postponed from the period spanning 2014 to 2016 until 2019 and 2020. The allowances were eventually placed in the MSR.

OTHER INFORMATION

INSTITUTIONS INVOLVED

European Commission: Responsible for establishing the regulatory framework of the EU ETS and centralized administration of the system, e. g., the EU registry.

Competent authorities of all EU Member States as well as Iceland, Liechtenstein, and Norway: implementation, e. g., verifying compliance with MRV and surrender obligations.

EVALUATION/ETS REVIEW

The European Commission publishes annual reports on the functioning of the European carbon market.[9]

The ETS Directive stipulates that the system is kept under review in light of the implementation of the Paris Agreement and the development of carbon markets in other major economies. Three major EU ETS reviews — before Phase 3, before Phase 4, and in the context of increasing the EU 2030 climate target — have been conducted to date.

By the end of July 2026, the European Commission will assess:
- how negative emissions (removals) could be accounted for and covered under the EU ETS;
- the feasibility of lowering the 20 MW total rated thermal input thresholds for the activities covered under the EU ETS;
- effective accounting and avoidance of double counting of CCU products under the EU ETS;
- the feasibility of including municipal waste incineration under the EU ETS; and
- the functioning of the EU ETS for aviation, including the functioning of CORSIA.

REGULATORY FRAMEWORK

→ **Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for GHG emission allowance trading within the Community and amending Council Directive 96/61/EC.**
→ **Decision concerning the establishment and operation of a market stability reserve for the Union GHG emission trading scheme and amending Directive 2003/87/EC (6 October 2015).**
→ **Consolidated Auctioning Regulation: Commission Delegated Regulation 2023/2830 supplementing Directive 2003/87/EC**
→ All other legislation and documentation can be found **here**.

9 The latest report was published in 2024, on the EU ETS functioning in 2023.

EUROPEAN UNION

EMISSIONS TRADING SYSTEM 2

- New separate emissions trading system due to start in 2027
- Monitoring and reporting of emissions to start in 2025
- Part of the revenues to be directed to the newly-created Social Climate Fund

DESCRIPTION

In July 2021, the European Commission proposed the "Fit for 55" package of reforms to align EU climate and energy policy with the objectives of the "European Green Deal", most importantly the ambitious 2030 climate target of reducing net emissions to at least 55% below the 1990 level. The package included important amendments to the EU ETS framework, including a proposal to extend emissions trading to new sectors.

A new, separate emissions trading system (ETS 2) will be established for emissions from fuels used for combustion in buildings, road transport and additional sectors (mainly small industry not covered by the existing EU ETS). The ETS 2 will complement other policies of the European Green Deal in the covered sectors, helping Member States achieve their emission reduction targets under the "Effort Sharing Regulation" (Regulation (EU) 2018/842).

The ETS 2 is based on the 'cap-and-trade' principle. It will cover emissions upstream, meaning the obligation to surrender allowances will fall on the fuel suppliers rather than end-consumers. The ETS 2 cap will be set to bring emissions down by 42% by 2030 compared to 2005 level.

The ETS 2 is due to become fully operational in 2027 (but may be delayed until 2028 in the event of exceptionally high energy prices). As a first step, the monitoring and reporting of emissions from the covered sectors starts in 2025.

Allowances in the ETS 2 will be distributed exclusively via auctioning. In 2027, an additional auction volume will be front-loaded to ensure a smooth start of the system. The ETS 2 will also operate with a dedicated, rule-based market stability reserve to mitigate insufficient or excessive supply of allowances to the market.

The ETS 2 also has an opt-in option, allowing Member States to unilaterally extend the system to sectors not covered by the Directive in their jurisdiction (such as fuel use in agriculture and forestry) with the Commission's approval. In 2024, the Commission adopted delegated acts to approve individual requests for extension.

A share of revenues from the ETS 2 will be used to support vulnerable households and micro-enterprises through a dedicated Social Climate Fund, created as part of the "Fit for 55" package. Member States will be required to use the remaining ETS 2 revenues for climate action and social measures.

The full transposition of the provisions for the new system into EU Member States' law was required for mid-2024. As several countries have yet to finalize the transposition, the Commission is actively collaborating with Member States to support and ensure completion of this process.

1 Emissions not covered by the existing EU ETS.

In force

Under development

Under consideration

SECTORS

BUILDINGS

TRANSPORT

ADDITIONAL SECTORS (MAINLY SMALL INDUSTRY)[1]

GREENHOUSE GASES

CO_2

MEMBER STATES

All EU Member States, plus Iceland, Liechtenstein and Norway

EMISSIONS & TARGETS OF THE EUROPEAN UNION

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**[2]

(in $MtCO_2e$, share of total in %)

Energy	2,603.8	77%
Industrial processes	291.8	9%
Agriculture	365.7	11%
Waste	109.3	3%
Total (EU-27)	**3,374.7**	

Energy industries	866.7	26%
Manufacturing industries and construction	392.6	12%
Transport	803.3	24%
Commercial, institutional, and residential	405.3	12%
Other energy	136.0	4%

GHG REDUCTION TARGETS

By 2030: Reduce net emissions to at least 55% below 1990 levels ("European Climate Law")
By 2050: Net-zero (European Climate Law)

ETS COVERAGE & PHASES

SECTORS AND THRESHOLDS

The EU ETS 2 covers the emissions from the consumption of fuels used for combustion in the road transport and buildings sectors, as well as in small industries. This essentially concerns the following fossil fuel sources: petrol, gasoil (diesel), heating oil, natural gas, liquefied gas, coal.

POINT OF REGULATION

Upstream

TYPE OF ENTITIES

Entities releasing fuels for consumption (e. g., fuel distributors)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allowances in the ETS 2 will only be auctioned. A share of ETS 2 allowances will be allocated to and auctioned for the Social Climate Fund. All remaining ETS 2 allowances will be distributed among Member States to be auctioned, based on the average distribution of emissions in the covered sectors over 2016 to 2018.

USE OF REVENUES

Climate mitigation

Assistance to vulnerable households, transport users and microenterprises

The Social Climate Fund was created alongside the ETS 2 to help EU Member States in financing structural measures and investments in energy efficiency and renovation of buildings, clean heating and cooling and integration of renewable energy, as well as in zero- and low-emission mobility solutions. Member States will also have the option of spending part of the resources on temporary direct income support.

All measures and investments will be compiled in national Social Climate Plans. The Fund will pool resources from the auctioning of allowances in the ETS 2 as well as of 50 million allowances from the EU ETS. Together with a mandatory 25% contribution of the Member States to their Social Climate Plans, the Fund should mobilize at least EUR 86.7 billion (USD 93.8 billion) between 2026 and 2032.

Member States will be required to use their remaining ETS 2 revenues for climate and social purposes.

FLEXIBILITY & LINKING

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: European Union Emissions Trading System (EU ETS)
Fuel ETS (national): in Austria and Germany, to be replaced by the EU ETS 2 from 2027 onward.
Carbon tax (national): in Denmark, Estonia, Finland, France, Hungary, Latvia, Netherlands, Norway, Poland, Slovenia, Spain, and Sweden.

2 National emissions for the EU-27 reported to the UNFCCC and to the EU in April 2024 under the "EU Governance Regulation".

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tonne of CO_2 emitted for all their verified emissions in a compliance period.

COMPLIANCE PERIOD

One year. Deadline for surrendering allowances: end of May every year from 2028.

MRV

MONITORING: Starts in 2025. The monitoring approach is to use scope factors to distinguish final consumption sectors[3] and emission factors for fuel types.

REPORTING: Starts in 2025. By the end of April 2025, covered entities must submit their first emission reports for the historical emissions in 2024. From 2026, covered entities will report verified emissions.

VERIFICATION: Verification of emission reports by an independent accredited verifier is required from 2026 (for 2025 emissions).

PENALTIES AND ENFORCEMENT

Regulated entities must pay an excess emissions penalty of EUR 100 (USD 108.24), adjusted for inflation, for each tCO_2 emitted for which no allowance has been surrendered, in addition to buying and surrendering the equivalent number of allowances. The name of the non-compliant regulated entity is also made public. Member States may enforce different penalties for other forms of non-compliance.

MARKET REGULATION

MARKET STABILITY PROVISIONS

ETS 2 MARKET STABILITY RESERVE (MSR)

Instrument type: Quantity-based instrument

Over the course of 2027, a 30% higher volume of allowances will be auctioned to provide market liquidity. The ETS 2 will operate with a dedicated, rule-based MSR to mitigate insufficient or excessive supply of allowances to the market, and with measures in the event of an excessive price increase.

Functioning: The reserve will be initially endowed with 600 million allowances. During the first three years the ETS 2 is operational, if the price of allowances exceeds EUR 45 (USD 48.7) (in 2020 prices, i. e. adjusted for inflation), additional allowances may be released from the MSR to address excessive price increases. Allowances may also be released from this reserve if the price of allowances increases too rapidly, according to specific rules and conditions.

OTHER INFORMATION

INSTITUTIONS INVOLVED

European Commission: Responsible for establishing the regulatory framework of the EU ETS and centralized administration of the system, e. g., the EU registry.

Competent authorities of all EU Member States as well as Iceland, Liechtenstein, and Norway: implementation, e. g., verifying compliance with MRV and surrender obligations.

REGULATORY FRAMEWORK

- → Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a system for greenhouse gas emission allowance trading within the Union
- → Regulation (EU) 2023/955 of the European Parliament and of the Council establishing a Social Climate Fund and amending Regulation (EU) 2021/1060
- → All other legislation and documentation can be found here.

3 To exclude activities that do not fall under the scope of the system, such as agricultural use of fuel.

GERMANY

GERMAN NATIONAL EMISSIONS TRADING SYSTEM

- **German ETS introduced in 2021 covering upstream heating and transport fuels**
- **Fixed price per tonne CO_2 from 2021 to 2025, price corridor in 2026**
- **National ETS will be largely replaced by EU ETS 2 from January 2027**

ETS DESCRIPTION

Germany launched its national ETS (nETS, *Nationales Emissionshandelssystem*) for heating and transport fuels in 2021. With the introduction of the nETS, a wide range of sectors in Germany are now subject to a carbon price.

The nETS covers all fuel emissions not covered by the EU ETS. It is being phased in gradually, with an increasing fixed price per tCO_2 from 2021 to 2025. In 2026, auctions with minimum and maximum prices will be introduced. All main fuel types (gasoline, diesel, heating oil, natural and liquid gases) have been covered from the outset, while solid fuels such as coal have been included in 2023 and the incineration of waste in 2024. During the fixed price and price corridor phases, the cap is flexible. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions.

The nETS was established through the 2019 "Fuel Emissions Trading Act", which was amended in 2020, 2022 and again in 2023. It forms part of the "Climate Action Program 2030", a package of measures adopted by the German Federal Cabinet to reach the country's 2030 climate targets and aim for climate neutrality by 2045.

YEAR IN REVIEW

In January 2024, Germany's national ETS expanded to include waste incineration.

In February 2025, the German parliament adopted a law to transition from the nETS to the EU-wide ETS 2, a new emissions trading system for fuels, set to start in 2027. According to the law, Germany's system will end on 31 December 2026 for most sectors, and the EU ETS 2 will begin on 1 January 2027. The law foresees making use of the "opt-in" option, which allows Member States to add sectors not covered in the European system. In addition to fuels used in transport, buildings, and small industries, Germany plans to opt-in fuels used in agriculture and rail transport (into EU ETS 2). However, the law does not extend the opt-in option to waste incineration, as the government is awaiting further EU-wide analysis on the effectiveness of carbon pricing in the waste sector. As a result, the waste sector will remain under the nETS after 2026 unless new provisions are introduced by then.

SECTORS

- INDUSTRY
- TRANSPORT
- BUILDINGS
- WASTE
- AGRICULTURE AND/OR FORESTRY FUEL USE

CAP

260 $MtCO_2$ (2025)[1]

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Not allowed

ALLOCATION

Fixed price until 2025
Price corridor foreseen for 2026

AVERAGE 2024 PRICES

Fixed price: EUR 45 (USD 48.71)

TOTAL REVENUE

EUR 37.3 billion (USD 40.9 billion) since the beginning of the program
EUR 12.97 billion (USD 14 billion) in 2024

1 In the introductory phase, with fixed price or price corridor, the cap is flexible.

EMISSIONS & TARGETS OF GERMANY

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	638.9	85%
Industrial processes	52.1	7%
Agriculture	53.3	7%
Waste	5.7	1%
Total	**750**	

Energy industries	252.1	34%
Manufacturing industries and construction	115.8	16%
Transport	148.6	20%
Commercial, institutional, and residential	119	16%
Other energy	3	0.4%

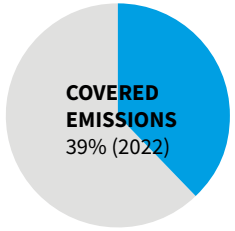
GHG REDUCTION TARGETS

By 2030: 65% reduction from 1990 GHG levels ("Climate Change Act")
By 2045: Climate neutrality (Climate Change Act)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 291.1 $MtCO_2$



PHASES

PHASE 1: Ten years (2021 to 2030)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

PHASE 1: The cap is set in line with Germany's reduction targets for the non-EU ETS sectors as defined by the "European Effort Sharing Regulation" (ESR). Given the revision of the ESR as part of the EU's "Fit for 55" legislative package, the German government has set a revised cap for the national ETS that decreases yearly in accordance with reduction targets.

During the fixed-price period from 2021 to 2025, and as long as a price corridor is deemed necessary, the cap is flexible. If emissions (and therefore the demand for allowances) within the German ETS exceed the cap, additional allowances will be available for covered entities.

These flexibility provisions will become void as soon as price determination is left solely to the market. The cap will also be binding at this point.

SECTORS AND THRESHOLDS

TYPES OF FUELS COVERED: All fuels used in the transport sector, for the production of heat and other sectors such as fuels in agriculture, rail transport and waste incineration, e. g., fuel oil, LPG, natural gas, coal, gasoline, and diesel.

Biomass used as fuel in the transport sector and for heating purposes generally also falls under the scope of the system. However, emissions from biogenic fuels that meet the sustainability criteria as set out in national regulations transposing the "European Renewable Energy Directives 2029/28/EC" and "2018/2001" do not face compliance obligations.

The system started with a limited scope in 2021 and 2022, including fuel oil, LPG, natural gas, gasoline, and diesel. Coal was added in 2023. Fuels used in waste incineration were covered from 2024 onwards.

Provisions have been put in place to avoid double compliance burdens for installations covered by the EU ETS. Emissions that arise from a fuel delivered to and used in an EU ETS installation must be reported by the EU ETS installation in all cases. These emissions may then be deducted from the reported emissions of the fuel distributor under the German ETS if:

A) evidence can be provided that the emissions have been reported by the receiving EU ETS installation; and
B) no carbon price has been passed through.

If no such evidence can be provided or if carbon costs were passed through from the supplier under the system to the EU ETS installation, the supplier is obligated to report and surrender allowances to cover the emissions. In such a case, the EU ETS installation, upon application, receives full compensation for the price that has been passed through.

POINT OF REGULATION

Upstream

TYPE OF ENTITIES

Entities releasing fuels for consumption (e. g., fuel distributors)

NUMBER OF ENTITIES

2,070 (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Proportion of auctioned allowances: 100%

PHASE 1:
Fixed price phase (2021 to 2025): Allowances are sold for a fixed price. The price schedule is as follows:

- **2021:** EUR 25 (USD 27.06)
- **2022:** EUR 30 (USD 32.47)
- **2023:** EUR 30 (USD 32.47)
- **2024:** EUR 45 (USD 48.71)
- **2025:** EUR 55 (USD 59.53)

Generally, the yearly fixed price only applies to allowances acquired in the respective calendar year. However, up to 10% of allowances needed for compliance obligations for year X can be acquired until the end of September of year X+1 at the fixed price of year X.

Auctioning phase (from 2026): A price corridor with a minimum price of EUR 55 (USD 59.53) and a maximum price of EUR 65 (USD 70.35) per tCO_2 will apply in 2026.

CARBON LEAKAGE RULES: The German ETS is accompanied by a compensation mechanism to avoid carbon leakage for emission-intensive trade-exposed sectors. Regulations were released in July 2021 and applied retroactively to companies in emission-intensive sectors that face international competition. Industries eligible for compensation are those on the carbon leakage list of the EU ETS Phase 4. Therefore, firms from the same industrial sector regulated under the nETS and EU ETS should be treated equally.

Additional sectors/sub-sectors may qualify upon request if they meet thresholds for emissions and trade intensity. In contrast to the EU ETS, the German ETS does not use free allocation, but compensation based on sectoral fuel benchmarks and fixed compensation levels.

USE OF REVENUES

- Climate mitigation
- Pursuit of other development objectives, such as education and health
- Assistance for individuals, households, and businesses

All revenues from the national ETS go into the Government's "Climate and Transformation Fund" (*Klima- und Transformationsfond* – KTF). This fund is used to support measures under the climate protection program. These include GHG reduction programs – e. g., incentivizing climate-friendly transport and energy-efficient buildings – and direct assistance to industry or households.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is not allowed during the fixed price and the corridor phase.

Borrowing is not allowed.

OFFSETS AND CREDITS

The use of offset credits is not allowed.

LINKS WITH OTHER SYSTEMS

The nETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS (supranational): EU ETS

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2 emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Entities have until the end of September to surrender allowances to cover the reported emissions of the previous year.

MRV

REPORTING FREQUENCY: Annual self-reporting in the form of an emissions report based on electronic templates to be submitted by the end of July.

From 2023 onwards, the emissions report must be based on a previously approved monitoring plan. Due to a high level of standardization of the permitted reporting methods during the first two years, the monitoring plan requirement was waived for 2021 and 2022.

Emissions data are recorded in a national registry and are publicly available.

VERIFICATION: Verification of the annual emissions by accredited independent third-party verifiers has been mandatory since 2023. As with the monitoring plan requirement, the verification requirement was waived for the years 2021 and 2022.

PENALTIES AND ENFORCEMENT

During the fixed-price phase, entities must pay an excess emissions penalty for each tCO_2 emitted for which no allowance has been surrendered, set at two times the fixed price. Payment of the penalty does not release the entity from the obligation to surrender allowances to cover the emissions; entities remain obliged to purchase and surrender the outstanding allowances.

For 2026, entities must pay an excess emissions penalty of EUR 100/tCO_2 (USD 108.24) for each tCO_2 emitted for which no allowance is surrendered.

For other instances of non-compliance, e. g., misreporting or late reporting, entities can be fined.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Trading accounts can be held by any domestic or international natural or legal person. Compliance entities can buy allowances directly from the trading platform or via financial intermediaries.

MARKET TYPES:

Primary: EEX is the German ETS's auction platform. During the fixed-price phase, allowances are issued at the predetermined price. Auctioning will start in 2026.

Secondary: Allowances can be purchased on the secondary market throughout the year.

LEGAL STATUS OF ALLOWANCES: Allowances do not have the status of financial instruments or derivates according to the "German Banking Act" or the "Securities Trading Act".

MARKET STABILITY PROVISIONS

FLEXIBLE CAP PROVISIONS

Instrument type: Quantity-based instrument

Functioning: To maintain the fixed price in the introduction phase, additional allowances exceeding the cap can be acquired by entities if the demand exceeds the cap. This was the case in 2021, where auctioned allowances exceeded the cap by 4.6 $MtCO_2$. In 2022, the auctioned volume was 4 $MtCO_2$ lower than the cap.

In 2026, auctions of allowances will contain a price corridor of a minimum price per tCO_2 of EUR 55 (USD 59.53) and a maximum price of EUR 65 (USD 70.35).

OTHER INFORMATION

INSTITUTIONS INVOLVED

German Federal Ministry for Economic Affairs and Climate Action (BMWK): Responsible for establishing the regulatory framework of the national ETS.

German Emissions Trading Authority (DEHSt) at the German Environment Agency (UBA): Implementing authority, e. g., responsible for the registry and receiving emission reports.

EVALUATION/ETS REVIEW

The German government published its first evaluation report in December 2022.[2]

A second evaluation report has been published in January 2025.[3] From 2025 onwards, the German ETS will be evaluated every four years.

REGULATORY FRAMEWORK

- → Fuel Emissions Trading Act
- → Emissions Reporting Regulation 2022
- → Fuel Emissions Trading Regulation
- → Carbon Leakage Regulation

2 The 2022 report is available (German only) at **https://dserver.bundestag.de/btd/20/048/2004861.pdf**.
3 The 2024 report is available (German only) at **https://dserver.bundestag.de/btd/20/144/2014488.pdf**.

KAZAKHSTAN

KAZAKHSTAN EMISSIONS TRADING SYSTEM

- Currently in Phase 5
- Full transition to benchmarking in 2021
- Plans to introduce auctioning

ETS DESCRIPTION

Kazakhstan launched its ETS (KAZ ETS) in January 2013. It covered around half of Kazakhstan's CO_2 emissions in 2022, stemming from 212 installations in the power, centralized heating, extractive industries, and manufacturing sectors. Covered entities must surrender allowances for all their covered emissions, and allowances are distributed for free.

The KAZ ETS cap is formed bottom-up, based on installations' expected production output and a benchmark. A reserve of allowances, on top of the cap, is available to covered entities in case they exceed their planned output as well as for new entrants. In 2024, a total of 8.1 $MtCO_2$ allowances from the reserve were issued to 59 installations.

Since 2021, all allowances have been allocated via benchmarking. There is no quantitative limit to the offset credits that covered entities can use for compliance. Domestic offset projects in all economic sectors that are not covered by the ETS can generate credits. In 2023, a domestic offsetting standard, the Qazaq Green Certificate Program, was developed. It is yet to be decided if the credits certified under this standard will be eligible under KZ ETS.

Previously, groundwork for the development of the ETS was laid out in 2011 through amendments to Kazakhstan's existing environmental legislation. The system was briefly suspended in 2016 and 2017 to tackle operational issues and reform allocation rules, although MRV obligations still applied.

YEAR IN REVIEW

An allocation plan for 2022 to 2025 was updated in January 2024, slightly decreasing the caps for 2024 and 2025 and reducing allowance reserves for those years by 19%. The introduction of auctioning is currently under development.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

CAP

167.4 $MtCO_2$ including reserve (2025)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic offset credits are allowed unlimited

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Average secondary market price: KZT 470 (USD 1)

EMISSIONS & TARGETS OF KAZAKHSTAN

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	281.9	81%
Industrial processes	27.0	8%
Agriculture	33.0	9%
Waste	6.9	2%
Total	**348.8**	

Energy industries	126.1	36%
Manufacturing industries and construction	27.8	8%
Transport	28.0	8%
Commercial, institutional, and residential	42.1	12%
Other energy	57.9	17%

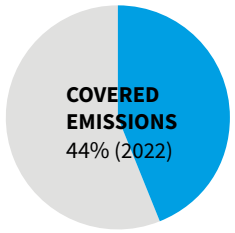
GHG REDUCTION TARGETS

By 2030: 15% (unconditional) to 25% (conditional) reduction from 1990 GHG levels (NDC)
By 2060: Carbon neutrality ("Strategy on achieving carbon neutrality by 2060")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 152.8 $MtCO_2$



PHASES

PHASE 1: One year (2013)
PHASE 2: Two years (2014 to 2015)
(2016 and 2017: System suspended)
PHASE 3: Three years (2018 to 2020)
PHASE 4: One year (2021)
PHASE 5: Four years (2022 to 2025)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

PHASE 1: 147 $MtCO_2$ (plus new entrants' reserve of 20.6 $MtCO_2$). This equaled a stabilization of the capped entities' emissions at 2010 levels.

PHASE 2:
2014: 154.9 $MtCO_2$ (plus a reserve of 18 $MtCO_2$)
2015: 152.8 $MtCO_2$ (plus a reserve of 20.5 $MtCO_2$)

This represented reduction targets of 0% and 1.5% respectively, compared to the average CO_2 emissions of capped entities in 2011 to 2012.

PHASE 3: 485.9 $MtCO_2$ (plus a reserve of 35.3 $MtCO_2$). The cap was set at a 5% reduction by 2020 from 1990 levels. The cap was allocated for the overall compliance period of 2018 to 2020; there was no annual cap.

PHASE 4: 159.9 $MtCO_2$ (plus a reserve of 11.5 $MtCO_2$)

PHASE 5: 649.8 $MtCO_2$ for the overall period, with declining annual caps.
2022: 166.2 $MtCO_2$ (plus a reserve of 11.8 $MtCO_2$)
2023: 163.7 $MtCO_2$ (plus a reserve of 11.6 $MtCO_2$)
2024: 162.1 $MtCO_2$ (plus a reserve of 9.3 $MtCO_2$)
2025: 158.2 $MtCO_2$ (plus a reserve of 9.2 $MtCO_2$)

SECTORS AND THRESHOLDS

PHASE 1: Power sector and centralized heating; extractive industries and manufacturing: oil and gas, mining, metallurgy, chemicals industry.
PHASE 2: Same as Phase 1.
PHASE 3: Same as Phase 1 plus processing industries (production of building materials: cement, lime, gypsum, and brick).
PHASE 4: Same as Phase 3.
PHASE 5: Same as Phase 3.

INCLUSION THRESHOLDS: Facilities emitting more than 20,000 tCO_2/year.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Installations

NUMBER OF ENTITIES

135 companies (212 installations)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

PHASE 1: Free allocation (grandparenting), based on emissions data from 2010.

PHASE 2: Grandparenting (0% and 1.5% below 2011 to 2012 average emissions).

PHASE 3: Grandparenting or product-based benchmarking, chosen by each company (149 installations chose benchmarking and 76 chose grandparenting). Additionally, there was a reserve of 35.3 million allowances for new entrants, new stationary emission sources, and changes in output in case of the choice of benchmarking.

PHASE 4: Benchmarking. A reserve contained 11.5 million allowances for the same purposes as in Phase 3.

PHASE 5: Benchmarking. A reserve contains 41.9 million allowances for new entrants, new stationary emission sources, changes in output and for (planned) auctioning.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed within each phase, but not between phases.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE LIMITS: Domestic offset credits in all sectors (GHG reduction or absorption activities) outside the scope of the ETS are allowed. Project applicants can submit their projects for consideration to the Ministry of Ecology and Natural Resources for approval and issuance of offset credits. These are carried out in accordance with IPCC methodologies and rules developed by the ministry.

QUANTITATIVE LIMITS: None.

No offset credits were surrendered for compliance in 2023.

LINKS WITH OTHER SYSTEMS

The Kazakhstan ETS is not linked with any other system.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (allowances or offset credit) per tCO_2 emitted for all their covered emissions.

COMPLIANCE PERIOD

One year, due by the start of April of the year following the reporting period.

MRV

REPORTING: Reporting is required annually for installations emitting above the 20,000 tCO_2/year threshold.

Annual reporting is also required for operators of installations with emissions between 10,000 and 19,999 tCO_2/year. However, these operators are not required to participate in the ETS or to verify their annual emission reports. Reporting is required for CO_2, CH_4, N_2O, and PFC emissions.

VERIFICATION: Emissions data reports and their underlying data require third-party verification by an accredited auditor.

FRAMEWORK: "Environmental Code of the Republic of Kazakhstan 2021".

PENALTIES AND ENFORCEMENT

The non-compliance penalty equals five monthly standard units for each tCO_2. This was KZT 18,460 (USD 39.36) in 2024.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities; individuals, and legal entities involved in the implementation of offset projects. Brokers, banks or other financial institutions are not allowed to trade.

MARKET TYPES:

Primary: While domestic legislation allows for the establishment of a primary market through auctioning, to date allowances have been distributed for free through grandparenting or benchmarking.

Secondary: Pure spot market, no forward contracts or other derivatives. In the beginning of the system, trades had to be executed via the Caspy Commodity Exchange JSC, which remains the main trading platform. From Phase 3 onwards, several additional exchange platforms that signed an agreement with the operator of the state registry – JSC "Zhasyl Damu" – were made available for trading. Over-the-counter trading has been allowed since Phase 3.

LEGAL STATUS OF ALLOWANCES: In accordance with the Environmental Code, a carbon unit (emissions allowance or offset credit) is a commodity permitted for transfer among the subjects of the carbon market in the Republic of Kazakhstan.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Ecology and Natural Resources: Responsible for establishing the ETS regulatory framework.
JSC Zhasyl Damu: Implementing authority, responsible for the registry and reserve management.
Caspy Commodity Exchange JSC: Operates secondary market auctions.

REGULATORY FRAMEWORK

- → Environmental Code of the Republic of Kazakhstan (2021)
- → Rules of State Regulation of Emissions and Absorption of GHGs (2022)
- → Rules for GHG Emissions Trading (2021)
- → Updated national allocation plan for 2022–2025 (2024)

MONTENEGRO

MONTENEGRO EMISSIONS TRADING SYSTEM

- ETS in force since 2020, as part of the EU accession process
- Climate Law currently under revision and expected to be adopted in mid-2025
- ETS Decree due to be renewed in late 2025

ETS DESCRIPTION

In December 2019, the "Law on Protection from the Negative Impacts of Climate Change" (Climate Law) entered into force in Montenegro. The law mandates the development of a comprehensive set of climate policies including a GHG inventory, a low-carbon development strategy, and a national MRV system. It further provides the legal basis for a national ETS covering emissions from the industrial and power sectors.

A bylaw specific to the ETS, the "Decree on Activities for which a GHG Permit is Issued" (ETS Decree), was adopted in February 2020. This regulation determines sectoral coverage and inclusion thresholds, rules governing trading of allowances, allocation rules, and a market stabilization reserve. It further includes provisions for banking allowances, a minimum reserve price of EUR 24 (USD 25.98), and a linear reduction factor for the emissions cap of 1.5% annually in the period from 2020 to 2030.

Montenegro has been an EU candidate country since 2010. It is required to bring its environmental and climate policy in line with the EU as part of accession talks that began in late 2018. Establishing a national ETS is a requirement to ensure that Montenegro has the climate policy framework in place to take part in the EU ETS should it join the EU.

The ETS formally began operations in February 2020 and applies to three installations: the Pljevlja coal plant, the KAP aluminium plant, and the Tosčelik steel mill. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

YEAR IN REVIEW

The operation of the Montenegro ETS was negatively affected by several changes of government since 2022, which caused major delays in the adoption of the yearly allocation plans. In addition, two of the three covered installations shut down their operations in 2022 in response to rapidly rising energy prices. This is still the case as of January 2025, leaving the Pljevlja coal plant as the only operational covered entity.

The Montenegro government set up a working group in mid-2022 to review the country's climate legislation, including the ETS. In December 2024, the "Draft Climate Change Law" was finalized and sent to the Legislative Secretariat for an opinion. The revision aligns various design elements of the Montenegro ETS with the EU ETS regulations, including on MRV, allocation of allowances, and the use of revenues. Its adoption is expected by the end of the second quarter of 2025, while intensive work will begin on drafting a revised ETS Decree.

SECTORS

POWER

INDUSTRY

CAP

3.10 $MtCO_2e$ (2024)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Not allowed

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Fixed Benchmarking (for new installations)
Auctioning

AVERAGE 2024 PRICES

Average auction price: EUR 24 (USD 25.98)

TOTAL REVENUE

EUR 22.1 million (USD 23.92 million) since the beginning of the program
EUR 12.8 million (USD 13.9 million) in 2024

EMISSIONS & TARGETS OF MONTENEGRO

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	2.7	78%
Industrial processes	0.2	4%
Agriculture	0.3	7%
Waste	0.4	10%
Total	**3.5**	

Energy industries	1.5	43%
Manufacturing industries and construction	0.2	6%
Transport	0.9	27%
Commercial, Institutional, and Residential	0.1	2%

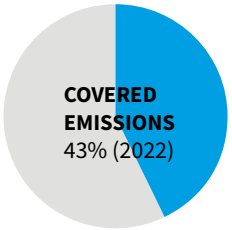
GHG REDUCTION TARGETS

By 2030: 55% reduction below 1990 levels excl. LULUCF (NDC)
By 2050: Climate neutrality (aspirational, "Sofia Declaration")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 1.49 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.
2020: 3.3 $MtCO_2e$
2021: 3.3 $MtCO_2e$
2022: 3.2 $MtCO_2e$
2023: 3.15 $MtCO_2e$
2024: 3.1 $MtCO_2e$
Annual reduction factor: 1.5%

SECTORS AND THRESHOLDS

SECTORS: Industries listed under Appendix 1 of the ETS Decree must participate in the system. These include power plants, oil refineries, coke production, the production or processing of iron and steel, non-ferrous metals, cement clinker, glass, ceramic products, and paper (pulp).

INCLUSION THRESHOLDS:

- Power plants with a capacity in excess of 20 MW
- Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2.5 tonnes per hour
- Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day
- Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day
- Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m^3 and with a setting density per kiln exceeding 300 kg/m^3

POINT OF REGULATION

Point source

TYPE OF ENTITIES

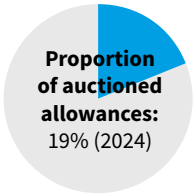
Installations

NUMBER OF ENTITIES

Three, out of which only one is currently operational (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



2020 to 2022: Free allocation of allowances (Grandparenting)
2023: The government appointed the auctioning committee in December 2022 and auctioning took place in early 2023.

- **Auction share:** 19% (385,657 allowances)
- **Free allocation share:** 222,515 allowances
- **Auction volume:** 600,000 allowances

2024: The government appointed the auctioning committee in May 2024 and auctioning took place in June 2024.

- **Auction share:** 19% (535,310 allowances)
- **Free allocation:** 875,242 allowances
- **Auction volume:** 600,000 allowances

For the years 2023 and 2024, the total amount of allowances allocated in the Montenegro ETS was significantly below the cap for the respective year. This is a result of two of the three covered installations having ceased their operations in 2022 and the corresponding reduction in demand for allowances.

USE OF REVENUES

Climate mitigation

Low-carbon innovation

Pursuit of other development objectives, such as education and health

Auction revenues go to Montenegro's Environmental Protection Fund (*Eko Fond*) to finance low-carbon innovation, renewable energy, and environmental protection.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is not allowed.

LINKS WITH OTHER SYSTEMS

The Montenegro ETS is not linked to any other system.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One year.

Participants are obliged to submit a verified report on GHG emissions to the EPA by the end of March for the preceding year. The date for surrendering allowances is not fixed in existing legislation.

MRV

MONITORING: Covered entities must submit, together with the allowance application, a plan for monitoring GHG emissions from the installation. The content of the Monitoring Plan, the procedures, processes and the methodology for monitoring GHG emissions are laid down by the bylaws. The entity is also obliged to improve the methodology for monitoring GHG emissions and amend the Monitoring Plan on the request of the administration authority, the Environmental Protection Agency (EPA).

REPORTING: Participants are obliged to submit a verified report on GHG emissions to the EPA by the end of March for the preceding year.

If the covered entity fails to submit the verified report, the EPA makes a conservative estimate of the level of GHG emissions. The costs of making the estimate are to be paid by the entity.

The form and content of the report, procedures and the method of making a conservative estimate are prescribed by the bylaws.

VERIFICATION: Verification of the GHG reports may be performed only by an accredited legal entity that fulfils the requirements regarding personnel and equipment for report verification.

PENALTIES AND ENFORCEMENT

Penalties as stipulated by the Climate Law range from EUR 2,000 (USD 2,164) to EUR 40,000 (USD 43,295) and can be imposed against legal entities and responsible natural persons in the legal entity.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Due to the very small size of the Montenegro ETS, participation of non-compliance entities (intermediaries) is not possible.

MARKET TYPES:

Primary: Allowance auctions are organized by the government.

Secondary: There is no established secondary market. However, the covered entities can trade allowances among themselves. Due to only one entity remaining in the market, there is no trading activity as of January 2025.

MARKET STABILITY PROVISIONS

INSTRUMENT NAME: Price floor

INSTRUMENT TYPE: Price-based instrument

TRIGGERS: There is a (permanent) minimum price of EUR 24 (USD 25.98/tCO_2) for auctions.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Ecology, Spatial Planning, Urbanism and State Property: Responsible for environmental and climate policy, including the national ETS.

Environmental Protection Agency (EPA): Responsible for allowance issuance and monitoring of verification reports.

EVALUATION/ETS REVIEW

The Climate Law and ETS Decree are currently under revision.

REGULATORY FRAMEWORK

→ **Decree on activities that emit greenhouse gases for which a permit for the emission of greenhouse gases is issued. | FAOLEX**

→ **Law on Protection from the Negative Impacts of Climate Change (2019)**

SWITZERLAND

SWITZERLAND EMISSIONS TRADING SYSTEM

- **Entered a new ten-year trading phase in 2021**
- **Linked with the EU ETS since January 2020**
- **Important ETS reform is implemented from 2025**

ETS DESCRIPTION

The Switzerland (Swiss) ETS started in 2008 with a five-year voluntary phase. Thereafter, participation was mandatory for large, energy-intensive entities and voluntary for medium-sized entities. The Swiss ETS covered about 12% of the country's total GHG emissions in 2022 (including aviation). Participants in the ETS are exempt from the national CO_2 levy.

The Swiss ETS covers electricity generation, industrial entities (largely comprising companies from the cement, chemicals, pharmaceuticals, paper, refining, and steel sectors), domestic aviation, and flights to the European Economic Area and the United Kingdom. Allowances are allocated through benchmarking and auctioning. Free allocation for aviation is being phased-out by 2026. Auctioning volumes may be reduced if the total number of allowances in circulation exceeds a certain threshold.

The Swiss ETS has been linked with the EU ETS since January 2020. The same benchmarks as in the EU ETS apply to entities covered by the Swiss ETS.

The system is mandated by the Federal Act on the Reduction of CO_2 Emissions ("CO_2 Act") and regulated through an implementing regulation ("CO_2 Ordinance").

YEAR IN REVIEW

In March 2024, the Parliament approved a revised CO_2 Act for the period from 2025 to 2030, setting 2030 emissions targets and introducing national and sectoral measures to meet them. The law entered into force at the start of January 2025, thereby aligning the Swiss ETS with the revised EU ETS. The CO_2 Ordinance implementing the act underwent public consultation from July to October 2024 and will be set into force in spring 2025 with retroactive effect.

For stationary installations and aviation, the same linear reduction factors as in the EU ETS apply to reduce the respective caps for the period 2024 to 2030. Additionally, carbon capture and storage, and under certain conditions, foreign biogas use, can now be accounted for in the ETS. In aviation, free emission allowances for operators are phased out by 2026 in accordance with the rules in the EU ETS.

In force
Under development
Under consideration

SECTORS

POWER
INDUSTRY
AVIATION

CAP

4.3 $MtCO_2e$ (2025, power and industry)
1.1 $MtCO_2e$ (2025, aviation)

GREENHOUSE GASES

CO_2, N_2O, CH_4, HFCs, NF_3, SF_6, PFCs[1]

ALLOCATION

Free Allocation: Fixed Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction price: EUR 60.19 (USD 65.15)

TOTAL REVENUE

EUR 182.5 million (USD 207.3 million)
since the beginning of the program
EUR 47.3 million (USD 51.2 million) in 2024

1 In principle, all these gases are covered in accordance with the CO_2 Ordinance. In practice, only CO_2, N_2O, and PFCs require monitoring, as the share of the other gases is negligible.

EMISSIONS & TARGETS OF SWITZERLAND

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	31.1	75%
Industrial processes	3.5	8%
Agriculture	5.9	14%
Waste	1.1	3%
Total	**41.6**	

Energy industries	3.2	8%
Manufacturing industries and construction	4.2	10%
Transport	13.6	33%
Commercial, institutional, and residential	9.9	24%
Other energy	0.2	0%

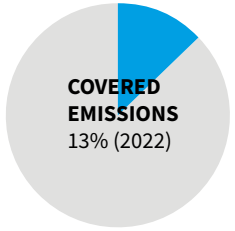
GHG REDUCTION TARGETS

By 2030: At least 50% reduction from 1990 GHG levels (NDC and CO_2 Act)
By 2050: Net-zero GHG emissions (NDC and "Climate and Innovation Act")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 5.4 $MtCO_2e$



PHASES

VOLUNTARY PHASE: Five years (2008 to 2012)
SECOND TRADING PERIOD: Eight years (2013 to 2020)
THIRD TRADING PERIOD: Ten years (2021 to 2030)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

VOLUNTARY PHASE: Each participant received its own entity-specific reduction target.

SECOND TRADING PERIOD:
Stationary installations: Overall top-down cap of 5.6 $MtCO_2e$ (2013) that was reduced annually by a constant linear reduction factor of 1.74% (of baseline emissions set by entities' historical data of the years 2008–2012) to 4.9 $MtCO_2e$ in 2020.

Aviation: 1.3 $MtCO_2$ (2020)

THIRD TRADING PERIOD: An annual linear reduction factor of 2.2% (2010 base year) applied to the cap for stationary installations and to the aviation cap from 2021 to 2023. As from 2024 the effective linear reduction factor is 4.3% and 4.4% as from 2028.

SECTORS AND THRESHOLDS

MANDATORY PARTICIPATION: Industries listed under Annex 6 of the CO_2 Ordinance must participate in the Swiss ETS. These include 25 categories, such as cement, chemicals and pharmaceuticals, refineries, paper, district heating, steel, and other sectors. Since 2020, the ETS has covered emissions from aviation (domestic and outbound flights to the EEA or the UK) and fossil-thermal power plants.

INCLUSION THRESHOLDS: Threshold values apply to most activities in terms of production capacity or total rated thermal input.

POSSIBLE VOLUNTARY OPT-IN: Industries with a total rated thermal input of ≥10 MW. A company that fulfils the participation conditions must submit the application within the following six months.

POSSIBLE OPT-OUT: Industries with a total rated thermal input greater than 20 MW but emissions below 25,000 tCO_2e in each of the past three years. If an entity's future emissions rise above the threshold in a given year, it must participate in the ETS starting from the following year and cannot opt out for the remainder of the compliance period. New entrants can apply for an opt-out with immediate effect if they can credibly report their emissions to be below 25,000 tCO_2e/year.

AVIATION: Commercial aircraft operators emitting more than 10,000 tCO_2/year or operating ≥ 243 flights in a four-month period in the preceding year. Non-commercial operators are included when emitting more than 1,000 tCO_2/year. The thresholds do not apply if the operator has obligations under the EU ETS.

POINT OF REGULATION

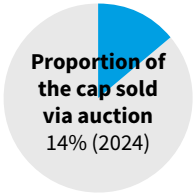
Point source

TYPE OF ENTITIES
Installations (power and industry) and companies (aviation)

NUMBER OF ENTITIES
Stationary installations: 95 (2024)
Aircraft operators: 205 (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



VOLUNTARY PHASE: Participants received free allowances covering emissions up to their entity-specific emissions target.

SECOND TRADING PERIOD:
Free allocation: Free allocation was based on industry benchmarks. Free allocations for sectors not exposed to the risk of carbon leakage were phased out gradually. In 2013, these entities received 80% of their allowances for free, which was reduced to 30% by 2020.

A correction factor was implemented to reduce the allocated emissions allowances, determined by industry benchmarks and ensuring they aligned with the specified overall emissions cap.

Free allocation for aircraft operators was based on tonne-kilometer data for 2018 reported by individual aircraft operators, multiplied by the benchmark of 0.642 emissions allowances per 1,000 tonne-kilometers (same benchmark as in the EU ETS).

Auctioning: Allowances that were not allocated for free were auctioned. Auctions took place two or three times a year, depending on available auction volumes. Since January 2020, auctions are open to entities covered by the Swiss ETS and the EU ETS, as well as to non-compliance entities allowed to place bids in the EU ETS. In line with EU ETS legislation, the Federal Office of the Environment (FOEN) has the authority to cancel the auction if the clearing price is significantly below the prevailing secondary market price of the EU ETS. In such a situation, allowances are transferred to subsequent auctions.

5% of the allowances are set aside in a reserve for new entrants and fast-growing operators.

Aviation: In line with EU ETS regulations, starting in 2020, 15% of aviation sector allowances are auctioned. 3% were placed in the reserve dedicated to new and fast-growing operators. The remaining 82% was allocated according to sector-specific benchmarks

THIRD TRADING PERIOD (2021 to2030):
Free allocation: As of 2022, the Swiss ETS applies the same allocation benchmarks as the EU ETS. Free allocation levels may be updated annually if production levels deviate at least 15 percentage points from the 2014 to 2018 base years. Free allocation in the aviation sector will be phased out by 2026, in line with the EU ETS regulation.

Auctioning: Since 2022, auction volumes have been subject to a market stability mechanism (see 'Market Stability Provisions' section).

USE OF REVENUES

Climate mitigation

Low-carbon innovation

From 2025, revenues from Swiss ETS auctions are earmarked to support *inter alia* the decarbonization of installations in the ETS and the mitigation of emissions from aviation.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Banking within and across phases is allowed without limits. Banked allowances from Phase 3 of the EU ETS can be used for compliance in the 2021 to 2030 trading phase.

Borrowing across phases is not allowed. Within a phase, allocated allowances from the current trading year may be used for surrender obligations of the prior year.

OFFSET CREDITS
The use of offset credits is not allowed.

QUALITATIVE LIMITS: Since 2021, offset credits cannot be used to meet compliance obligations. International offset credits were allowed up to 2020, subject to certain criteria. Most categories of credits from CDM projects in least developed countries were allowed. Credits from CDM and Joint Implementation projects from other countries were eligible only if registered and implemented before the end of 2012.

QUANTITATIVE LIMITS: During 2013 to 2020, the maximum amount of offset credits allowed into the system was set at 11% of average emissions allowances allocated in the voluntary phase, minus offset credits used in that same time period, multiplied by five.

Industries that entered the Swiss ETS in the second trading period could surrender offsets to cover up to 4.5% of their emissions. For aircraft operators, the quantitative limit was set at 1.5%.

LINKS WITH OTHER SYSTEMS

Switzerland concluded negotiations with the EU on linking their respective systems in 2015 and signed the agreement in 2017. Following legislative approval and ratification in 2019, the link entered into force in January 2020. Prior to that, revisions were made to align with the EU ETS legislative framework.

Covered entities in the Swiss ETS can use allowances from the EU ETS for compliance, and vice versa. The two systems run separate auctions. Market participants from the EEA need an account in the Swiss Emissions Trading Registry in order to participate. From 2024, allowance transfers between the EU and Swiss registries are executed on a daily basis, with specific exceptions for certain dates. The 2025 exception dates are published in the Emissions Trading Registry.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: CO_2 levy

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities have until the end of September of the following year to surrender allowances.

MRV

MONITORING: Monitoring plans are required for every installation and for every aircraft operator (no later than three months after the registration deadline). Monitoring plans must be approved by a competent authority. Emissions according to the Swiss CO_2 Ordinance (mainly CO_2 and N_2O) are subject to monitoring.

REPORTING: Annual monitoring report, based on self-reported information (by the end of March).

VERIFICATION: FOEN may order third-party verification of the monitoring reports from installations and can take random samples to ensure consistency. Aircraft operators must have their monitoring reports verified by an accredited third-party verifier.

PENALTIES AND ENFORCEMENT

The penalty for failing to surrender sufficient allowances is set at CHF 125/tCO_2 (USD 142.01/ tCO_2). In addition to the fine, entities must surrender the missing allowances in the following year.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, non-compliance entities (domestic and international) and individuals. Traders are subject to a holding limit of one million Swiss/EU allowances.

MARKET TYPES:

Primary: Single round sealed-bid uniform price auction, organized by the Swiss Emissions Trading Registry several times per year.

Secondary: Swiss allowances are not traded on regulated trading platforms but may be traded over the counter. EU ETS allowances, which can be used for compliance in the Swiss ETS, are traded on multiple exchanges, including ICE Futures and EEX.

LEGAL STATUS OF ALLOWANCES:

Allowances do not qualify as financial instruments under Swiss financial market regulations. Emissions allowances may form the underlying asset of derivative contracts which are covered by the “Financial Market Infrastructure Act”.

MARKET STABILITY PROVISIONS

MARKET STABILISATION MECHANISM

Instrument type: Quantity-based instrument

Functioning: The authorities introduced a mechanism in 2022 that reduces auction volumes if the quantity of emissions allowances in circulation exceeds a certain threshold.

If the number of allowances in circulation exceeds 50% of the cap of the previous year, the market stabilisation mechanism reduces the auction volume of the current year by 50%. In 2022, the mechanism reduced the auction volume from 460,000 to 230,000 and in 2023 from 580,000 to 290,000 allowances. In 2024, it reduced the auction volume from 820,000 to 410,000 allowances.

The unauctioned allowances lose their validity after the end of the compliance period. The mechanism is regularly reviewed against market dynamics and developments in the EU. The Swiss ETS is not subject to the EU ETS Market Stability Reserve.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Federal Office for the Environment (FOEN): Implementing authority, e. g., responsible for the registry, for auctioning allowances, receiving emission reports and enforcing compliance.

EVALUATION/ETS REVIEW

The full revision of the CO_2 Act was rejected in a popular vote in June 2021. A transitional extension of the Act for 2022 to 2024 was adopted in December 2021. A new revision of the Act that covers the period from 2025 to 2030 was adopted by the Swiss Parliament in March 2024 and entered into force on 1 January 2025. The new law provides for a linking-compatible revision of the ETS.

REGULATORY FRAMEWORK

→ **Revised Federal Act on the Reduction of CO_2 Emissions (2025)** (CO_2 Act)
→ **Ordinance on the Reduction of CO_2 Emissions** (CO_2 Ordinance)

TÜRKİYE

- Climate law in final stages of enactment
- Pilot ETS expected to launch in 2026
- Submitted Long Term Strategy 2053 in November 2024

DESCRIPTION

In 2024, Türkiye has been preparing to deploy carbon pricing instruments to help achieve its mitigation targets. These preparations include the publication of its "Long-Term Strategy" document (LTS 2053) during COP 29, which has explicit references to the Turkish Emission Trading System (TR ETS) expected to launch as pilot in 2026.

Additionally, a World Bank funded project under the PMI program formally started in January 2024, and the first activities are expected in 2025. The project will assist Türkiye in assessing design options through modeling studies and support the development of legislative and regulatory frameworks for the TR ETS. It will also help the government analyze the broader economic impact of the TR ETS, establish a national carbon crediting mechanism, develop a strategy for engaging with the emerging Article 6 markets, and commission studies on a just transition strategy. These preparations are taking place in the context of Türkiye's "Green Deal Action Plan", which aims to align the country with the European Green Deal and taking into account the advisory decisions of the Climate Council, a multi-stakeholder consultation which took place in 2022.

The intention to develop the TR ETS has also been reflected in Türkiye's annual "Medium-Term Programs" (MTPs) since 2022. The MTP covering 2025 to 2027 states that a carbon pricing mechanism "will be established to maintain competitiveness during the green transformation process, minimize the impacts of CBAM, and support the transition to a low-carbon economy."[1] Moreover, the high-level planning outlined in the "12th Development Plan (2024 to 2028)" takes the year 2053 as a long-term reference in the country's green and digital transformation agenda and considers the TR ETS as an instrument of this transformation.

In preparation for the launch of the ETS, the Directorate of Climate Change (DoCC) completed the technical analysis underpinning the draft climate law. The law is expected to be enacted in 2025 following parliamentary discussion early in the year. Sub-legislation (e. g., regulations, communiqués, etc.) enabling the development of the technical infrastructure (e. g., registry and transaction systems etc.) for the TR ETS is expected to be finalized in 2025 following the "Climate Law" enactment. The TR ETS will leverage data collected under Türkiye's comprehensive mandatory monitoring, reporting and verification (MRV) system which has been in place since 2015.

Türkiye is a candidate for EU accession and, as a part of this process, the country is planning to commence an Instrument for Pre-Accession Assistance (IPA III) project in 2025 for the transposition of the EU ETS legislation into domestic legislation which will define national ETS' technical features.

1 The most recent MTP covering 2025 to 2027 was approved by the President and published in the Official Gazette in September.

EMISSIONS & TARGETS OF TÜRKİYE

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	400.6	72%
Industrial processes	69.9	12%
Agriculture	71.5	13%
Waste	16.3	3%
Total	**558.3**	

Energy industries	155.9	28%
Manufacturing industries and construction	65.5	12%
Transport	91.9	16%
Commercial, institutional, and residential	65.3	11%
Other energy	22.0	4%

GHG REDUCTION TARGETS

By 2030: Up to 41% reduction from the BAU scenario (Updated First NDC)
By 2053: Net-zero GHG emissions

COMPLIANCE

MRV

REPORTING FREQUENCY: Annual

VERIFICATION: Annual emission data reports (prepared according to the monitoring plans confirmed by DoCC) and their underlying data require independent third-party verification annually for all entities. The Turkish Accreditation Agency is the institution that accredits the verifiers.

FRAMEWORK: The Turkish MRV legislation (mainly based on the EU system) establishes an installation-level system for CO_2 emissions for approximately 770 entities. Sector coverage includes the energy sector (total rated thermal input >20 MW) and industry sectors (iron and steel, metals, cement, glass, fertilizer, aluminium, lime, mineral fiber, brick, plaster, refinery, ceramic products, insulation materials, pulp and paper, and chemicals over specified threshold sizes/production levels). The system covers about half of the country's aggregate emissions.

Entities had until October 2014 to submit their first monitoring plans. Since then, they have also submitted subsequent monitoring plans and verified annual emissions reports from 2015 to 2024 to DoCC. Entities must submit their verified annual emission reports before the end of April each year.

ENFORCEMENT

Entities that fail to comply with the Turkish MRV regulation are subject to sanctions under Turkish "Environmental Law No. 2872".

OTHER INFORMATION

INSTITUTIONS INVOLVED

Directorate of Climate Change (DoCC): Under the Ministry of Environment, Urbanization and Climate Change (MoEUCC); responsible for determining policies, strategies, and actions (including those related to carbon pricing and ETS) at national and international levels within the scope of Türkiye's efforts to combat and adapt to climate change, conducting negotiation processes, and ensuring coordination with relevant institutions and organizations as established and mandated by Presidential Decree in 2021.

REGULATORY FRAMEWORK

- → **Grant Agreement** with the World Bank PMI
- → **Presidential Decree establishing MoEUCC**
- → **2024–2026 Medium Term Plan** (2024)
- → **2024–2028 12th Development Plan** (2023)
- → **DoCC website** for other legislation and documents

UNITED KINGDOM

UK EMISSIONS TRADING SCHEME

- **Began in 2021, following the UK's departure from the EU ETS**
- **Ongoing revision to develop and further expand the scheme, including integrations of GHG removals**
- **Introduction of a Carbon Border Adjustment Mechanism from 2027**

ETS DESCRIPTION

The UK Emissions Trading Scheme (UK ETS) began operating in January 2021, following the departure of the UK (excluding power operators located in Northern Ireland) from the EU ETS. Verified emissions from stationary UK ETS operators currently account for around a quarter of the UK's territorial GHG emissions. The first phase of the UK ETS runs until 2030.

The UK ETS covers around 1,000 installations in the power and industrial sectors, as well as around 400 aircraft operators. Aviation activity covered includes flights within the UK as well as flights departing the UK to the European Economic Area (EEA) and Switzerland.

Covered installations and aircraft operators must surrender allowances for all their covered emissions. Allowances are allocated primarily through auctioning, with a portion freely allocated to mitigate the risk of carbon leakage. The system has both a cost containment mechanism (CCM) and an auction reserve price, to support market stability.

The UK ETS cap is consistent with the UK's target of achieving net zero by 2050.

In December 2023, the UK Government published the long-term pathway for the UK ETS, outlining its continuation until at least 2050, in alignment with net-zero targets. The document includes a workplan for consultations on expanding the scheme to waste incineration and energy from waste, domestic maritime, and GHG removals, as well as a framework for potentially including more high-emitting sectors.

YEAR IN REVIEW

A package of reforms to develop the UK ETS further were implemented in 2024 as well as a number of consultations to expand its scope.

Since January 2024, the UK ETS cap was reset to be consistent with the UK's net-zero target by 2050. The changes included a 30% reduction in the total number of allowances available between 2021 and 2030. To ensure a smooth transition to the net zero cap, 53.5 million previously unallocated allowances were released from reserve pots to auction between 2024 and 2027. The cap will reduce from 156 $MtCO_2e$ in 2021 to around 50 $MtCO_2e$ by 2030.

In May 2024, the UK ETS Authority launched two consultations related to scope expansion. The UK ETS intends to cover emissions from waste incineration and energy from waste from 2028 (preceded by a two-year MRV-only period from 2026 to 2028). The UK ETS Authority followed up on its commitment to integrate engineered greenhouse gas removals (GGRs) in the scheme by proposing policy options for how this could be done.

1 In 2025, 13.3 million additional allowances are expected to be auctioned from reserve pots (within the phase cap), leading to a 100.1 $MtCO_2e$ effective cap. These additional allowances will be auctioned from reserves between 2024 and 2027 to smooth the transition to the net zero cap.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- POWER
- INDUSTRY
- AVIATION

CAP

86.7 $MtCO_2e$ (2025)[1]

GREENHOUSE GASES

CO_2, N_2O, PFCs

ALLOCATION

Free Allocation: Fixed Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction price: GBP 37.18 (USD 47.52)

TOTAL REVENUE

GBP 17.2 billion (USD 21.9 billion) since the beginning of the program
GBP 2.6 billion (USD 3.3 billion) in 2024

In October 2024, the UK Government confirmed that the UK Carbon Border Adjustment Mechanism (UK CBAM) will be introduced on 1 January 2027, in order to address the risk of carbon leakage. The CBAM will place a carbon price on some of the most emissions-intensive industrial goods imported to the UK from the aluminum, cement, fertilizer, hydrogen, and iron and steel sectors that are at risk of carbon leakage.

In November 2024, the UK ETS Authority launched two further consultations on scope expansion: to cover emissions from domestic maritime activities from 2026 and to recognize and implement non-pipeline transport for carbon capture and storage. In addition, the Authority also published an initial response to the 2023 "Free Allocation Review" consultation, confirming that operators who cease operation will have their final year's allocation adjusted to reflect activity levels, while also allowing operators who are ceasing to decarbonize to apply to be exempted from this new rule to ensure the incentive to decarbonize is maintained.

In December 2024, the UK ETS Authority confirmed that the start of the second free allocation period will move from 2026 to 2027, to align changes to free allocation with the introduction of the UK CBAM in 2027. The UK ETS Authority also launched a consultation seeking views on how carbon leakage risk should be calculated, and the approach to adjusting free allocation levels for CBAM sectors.

EMISSIONS & TARGETS OF THE UK

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	321.2	78%
Industrial processes	27.4	7%
Agriculture	42.0	10%
Waste	19.0	5%
Total	**409.6**	

Energy industries	81.3	20%
Manufacturing industries and construction	35.9	9%
Transport	110.6	27%
Commercial, institutional, and residential	78.4	19%
Other energy	15.1	4%

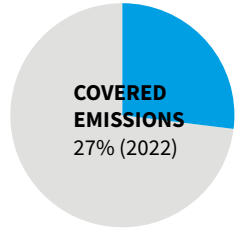
GHG REDUCTION TARGETS

By 2030: At least a 68% reduction in UK net GHG emissions from 1990 levels, including emissions from LULUCF (NDC)
By 2035: At least a 81% reduction in UK net GHG emissions from 1990 levels, including emissions from LULUCF (NDC)
Limit UK net GHG emissions to 965 $MtCO_2e$ over 2033 to 2037, representing ~77% reduction from 1990 levels, including emissions from LULUCF and international aviation and shipping ("Carbon Budget Order 2021")
By 2050: Net-zero UK GHG emissions, including emissions from LULUCF and international aviation and shipping ("Climate Change Act 2008 [2050 Target Amendment] Order 2019")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 110.6 $MtCO_2e$



PHASES

PHASE 1: Ten years (2021 to 2030)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

FIRST ALLOCATION PERIOD (2021 to 2025): 633 $MtCO_2e$, to be adjusted to reflect the hospital and small emitter opt-outs.

SECOND ALLOCATION PERIOD (2026 to 2030)[2]: 303 $MtCO_2e$, to be adjusted to reflect the hospital and small emitter opt-outs.

The cap was initially set at 5% below the UK's notional share of the EU ETS cap for its fourth phase. The cumulative caps for the first and second allocation periods were originally 736 $MtCO_2e$ and 630 $MtCO_2e$, respectively. However, they were reduced following a 2022 consultation on reforming the UK ETS, which included aligning the cap trajectory with the UK's net-zero emissions target. The cap for 2025 is 86.7 $MtCO_2e$. Allowances for the New Entrants' Reserve (NER) are part of the overall cap.

2 An Authority publication of December 2024 announced that the second allocation period would start in 2027. To effect this, a new allocation period will be created for a standalone year in 2026, however free allocations for this time will be calculated on the same basis as 2021 to 2025 free allocations.

SECTORS AND THRESHOLDS

POWER SECTOR AND INDUSTRY: The UK ETS applies to a specified list of activities of installations in the power and industrial sectors. This includes activities involving the combustion of fuels in installations with a total rated thermal input exceeding 20 MW, as well as activities in refining, heavy industry, and manufacturing. Power generators in Northern Ireland still fall under the EU ETS, as they are part of the integrated Single Electricity Market with the Republic of Ireland.

In addition to the power sector's participation in the UK ETS, the UK's Carbon Price Support (CPS) policy imposes an additional carbon tax of GBP 18 per tCO_2 (USD 23.01) for power generators in Great Britian (excluding Northern Ireland) using fossil fuels.

Hospitals and Small Emitter (HSE) Scheme: Hospitals and small emitters with emissions below 25,000 tCO_2e per year and a net-rated thermal input lower than 35 MW can opt out of the ETS and instead monitor and report their emissions and meet annual emission reduction targets. This approach is similar to the UK's opt-out scheme in Phase 3 of the EU ETS.

Ultra-Small Emitter Exemption: For stationary installations emitting fewer than 2,500 tCO_2e per year, an ultra-small emitter exemption is in place. These installations are required to monitor emissions and notify the regulator if emissions exceed the threshold.

AVIATION: UK ETS obligations arise from flights within the UK, flights from the UK to a country within the EEA (excluding outermost regions) and to Switzerland, and flights between the UK and Gibraltar.[3] Commercial aircraft operators with fewer than 243 full scope flights in a four-month period for three consecutive four-month periods or total full scope annual emissions of less than 10,000 tCO_2 are exempt.

Non-commercial aircraft operators are not subject to UK ETS obligations if their annual full scope emissions fall below 1,000 tCO_2. Full scope flights are those departing from or arriving in an aerodrome in the UK, Gibraltar, an EEA state, Switzerland, or outermost regions other than an excluded flight.

The UK is also considering how the UK ETS should interact with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). In December 2024, the UK Department for Transport launched a consultation on implementing CORSIA in the UK, in partnership with the UK ETS Authority, which includes options for how CORSIA could interact with the UK ETS on flights in scope of both schemes.

ADDITIONAL SECTORS: In 2023, the UK ETS Authority announced its intention to expand the scheme to cover emissions from domestic maritime from 2026, and emissions from waste incineration and energy from waste from 2028.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

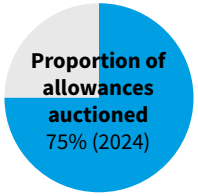
Installations, aircraft operators

NUMBER OF ENTITIES

A total of 1,396 entities in 2023, made up of 1,009 installations and 387 aircraft operators

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



AUCTIONING: Auctioning is the primary means of allowance allocation in the UK ETS. Auctions have a GBP 22 (USD 28.12) Auction Reserve Price (ARP), below which allowances will not be sold. Auctions clear even when not all allowances are sold. Unsold allowances are carried over to the next four auctions, up to a limit of 125% of allowances originally intended for sale at those auctions. If all four subsequent auctions reach the 125% limit, the remaining unsold allowances are transferred into the Market Stability Mechanism Account.

In 2024, ~69 million allowances were sold at auction, raising ~GBP 2.6 billion (~USD 3.3 billion). As set out in the auction calendar, ~56 million UK Allowances (UKAs) will be auctioned in 2025 across 25 auctions.

FREE ALLOCATION: A number of UKAs are allocated for free to industrial participants at risk of carbon leakage. The number of free allowances that an installation is entitled to is determined using the historical activity level, an industry benchmark, and a carbon leakage exposure factor (CLEF). The benchmarks and CLEFs that have been used initially are those used in Phase 4 of the EU ETS in the most part with an exception for the lime benchmark and malt extraction's carbon leakage status. Historical activity levels are based on data collected under the EU ETS.

3 Aviation activities included in the UK ETS are outlined in the "Greenhouse Gas Emissions Trading Scheme Order 2020".

There is a maximum number of allowances allocated for free (the "industry cap"). Originally, an absolute value for the industry cap was established for each year of the first phase. This approach was changed following the 2022 consultation on reforming the UK ETS. From 2024, the industry cap is now set at 40% of the total cap and reduces annually in line with the cap trajectory. If the total amount of free allocation exceeds the industry cap for a particular year, unallocated UKAs from the industry cap from the previous year, as well as allowances from a flexible reserve, can be used. As a last resort, a cross-sectoral correction factor would be applied to ensure a uniform reduction across eligible participants.

An initial allocation table, which lists the volume of free allowances for each installation for the first allocation period, was published in May 2021. Eligible installations must submit a verified Activity Level Report (see 'Compliance' section). If the data in the Activity Level Report shows an increase or decrease in activity of 15% or more from historical activity levels (calculated based on the previous two years' activity levels), their free allocation will be recalculated.

The first phase of a review of free allocation started with a call for evidence in spring 2021 and continued in 2022 as part of the consultation on developing the UK ETS. The second phase of the review, starting with a consultation in December 2023, is focused on the free allocation methodology and better targeting support for those sectors most at risk of carbon leakage. In December 2024, the UK ETS Authority published a further consultation on the carbon leakage list to be used for free allocation in the next period and confirmed that changes following the free allocation review will be made from 2027, with 2026 allocations calculated on the same basis as the first allocation period. The Authority also confirmed changes to rules around free allocation for installations that cease activity.

In 2023, the UK ETS Authority announced that free allocation for aviation operators would be phased out by 2026.

Carbon Border Adjustment Mechanism: As part of the December 2024 consultation, the UK ETS Authority put forward proposals to gradually adjust free allocation in CBAM covered sectors following the introduction of the new mechanism. The UK CBAM will apply to imports of specific goods in the aluminum, cement, fertilizers, hydrogen, and iron and steel sectors. It will cover both direct emissions related to the production processes of the CBAM goods, as well as indirect emissions related to the production of electricity consumed during their production. To better align the UK CBAM launch with the domestic ETS, the UK ETS Authority has confirmed that the free allocation in 2026 will be calculated on the same basis as the first allocation period delaying the second allocation period to 2027.

NER: A reserve of free allowances is set aside for installations that become eligible for participation within Phase 1 and for covered installations that significantly increase their activity level. The number of free allowances for new entrants is determined based on their activity in the first year of operation, the industry benchmark, and CLEF.

USE OF REVENUES

General budget, including debt reduction

Revenues from UK ETS auctions accrue to the general budget and are not earmarked.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, and allowances remain valid in future years of the scheme.

Limited and implicit borrowing is allowed, i. e., the use of UKAs allocated for free in the current year for compliance in the previous year.

OFFSET CREDITS

The use of offset credits is not allowed. The UK ETS Authority intend to include engineered GGRs in the system.

LINKS WITH OTHER SYSTEMS

The UK ETS is not linked with any other system.
The UK government has indicated it is open to the possibility of internationally linking the scheme in the future but has not made any decision on preferred linking partners. The UK-EU Trade and Cooperation Agreement (TCA) stipulates that the jurisdictions "shall give serious consideration to linking their respective carbon pricing systems in a way that preserves the integrity of these systems and provides for the possibility to increase their effectiveness".

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: UK Carbon Price Support (CPS)
The CPS, introduced in 2013, is an additional GBR 18/tCO_2 (USD 23/tCO_2) tax on emissions from fossil fuel power generation in Great Britain (excluding Northern Ireland), on top of the UK ETS carbon price.

Domestic crediting mechanisms: UK Woodland Carbon Code and Peatland Code

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions, and allocation is based on auctions or free allocation.

COMPLIANCE PERIOD

One year. Covered entities have until the end of April of the following year to surrender allowances. These provisions are the same as under the EU ETS.

MRV

REPORTING FREQUENCY: Annual self-reporting.

VERIFICATION: Verification by independent accredited verifiers is required before the end of March each year.

FRAMEWORK: The UK ETS has adopted the MRV framework of Phase 4 of the EU ETS, including discretionary changes regarding reduced frequency of improvement reporting and the simplification of monitoring plans.

PENALTIES AND ENFORCEMENT

Regulated entities must pay an excess emissions penalty for each tCO_2e emitted not matched by a surrendered allowance. This penalty is equal to GBP 100 per tCO_2e (USD 127.81) initially but is adjusted for inflation over time. Paying this penalty does not remove the obligation to surrender an allowance. A new deadline for any outstanding deficit will be set, and non-compliance with this will result in a penalty of 1.5x the relevant carbon price, and may lead to escalating daily GBP 1,000 penalties if it continues to remain unmet. The names of non-compliant operators are published.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, non-compliance entities (domestic and international), and individuals.

MARKET TYPES:

Primary: The majority of allowances are allocated through auctioning. Auctions are held every two weeks, with dates and allowance amounts set out in the auction calendar. Compliance entities, financial institutions, and business groupings and public bodies acting on behalf of compliance entities can participate. Auctions are managed by ICE Futures Europe.

Secondary: UKAs are traded on the ICE Futures Europe exchange. Contracts for daily futures, futures, and options on futures contracts are available. Participants may also trade allowances over the counter. Participants in the secondary market must have an account in the UK Registry. Participants trading on the exchange must meet the requirements of the ICE Futures Exchange.

LEGAL STATUS OF ALLOWANCES: The "Recognized Auction Platforms (Amendment and Miscellaneous Provisions Regulations 2021) Affirmative Statutory Instrument" establishes UKAs as financial instruments.

MARKET STABILITY PROVISIONS

COST CONTAINMENT MECHANISM (CCM)

Instrument type: Price-based instrument

Functioning: The UK ETS has a CCM to avoid price spikes by auctioning additional allowances. If the CCM is triggered, regulators can decide on whether and how to intervene. The intervention can include: redistributing allowances between the current year's auctions; bringing forward UKA supply from future years; drawing from the Market Stability Mechanism Account; auctioning up to 25% of remaining allowances in the NER; or auctioning allowances left unallocated from the industry cap in a given year. The UK ETS Authority has publicly consulted on the current design of the CCM and is currently analyzing responses to the consultation.

The CCM is triggered if, for six consecutive months, the allowance price is three times the average allowance price in effect in the UK in the two preceding years.

AUCTION RESERVE PRICE (ARP)

Instrument type: Set price

Functioning: To ensure a minimum level of ambition in the transition from the EU ETS to the UK ETS, an ARP of GBP 22 (USD 28.12) is in place. The UK ETS Authority has publicly consulted on maintaining the ARP and sought views on the level and design of the ARP.

SUPPLY ADJUSTMENT MECHANISM (SAM)

The UK ETS Authority launched a consultation in December 2023 on the potential introduction and design of a SAM. The UK Government is currently analyzing responses to the consultation.

OTHER INFORMATION

INSTITUTIONS INVOLVED

UK Climate Change Committee (CCC): An independent, statutory body established under the Climate Change Act 2008. Its primary role is to advise the UK government and devolved administrations on emissions targets and on the progress in their achievement. The CCC provides expert advice on the design and implementation of the UK ETS, on its effectiveness in reducing emissions and reports on its progress.

UK ETS Authority: Overall responsibility for designing and implementing the UK ETS. It is composed of the representatives of the UK Government (Department for Energy Security and Net Zero (DESNZ), HM Treasury (HMT) and Department for Transport (DfT)), Scottish Government, Welsh Government, and the Department of Agriculture, Environment and Rural Affairs of Northern Ireland.

Regulators (Environment Agency; Scottish Environment Protection Agency; Natural Resources Wales; Northern Ireland Environment Agency; Offshore Petroleum Regulator for Environment and Decommissioning): Responsible for enforcing compliance with the UK ETS Regulations. The Environment Agency serves as the registry administrator and is responsible for the management of accounts in the UK Emissions Trading Registry.

EVALUATION/ETS REVIEW

Phase 1 includes two mandatory whole-system reviews. The first review was published at the end of 2023, and the second must be published by the end of 2028.

The UK ETS evaluation programme supports the mandatory review process. The report for Phase 1 of the UK ETS evaluation was published in December 2023.[4]

Phase 2 of the evaluation, assessing quantitative impacts of the UK ETS, is scheduled to be published in 2026.

In addition to the whole-system reviews, the UK ETS Authority is in the process of reviewing the future of UK ETS markets policy and free allocation for stationary installations. The UK ETS Authority is also consulting on expansion of scope to the waste and maritime sectors and to recognize non-pipeline transport for CCS as well as integration of engineered GGRs. The UK ETS Authority is also considering the approach to implementing CORSIA, including options for how CORSIA and the UK ETS should interact on flights in scope of both schemes.

REGULATORY FRAMEWORK

→ **The Greenhouse Gas Emissions Trading Scheme Order 2020**
→ **The Greenhouse Gas Emissions Trading Scheme Auctioning Regulations 2021**

4 The report is **available online.**

UKRAINE

- **Adopted “Law on Basic Principles of State Climate Policy” mandates an ETS**
- **Pilot phase to commence in 2028**
- **Draft Action Plan for an ETS until 2033 currently under development**

ETS DESCRIPTION

Ukraine plans to establish a national ETS in line with its obligations under the “Ukraine-EU Association Agreement”, which entered into force in September 2017. Issues related to climate change are addressed in Article 365 (c) Title V and in Annex XXX to the agreement, which outlines steps for the implementation of a national ETS, including:

- adopting national legislation and designating a competent authority or authorities;
- establishing a system for identifying relevant installations and GHGs;
- developing a national allocation plan to distribute allowances;
- establishing a system to issue allowances to be traded domestically among installations in Ukraine; and
- establishing MRV and enforcement systems, as well as public consultations procedures.

The country has since established a national MRV system, with its scope partially covering activities similar to the EU ETS, to provide a solid basis for the upcoming ETS. Since 2021, the MRV procedures have been applied by regulated installations. From 2022, due to the Russian war of aggression against the country, the MRV system was implemented on a voluntary basis. In January 2025, the Ukrainian Parliament reintroduced mandatory reporting under the MRV system. Covered installations will have to report their 2024 emissions. For those located in areas where military operations are taking place or in the temporarily occupied territory, some flexibility applies.

In October 2024, the Ukrainian Parliament approved the Law on the Basic Principles of State Climate Policy, mandating the establishment of an ETS. According to the law, the Ukrainian ETS will have an absolute cap on emissions for covered sectors and will be established by governmental decree.

From 2023, work on the “Roadmap on the Introduction of a GHG ETS” has been ongoing. In November 2024, a draft governmental decree “On approval of an action plan for the national GHG ETS development”, produced as part of this process, was published for a one-month stakeholder consultation. The action plan stipulates that the pilot stage of the ETS will commence from 2028, with full functioning of the system starting “not earlier than in three years after martial law will be halted or cancelled”.

EMISSIONS & TARGETS OF UKRAINE

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	170.3	71%
Industrial processes	21.6	9%
Agriculture	31.8	13%
Waste	14.6	6%
Total	**238.3**	

Energy industries	68.9	29%
Manufacturing industries and construction	13.2	6%
Transport	27.2	11%
Commercial, institutional, and residential	14.2	6%
Other energy	46.7	20%

GHG REDUCTION TARGETS

By 2030: Economy-wide net domestic reduction of 65% in GHG emissions compared to 1990 (updated NDC)
By 2050: Climate neutrality (Law on the Basic Principles of State Climate Policy)

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: CO_2 tax

COMPLIANCE

MRV

MONITORING: Monitoring is required annually for CO_2 emissions from the following activities:

- fuel combustion in installations over 20 MW;
- oil refining;
- the production of coke, metal ores, pig iron, steel, ferrous alloys including ferroalloys (if the total nominal thermal capacity of combustion units exceeds 20 MW), cement clinker, lime or the calcination of dolomite or magnesite (with a production capacity exceeding 50 tonnes per day), nitric acid, ammonia, and glass production (with a production capacity exceeding 20 tonnes per day);
- N_2O emissions from the production of nitric acid.

Monitoring takes place according to Monitoring Plans, approved by the Ministry of Environmental Protection and Natural Resources (MEPNR).

REPORTING: Covered entities are obliged to submit a verified annual report on GHG emissions to the MEPNR by the end of March of the following year.

VERIFICATION: Emissions data reports and their underlying data require third-party verification by an accredited auditor.

FRAMEWORK: Law on the principles of monitoring, reporting, and verification of GHG emissions. Order of the Cabinet of Ministers on approval of the procedure for monitoring and reporting on GHG emissions. Order of the Cabinet of Ministers on verification of operators reports.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Environmental Protection and Natural Resources of Ukraine: Competent authority for implementing the MRV law and the upcoming ETS.
National Accreditation Agency of Ukraine: Accredits third-party verifiers.
State Ecological Inspection of Ukraine: Controlling compliance with MRV requirements.

REGULATORY FRAMEWORK

- → **Law on the Basic Principles of State Climate Policy**
- → **Law on the principles of monitoring, reporting and verification of greenhouse gas emissions** (MRV law)
- → **Order of the Cabinet of Ministers on approval of the procedure for monitoring and reporting on GHG emissions**
- → **Association Agreement between the European Union and its Member States, of the one part, and Ukraine, of the other part**

NORTH AMERICA

ALBERTA

TECHNOLOGY INNOVATION AND EMISSIONS REDUCTION REGULATION

- **Compliance based on intensity of output of each covered facility**
- **Five different means of compliance: on-site emissions reductions, offset credits, sequestration credits, or emissions performance credits, and/or paying a set price into the TIER Fund**
- **First industrial carbon pricing instrument in North America**

ETS DESCRIPTION

The Alberta Technology Innovation and Emissions Reduction (TIER) Regulation is the province's industrial carbon pricing and emissions trading system. The "Technology Innovation and Emissions Reduction Implementation Act" paved the way for the system, which was implemented in January 2020, replacing former regulations for carbon pricing that had been in place since 2007. It aims to help industrial facilities identify innovative ways to reduce emissions and invest in clean technology, supporting competitiveness and resource efficiency.

The TIER Regulation applies to: (1) large emitters, defined as those that have emitted equal to or more than 100,000 tCO_2e in 2016, or any subsequent year, or those that have imported more than 10,000 tonnes of hydrogen in 2023 or any subsequent year; (2) opted-in facilities with emissions under 100,000 tCO_2e/year but more than 2,000 tCO_2e/year; and (3) opted-in aggregate facilities that include two or more small conventional oil and gas facilities.

Covered entities must reduce their emissions intensity (emissions per unit of production) by a set percentage each year. Under the facility-specific benchmark methodology, a facility is required to reduce emissions intensity relative to the facility's historical production-weighted average emissions intensity. High performance benchmarks are set based on the average emissions intensity of the most emissions-efficient facilities. In most cases, a covered facility is subject to the less stringent of the two benchmarks, and both benchmarks tighten at a rate of 2% per year.

Covered entities that outperform their targets generate emissions performance credits (EPCs), which can be sold or used in future years. Entities must fulfil a compliance obligation for emissions that exceed the annual emissions limit, and the annual emissions limit is based on an emissions intensity benchmark. Those that exceed their limits are required to provide compensation by either:

(1) purchasing EPCs from other regulated facilities;
(2) paying into the TIER fund to purchase a fund credit for each tonne of excess emissions produced at the prescribed TIER Fund Price (CAD 80 [USD 58.42] per tonne in 2024, rising by CAD 15 [USD 10.95] each year until it reaches CAD 170 [USD 124.15] per tonne in 2030);
(3) purchasing emission offset credits generated within Alberta under an approved offset protocol; or
(4) using capture recognition tonnes or sequestration credits.

In 2022, TIER covered about 160 $MtCO_2e$ of emissions which represents about 60% of Alberta's total emissions for the year. The total emissions limit under the Alberta TIER Regulation is the sum of the annual emissions limits based on emissions intensity benchmarks for all covered entities. The limit is therefore not set *ex-ante* and is only known after the compliance period ends.

The TIER Regulation meets the Canadian federal stringency requirements for carbon pollution pricing system while achieving emissions reductions using a cost-efficient approach that is tailored to Alberta's industries and priorities.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- POWER
- INDUSTRY
- FORESTRY FUEL USE

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, PFCs, NF_3, SF_6

OFFSET CREDITS

Domestic offset credits are allowed with quantitative limits.

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set TIER Fund price: CAD 80 (USD 58.42)

TOTAL REVENUE

CAD 4.5 billion (USD 3.5 billion) since the beginning of the program
CAD 564 million (USD 412 million) in 2024 for the 2023 compliance year

YEAR IN REVIEW

The TIER system amendments, effective January 2023, saw full implementation across regulated facilities for the year 2024. Some of these amendments included:

- increase of carbon price/TIER fund price from 2023 to 2030 following minimum federal requirements;
- lower opt-in threshold for facilities;
- inclusion of flaring emissions in the total regulated emissions calculation for aggregate facilities;
- increased benchmark tightening;
- CCUS treatment and related new credit classes;
- changes to credit use limit and credit expiry; and
- Cost Containment Program updates.

EMISSIONS & TARGETS OF ALBERTA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), 2022

(in $MtCO_2e$, share of total in %)

Energy	235.0	87%
Industrial processes	12.5	5%
Agriculture, forestry and other land use[4]	18.0	7%
Waste	4.2	2%
Total	**269.9**	

Energy industries	122.5	45%
Manufacturing industries and construction	9.3	3%
Transport	37.8	14%
Commercial, institutional, and residential	17.1	6%
Other energy	48.4	18%

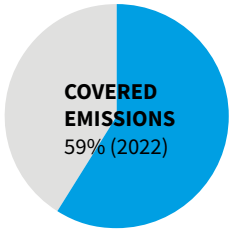
GHG REDUCTION TARGETS

By 2050: Carbon neutrality ambition ("Alberta Emissions Reduction and Energy Development Plan")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 160 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under TIER is the sum of the bottom-up facility-level emissions limits for all individual covered entities. However, the bottom-up emissions limits do not represent an absolute cap.

In the 2023 calendar year, TIER-covered entities emitted 164.7 $MtCO_2e$.

SECTORS AND THRESHOLDS

SECTORS: Mining and extractives, power, industry, forestry fuel use

INCLUSION THRESHOLDS: Coverage is mandatory for facilities with emissions equal to or exceeding 100,000 tCO_2e GHGs in 2016, or any subsequent year, or facilities that import more than 10,000 tonnes of hydrogen in 2023 or any subsequent year.

Facilities with annual emissions fewer than 100,000 tCO_2e may opt-in to the TIER system if they compete against a facility regulated under TIER, or have annual emissions greater than 2,000 tCO_2e and are in an emissions-intensive, trade-exposed (EITE) sector.

The owner or operator of multiple small conventional oil and gas facilities can also opt-in to the TIER system by applying to be covered as an aggregate facility.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Facilities (stationary fuel combustion, industrial processes, venting, flaring, fugitive/other, on-site transportation, waste and wastewater, formation CO_2)

NUMBER OF ENTITIES

In the 2023 calendar year, TIER covered 537 facilities. The number of sites is orders of magnitude higher as the opted-in conventional oil and gas facilities aggregate numerous small operations.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allocation is determined in relation to annual emissions limits based on emissions intensity benchmarks. Entities that emit less than their emissions limit receive a corresponding amount of EPCs for free from the Government of Alberta. This is similar to free allocation based on benchmarks. These compliance units can be banked or sold to entities that exceed their emissions limits.

Facilities with emissions above their limit must provide compensation by a prescribed deadline for each tCO_2e above the limit.

Emissions reduction requirements under the TIER Regulation are set using two benchmarking approaches:

1. High-performance benchmarks (HPBs) that recognize and reward the most efficient facilities in an industry, or
2. Facility-specific product benchmarks (FSBs) which set a reduction target relative to a facility's historic performance.

The reduction target is being tightened at a rate of 2% per year for FSBs and HPBs, including heat, hydrogen, and electricity, since 2023. For oil sands mining, in situ and upgrading, the annual tightening rate is 4% in 2029 and 2030.

Facilities comply with the least stringent of either the FSB or the HPB.

HPB approach: Benchmarks are set based on the average emissions-intensity of the most emissions-efficient facilities producing each benchmarked product over reference years. If fewer than ten facilities are producing a product, the benchmark is set based on the emissions intensity of the best-performing facility. Where a facility produces a product that has not received a HPB, the FSB applies.

FSB approach: Facilities are required to reduce emissions intensity relative to the facility's historical production-weighted average emissions intensity. FSBs are not applicable for industrial heat or hydrogen or for facilities in the electricity sector.

A facility that initiated the capture of CO_2 and holds the sequestration credit generated from the associated emission offset may apply to convert the sequestration credit into a capture recognition tonne. Capture recognition tonnes may only be used for the year in which the CO_2 was sequestered, and they cannot be traded. Capture recognition tonnes are deducted from the calculation of a facility's total regulated emissions and are therefore not subject to the credit use limit in TIER. Sequestration credits are similar to EPCs and can be traded, banked or used to meet a facility's compliance obligation. Sequestration credits expire six years from the year the sequestration occurred.

USE OF REVENUES

General budget, including debt reduction

Climate mitigation & adaptation

Low-carbon innovation

Revenues (i. e., compensation payments of covered facilities that exceed their set emissions limit) are designated to the TIER Fund, which funds a variety of GHG reduction programs and low-carbon innovation projects and climate resilience (e. g., investment in carbon capture, utilization and storage [CCUS]).

Payments into a central fund for compliance purposes from 2007 to 2022 totaled approximately CAD 4 billion (USD 2.9 billion).

Fund investments in technology and innovation have been approximately CAD 2.8 billion (USD 2 billion) since 2009.

In total, Alberta has invested or committed approximately CAD 1.9 billion (USD 1.4 billion) to CCUS projects and programs since 2009.

FLEXIBILITY & LINKING

BANKING AND BORROWING

EPCs can be banked, transferred, or retired by facilities subject to the TIER Regulation to meet their reduction requirements. The expiry length for EPCs varies based on reduction year and ranges from five to eight years. Borrowing is not allowed.

OFFSET CREDITS

The use of Alberta-based emissions offset credits is allowed. The eligibility criteria for these credits are set in the TIER Regulation, the "Standard for GHG Emission Offset Project Developers", and the "Carbon Offset Emission Factors Handbook".

The government approves eligible project types through the development of methodologies (quantification protocols) for the generation of Alberta emission offset credits. A quantification protocol outlines the eligible activity or activities and provides monitoring, measuring, and quantification procedures for the emission or net sequestration reductions resulting from the implementation of an eligible activity.

Emission offsets created using the carbon capture and storage (CCS) or enhanced oil recovery quantification protocols may be converted at the request of the emission offset project developer to sequestration credits. This conversion cannot be undone. Sequestration credits can be traded, banked or used to meet a facility's compliance obligation. These credits expire six years from the year the sequestration occurred. Sequestration credits are eligible for stacking with the federal Clean Fuels Regulation, meaning that the same activity can generate credits both in TIER and the CFR.

QUALITATIVE LIMIT: High-level criteria for emissions offset projects include, but are not limited to, that the emission reduction or net sequestration activity:

- must occur in Alberta;
- must meet additionality requirements (including legal additionality);
- must result from an action taken that is not required by law;
- must result from action taken and occurring after January 2002;
- must be real and demonstrable;
- must be quantifiable and measurable using replicable techniques; and
- must not have reduced the total covered emissions of a TIER facility.

QUANTITATIVE LIMIT: The use of emission offset credits and EPCs to meet a facility's total compliance obligation was limited to 60% in 2023 and increases by 10 percentage points annually until it reaches 90% in 2026. The expiry length for offsets is set at six years including the reduction year.

Transactions between buyer and seller are managed outside the Alberta Emissions Offset Registry; the registry is a tracking and listing service.

7.2 million credits were surrendered for compliance in 2023. As of the end of 2024, over 67 million offset credits had been retired for carbon pricing compliance obligations in Alberta since 2007, with a further 24 million credits available in the market. Credits stem mainly from activities such as agricultural management, renewable energy generation, CCUS, and methane reductions from pneumatic devices, among other eligible activities. Over 400 carbon offset projects have been registered since 2007, and 18 different carbon offset protocols are available.

LINKS WITH OTHER SYSTEMS

The TIER system is not linked with any other system.

A subset of TIER offset types are recognized as compliance units under the Canadian (federal) output-based pricing system.

Some sequestration credits generated in the TIER system allow projects to also be recognized under the Canadian (federal) Clean Fuel Regulations.

Covered facilities can become eligible for certain exemptions from the Canada federal fuel charge.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Domestic offsetting mechanism: Alberta Emission Offset System
Carbon tax: Canada Federal Fuel Charge

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit per tCO_2e that exceeds the facility's annual emissions limit.

The five compliance options under the TIER system are:

- On-site emission reductions;
- Use of EPCs (produced and traded by facilities that exceed their emission reduction obligations);
- Use of Alberta-based emissions offset credits
- Use of Alberta-based sequestration credits; and
- Purchase fund credits by paying into the TIER fund at the prescribed price, which is equivalent to the Canadian federal minimum carbon price of CAD 95 (USD 69.38) per tCO_2e for the 2025 compliance year and rising annually by CAD 15 (USD 10.95) to reach CAD 170 (USD 124.15) per tCO_2e in 2030.

Maximum proportion of compliance that can be met with credits: 70% of a facility's total compliance obligation in 2024, increasing by ten percentage points per year until it reaches 90% in 2026.

COMPLIANCE PERIOD

One year.

MRV

REPORTING: All facilities are required to submit verified annual compliance reports yearly by the end of June of the following year. Facilities with emissions in excess of 1 million tCO_2e per year are also obliged to submit an annual compliance forecasting report.

VERIFICATION: Reports must be verified by a qualified third-party assurance provider.

FRAMEWORK: The rules for reporting GHG emissions are outlined in the TIER Regulation and "Alberta Greenhouse Gas Quantification Methodologies".

PENALTIES AND ENFORCEMENT

If a covered entity does not meet its compliance obligation, the maximum amount of the fine can be up to CAD 400 (USD 292.10) for every tCO_2e by which it exceeds the allowable emissions for the entity. Fines are limited to CAD 50,000 (USD 36,513) for individuals and CAD 500,000 (USD 365,134) for corporations.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned.

Secondary: Covered entities may purchase EPCs from other regulated entities that have outperformed their compliance obligation. Transactions of EPCs are conducted via the Alberta Emission Performance Credit Registry (EPCR), which also handles the allocation, transfer, and retirement of EPCs. Transactions of offset credits and sequestration credits are conducted via the Alberta Emissions Offsets Registry.

LEGAL STATUS OF ALLOWANCES: EPCs are considered revocable licenses.

MARKET STABILITY PROVISIONS

TIER FUND

Instrument type: Set price or set price trajectory

Functioning: To compensate for emissions exceeding the facility's annual emissions limit, covered entities can purchase and surrender fund credits by paying into the TIER Fund at the prescribed TIER Fund price. The TIER Fund price, which functions as a price ceiling, is CAD 95 (USD 69.38) per tCO_2e for the 2025 compliance year; it will increase by CAD 15 (USD 10.95) per year, reaching CAD 170 (USD 124.15) per tCO_2e in 2030.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Government of Alberta, Alberta Environment and Protected Areas: Responsible for establishing the regulatory framework of the TIER system, enforcement of the regulation, and allocation of EPCs.

Alberta Carbon Registries: Comprises the Alberta Emission Performance Credit Registry, which handles the allocation, transfer, or retirement of EPCs, and the Alberta Emissions Offset Registry, which handles the registration and transactions of emission offset credits.

Both registries are operated by CSA Group in coordination with the Government of Alberta. The CSA Group provides the infrastructure and public transparency for both registries.

EVALUATION/ETS REVIEW

The Government of Alberta completed its latest review of the TIER Regulation in December 2022. The TIER Amendment Regulation came into force at the beginning of 2023 and will stay in place until 2030. An interim review of the TIER regulation must be completed by the end of 2026.

REGULATORY FRAMEWORK

- → Emissions Management and Climate Resilience Act (EMCRA)
- → Technology Innovation and Emissions Reduction Regulation (TIER Regulation)
- → TIER information page
- → Order in Council 403/2022 – TIER Regulation Amendments
- → Alberta Emissions Reduction and Energy Development Plan
- → Standard for developing TIER benchmarks
- → Alberta's greenhouse gas emissions reduction performance
- → Alberta industrial GHG compliance information
- → Alberta Greenhouse Gas Quantification Methodologies

BRITISH COLUMBIA

B.C. OUTPUT-BASED PRICING SYSTEM

- The B.C. OBPS replaced the voluntary CleanBC Industrial Incentive Program in April 2024
- Compliance required for certain products at facilities that emit over 10,000 tCO_2e per year
- Compliance based on emissions that exceed an allowable intensity of output of each covered facility
- The B.C. OBPS is aligned with the Canada federal benchmark criteria

ETS DESCRIPTION

The British Columbia Output-Based Pricing System (B.C. OBPS) aims to reduce emissions from industrial operations within the province. It is an intensity-based ETS in which covered entities must fulfil a compliance obligation for emissions that exceed the facility's annual emissions limit. These limits are based on product-specific performance standards, which are emissions intensity benchmarks. The system applies to producers of certain regulated industrial products (mainly in mining and oil and gas) that emit more than 10,000 tCO_2e per year.

The system began in April 2024, replacing the CleanBC Industrial Incentive Program (CIIP). The CIIP encouraged cleaner industrial operations by reducing carbon tax costs for facilities that could demonstrate their operations were among the lowest emitting for their sector.

The B.C. OBPS follows the Canadian federal carbon price path and ensures a price incentive for industrial emitters to reduce GHG emissions through a performance-based system. Facilities that emit under their annual emission limit earn credits. For facilities that emit over their emission limit, the B.C. OBPS provides flexible compliance options to meet compliance obligations. Flexible payment options include using earned credits, B.C. offsets, or making a direct payment to the government.

The total emission limit under the B.C. OBPS is the sum of the bottom-up output-based emissions limits for all individual covered entities. However, the bottom-up emissions limits do not represent an absolute cap.

YEAR IN REVIEW

April 2024 marked the commencement of operations of the B.C. OBPS. It also saw the winding down of the CIIP program and an increase in B.C.'s carbon tax rate, from CAD 65 (USD 47.47) to CAD 80 (USD 58.42) per tCO_2e.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, SF_6, PFCs

OFFSET CREDITS

Domestic offset credits are allowed, with quantitative limits

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

CAD 80 (USD 58.42)

EMISSIONS & TARGETS OF BRITISH COLUMBIA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	55.7	89%
Industrial processes	3.2	5%
Agriculture, forestry and other land use[4]	2.2	3%
Waste	1.8	3%
Total	**62.9**	

Energy industries	9.3	15%
Manufacturing industries and construction	4.1	6%
Transport	28.8	45%
Commercial, institutional, and residential	7.9	12%
Other energy	5.7	11%

GHG REDUCTION TARGETS

By 2030: 40% below 2007 levels
By 2040: 60% below 2007 levels
By 2050: 80% below 2007 levels

ETS COVERAGE & PHASES

CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under the B.C. OBPS is the sum of the bottom-up output-based emissions limits for all individual covered entities. However, the bottom-up emissions limits do not represent an absolute cap.

SECTORS AND THRESHOLDS

SECTORS: Mining and extractives; Industry

INCLUSION THRESHOLDS: Participation is mandatory for producers of certain industrial products covered under the "Greenhouse Gas Industrial Reporting and Control Act" (GGIRCA) which emit greater than or equal to 10,000 tCO_2e/year. Industrial operations within covered sectors that emit less than 10,000 tCO_2e/year may opt-in to the B.C. OBPS on a voluntary basis; those that do not opt-in remain subject to the B.C. Carbon Tax.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

Approximately 120 facilities

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Industrial facilities' emissions are assessed against facility-specific emission limits, which are based on a product-specific performance standard. Facilities that emit less than their emissions limit receive credits (compliance units), free of charge, from the government of British Columbia, corresponding to the number of tCO_2e below the limit. This is similar to free allocation based on benchmarks. These credits can be banked or sold to entities that exceed their emissions limits. Earned credits do not have expiry dates but are subject to usage limits (see 'Compliance Mechanism' section).

The performance standards are calculated using the three-year provincial production weighted average emissions intensities for 2019 to 2021. Then a reduction factor, which determines the percentage of priced emissions for a specific product, is applied. The reduction factor is set at 65% for most products, 80% for copper mining, 85% for lead-zinc smelting, 90% for cement, chemical processing and lime products, 95% for aluminum smelting.

Tightening rates ensure a yearly gradual increase in the OBPS's stringency. The B.C. OBPS tightening rate is set at 1% for all emissions for all products except for those from industrial processes, which do not change.

USE OF REVENUES

Climate mitigation

Assistance for individuals, households, and businesses

British Columbia does not have laws or formal requirements dictating the use of carbon revenues, but the government does make commitments with respect to its use of carbon revenues. A portion of revenues paid by industry regulated by the B.C. OBPS will be directed to continuing the CleanBC Industry Fund, which supports the development, trial, and deployment of projects that reduce GHG emissions from large industrial operations. The rest will be allocated to the

Climate Action Tax Credit, a quarterly payment that helps offset the impact of carbon taxes paid by individuals and families. The use of carbon revenues is notional (i. e., carbon revenues flow through general revenue before corresponding amounts are allocated to specific programs).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking allowed.
Borrowing is not allowed.

OFFSET CREDITS

QUALITATIVE LIMITS: Only offsets from projects that are approved through an eligible protocol under GGIRCA, then validated, and verified through the B.C. Carbon Registry by an accredited validation and verification body, are allowed as a compliance option. Under the B.C. OBPS, offset units are limited to those generated within three years of the beginning of the compliance year.

QUANTITATIVE LIMITS: The use of offsets to meet a facility's compliance obligation is limited (see 'Compliance Mechanism' section).

LINKS WITH OTHER SYSTEMS

The B.C. OBPS is not directly linked with any other system.

A subset of B.C. OBPS offset types are recognized units under the Canadian (federal) OBPS.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: B.C. Carbon Tax
Domestic offsetting mechanism: B.C. Carbon Registry

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must pay for each tCO_2e that exceeds their annual emissions limits. To meet their obligations, facilities can use a combination of compliance units and direct payments (compliance charge).

Compliance units can be earned credits or offset units.

The compliance charge is equivalent to the Canadian federal minimum carbon price of CAD 95 (USD 69.38) for 2025; it will increase by CAD15 (USD 10.95) per year, reaching CAD 170 (USD 124.15) per tCO_2e in 2030.

The use of compliance units is limited. In 2025, a maximum of 40% of the compensation can be met with compliance units (earned credits and/or offset units), reducing to 30% from 2026 to 2030.

COMPLIANCE PERIOD

One year

MRV

REPORTING: Facilities that emit greater than or equal to 10,000 tCO_2e per year – and those that have emitted more than 10,000 tCO_2e in any of the previous three years – must report their GHG emissions annually by 31 May of the year following the compliance period.

VERIFICATION: Facilities with emissions greater than or equal to 25,000 tCO_2e during either the current reporting cycle or any of the previous three reporting cycles must have their emission reports verified by an accredited third party.

FRAMEWORK: The B.C. OBPS uses the MRV framework regulated under the GGIRCA.

PENALTIES AND ENFORCEMENT

Late penalties automatically apply in cases where a facility fails to meet its compliance obligation by the deadline. Automatic late penalties increase until the compliance obligation is met. Detailed regulations are published in the "**GHG Emissions Administrative Penalties and Appeals Regulation**" under the GGIRCA.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned.

Secondary: Earned credits can be traded or transferred between facilities operating in the province that are owned by the same operator. Earned credits can also be traded between industrial operators participating in the B.C. OBPS.

LEGAL STATUS OF ALLOWANCES: regulatory instruments

MARKET STABILITY PROVISIONS

COMPLIANCE CHARGE

Instrument type: Price or set price trajectory

Functioning: To compensate for emissions exceeding the facility's annual emissions limit, a facility can use direct payments (compliance charge) to meet the facility's compliance obligations at the full carbon price for that year. This price acts as a price ceiling and is aligned with the federal benchmark carbon price (CAD 95 [USD 69.38] in 2024). The price increases by CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Energy and Climate Solutions' Climate Action Secretariat:
Responsible for establishing the regulatory framework of the B.C. OBPS system and the allocation of earned credits.

EVALUATION/ETS REVIEW

To ensure continuous improvement of the system, the B.C. OBPS undergoes an annual review.

By 2026, the Canadian government will undertake an interim review of the federal benchmark which will include a review of the provincial carbon pricing systems to make sure that they meet the federal benchmark criteria.

REGULATORY FRAMEWORK

- → Greenhouse Gas Industrial Reporting and Control Act (GGIRCA)
- → Greenhouse Gas Emissions Reporting Regula-tion (GGERR)
- → B.C. OBPS Technical Background and General Program Guidance for Industrial Operators
- → CleanBC Roadmap to 2030
- → B.C. Carbon Registry
- → B.C.'s Offset Protocol Policy

CALIFORNIA

CALIFORNIA CAP-AND-TRADE PROGRAM

- **One of the broadest carbon pricing systems in the US and among the largest globally**
- **Linked with Québec since 2014, ongoing discussions about potential linkage with Washington**
- **Rulemaking proposal is expected in 2025, following public consultations in 2023 and 2024**

ETS DESCRIPTION

The California Cap-and-Trade Program began operation in 2012 with the opening of its tracking system for allocation, auction distribution, and trading of compliance instruments. Compliance obligations started in January 2013. The program covers ~76% of the state's GHG emissions.

The program covers fuel combustion emissions in the mining, power, buildings, transport, industrial, agriculture, and forestry sectors, as well as industrial process emissions of about 400 covered facilities. Fuel use in buildings, transportation, and in agricultural, forestry, and fishing operations is covered upstream at the fuel supplier. Covered entities must surrender allowances for all their covered emissions. Allowances are distributed via a combination of auction, free allocation, and free allocation with consignment. The proceeds from auctioning are reinvested in projects that reduce emissions, strengthening the economy, public health, and the environment, especially in disadvantaged communities.

The California Cap-and-Trade Program is implemented under the authority of the California Air Resources Board (CARB). California has been part of the Western Climate Initiative (WCI) since 2007 and formally linked its program with Québec's in January 2014.

YEAR IN REVIEW

2024 marked significant progress towards the adoption of amendments to the California "Cap-and-Trade Regulation". The purpose of the proposed 2030 and 2045 climate targets is to reduce anthropogenic GHG emissions to 48% below 1990 levels by 2030 and 85% below by 2045, and to ensure that the program's design features continue to support the achievement of these goals. The scope of amendments is expected to include the reduction of the cap over the 2026 to 2045 period, a one-time increase in the prices of the cost containment provisions, measures to enhance market oversight, base offset provisions on the latest information and science, and update allowance allocation rules, among other things.

Public workshops seeking feedback on the amendments started in 2023 and continued in 2024. In April 2024, CARB released the Standardized Regulatory Impact Assessment (SRIA), which provided an initial economic evaluation of potential changes to the Cap-and-Trade Program.

In terms of international collaboration, California released a joint statement in March 2024 with Québec and Washington expressing interest in exploring program linkage.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- TRANSPORT
- POWER
- BUILDINGS
- INDUSTRY
- AGRICULTURE AND/OR FORESTRY FUEL USE

CAP

267.4 $MtCO_2e$ or $MtCO_2$ (2025)

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3, other fluorinated GHGs[1]

OFFSET CREDITS

Domestic[2]

ALLOCATION

Free Allocation: Output-based Benchmarking
Free Allocation: Fixed Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction settlement price: USD 35.21[3]

TOTAL REVENUE

USD 31.38 billion since beginning of program
USD 5.13 billion[4] in FY 2023–2024

1 Compliance obligations are currently only assessed on emissions of CO_2, CH_4, and N_2O.
2 California's Cap-and-Trade Program allows the use of compliance offset credits issued by linked jurisdictions (i.e., Québec).
3 "Current auction settlement price" in USD, weighted by the total number of government-owned and consignment current vintage allowances sold in the year for both California and Québec.
4 Does not include revenues from the auction of consigned allowances.

EMISSIONS & TARGETS OF CALIFORNIA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	297.7	80%
Industrial processes	34.2	9%
Agriculture, forestry and other land use[4]	29.1	8%
Waste	10.1	3%
Total	**371.1**	

Energy industries	97.1	26%
Manufacturing industries and construction	12.7	3%
Transport	140.9	38%
Commercial, institutional, and residential	36.7	10%
Other energy	10.4	3%

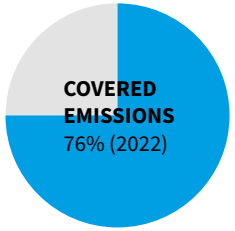
GHG REDUCTION TARGETS

By 2030: 40% reduction from 1990 GHG levels ("SB 32")
By 2045: Carbon neutrality and 85% reduction from 1990 anthropogenic GHG levels ("AB 1279")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 281.6 $MtCO_2e$



PHASES

FIRST COMPLIANCE PERIOD: Two years (2013 and 2014)
SECOND COMPLIANCE PERIOD: Three years (2015 to 2017)
THIRD COMPLIANCE PERIOD: Three years (2018 to 2020)
FOURTH COMPLIANCE PERIOD: Three years (2021 to 2023)
FIFTH COMPLIANCE PERIOD: Three years (2024 to 2026)

CAP

A cap limits the total emissions allowed in the system.

FIRST COMPLIANCE PERIOD: The system started in 2013 with a cap of 162.8 $MtCO_2e$, declining to 159.7 $MtCO_2e$ in 2014, at a rate of ~2% annually.

SECOND COMPLIANCE PERIOD: With the program expanding to include fuel distribution, the cap rose to 394.5 $MtCO_2e$ in 2015. The cap decline factor averaged 3.1% per year in the second compliance period, reaching 370.4 $MtCO_2e$.

THIRD COMPLIANCE PERIOD: The cap in the third compliance period started at 358.3 $MtCO_2e$ and declined at an average annual rate of 3.3% to 334.2 $MtCO_2e$ in 2020.

FOURTH COMPLIANCE PERIOD AND BEYOND: During the 2021 to 2030 period, the cap declines by about 13.4 $MtCO_2e$ each year, averaging ~4%, to reach 200.5 $MtCO_2e$ in 2030. The Cap-and-Trade Regulation sets a formula for declining caps after 2030 through 2050.

SECTORS AND THRESHOLDS

FIRST COMPLIANCE PERIOD: Covered sectors included those that have one or more of the following processes or operations: large industrial facilities (including cement, glass, hydrogen, iron and steel, lead, lime manufacturing, nitric acid, petroleum and natural gas systems, petroleum refining, and pulp and paper manufacturing, including cogeneration facilities co-owned/operated at any of these facilities); electricity generation; electricity imports; other stationary combustion; and CO_2 suppliers.

SECOND COMPLIANCE PERIOD AND BEYOND: In addition to the sectors listed above, suppliers of natural gas, suppliers of reformulated blendstock for oxygenate blending (i.e., gasoline blendstock) and distillate fuel oil (i.e., diesel fuel), suppliers of liquefied petroleum gas in California, and suppliers of liquefied natural gas are covered by the program.

INCLUSION THRESHOLDS: Facilities emitting greater than or equal to 25,000 tCO_2e per year. All electricity imported from specified sources connected to a specific generator with emissions greater than or equal to 25,000 tCO_2e per year is covered. Emissions associated with imported electricity from unspecified sources have a zero threshold, and all imported electricity emissions are covered using a default emissions factor.

OPT-IN COVERED ENTITIES: A facility in one of the covered sectors that emits less than 25,000 tCO_2e annually can voluntarily participate in the Program. Opt-in entities are subject to all registration, reporting, verification, compliance obligations, and enforcement applicable to covered entities.

POINT OF REGULATION

Upstream (buildings, transport, agriculture, and forestry fuel use); point source (mining and extractives, industry, in-state power generation); imported electricity at the point of first delivery onto California's electricity grid

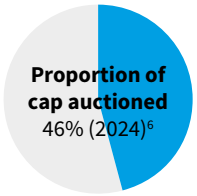
5 Only includes categories "3A Livestock" and "3C Aggregate Sources and Non-CO_2 Emissions Sources on Land".

TYPE OF ENTITIES
Installations, fuel distributors, electricity importers

NUMBER OF ENTITIES
~400 facilities

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION[6]



Allowances are distributed via free allocation, free allocation with consignment, and auction.

FREE ALLOCATION: Industrial facilities receive free allowances to minimize carbon leakage. For nearly all industrial facilities, the amount is determined by product-specific benchmarks, recent production volumes, a cap adjustment factor, and an assistance factor based on assessment of leakage risk.[7]

Leakage risk is divided into "low", "medium", and "high" risk tiers based on levels of emissions intensity and trade exposure for each specific industrial sector.

FIRST COMPLIANCE PERIOD: The Cap-and-Trade Regulation as adopted in 2011 set assistance factors of 100% for the first compliance period, regardless of leakage risk.

SECOND COMPLIANCE PERIOD AND BEYOND: For facilities with medium leakage risk, the original regulation included an assistance factor decline to 75% for the second compliance period and to 50% for the third. For facilities with low leakage risk, it included an assistance factor decline to 50% for the second compliance period and to 30% for the third. However, amendments to the Cap-and-Trade Regulation in 2013 delayed these assistance factor declines by one compliance period. Pursuant to "AB 398" adopted in 2017, all assistance factors were changed to 100% through 2030, citing continued vulnerability to carbon leakage. There is no cap on the total amount of industrial allocation, but the formula for allocation includes a declining cap adjustment factor to gradually reduce allocation in line with the overall cap trajectory.

Free allocation is also provided for transition assistance to public wholesale water entities, legacy contract generators, universities, public service facilities, and, during the period from 2018 to 2024, waste-to-energy facilities.

FREE ALLOCATION WITH CONSIGNMENT: Electrical distribution utilities and natural gas suppliers receive free allocation on behalf of their ratepayers.[8] These utilities must use the allowance value for ratepayer benefit and for GHG emissions reductions. All allowances allocated to investor-owned electric utilities and an annually increasing percentage of allowances allocated to natural gas suppliers must be consigned for sale at the state's regular quarterly auctions. Publicly owned electric utilities can choose to consign freely allocated allowances to auction or use them for their own compliance needs.

AUCTIONING:
- Auction share: ~65% of total California-issued vintage 2024 allowances made available through auction in 2024, which included allowances owned by CARB (~36%) and allowances consigned to auction by utilities (~29%).
- Auction volume: 181,214,582 (2024 vintage) 24,060,000 for advance auction (2027 vintage).
- Share of the 2024 cap auctioned as vintage 2024 CARB-owned allowances so far: 46%.

Unsold allowances in past auctions are gradually released for sale at auction after two consecutive auctions are held in which the clearing price is higher than the minimum price. However, if any of these allowances remain unsold after 24 months, they will be placed into CARB's price ceiling reserve or into the two lower reserve tiers (see 'Market Stability Provisions' section). To date, 37 million allowances originally designated for auction have been placed in reserves through these provisions.

USE OF REVENUES

- Climate mitigation
- Low-carbon innovation
- Pursuit of co-benefits, including reductions in air pollutants and corresponding health benefits
- Assistance for individuals, households, and businesses

Revenue from auction of California-owned allowances: Most of California's auction revenue goes to the Greenhouse Gas Reduction Fund, of which at least 35% must benefit disadvantaged and low-income communities. The funds are then distributed as California Climate Investments, which support projects that deliver significant environmental, economic, and public health benefits across the state. As of November 2023, USD 11 billion had been invested in 578,568

6 Excluding consigned allowances.
7 See Section 95891(c) of the Regulation for a minor exception.
8 See Section 95892 and Section 95893 of the Regulation for further details on the approach to free allocations for electrical distribution utilities and natural gas suppliers, respectively.

projects, with expected GHG reductions of 109.2 $MtCO_2e$. Over USD 8.1 billion has reached disadvantaged and low-income communities.

Revenue from auction of utility-owned allowances: Investor-owned electric utilities and natural gas suppliers are allocated allowances, a portion of which must be consigned to auction. Auction proceeds must be used for ratepayer benefit and for GHG emissions reductions.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed but is subject to a holding limit on allowances to which all entities in the system are held. The holding limit is based on the year's cap and decreases annually. Entities may also be eligible for a limited exemption from the holding limit based on their emissions levels to support meeting annual compliance obligations or obligations at the end of a three-year compliance period.

Borrowing is not allowed.

OFFSET CREDITS

The use of compliance offset credits is allowed. Such credits, issued by CARB or by the authority of a linked cap-and-trade system, are compliance instruments under the California Cap-and-Trade Program.

QUALITATIVE LIMIT: Currently, offset credits originating from projects carried out according to one of the following six compliance offset protocols are accepted as compliance instruments:

- US forest projects;
- urban forest projects;
- livestock projects (methane management);
- ozone-depleting substances projects;
- mine methane capture projects; and
- rice cultivation projects.

Compliance offset credits issued by jurisdictions linked with California (i. e., Québec) are eligible, subject to the quantitative limits described below.

To ensure environmental integrity, California's compliance offset program has incorporated the principle of buyer liability. The state may invalidate an offset credit that is later determined not to have met the requirements of its compliance offset protocol due to double counting, over-issuance, or regulatory non-conformance. The entity that surrendered the offset credit for compliance must then substitute a valid compliance instrument for the invalidated offset credit.

QUANTITATIVE LIMIT: The share of offsets that can be used by an entity to fulfill its compliance obligation is 4% per year for 2021 to 2025 emissions, and 6% for 2026 to 2030 emissions.

In addition to setting new quantitative limits on the use of offset credits, AB 398 set new limits on the types of offset credits that can be used to fulfill compliance obligations. Starting with compliance obligations for 2021 emissions, no more than 50% of any entity's offset usage limit can come from offset projects that do not provide direct environmental benefits to the state (DEBS).

Projects located within California are automatically considered to provide DEBS. Offset projects implemented outside of California may still result in DEBS, based on scientific evidence and project data provided. For example, a forest project outside California has been determined to provide benefits within California by improving the quality of water flowing through the state. Recent regulatory amendments specify the criteria used to determine DEBS.

In November 2022, California entities surrendered ~2.2 million offset credits for a portion of 2021 emissions. In November 2023, California entities surrendered ~2 million offset credits for a portion of 2022 emissions. In November 2024, California entities surrendered an additional 22 million credits for the remainder of their emissions during the fourth compliance period. In November 2024, Quebec entities surrendered 13.3 million California-issued offset credits for emissions during the fourth compliance period. Of the 35.2 million credits surrendered in 2024, 26.5 million were from US forest offset projects and 5.3 million from mine methane capture projects.

LINKS WITH OTHER SYSTEMS

California's program linked with Québec's in January 2014. The two expanded their joint market by linking with Ontario in January 2018 until the termination of Ontario's system in mid-2018. In March and September, 2024 joint statements from the governments of Québec, California, and Washington affirmed their commitment to explore potential linkage.

COMPLIANCE

COMPLIANCE MECHANISM

Each covered entity must surrender one compliance unit per tCO_2e of its covered emissions.

COMPLIANCE PERIOD

Except for the year following the last year of a compliance period, compliance instruments equal to 30% of the previous year's verified emissions must be surrendered annually, by the start of November. Compliance instruments equal to all remaining emissions must be surrendered by the start of November of the year following the last year of a compliance period.

MRV

REPORTING FREQUENCY: Annual

VERIFICATION: Emissions data reports and their underlying data require annual verification by an independent third party for all entities covered by the Program.

FRAMEWORK: Reporting is required for most emitters at or above 10,000 tCO_2e per year. They must implement internal audits, quality assurance, and control systems for the reporting program and the reported data.

PENALTIES AND ENFORCEMENT

A covered entity that fails to surrender sufficient compliance instruments to cover its verified GHG emissions at a relevant compliance deadline is automatically assessed an untimely surrender obligation. It is required to surrender the missing compliance instruments as well as three additional compliance instruments for each compliance instrument it failed to surrender.

Failure to meet this untimely surrender obligation would subject the entity to substantial financial penalties for its noncompliance, pursuant to "California Health and Safety Code Section 38580".

Separate and substantial penalties apply to mis-reporting or non-reporting under the "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions".

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Covered entities, opt-in covered entities, and voluntarily associated entities can participate in the program. Voluntarily associated entities are approved individuals or entities that intend to:

- purchase, hold, sell, or retire compliance instruments but are not covered under the program;
- operate a compliance offset project registered with CARB; or
- provide clearing services and derivative clearing services as qualified entities.

Voluntarily associated entities must be in the United States and have an approved account in the system registry, the Compliance Instrument Tracking System Service (CITSS). Additional eligibility criteria apply, including for individual market participants.

MARKET TYPES:

Primary: Allowances are made available through sealed-bid auctions. State-owned and consigned allowances are offered through quarterly allowance auctions organized jointly with Québec. Auctions are administered by WCI, Inc.

Secondary: Allowances, offset credits, and financial derivatives are traded in the secondary market on the Intercontinental Exchange (ICE), CME group, and Nodal Exchange platforms. Any company qualified to access these platforms can trade directly or through a future commission merchant. Companies can also trade directly over the counter but must have a CITSS account to take delivery of compliance instruments.

LEGAL STATUS OF ALLOWANCES: Allowances are defined as limited tradable authorizations to emit up to one tCO_2e. According to the "California Code of Regulations", an allowance does not constitute property or bestow property rights and cannot limit the authority of the regulator to terminate or limit such authorization to emit.

MARKET STABILITY PROVISIONS

AUCTION RESERVE PRICE

Instrument type: Price-based instrument

Functioning: The auction reserve price is set at USD 25.87 and CAD 24.73 (USD 18.06) per allowance in 2025.

It was initially established at USD 10.00 for the auction in 2012, and it increases annually by 5% plus inflation, as measured by the Consumer Price Index. The auction reserve price for each joint auction with Québec is determined using the minimum prices set annually by California in USD in accordance with Section 95911 of the California Cap-and-Trade Regulation and by Québec in CAD on accordance with Article 49 of the "Regulation respecting a cap-and-trade system for greenhouse gas emission allowances" (Québec Regulation). To manage multiple currencies, an Auction Exchange Rate is determined prior to each joint auction. The Auction Reserve Price for a joint auction is then determined as the higher of the Annual Auction Reserve Prices established in USD and CAD after applying the established Auction Exchange Rate (USD to CAD FX Rate).

ALLOWANCE PRICE CONTAINMENT RESERVE (APCR)

Instrument type: Price-based instrument

Functioning: In 2025, the two APCR tiers are set at USD 60.47 and USD 77.70. Tier prices increase each year by 5% plus inflation, as measured by the Consumer Price Index.

At the start of the program, about 4.9% of allowances from the 2013 to 2020 budgets were placed in an APCR. Prior to amendments mandated by AB 398 in 2017, these allowances were spread across three tiers. Pursuant to AB 398, from 2021 onward, these allowances have been moved into two price tiers and a price ceiling. Currently, there are approximately 66.8 million and 89.5 million allowances in the Tier 1 and 2 reserves, respectively.

Although no APCR sale has been held so far, CARB will offer one if auction settlement prices from the preceding quarter are greater than or equal to 60% of the lowest APCR price tier. CARB also always offers the third quarter APCR sale before the November compliance obligation deadline.

ALLOWANCE PRICE CEILING

Instrument type: Price-based instrument

Functioning: In 2025, the price ceiling is set at USD 94.92. The price ceiling increases each year by 5% plus inflation, as measured by the Consumer Price Index.

At the price ceiling, a covered entity can purchase allowances (or, if no allowances remain, "price ceiling units") up to the amount of its current unfulfilled emissions obligation. The revenues from the sale of price ceiling units will be used to purchase real, permanent, quantifiable, verifiable, enforceable, and additional emissions reductions on at least a tonne for tonne basis. Sales at the price ceiling will only be conducted if no allowances remain at the two lower APCR tiers and a covered entity has demonstrated that it does not have sufficient compliance instruments in its accounts for that year's compliance event. Currently, there are approximately 77.7 million allowances in the Price Ceiling Account.

OTHER INFORMATION

INSTITUTIONS INVOLVED

California Air Resources Board: Responsible for the design and implementation of the Cap-and-Trade Program.

Western Climate Initiative, Inc.: Non-profit organization that provides cost-effective administrative and technical solutions for supporting the coordinated development and implementation of participating jurisdictions' GHG emissions trading programs, such as administering auctions and maintaining the system registry (CITSS).

EVALUATION/ETS REVIEW

Pursuant to requirements in existing legislation (AB 32, AB 197, and AB 398), CARB must update the "California Climate Change Scoping Plan" at least every five years and must provide annual reports to various committees of the Legislature and the Board. The Scoping Plan provides updates on progress toward climate targets and lays out strategies to achieve them, including the role and level of effort accorded to different programs in the state's portfolio approach to climate mitigation. The latest update to the Scoping Plan was adopted in December 2022.

REGULATORY FRAMEWORK

→ Global Warming Solutions Act of 2006 (AB 32)
→ AB 398
→ 2018 amendments to the 2021 to 2030 period
→ Current regulation can be found on the CARB website

CANADA

FEDERAL OUTPUT-BASED PRICING SYSTEM

- **Backstop system established under the Greenhouse Gas Pollution Pricing Act**
- **In place since 2019, to ensure price incentive for industries to reduce GHG emissions**

ETS DESCRIPTION

Since 2019, carbon pricing has been in place across all Canadian provinces and territories. Based on the “Pan-Canadian Approach to Pricing Carbon Pollution” adopted in 2016, Canadian provinces and territories have the flexibility to design and implement their own pricing system tailored to local needs, provided it meets minimum national stringency criteria (known as the “federal benchmark”). To meet the federal benchmark, provinces and territories may design several types of carbon pricing systems, including:

- an explicit price-based system:
  → a carbon levy on fossil fuels; or
  → a combination (“hybrid”) of a carbon levy on fossil fuels and an intensity-based emissions trading system (ETS) for industrial emitters.
- a cap-and-trade system.

In accordance with the 2021 update of the "Pan-Canadian Approach to Pricing Carbon Pollution", the minimum national carbon price was set at CAD 65 (USD 47.47) in 2023, increasing by CAD 15 (USD 10.95) each year to reach CAD 170 (USD 124.15) in 2030.

The national carbon price is CAD 95 (USD 69.38) in 2025.

A **federal carbon pollution pricing “backstop” system** applies in jurisdictions that request it or that do not implement systems that meet the federal benchmark.

Based on the “Greenhouse Gas Pollution Pricing Act” (GGPPA), adopted in 2018, the federal backstop system has been in place since 2019, and comprises two parts:

1. A regulatory charge on fossil fuels, such as gasoline and natural gas, known as the **fuel charge**. Generally, the fuel charge applies early in the supply chain and is payable by a registered producer or distributor. The fuel charge started at CAD 20 (USD 14.60) per tCO_2e in 2019 and increased annually by CAD 10 (USD 7.30), until it reached CAD 50 (USD 36.51) per tCO_2e in 2022. The updated fuel charge started at CAD 65 (USD 47.47) from April 2023 and increases by CAD 15 (USD 10.95) each year until it reaches CAD 170 (USD 124.15) in 2030.
2. A performance-based system for industries, known as the **federal Output-Based Pricing System (OBPS)**.

The federal OBPS is designed to maintain the carbon price signal for industrial emitters to reduce their GHG emissions while mitigating the risk of carbon leakage and competitiveness impacts. It applies to facilities in the emissions-intensive and trade-exposed (EITE) industrial and electricity sectors that emit greater than or equal to 50,000 tCO_2e. Smaller facilities with annual emissions greater than or equal to 10,000 tCO_2e from sectors at risk of carbon leakage and adverse competitiveness impacts can apply to participate voluntarily.

In force
Under development
Under consideration

SECTORS

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

OFFSET CREDITS

Domestic

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set price: 80 (USD 58.42)

TOTAL REVENUE[1]

CAD 697 million (USD 508.9 million) for compliance years 2019 to 2021
CAD 295 million (USD 215.4 million) in 2021

MEMBER STATES

As of the beginning of 2025:
Manitoba, Nunavut, Prince Edward Island, and Yukon

1 Earlier revenue collected included coverage of New Brunswick, Ontario, and part of Saskatchewan, in addition to the currently covered provinces and territories; each of their transitions to provincial systems occurred at different times (New Brunswick in 2021, Ontario in 2022, and Saskatchewan in 2023).

The OBPS sets a performance (output-based) standard (i. e., GHG emissions per unit of output) based on the national production-weighted average emissions intensity for a given activity in covered sectors. Facilities calculate a limit based on their level of production and the appropriate standard(s) and are required to provide compensation for emissions that exceed this limit. Those performing better than the standard are issued surplus credits (compliance units) that they can sell or save to use later.

Facilities can provide compensation for GHG emissions that exceed the facility's annual emissions limit through one or an eligible combination of the following mechanisms:

1. making an excess emissions charge payment to the Government of Canada at the current national carbon price;
2. remitting surplus credits purchased from other facilities or retained from previous periods;
3. remitting eligible offset credits from a recognized provincial system or remitting federal offset credits.

YEAR IN REVIEW

All Canadian provinces and territories had until September 2022 to either request the federal carbon pollution pricing system or propose their own plan for a carbon pricing system for 2023 to 2030 that meets the updated benchmark criteria. Provincial systems that have been approved by the federal government remain in place until at least the end of 2026; the same applies for jurisdictions where the federal backstop is in place. As of the beginning of 2025, the federal OBPS applies in Manitoba, Nunavut, Prince Edward Island, and Yukon.

The federal government amended its federal "backstop" OBPS in November 2023 to increase the stringency of the output-based standards used to determine facilities' emissions limits. The rates are set to decline at a fixed tightening rate with no end date: 2% annual tightening rate for most industrial facilities' output-based standards and 1% for high-risk EITE facilities. Twelve new output-based standards for industrial activities were also added to the regulations.

In November 2024, the government proposed amendments to enable the cross-recognition of certain Canadian offset credits under the federal OBPS and the proposed "Oil and Gas Sector GHG Emissions Cap Regulations". The changes would allow for the same offset credit (federal or eligible provincial offset credit) to be remitted by the same operator under both systems for coinciding remittance obligations and under the conditions set in the proposed Regulations.

By 2026, the federal government will review all provincial carbon pricing programs to ensure that they still meet the federal benchmark requirements for 2027 to 2030. An interim review of the federal benchmark will also be undertaken by 2026.

EMISSIONS & TARGETS OF CANADA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	577.0	82%
Industrial processes	51.0	7%
Agriculture	56.0	8%
Waste	23.0	3%
Total	**708.0**	

Energy industries	185.8	26%
Manufacturing industries and construction	42.7	6%
Transport	196.0	28%
Commercial, institutional, and residential	74.1	10%
Other energy	78.3	11%

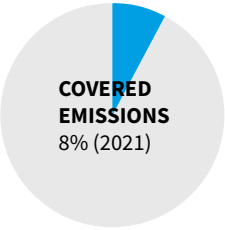
GHG REDUCTION TARGETS

By 2030: 40–45% below 2005 levels (NDC)
By 2035: 45–50% below 2005 levels (Canadian Net-Zero Emissions Accountability Act)
By 2050: Climate neutrality (Canadian Net-Zero Emissions Accountability Act)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2021

Verified ETS emissions: 56.9 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

The federal OBPS does not set a binding limit or cap on emissions. The federal OBPS is designed to preserve the marginal price incentive of a carbon price while mitigating carbon leakage and adverse competitiveness impacts risks to reduce emissions.

SECTORS AND THRESHOLDS

SECTORS: Power and industry

INCLUSION THRESHOLDS: Coverage is mandatory for facilities in the EITE industrial and electricity sectors that emit equal to or more than 50,000 tCO_2e per year. Smaller facilities with annual emissions equal to or more than 10,000 tCO_2e from sectors at risk of carbon leakage and adverse competitiveness impacts can opt in to participate voluntarily.

POINT OF REGULATION

Point source (power, industry)

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

In 2024, 38 facilities were covered under the federal OBPS (14 mandatory and 24 voluntary facilities).

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allocation is determined in relation to annual emissions limits based on emissions intensity benchmarks (standards) called output-based standards. These benchmarks are primarily set using the production-weighted average emissions intensity of all facilities making similar products across Canada.

Each covered facility then calculates an annual emissions limit based on its level of production and the relevant output-based standards.

Facilities that emit less than their emissions limit receive surplus credits (compliance units) for free, corresponding to the number of tCO_2e below the limit. Facilities that emit more than their emissions limit must provide compensation only for emissions above their emissions limit. This is similar to free allocation based on benchmarks. Surplus credits can be banked or sold to entities that emit more than their emissions limits (see below for more details).

USE OF REVENUES

General budget, including debt reduction

Low-carbon innovation

Provinces that voluntarily adopted the federal OBPS could opt for a direct transfer of all proceeds from the federal OBPS to the jurisdiction of origin for use according to their needs. These revenues can be added to the general budget of the jurisdiction and used for any purpose at the province/territory's discretion.

In provinces where the federal system has been applied and not requested, proceeds from the OBPS are returned to the provinces or territories through the OBPS Proceeds Fund to support low-carbon technology deployment.

The total amount of proceeds collected by the federal government in excess emissions charge payment under the OBPS for the 2021 compliance period was approximately CAD 295 million (USD 215.4 million).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, but surplus credits may not be surrendered for compliance if they were issued more than five years before being surrendered.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE LIMITS: Two types of offset credits can be used for compliance under the OBPS: recognized units and federal GHG offset credits. Both types of credits must have been issued for projects taking place in Canada that began in 2017 or later.

Recognized units are offset credits issued by a province or territory under a recognized offset program and offset protocol and meet the requirements under section 78 of the OBPS, including: having been issued for projects located in Canada that began in 2017 or later; being valid (not having been suspended, invalidated, or revoked); having been issued for an offset project that is registered in a recognized provincial offset program under a recognized offset protocol that appear on the List of Recognized Offset Programs and Protocols for the Federal OBPS; having been verified; being eligible for use as a method of compensation or compliance with respect to a pricing mechanism for GHG emissions in the province in which it was issued.

Federal GHG offset credits are issued under Canada's GHG offset credit system, and federal offset protocols are applicable in all provinces and territories in Canada, except for jurisdictions where the same project activity is covered by an active protocol in a provincial or territorial offset program. As of October 2024, there are three protocols under the federal GHG offset credit system: landfill methane recovery and destruction, reduction of GHG emissions from refrigeration systems, and improved forest management on private land.

To be eligible for use under the OBPS, federal offset credits and recognized units must have been issued no earlier than 2017 and for reductions or removals that took place less than eight years before being surrendered or before the deadline for surrendering.

QUANTITATIVE LIMITS: Since 2022, at least 25% of the compensation required for a facility's excess emissions must be met in the form of an excess emissions charge (EEC) payment.

In the 2021 compliance period, no federal GHG offset credits were remitted for compliance. In 2021, 81% of compliance was achieved through compensation as EEC payments, 19% through surplus credits, and 0.03% through recognized units.

LINKS WITH OTHER SYSTEMS

The Canada federal OBPS currently has a one-way linkage via recognized units with Alberta and British Columbia's offset systems.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

The following sub-national jurisdictions have a carbon tax or cap-and-trade system that meets the federal benchmark:

- British Columbia: carbon tax and OBPS
- The Northwest Territories: carbon tax
- Québec: cap-and-trade

The following sub-national jurisdictions have OPBSs for industry that meet the federal benchmark (in addition, the federal fuel charge applies here to consumer fuels):

- Alberta: Technology Innovation and Emissions Reduction regulation (TIER)
- New Brunswick: OBPS
- Newfoundland and Labrador: carbon pricing system for large industry
- Nova Scotia: OBPS for Industry
- Ontario: Emissions Performance Standards Program
- Saskatchewan: OBPS Program

In November 2024, the federal government published proposed "Oil and Gas Sector GHG Emissions Cap Regulations" that would implement a sector-specific cap-and-trade system on all Canadian facilities engaging in activities in the upstream oil and gas sector and LNG production, and would complement – not replace – the existing federal and provincial industrial pricing systems in this sector. Final regulations are targeted for 2025, with registration and reporting proposed to be required for 2026 onward and the emissions cap proposed to come into force from 2030.

COMPLIANCE

COMPLIANCE MECHANISM

Facilities that have exceeded their annual emissions limit are required to remit compensation for the GHG emissions above the limit. This compensation can be provided in the form of making an excess emissions charge (EEC) payment at the federally established carbon price, remitting surplus credits that were banked from earlier compliance periods or purchased from other covered facilities, or using federal offset credits or recognized units (eligible offset credits from recognized provincial programs and protocols – see 'Offset Credits') for each tCO_2e by which the emissions limit was exceeded.

From 2022, at least 25% of the compensation must be provided in the form of EEC payment.

COMPLIANCE PERIOD

One year. The regular-rate compensation deadline is 15 December of each calendar year after the emissions occurred. The increased-rate compensation deadline is 15 February of the year following the regular-rate compensation deadline.

MRV

MONITORING: Covered entities must monitor their emissions, production levels, and captured and stored emissions on an annual basis. For covered entities, monitoring of production must happen with respect to each of the regulated industrial activities. Electricity generators must monitor their emissions and electricity production for each unit and in aggregate.

REPORTING: Reports must be submitted by 1 June of the calendar year following the end of the compliance period for which the annual report is prepared, along with a verification report. Reports must also include the GHG emissions limit applicable to the covered entity for the compliance period, and the difference (if any) between the emissions limit and the actual emissions.

VERIFICATION: Reports must be verified by accredited third parties.

FRAMEWORK: The information to be included in an annual report is set out in the OBPS Regulations. Starting with 2024, the "Quantification Methods for the Output-Based Pricing System Regulations" specifies the methods for quantifying GHGs, the ratio of heat and the quantity of electricity generated.

PENALTIES AND ENFORCEMENT

If a facility fails to provide compensation by the 15 December of each calendar year after the emissions occurred, it must provide compensation by the increased-rate compensation deadline of 15 February of the year following the regular-rate compensation deadline. The increased-rate compensation is four times the regular rate. Failing to provide compensation by the increased-rate compensation deadline is an offence under the Act and is also a violation that can proceed under the "Environmental Violations Administrative Monetary Penalties Act".

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities include mandatory and voluntary participants (for inclusion thresholds, see 'Sectors and Thresholds'). Regulatory provisions allow other market participants and offset proponents to open accounts in the Credit and Tracking System (CATS).

MARKET TYPES:

Primary: Surplus credits are issued by the government to facilities based on their performance compared to the applicable output-based standards. Surplus credits are not auctioned.

Secondary: Covered entities may purchase surplus credits from other covered entities that have outperformed their compliance obligation. Other market participants and offset proponents may also participate in this market. Transactions take place in CATS, where users can post messages declaring their intent to buy or sell units, as well as answer to posted messages and transfer credits.

LEGAL STATUS OF ALLOWANCES:

The legal nature of surplus credits is not specified in the OBPS Regulations.

MARKET STABILITY PROVISIONS

OBPS Proceeds Fund

Instrument type: Set price or price trajectory

Functioning: The excess emissions charge (EEC) compliance option acts as a price ceiling for the system (see 'Compliance Mechanism'). The EEC payment is set at CAD 95 (USD 69.38) in 2025 and increases by CAD 15 (USD 10.95) annually until it reaches CAD 170 (USD 124.15) per tCO_2e in 2030.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Environment and Climate Change Canada (ECCC): Responsible for the design, coordination, implementation, and monitoring of Canada's climate action plans and targets, and the implementation of the federal carbon pollution pricing backstop system; specifically, the federal carbon pricing system for industry (the OBPS), in provinces and territories where it applies. ECCC is also administering the OBPS Proceeds Fund, which assists the return of OBPS proceeds to their jurisdiction of origin in some jurisdictions.

EVALUATION/ETS REVIEW

By 2026, an interim review of the federal benchmark will take place to ensure that pricing stringency is aligned across all carbon pricing systems in Canada through 2027 to 2030. The federal government will also assess all existing provincial and territorial carbon pricing systems to confirm they continue to meet the benchmark criteria, including any updates due to the interim review, for 2027 to 2030. Provinces and territories where the federal system currently applies will have the opportunity to implement their own system that meets the federal benchmark for this period if they wish to. The federal government will involve provinces, territories and Indigenous organizations in the review process.

2023 Progress Report on the 2030 Emissions Reduction Plan
Greenhouse Gas Pollution Pricing Act – Annual Report to Parliament for 2021
Pan-Canadian Approach to Pricing Carbon Pollution – Interim Report 2020
Greenhouse Gas Pollution Pricing Act Annual Report for 2020

REGULATORY FRAMEWORK

- Greenhouse Gas Pollution Pricing Act
- Output-Based Pricing System Regulations
- Regulations Amending the OBPS Regulations, November 2023
- Proposed Regulations Amending the OBPS Regulations, November 2024
- Update to the Pan-Canadian Approach to Carbon Pollution Pricing 2023–2030

CANADA

NATIONAL CAP-AND-TRADE SYSTEM FOR OIL AND GAS EMISSIONS

- **Proposed regulations to cap GHG emissions from the production of oil and gas and LNG**
- **First compliance period planned from 2030 to 2032**
- **Detailed draft regulations released in November 2024; final regulations targeted for 2025**

In force

Under development

Under consideration

ETS DESCRIPTION

In November 2024, the Government of Canada published draft "Oil and Gas Sector Greenhouse Gas Emissions Cap Regulations" for public consultation. The proposed regulations would establish a cap-and-trade system for GHG emissions from upstream oil and gas and LNG production, including both onshore and offshore oil production and natural gas production and processing.

The proposed system would cover all direct GHG emissions from all specified gases (including CO_2, CH_4, and N_2O) except for those from the production of electricity, with adjustments for transfers of thermal energy and hydrogen. It will be phased in between 2026 and 2029. Registration for existing operators would be required by January 2026, with reporting requirements beginning for large operators for 2026 and small operators for 2028.

Compliance periods, where the emissions cap would set a limit on covered emissions, would be three years in length, with the first compliance period set for 2030 to 2032. Operators would be responsible for ensuring compliance across all facilities under their control. The inclusion threshold would be based on an operator's cumulative production across all industrial activities, with an annual threshold set at 365,000 barrels of oil equivalent. The emissions cap would be determined based on 2026 data, set at 27% below the reported emissions from reporting operators for that year, which is estimated to be 35% below 2019 levels. The regulations would be reviewed within 5 years of coming into force to revise the emissions cap level for subsequent compliance periods and ensure the sector remains on a path to net-zero by 2050.

The system would provide free, tradable emissions allowances to operators prior to each compliance year, with the first allowances for 2030 distributed by the end of 2029. Allowance distribution would be based on historical production and distribution rates by industrial activity based on 2019 estimates. These rates would be fixed in the proposed Regulations, and the final distribution of allowances would be pro-rated to the level of the emissions cap. Covered operators would be able to bank allowances for up to one subsequent compliance period and transfer allowances between registered operators. Allowances would not be able to be used for compliance under federal or provincial carbon pricing systems.

Operators would need to remit one compliance unit for each tonne of CO_2e emitted by their facilities, with interim requirements mandating coverage of at least 30% of emissions in each of the first two years of a compliance period. Eligible compliance units would include emissions allowances, recognized Canadian offset credits, and decarbonization units. Operators would be able to use offset credits and decarbonization units as compliance units to cover up to 20% of their obligations in total, while up to 10% could be covered by decarbonization units priced at CAD 50 (USD 36.51) per tCO_2e.

A review of the proposed regulations and the cap for the post-2032 period will be completed within five years of implementation, ensuring the system remains effective in reducing emissions post-2032 and that the sector remains on a path to net-zero by 2050.

EMISSIONS & TARGETS OF CANADA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	577.0	82%
Industrial processes	51.0	7%
Agriculture	56.0	8%
Waste	23.0	3%
Total	**708.0**	

Energy industries	185.8	26%
Manufacturing industries and construction	42.7	6%
Transport	196.0	28%
Commercial, institutional, and residential	74.1	10%
Other energy	78.3	11%

GHG REDUCTION TARGETS

By 2030: 40–45% below 2005 levels (NDC)
By 2035: 45–50% below 2005 levels (Canadian Net-Zero Emissions Accountability Act)
By 2050: Climate neutrality (Canadian Net-Zero Emissions Accountability Act)

OTHER INFORMATION

INSTITUTIONS INVOLVED

Environment and Climate Change Canada (ECCC): Responsible for the design, coordination, implementation and monitoring of Canada's climate action plans and targets, and the implementation of the federal carbon pollution pricing backstop system; specifically, the federal carbon pricing system for industry (the Output-Based Pricing System) in provinces and territories where it applies; responsible for the development of the final regulations for the cap-and-trade system for oil and gas emissions.

EVALUATION/ETS REVIEW

The regulations are currently draft and published for public consultation. Final regulations are targeted for 2025. The Government of Canada has proposed to review the regulations within five years after they come into force.

REGULATORY FRAMEWORK

The regulations are currently in draft form. Final regulations would be published under the **Canadian Environmental Protection Act, 1999 (CEPA)**.

COLORADO

GREENHOUSE GAS EMISSIONS AND ENERGY MANAGEMENT FOR MANUFACTURING REGULATION

- **Baseline-and-credit approach**
- **EITE (GEMM 1) facilities face compliance obligation based on emissions intensity targets**
- **GEMM 2 facilities face compliance obligation based on 2030 absolute emissions reduction targets**
- **From 2028, oil and gas midstream fuel combustion equipment operators will face compliance obligations based on 2030 absolute emissions caps**

ETS DESCRIPTION

In October 2023, the Colorado Air Quality Control Commission (AQCC) adopted a regulation establishing an ETS covering large in-state manufacturers, beginning with the first compliance year in 2024. In December 2024, the AQCC adopted another regulation expanding the ETS's covered entities, beginning in the year 2028, to include oil and gas midstream operations. The GHG crediting and tracking system, referred to as "GHG CATS", came into force in November 2024 and continues to be enhanced. The regulations are designed to support the achievement of Colorado's statutory industrial and manufacturing sector-wide as well as its economy-wide GHG emission reduction goals. The regulations prioritize benefits to disproportionately impacted communities through reductions of locally harmful air pollutants.

The AQCC initially set reduction requirements for large manufacturing emitters through the "Greenhouse Gas and Energy Management for Manufacturing regulation" (GEMM 1) beginning in 2021, under the statutory direction of Colorado House Bill 19-1261. The GEMM 1 regulation applied to energy-intensive, trade-exposed (EITE or GEMM 1) manufacturing stationary sources that produced equal to or greater than 50,000 tCO_2e emissions annually. This threshold was lowered to 25,000 tCO_2e with the adoption of an amendment to the GEMM regulation (GEMM 2).

The AQCC expanded the GEMM 1 rule through the adoption of GEMM 2 in October 2023. The GEMM 2 regulation currently covers 18 manufacturing facilities (emitting equal to or greater than 25,000 tCO_2e) in addition to the four facilities that fall in the EITE (GEMM 1) categorization. While GEMM 2 institutes absolute emission reduction requirements, EITE (GEMM 1) sources adhere to intensity-based emissions limitations.

The AQCC further expanded the entities covered with the adoption of a rule in December 2024 covering GHG emissions from oil and gas midstream fuel combustion equipment, such as engines, turbines, and heaters. Equipment operators are subject to absolute emissions caps and may participate in the market beginning in 2028.

YEAR IN REVIEW

From February to June 2024, a technical working group collaborated to draft the GEMM GHG credit trading guidance. The draft focused on reconciling how credits from GEMM 1 facilities might interact with those from GEMM 2 facilities and exploring potential trading pathways between the two groups to ensure that trading EITE (GEMM 1) GHG credits (that are generated in relation to an intensity-based target) with GEMM 2 GHG credits (that are generated in relation to an absolute target) does not jeopardize progress toward Colorado's climate goals. Following a public comment period in July and August 2024, the division finalized and published the guidance in November 2024.

In force
Under development
Under consideration

SECTORS

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3

ALLOCATION

Free Allocation: Output-based Benchmarking

As a result of the GHG credit trading system being released in November 2024, EITE (GEMM 1) and GEMM 2 facilities are able to register in the system. The trading elements of the system will be released by May 2025 when the first set of credits are issued. Following the issuance of the first set of credits, GEMM 1 and GEMM 2 facilities may trade GHG credits bilaterally or through bidding or offering their GHG credits in an annual auction, the first of which will begin in June 2025.

The AQCC adopted a rule in December 2024 covering GHG emissions from oil and gas midstream fuel combustion equipment, such as engines, turbines, and heaters. This will expand Colorado's ETS to cover over 50% of the industrial and manufacturing sector's emissions beginning in 2028.

EMISSIONS & TARGETS OF COLORADO

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2020**
(in $MtCO_2e$, share of total in %)

Energy	113.4	84%
Industrial processes	4.4	3%
Agriculture	15.4	11%
Waste	2.4	2%
Total	**135.6**	

Energy industries	62.1	46%
Industrial energy	13.3	10%
Transport	25.2	19%
Commercial and residential	12.9	10%

GHG REDUCTION TARGETS

By 2025: 26% reduction below 2005 levels
By 2030: 50% reduction below 2005 levels
By 2035: 65% reduction below 2005 levels
By 2040: 75% reduction below 2005 levels
By 2045: 90% reduction below 2005 levels
By 2050: Net zero
(Colorado Revised Statutes 25-7-102(2)(g)(I))

ETS COVERAGE & PHASES

PHASES

GEMM 1:
PHASE 1: Five years (2025 to 2029)
PHASE 2: Five years (2030 to 2034)
PHASE 3: Five years (2035 to 2039)
PHASE 4: (2040 onwards)

GEMM 2:
PHASE 1: Three years (2024 to 2026)
PHASE 2: Three years (2027 to 2029)
PHASE 3: (2030 onwards)

MIDSTREAM:
Annual (2030 and thereafter)

CAP OR TOTAL EMISSIONS LIMIT

The total emissions limit under the Colorado GEMM regulation is the sum of the facility bottom-up annual emissions limits (EITE or GEMM 1) and facility emissions below 2030 reduction targets (GEMM 2) for all covered entities.

The total emissions limit under the Colorado midstream oil and gas regulation is 3,930,228 tCO_2e by 2030 and each year thereafter.

SECTORS AND THRESHOLDS

SECTORS: GEMM 1 and GEMM 2 regulations cover high-emitting stationary sources in the industrial and manufacturing sector.

GEMM 1 FACILITY INCLUSION THRESHOLDS: 25,000 tCO_2e and EITE source classification
GEMM 2 FACILITY INCLUSION THRESHOLDS: 25,000 tCO_2e

MIDSTREAM OPERATOR INCLUSION THRESHOLDS: All midstream operators will be subject to emissions caps that take effect in 2030; operators with emissions greater than 25,000 tCO_2e in 2021 will be subject to scaled reduction requirements via their caps.

POINT OF REGULATION

Point source (industrial and manufacturing stationary sources)

TYPE OF ENTITIES

Manufacturing stationary sources
Midstream fuel combustion equipment[1]

NUMBER OF ENTITIES

GEMM 1: 4 facilities
GEMM 2: 18 facilities

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

GEMM 1 facilities are allocated GHG reduction credits annually, free of charge, based on how much less the facility's annual direct GHG emissions, in tCO_2e, are compared with its emissions limitation in the relevant year.

GEMM 2 facilities are allocated GHG reduction credits annually, free of charge, based on how much lower the facility's annual direct GHG emissions are compared with its 2030 GHG emissions requirement.

From 2028, midstream operators will be allocated GHG reduction credits annually, free of charge, based on how much lower the operator's annual direct GHG emissions from midstream fuel combustion equipment are compared with its 2030 GHG emissions cap.

Starting in May 2025, GEMM 1 and GEMM 2 facilities will be allocated credits by the first Tuesday of May each year. Starting in May 2028, midstream operators will be allocated credits by the first Tuesday of May each year.

From the outset of the trading system, GEMM 2 facilities may generate credits through onsite carbon capture and storage projects, subject to an approved protocol. From 2031, GEMM 2 facilities will also be able to generate GHG reduction credits through offsite direct air carbon capture projects, subject to an approved protocol. Facilities that generate GHG reduction credits may use the credits toward future compliance obligations or trade the credits to other GEMM facilities.

USE OF REVENUES

The Colorado ETS will not collect revenues or handle the exchange of funds from buyer to seller. The auction will facilitate the trade, but the financial transaction will be done directly between the facilities.

If the AQCC adopts the proposed state-managed fund in 2025, GHG Reduction Fund revenues should be used to finance decarbonization projects at other industrial sites located within disproportionately impacted communities, prioritizing projects in or near disproportionately impacted communities.

FLEXIBILITY & LINKING

BANKING AND BORROWING

EITE (GEMM 1) and GEMM 2 facilities can bank GHG credits for up to three years from the date generated.

Borrowing is not allowed.

OFFSET CREDITS

The use of offsets is not allowed as a compliance option.

LINKS WITH OTHER SYSTEMS

The Colorado industrial and manufacturing GHG credit trading system is not linked with any other system.

COMPLIANCE

COMPLIANCE MECHANISM

Each covered facility/operator must surrender one credit per tCO_2e that exceeds its annual emissions limit or compliance obligation in the relevant compliance period.

Under the GEMM 2 rule, an EITE (GEMM 1) facility's annual emissions limit for a compliance year is calculated by using its previous year's production totals and emissions intensity requirement and applying a 5% mass-based emissions reduction. The annual emissions limit varies each year depending on the production level of the facility. The facility's emissions intensity requirement is reflective of best available control technology and industry standards and is updated every five years.

A GEMM 2 facility's GHG emissions requirement is based on its historical mass-based emissions reductions between 2015 and its baseline year (either 2021 or 2022, whichever has the higher emissions) and the facility's share of emission contributions to the GEMM 2 group's cumulative baseline. These two factors were used to determine the interim (2024 to 2029) and 2030 emissions requirements such that the 18 facilities collectively achieve a 20% mass-based reduction in emissions by 2030 relative to the group's aggregate emissions in 2015.

1 Coverage of midstream operators begins in 2028.

Beginning in 2030, before they may access the trading system, GEMM 2 facilities must implement their portfolio of onsite, technically feasible emissions reduction measures as well as undertake additional GHG and harmful air pollutant reductions if the facility is located near a disproportionately impacted community. The Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD) reviews and approves the GHG reduction plans.

Under the regulation adopted in December 2024, midstream operators' GHG emission caps starting in 2030 are based on recent actual emissions, avoided emissions from recent voluntary electrification projects, and a sliding scale that places relatively more reduction burdens on larger companies. Smaller companies (those emitting less than 25,000 tCO_2e in 2021) are assigned an emission cap that does not require reductions per se but instead requires them to maintain applicable GHG emissions at the levels of a recent representative year.

COMPLIANCE PERIOD

GEMM 1: One year

GEMM 2: Two three-year compliance periods (2024 to 2026 and 2027 to 2029) with one-year compliance periods from 2030 and beyond

MRV

GEMM 1:

Reporting: Beginning in 2026, EITE (GEMM 1) facilities must submit a report by May each year including data regarding the previous year's total emissions, total units of production, and emissions rate per product.

Verification: EITE (GEMM 1) facilities must have a third-party conduct energy and GHG emission control audits every five years to establish and determine whether GHG best available emissions control technology (BAECT) and energy best management practices (BMP) are being employed. The audit reports require both GHG BAECT and energy BMP analyses that identify and rank all technically feasible control technologies and strategies and energy efficiency measures.

GEMM 2:

Reporting: Beginning in 2025, GEMM 2 facilities must submit a report by the end of March each year, including data regarding the previous year's total direct emissions. GEMM 2 facilities must also submit GHG reduction plans that identify what technically feasible portfolio of onsite measures at or below the 2030 social cost of GHGs they plan to use to meet their emission reduction requirements. Compliance reports as well as GHG reduction plan progress and compliance reports must be submitted by the end of September for each compliance period (2024 to 2026 to be submitted in 2027, 2027 to 2029 to be submitted in 2030, and annually from 2030 onward).

Verification: GHG reduction plans must undergo a technical and regulatory review by an independent third party.

FRAMEWORK: The GHG emissions reporting rules for both GEMM 1 and GEMM 2 facilities are outlined in Colorado's "Greenhouse Gas Reporting and Emission Reduction Requirements Emissions" regulation.

MIDSTREAM:

REPORTING: Beginning in 2028, midstream operators seeking to generate credits must submit a report by the end of March, including data regarding the previous year's total direct emissions, in order to be eligible to generate credits for the previous year. Midstream operators will be allowed to submit such a report by the end of June each year but will not be eligible for credits for emission reductions from the previous year. Additionally, all midstream operators will be required to submit an annual report by the end of June each year that describes their emissions and plans for reductions to achieve compliance.

FRAMEWORK: The rules for reporting GHG emissions for midstream oil and gas operators are outlined in Colorado's "Control of Emissions from Oil and Gas Emissions Operations" Regulation No. 7 (5 CCR 1001-9), effective February 2025.

PENALTIES AND ENFORCEMENT

GEMM 1: In the event of noncompliance, EITE (GEMM 1) facilities will need to surrender three GHG credits for every tCO_2e emitted in excess of the facility's annual emissions limit and may be subject to a civil penalty or other enforcement action.

GEMM 2: In the event of noncompliance, a GEMM 2 facility's GHG emissions reduction requirement for the relevant compliance period will be adjusted downwards by at least two times the amount that the facility exceeded its emissions reduction requirement. The resulting increased compliance obligation must be achieved within three years of the period of non-compliance. GEMM 2 facilities not in compliance for a particular year must submit a mitigation plan by the end of the following calendar year. Civil penalties and other enforcement actions may also be assessed.

MIDSTREAM: In the event of noncompliance, the Division will pursue appropriate enforcement measures through the existing oil and gas compliance and enforcement program.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Covered entities

MARKET TYPES:

Primary: Beginning in May 2025, GEMM 1 and GEMM 2 facilities receive credits corresponding to the extent to which their emissions are below their 2030 emissions reduction obligations on the first Tuesday of May each year. Beginning in 2028, midstream operators will receive credits corresponding to the extent to which their emissions are below their 2030 emissions reduction obligations.

Auction: An annual auction is held in June each year starting in 2025. Bidders may not also be offerors for the same vintage year of credits and vice versa. APCD will administer the auction but will not handle the money for any transactions.

Secondary: Participants may bilaterally contract between themselves through the GHG credit trading system that was established in November 2024. APCD will help facilitate direct transfers of GHG credits between covered entities but will not handle the money for any transactions.

Retirement: All participants may retire credits and count these towards their own compliance within the three-year banking period.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Colorado Air Quality Control Commission: Responsible for holding hearings and adopting regulations on air quality matters consistent with statutory direction.

Colorado Department of Public Health and Environment Air Pollution Control Division: Responsible for developing, administering, and enforcing the adopted AQCC regulations based on a mandate from the Colorado legislature.

EVALUATION/ETS REVIEW

The AQCC has directed the Division to evaluate the trading program and to identify any modifications that may be necessary. If any such modifications are identified by the Division, the AQCC requests that the Division bring a petition to request a rulemaking hearing to the AQCC by September 2025. In addition, the AQCC has directed the Division to report on the following before the end of December 2025:

- the status of the trading program;
- and the co-pollutant reductions associated with the credits generated for the trades.

REGULATORY FRAMEWORK

- → Greenhouse Gas Emissions and Energy Management for Manufacturing Phase 1 and Phase 2 Regulation (AQCC Regulation No. 27)
- → Control of Emissions from Oil and Gas Emissions Operations (AQCC Regulation No. 7)
- → Climate Action Plan to Reduce Pollution (House Bill 19-1261)
- → Greenhouse Gas Emission Reduction Measures (Senate Bill 23-016)
- → Environmental Justice Disproportionate Impacted Community (House Bill 21-1266)
- → Collect Long-term Climate Change Data (Senate Bill 19-096)

MARYLAND

- **Economy-wide cap-and-invest program proposed in Maryland's Climate Pollution Reduction Plan**
- **Would work alongside RGGI, which covers the state's power sector emissions**
- **Maryland Commission on Climate Change recommends evaluation of a cap-and-invest program in its 2024 Annual Report**

In force

Under development

Under consideration

In December 2023, Maryland's "Climate Pollution Reduction Plan" was published, describing how economy-wide policies, such as a cap-and-invest program, could be necessary for the state to achieve its emissions reduction goals. Maryland's power sector is currently regulated by the Regional Greenhouse Gas Initiative (RGGI), but the 2023 plan includes direction for the state to consider expanding to an economy-wide cap-and-invest program. It cites the potential for additional revenues to be invested in clean energy projects, consumer rebates, and other decarbonization programs. The Maryland Department of the Environment (MDE) is exploring how this coverage of additional emission sources could work.

In June 2023, the economy-wide cap-and-invest program was proposed by MDE and the University of Maryland's Center for Global Sustainability as a supportive policy to achieve Maryland's 2031 target of a 60% reduction in GHG emissions from 2006 levels. The proposal anticipated the program achieving 4.8 $MtCO_2e$ of emissions reductions by 2031.

In its 2024 Annual Report, the Maryland Commission on Climate Change recommended the Maryland General Assembly authorize a study to evaluate the design of a cap-and-invest program and the MDE adopt a corresponding reporting rule requiring major polluters to begin reporting data in 2027.

EMISSIONS & TARGETS OF MARYLAND

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2020**
(in $MtCO_2e$, share of total in %)

Energy use	63.8	86%
Industrial processes	4.5	6%
Agriculture	1.7	2%
Waste	4.0	5%
Total	**74.0**	

Electricity	18.3	25%
Residential, commercial and industrial fuel use	13.5	18%
Transport	29.6	40%
Fossil fuel industry	2.4	3%

GHG REDUCTION TARGETS

By 2031: 60% reduction from 2006 levels ("Climate Solutions Now Act")
By 2045: Net zero (Climate Solutions Now Act)

FLEXIBILITY & LINKING

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: RGGI

OTHER INFORMATION

INSTITUTIONS INVOLVED

Maryland Department of the Environment (MDE): Agency responsible for implementing policies to achieve Maryland's climate goals, including developing the cap-and-invest program if legislation is passed.
Maryland Commission on Climate Change (MCCC): Government body that would work in collaboration with MDE to develop the cap-and-invest program if legislation is passed.
University of Maryland's Center for Global Sustainability: MDE's scientific partner in developing Maryland's Climate Pathway report.

REGULATORY FRAMEWORK

→ Maryland's Climate Pollution Reduction Plan
→ Maryland's Climate Pathway
→ Climate Solutions Now Act of 2022

1 Maryland is required to use 20-year global warming potential (GWP) values under its state law, but reports totals using 100-year GWP as well. Emissions shown here are based on 100-year GWP.

MASSACHUSETTS

MASSACHUSETTS LIMITS ON EMISSIONS FROM ELECTRICITY GENERATORS

- **Complements RGGI to help ensure that Massachusetts achieves its mandatory mitigation targets**
- **Four years of full compliance from all covered entities**
- **Began auctioning future year vintage allowances in 2022**

ETS DESCRIPTION

The Massachusetts Limits on Emissions from Electricity Generators (regulation "310 CMR 7.74") began operating in 2018. It covers around 9% of the state's CO_2 emissions, all from the power sector. Under this regulation, covered entities must surrender allowances for all of their covered emissions.

Since 2021, 100% of allowances have been allocated in quarterly auctions. Since 2022, future vintage allowances have also been sold in the regular auctions. The revenues raised are used to further reduce GHG emissions, as well as to fund adaptation programs and projects targeting communities adversely impacted by air pollution. A third party monitors the market to identify indications of anti-competitive behavior.

The program complements RGGI: electricity generators in the state must comply (i. e., hold and surrender allowances) with both RGGI and the Massachusetts program. The program was implemented in response to a 2016 ruling from the state's Supreme Court to ensure that Massachusetts achieves its mandatory mitigation targets.

YEAR IN REVIEW

The September 2024 auction saw prices clear at USD 5.65 per tCO_2 for 2024 vintages and USD 5.50 per tCO_2 for 2025 vintages, the similar prices reflecting that most firms already had the allowances they needed for 2024 compliance.

The Massachusetts Department of Environmental Protection (MassDEP) is considering raising the minimum reserve price from the current USD 0.50 per allowance. In 2024, it sought stakeholder comments on the proposed increase.

In force
Under development
Under consideration

SECTORS

POWER

CAP

7.6 $MtCO_2$ (2024)

GREENHOUSE GASES

CO_2 only

ALLOCATION

Auctioning

AVERAGE 2024 PRICES

Weighted average auction price (vintage 2024): USD 3.31
Weighted average auction price (all vintages in 2024 auctions): USD 3.62

TOTAL REVENUE

USD 185.8 million since the beginning of the program
USD 19.2 million in 2024

EMISSIONS & TARGETS OF MASSACHUSETTS

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**[1]

(in $MtCO_2e$, share of total in %)

Energy	62.1	93%
Industrial processes	4.1	6%
Agriculture and land use	0.2	<1%
Waste	0.6	1%
Total	**67**	

Residential	12.6	19%
Commercial	7.4	11%
Industrial	3.3	5%
Transport	25.6	38%
Electricity	12.5	19%
Natural Gas Systems	0.7	1%

GHG REDUCTION TARGETS

By 2030: 50% GHG emissions reduction below the 1990 level ("An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy")

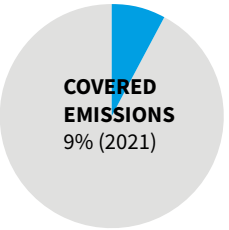
By 2040: 75% GHG emissions reduction below the 1990 level (An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy)

By 2050: Net-zero GHG emissions. Positive emissions will be compensated with removals, and positive emissions in 2050 are not to be greater than 85% below the 1990 level. (An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2021

Verified ETS emissions: 5.9 $MtCO_2$



CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system. The cap declines annually by 223,876 tCO_2 until it reaches 1.8 $MtCO_2$ by 2050.

ANNUAL CAPS:

2019: 8.7 $MtCO_2$
2020: 8.5 $MtCO_2$
2021: 8.3 $MtCO_2$
2022: 8.1 $MtCO_2$
2023: 7.8 $MtCO_2$
2024: 7.6 $MtCO_2$
2025: 7.4 $MtCO_2$

SECTORS AND THRESHOLDS

Large electricity generators subject to RGGI, with an installed capacity of or greater than 25 MW.

POINT OF REGULATION

Point source (power)

TYPE OF ENTITIES

Installations (i. e. Electricity generating facilities)

NUMBER OF ENTITIES

24 (2023)

1 These values were retrieved from the MassDEP Emissions Inventories and recategorized into the IPCC Common Reporting Format template.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

AUCTIONING: From 2019, allowances were partially auctioned, with 25% sold in 2019 and 50% in 2020. Full auctioning began in 2021. Currently, auctions take place on a quarterly basis. The results are included in market monitoring reports posted on the program's web page. From 2022, MassDEP offers future vintage allowances at every auction. MassDEP auctioned a total of 6,206,437 vintage 2023 allowances (783,568 in the 2022 auctions and 5,422,869 in the 2023 auctions).

FREE ALLOCATION: Before 2021, non-auctioned allowances were freely allocated through grandparenting based on historical (2013–2015) generation.

USE OF REVENUES

Climate mitigation

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, but restrictions apply to ensure that emissions in a given year do not exceed the previous year's cap. To achieve this, the number of allowances auctioned is adjusted downward each year to compensate for banked allowances.

Borrowing is not allowed, but "emergency deferred compliance" is possible. This provision allows an electricity generating facility to defer, for one year, compliance for part or all of the emissions emitted during an emergency. Allowances for those emissions must be surrendered on a two-for-one basis in the following year. An emergency is defined as "a period during when the regional transmission organization has issued an alert that an abnormal condition affecting the reliability of the power system exists or is anticipated in Massachusetts".

OFFSET CREDITS

The use of offset credits is not allowed.

LINKS WITH OTHER SYSTEMS

The Massachusetts ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: RGGI

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One year.

MRV

REPORTING FREQUENCY: Covered entities must report the CO_2 emissions for the previous calendar year by the start of March.

VERIFICATION: Emissions must match reports to RGGI and the US Environmental Protection Agency. Documents (i. e., emissions reports and compliance certification reports) must be certified by a designated representative identified by the facility, and MassDEP may choose to conduct audits.

PENALTIES AND ENFORCEMENT

If MassDEP finds that an entity is in violation of compliance, this will be presumed to constitute "a significant impact to public health, welfare, safety or the environment". In addition to penalties, the covered entity must submit three allowances for each metric tonne of non-compliance.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities only.

MARKET TYPES:

Primary: The allowance auctions are held every three months using a sealed bid, uniform price auction format. No bidder can purchase more than 45% of the allowances offered for sale in any one auction. Auctions are managed by Enel X.

Secondary: Compliance entities may transfer allowances to other compliance entities at any time except during the month of March. The Massachusetts Carbon Allowance Registry is used to track the ownership of allowances. Potomac Economics monitors the conduct of market participants in the auctions and in the secondary market to identify indications of anti-competitive conduct.

LEGAL STATUS OF ALLOWANCES: Allowances constitute a "limited authorization to emit one metric ton of CO_2" to comply with the regulation. They are not property rights.

MARKET STABILITY PROVISIONS

MINIMUM AUCTION RESERVE PRICE

Instrument type: Price-based instrument

Functioning: Auctions have a reserve price of USD 5 for vintage 2025 allowances. The reserve price is USD 0.50 for future vintage allowance sales.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Executive Office of Energy and Environmental Affairs: Cabinet-level office that oversees MassDEP.

Massachusetts Department of Environmental Protection: Regulatory agency implementing the Massachusetts Limits on Emissions from Electricity Generators (regulation "310 CMR 7.74").

Potomac Economics: Current market monitor. Monitors the conduct of market participants in the auctions and in the secondary market to identify indications of anti-competitive conduct.

Enel X: Manages the auctions.

APX: Maintains allowance tracking software platform.

EVALUATION/ETS REVIEW

The first program review was conducted in 2021, with a review planned every ten years thereafter.

REGULATORY FRAMEWORK

→ Electricity Generator Emissions Limits (310 CMR 7.74)

NEW BRUNSWICK

NEW BRUNSWICK OUTPUT-BASED PRICING SYSTEM

- **TRANSITIONED FROM FEDERAL OBPS IN JANUARY 2021**
- **COMPLIANCE BASED ON EMISSIONS THAT EXCEED AN ALLOWABLE INTENSITY OF OUTPUT OF EACH COVERED ENTITY**
- **OPT-IN POSSIBLE FOR SMALLER EMITTERS**

ETS DESCRIPTION

New Brunswick transitioned large industrial emitters from the federal output-based pricing system (OBPS) to a provincial OBPS from January 2021. This OBPS is established under the "Climate Change Act" and the "Reduction of Greenhouse Gas Emissions Regulation" and seeks to deliver incremental GHG emissions reductions at the lowest cost to industry, while supporting low-carbon growth and investment, minimizing carbon leakage, ensuring fairness, and providing clarity, administrative efficiency, accountability and transparency. It is an intensity-based ETS in which each covered entity must surrender compliance units for emissions that exceed the facility's annual emissions limit. The annual emissions limits are based on emissions intensity benchmarks, which are derived from historical emissions and production data. The system applies to the same sectors and GHGs as the federal system, and follows the same price trajectory, rising CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

YEAR IN REVIEW

In 2024, the New Brunswick government published the list of projects that have been awarded funding by the Minister of Environment and Climate Change from the Climate Change Fund in fiscal year 2024–2025.

In force

Under development

Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set price: CAD 80 (USD 58.42)

EMISSIONS & TARGETS OF NEW BRUNSWICK

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	11.1	89%
Industrial processes	0.4	3%
Agriculture	0.4	3%
Waste	0.6	5%
Total	**12.5**	

Energy industries	4.1	32%
Manufacturing industries and construction	0.7	6%
Transport	3.3	26%
Commercial, institutional, and residential	0.7	6%
Other energy	0.3	2%

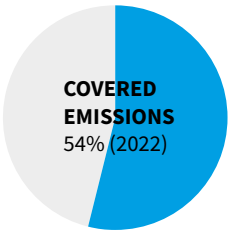
GHG REDUCTION TARGETS

By 2030: 46% reduction below 2005 levels ("New Brunswick's Climate Change Action Plan")
By 2050: Net-zero emissions (New Brunswick's Climate Change Action Plan)

ETS COVERAGE & PHASES

COVERED EMISSIONS

ETS emissions: 6.8 $MtCO_2e$ (2022)



PHASES

The New Brunswick OBPS is not divided into phases, but rather "reduction periods", each one lasting one year.

CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under the New Brunswick OBPS is determined bottom-up: it is the sum of the annual emissions limits based on emissions intensity benchmarks for all individual covered entities. The limit is therefore not set ex-ante and is only known after the compliance period ends. It doesn't represent an absolute cap.

The emissions limit is set for each facility and is determined based on their emissions intensity in a baseline period (except for electricity generators), the performance standard reduction factors (or for their fuel, for electricity generators) for a given reduction period, and the level of production in the same reduction period. The emissions limit is increased for regulated facilities with on-site cogeneration units which use a large proportion of their energy from biomass, and for entities at high carbon leakage risk (specifically: lime manufacturing).

SECTORS AND THRESHOLDS

SECTORS: Power, industry, mining and extractives

INCLUSION THRESHOLDS: Coverage is mandatory for facilities with emissions of at least 50,000 tCO_2e/year. Smaller emitters (emitting at least 10,000 tCO_2e/year) may also be covered by the system, on an opt-in basis.

POINT OF REGULATION

Point source (Mining and extractives, Power, Industry)

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

15 (2023), including voluntary opt-in market participants

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allocation is determined in relation to annual emissions limits based on emissions intensity benchmarks. Entities that emit less than their emissions limit receive compliance units (called "performance credits"), free of charge, corresponding to the number of tCO_2e below the limit. This is similar to free allocation based on benchmarks. These compliance units can be sold to entities that emit more than their emissions limits (see 'Market Design' for more details).

The emissions limit is set for each facility and is determined based on its emissions intensity in a baseline period (except for electricity generators), the performance standard reduction factors (or for their fuel, for electricity generators) for a given reduction period, and the level of production in the same reduction period. The emissions limit is increased for regulated facilities with on-site cogeneration units which use a large proportion of energy from biomass, and for entities at high carbon leakage risk (specifically: lime manufacturing). Captured and stored CO_2 emissions are excluded from the total regulated emissions of the regulated facility.

USE OF REVENUES


Climate mitigation


Low-carbon innovation

In 2023, the government developed and implemented a New Brunswick OBPS Industry Fund, as an additional stream of the New Brunswick Climate Change Fund, which returns proceeds collected from fund credit transactions to New Brunswick OBPS participants to support GHG emission reduction projects. All proceeds are allocated via a merit-based process.

The Climate Change Fund annually publishes information on the projects that have been awarded funding by the Minister of Environment and Climate Change for a given fiscal year (see 'Regulatory Framework' section for details).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed for performance credits for up to seven years.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is not allowed as a compliance option in the initial years of the system. However, section 10(1)(c.5)(iii) of the Act provides that the Lieutenant-Governor in Council may make regulations respecting compliance options, which are defined in section 1 of the Act as fund credits, performance credits, offset credits, and other types of credits prescribed by regulation.

LINKS WITH OTHER SYSTEMS

The New Brunswick OBPS is not linked with any other system. However, covered facilities can become eligible for certain exemptions from the Canada federal fuel charge.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Canada federal fuel charge

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (either a performance credit or a fund credit) per tCO_2e that exceeds the facility's annual emissions limit.

COMPLIANCE PERIOD

One year

MRV

REPORTING: GHG emissions reports must be submitted by the beginning of June of the year following the reporting period, and compliance reports are due by 15 December of the year following the compliance period.

VERIFICATION: Reports must be verified by an accredited verification team.

FRAMEWORK: The rules for reporting GHG emissions are outlined in New Brunswick's "Reduction of Greenhouse Gas Emissions Regulation" and "Reporting and Reduction of Greenhouse Gas Emissions Standard".

PENALTIES AND ENFORCEMENT

Covered entities that fail to fulfill a compliance obligation must pay the unfulfilled amount with interest at a rate set out in the New Brunswick Regulation 84-247 under the "Revenue Administration Act" (currently ~0.76% per month compounded monthly or 9.5% per year). All revenue from interest payments goes into the New Brunswick Climate Change Fund.

If a compliance credit is retired and later found to be invalid, the covered entity must fulfill the compliance obligation within 60 days of receiving notice of the invalid credit.

Administrative penalties are laid out in the "Administrative Penalties Regulation Act" (New Brunswick Regulation 2021-44 under the Climate Change Act). Administrative penalties are set at CAD 1,000 (USD 730) for first time violations, CAD 5,000 (USD 3,651) for second time violations, and CAD 10,000 (USD 7,303) for third and subsequent violations.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned.

Secondary: Covered entities may purchase performance credits (compliance units) from other covered entities that have outperformed their compliance obligation. Transactions are conducted via a registry that is managed by the Minister of Environment and Climate Change.

MARKET STABILITY PROVISIONS

CLIMATE CHANGE FUND

Instrument type: Set price or set price trajectory (akin to a price ceiling)

Functioning: Covered entities can purchase and surrender credits from New Brunswick's Climate Change Fund to compensate for emissions exceeding performance limits. The price of the credits is aligned with the federal minimum carbon price (CAD 95, or USD 69.38, in 2025). The price increases by CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030. A covered entity cannot obtain more fund credits than required to fulfill its compliance obligation for a compliance period. As such, fund credits cannot be banked.

OTHER INFORMATION

INSTITUTIONS INVOLVED

New Brunswick Department of Environment and Local Government: Responsible for reviewing and implementing the regulatory framework in New Brunswick. Manages the operation of the Climate Change Fund.

New Brunswick Minister of Finance and Treasury Board: Custodian of the Climate Change Fund.

EVALUATION/ETS REVIEW

The Minister of Environment and Climate Change will undertake the revision of New Brunswick's Climate Change Act every five years or at any shorter interval that the Minister considers appropriate.

REGULATORY FRAMEWORK

- Climate Change Act
- Reduction of Greenhouse Gas Emissions Regulation (Regulation 2021-43 under the Climate Change Act)
- Administrative Penalties Regulation (Regulation 2021-44 under the Climate Change Act)
- Reporting and Reduction of Greenhouse Gas Emissions Standard
- Performance Credit Standard
- New Brunswick Regulation 84-247 under the Revenue Administration Act
- CCF Project descriptions for the fiscal year 2024–2025

NEWFOUNDLAND AND LABRADOR

NEWFOUNDLAND AND LABRADOR PERFORMANCE STANDARDS SYSTEM

- **COMPLIANCE BASED ON EMISSIONS THAT EXCEED AN ALLOWABLE INTENSITY OF OUTPUT OF EACH COVERED FACILITY**
- **OPT-IN POSSIBLE FOR SMALLER EMITTERS**

ETS DESCRIPTION

Newfoundland and Labrador's Performance Standards System (PSS) came into effect in 2019. It is an intensity-based ETS for large industrial emitters, in which each covered entity must surrender compliance units for emissions that exceed each facility's annual emissions limit. Each facility's annual emissions limit is based on a combination of historical emission intensity, actual production activity data, and an annually decreasing reduction factor. Special provisions are in place for offshore petroleum facilities which must reduce emissions by an equivalent percentage in absolute terms (regardless of production). The system applies to the same sectors and GHGs as the federal system, and follows the same price trajectory, rising CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

The mandatory inclusion threshold is set lower than in the Canadian federal system, applying to facilities in covered sectors with emissions exceeding 25,000 tCO_2e/year and with a voluntary opt-in option for smaller emitters (emitting any amount greater than 15,000 tCO_2e/year).

YEAR IN REVIEW

In line with the federal OBPS pricing trajectory, the 2024 price was CAD 80 (USD 58.42) per tCO_2e and increased to CAD 95 (USD 69.38) per tCO_2e in 2025.

In force

Under development

Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set price: CAD 80 (USD 58.42)

TOTAL REVENUE

CAD 1 million (USD 0.75 million) since the beginning of the program

CAD 0.6 million (USD 0.4 million) in 2023

EMISSIONS & TARGETS OF NEWFOUNDLAND AND LABRADOR

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	7.7	89%
Industrial processes	0.2	2%
Agriculture	0.1	1%
Waste	0.6	7%
Total	**8.6**	

Energy industries	2.5	29%
Manufacturing industries and construction	0.1	1%
Transport	4.2	49%
Commercial, institutional, and residential	0.6	7%
Other energy	0.3	3%

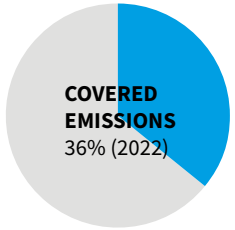
GHG REDUCTION TARGETS

By 2030: 30% below 2005 levels ("Climate Change Action Plan Mid-Term Update")
By 2050: Net-zero emissions (Climate Change Action Plan Mid-Term Update)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

ETS emissions: 3.1 $MtCO_2e$



PHASES

The Newfoundland and Labrador PSS is not divided into phases, but rather "reduction periods", each one lasting one year.

CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under the Newfoundland and Labrador PSS is the sum of the annual emissions limits based on emissions intensity benchmarks for all individual covered entities. The limit is therefore not set ex-ante and is only known after the compliance period ends. In 2023, this limit amounted to approximately 3.2 $MtCO_2e$.

SECTORS AND THRESHOLDS

SECTORS: Power, industry, mining and extractives.

INCLUSION THRESHOLDS: Coverage is mandatory for facilities with emissions exceeding 25,000 tCO_2e/year. Smaller emitters (exceeding 15,000 tCO_2e/year) may also be covered by the system, on an opt-in basis.

POINT OF REGULATION

Point source (Mining and extractives, Power, Industry)

TYPE OF ENTITIES

Facilities: Onshore industrial facilities, offshore industrial facilities, and offshore mobile industrial facilities

NUMBER OF ENTITIES

15 facilities in 2023, of which 13 had a GHG reduction target

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allocation is determined in relation to annual emissions limits based on emissions intensity benchmarks. For onshore industrial facilities, baseline emissions intensity is determined with reference to units of output (and can be determined by product if the facility produces more than one product). For mobile offshore industrial facilities, baseline emissions intensity is determined with reference to hours of operation. Offshore industrial facilities don't calculate baseline emissions intensity, but average baseline emissions levels. The emissions limits are determined by comparing the baseline emissions intensity/baseline emissions to either: a) the annual greenhouse gas reduction targets set in the "Management of Greenhouse Gas Regulations", or b) against a performance benchmark also in accordance with the same Regulations. The latter option is only available for industrial facilities that are not mobile offshore. It is also not available for industrial facilities that requested their baselines to be calculated by product and sets the reduction target for that facility at the top tercile of all comparable facilities.

Entities that emit less than their emissions limit receive credits, free of charge, corresponding to the number of tCO_2e below the limit. This is similar to free allocation based on benchmarks. These credits can be banked or sold to entities that emit more than their emissions limits.

USE OF REVENUES


Climate mitigation


Low-carbon innovation

Fund deposits are used to support GHG reduction projects at industrial facilities in addition to reductions mandated by the PSS. Where money deposited into the fund remains unused after five years, the advisory council makes a recommendation to the minister regarding how it can be used to achieve a verifiable reduction in GHG emissions.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking of performance-based credits (compliance units) for future compliance periods is allowed, but compliance units purchased from the GHG Reduction Fund must be used in the period in which they are issued.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is not allowed as a compliance option. There is provision in the Regulations to allow for offsets, but legislation has not been developed or passed pertaining to offset credits.

LINKS WITH OTHER SYSTEMS

The Newfoundland and Labrador PSS is not linked with any other system. However, covered facilities can become eligible for certain exemptions from the Canada federal fuel charge.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Canada federal fuel charge

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (either a performance credit or a Greenhouse Gas Reduction Fund Credit) per tCO_2e that exceeds the facility's annual emissions limit.

COMPLIANCE PERIOD

One year

MRV

REPORTING: GHG emissions reports must be submitted annually by the start of June of the year following a reporting period, and compliance reports are due by the start of November of the same year.

VERIFICATION: The owner or operator must submit a verification statement and a verification report from an accredited verification body by the start of September of the year in which the report to be verified is required to be submitted.

FRAMEWORK: The rules for reporting GHG emissions are outlined in Newfoundland and Labrador's "Management of Greenhouse Gas Reporting Regulations" under the "Management of Greenhouse Gas Act".

PENALTIES AND ENFORCEMENT

Onshore facilities must achieve 20% of their compliance obligation through on-site GHG reductions or through submission of performance credits that they previously earned. If this portion of the compliance obligation is not fulfilled by the deadline, the covered entity must pay into the GHG Reduction Fund any remaining obligation at a rate of four times the federal carbon price in that year. Any remaining balance of the compliance obligation may be filled by earned or purchased performance credits and by Fund credit purchases.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned.

Secondary: Covered entities may purchase performance credits (compliance units) from other covered entities that have outperformed their compliance obligation. Transactions are conducted via a credit registry, that was established and maintained by the Minister.

MARKET STABILITY PROVISIONS

GREENHOUSE GAS REDUCTION FUND

Instrument type: Set price or set price trajectory (akin to a price ceiling)

Functioning: Covered entities can purchase and surrender credits from Newfoundland and Labrador's Greenhouse Gas Reduction Fund to compensate for emissions exceeding performance limits. These (fund) credits cannot be banked, transferred, or refunded. The price ceiling is aligned with the federal minimum carbon price (CAD 95, USD 69.38, in 2025). The price ceiling increases by CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Newfoundland and Labrador Department of Environment and Climate Change: Agency responsible for administering and enforcing the regulatory framework in Newfoundland and Labrador. The Department works with the Canada-Newfoundland and Labrador offshore Petroleum Board to apply the Act in the offshore area.

Newfoundland and Labrador Greenhouse Gas Reduction Fund Advisory Council: Group of five to seven expert members that assesses applications for payments and provides recommendations to the minister regarding payments from the fund.

EVALUATION/ETS REVIEW

The Minister (appointed under the "Executive Council Act") will conduct a review of Newfoundland and Labrador's Management of Greenhouse Gas Act and the regulations every five years and consider the areas which may be improved.

REGULATORY FRAMEWORK

- → Management of Greenhouse Gas Act
- → Management of Greenhouse Gas Regulations
- → Management of Greenhouse Gas Reporting Regulations
- → Management of Greenhouse Gas Administrative Penalty Regulations
- → Opted-in Facilities Regulations
- → Advisory Council Regulations

NEW YORK STATE

NEW YORK'S CAP-AND-INVEST PROGRAM (NYCI)

- **Governor Kathy Hochul committed to implement an economy-wide cap-and-invest program**
- **Pre-proposal outline and climate affordability study include three regulatory components: Cap-and-Invest, GHG Reporting and Auction rules**
- **Aiming for a 40% emissions reduction by 2030 and 85% by 2050, below 1990 levels**

DESCRIPTION

New York's Cap-and-Invest Program (NYCI) is a comprehensive initiative aimed at reducing GHG emissions across the state's economy while maintaining economic stability and ensuring equitable investments. The program is anchored in the "Climate Leadership and Community Protection Act" of 2019, which requires a 40% reduction in GHG emissions by 2030, compared with 1990 levels, and at least an 85% reduction by 2050. The NYCI program will cover all emitting sectors under a statewide cap. The cap will decrease over time, with the caps for 2030 and 2050 corresponding to statewide GHG emission limits.

Various state agencies are developing the program rules, including the Department of Environmental Conservation (DEC) and the New York State Energy Research and Development Authority (NYSERDA). The pre-proposal outline, published in December 2023, describes the three main regulatory components:

- The "Mandatory Greenhouse Gas Reporting Program Rule" (GHG Reporting Rule), for the GHG emissions sources that will be required to be reported to DEC as well as the establishment of a GHG registry and reporting system.
- The "Cap-and-invest Rule", which will establish the program's compliance periods, and the cap's trajectory. The anticipated cap will incorporate both obligated and non-obligated GHG emissions sources. The rule will establish allowance budgets, compliance obligations and define stability provisions, including cost-containment mechanisms. The rule is also expected to address the treatment of emissions-intensive and trade-exposed (EITE) industries.
- The "Auction Rule" will describe the operation of allowance auctions. The rules will seek to maintain the integrity of the allowance market by preventing market manipulation and establishing cost containment and program stability mechanisms.

Each of the GHG Reporting Rule and the Cap-and-Invest Rule require a "Regulatory Flexibility Analysis for Small Business and Local Governments" and a "Rural Area Flexibility Analysis".

Covered sources under consideration are stationary sources, waste sector sources and fuel suppliers in the energy, industrial and product use sectors. Emission sources not subject to compliance obligations will be those from the agriculture and other land use change sectors, as well as non-stationary sources and fuel combustion from aviation and residential wood burning. The electricity sector obligations have not yet been determined, as sources in this sector in New York are currently subject to the Regional Greenhouse Gas Initiative (RGGI). Source categories not subject to allowance compliance obligations, "non-obligated entities", would be monitored with the purpose of removing these GHG emissions from the statewide cap through the retirement of allowances. The allowance budget will reflect the statewide cap less adjustments for these non-obligated GHG emissions and other potential factors.

Allowances will mostly be allocated through auctioning. However, a direct allocation mechanism for qualifying sources in EITE industries is under consideration, to mitigate the risk of economic and/or carbon leakage. Allowance banking would be allowed, except

SECTORS[1]

1 These sectors are included in the cap. Not all sectors carry a compliance obligation.

for the allowances issued in the first compliance period, and offset credits will have no role in the program. NYCI will be designed for the possibility of linkage with other ETSs.

NYSERDA will design, implement, and administer allowance auctions. Auctions would be held at least quarterly, and proceeds would be used in accordance with the Climate Act and relevant laws, with a focus on addressing affordability and investing in emissions reduction strategies and clean energy. At least 30% of the revenues will be directed to a universal Consumer Climate Action Account to mitigate any increased energy prices for households. At least 35%, with a goal of 40%, of the revenues will be directed to investments that benefit disadvantaged communities. NYSERDA and DEC have developed a Climate Affordability Study to consider the best way to distribute the collected revenues from the Consumer Climate Action Account.

Throughout 2023 and 2024, DEC and NYSERDA conducted stakeholder information sessions and hosted feedback roundtables aimed at engaging the public and stakeholders in the development process and learning from successful emissions reduction programs implemented in other regions. This included stakeholder feedback roundtables on matters of equity and climate justice and on just transition and labor, to ensure that NYCI is an equitable program that reduces GHG emissions and creates green jobs. In September 2024, DEC announced that the Western Climate Initiative (WCI, Inc.) will serve as the market registry, auction, and financial services platform for NYCI. Considerations are ongoing regarding NYCI's interaction with RGGI.[2]

EMISSIONS & TARGETS OF NEW YORK STATE

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Energy	156.9	84%
Industrial processes and product use	12	6%
Agriculture, forestry, and other land use	9	5%
Waste	9.5	5%
Total	**187.4**	

Energy industries	25.3	13%
Manufacturing industries and construction	6.6	4%
Transport	64.2	34%
Commercial, institutional, and residential	54.9	29%
Other energy	5.9	3%

GHG REDUCTION TARGETS

By 2030: 40% GHG emissions reduction below 1990 levels (Climate Act)
By 2050: 85% GHG emissions reduction below 1990 levels (Climate Act)

FLEXIBILITY & LINKING

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: RGGI

OTHER INFORMATION

INSTITUTIONS INVOLVED

Department of Environmental Conservation (DEC): Agency responsible for state programs designed to protect and enhance the environment; leads the development of regulations required to achieve the requirements of the Climate Act.
New York State Energy Research and Development Authority (NYSERDA): Public benefit corporation providing information and analysis, innovative programs, technical expertise, and support to increase energy efficiency, use renewable energy, and reduce reliance on fossil fuels in New York.

REGULATORY FRAMEWORK

→ Final Scoping Plan
→ The Climate Leadership and Community Protection Act

2 To follow progress, including the release of draft regulations, go to **capandinvest.ny.gov**

NOVA SCOTIA

NOVA SCOTIA OUTPUT-BASED PRICING SYSTEM FOR INDUSTRY

- **Compliance based on emissions that exceed an allowable intensity of output of each covered facility**
- **Began operation in 2023, replacing Nova Scotia's cap-and-trade program**
- **Meets the Canada federal benchmark criteria**

ETS DESCRIPTION

The Nova Scotia Output-Based Pricing System for Industry (Nova Scotia OBPS) is part of the province's approach to reduce GHG emissions from large industrial facilities. Similar to the federal carbon pricing system in Canada, it aims to lower emissions while maintaining economic competitiveness and minimizing carbon leakage.

The Nova Scotia OBPS was approved by the Canadian federal government in November 2022 and began operating in 2023. It replaced Nova Scotia's cap-and-trade program, which had been in place since 2019 but was officially phased out after the final compliance deadline in December 2023.

The Nova Scotia OBPS sets facility-level emissions-intensity standards (performance standards) for electricity generators and large industrial emitters. It is mandatory for facilities with annual emissions equal to or more than 50,000 tCO_2e. Other facilities under this threshold with annual emissions of ≥10,000 tCO_2e/year have the option to voluntarily join the system. If they do not join, they are subject to the Canada federal fuel charge.

Covered entities must surrender compliance units (performance credits or fund credits) for emissions that exceed the facility's annual emissions limit. The annual emissions limit is based on an emissions intensity benchmark. If a facility's emissions are below its limit, it earns performance credits, which can be banked for future use or sold.

YEAR IN REVIEW

Final regulations and standards around reporting, applicable performance standards for industry, and the electricity generation sector, were released in January 2024.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, NF_3, HFCs, PFCs

OFFSET CREDITS

Offset credits are not allowed at this time.

ALLOCATION

Free allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Average secondary market price: CAD 80 (USD 58.42)

TOTAL REVENUE

CAD 17.4 million (USD 12.7 million) since the beginning of the program, collected in 2024[1]

1 2024 collections were for the 2023 compliance year.

EMISSIONS & TARGETS OF NOVA SCOTIA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	13.4	91%
Industrial processes	0.5	3%
Agriculture	0.3	2%
Waste	0.6	4%
Total	**14.8**	

Energy industries	5.8	39%
Manufacturing industries and construction	0.2	2%
Transport	5.5	37%
Commercial, institutional, and residential	1.8	12%
Other energy	0.1	1%

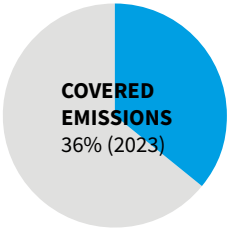
GHG REDUCTION TARGETS

By 2030: 53% reduction below 2005 levels
("Environmental Goals and Climate Change Reduction Act")
By 2050: Net-zero emissions (Environmental Goals and Climate Change Reduction Act)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2023

ETS emissions: 5.3 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under the Nova Scotia OBPS is the sum of the bottom-up facility-level emissions limits for all individual covered entities.

In the 2023 calendar year, the Nova Scotia OBPS regulated entities emitted 5.3 $MtCO_2e$.

SECTORS AND THRESHOLDS

SECTORS: Industry and power sector (electricity generation)

INCLUSION THRESHOLDS: Coverage is mandatory for facilities in the industrial and power sectors emitting greater than or equal to 50,000 tCO_2e/year. Facilities under this threshold with annual emissions of greater than or equal to 10,000 tCO_2e/year are permitted to opt-in to the Nova Scotia OBPS.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

15 (eight of which are voluntary market participants) in 2023

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allocation is determined in relation to annual emissions limits based on facility-level emissions-intensity standards (performance standards) set by the Nova Scotia OBPS.

Emissions up until the benchmark do not require payment, with only the surplus triggering the compliance obligation. Entities that emit less than their limit receive performance credits (compliance units) free of charge, corresponding to the number of tonnes of CO_2e below the limit. This is similar to free allocation based on benchmarks. Performance credits can be banked and used towards future obligations or be sold to other regulated entities that emit more than their emissions limits.

USE OF REVENUES

- Climate mitigation
- Low-carbon innovation

Revenues may be directed to the Nova Scotia Climate Change Fund, which funds a variety of GHG reduction programs and low-carbon innovation projects.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed. Borrowing is not allowed.

OFFSET CREDITS
While regulations contain some provisions for the potential use of offset credits, offset credits are currently not enabled in the system.

LINKS WITH OTHER SYSTEMS
The Nova Scotia OBPS is not linked with any other system. However, covered facilities can become eligible for certain exemptions from the Canada federal fuel charge.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION
Carbon tax: Canada federal fuel charge

COMPLIANCE

COMPLIANCE MECHANISM
Covered entities must surrender one compliance unit per tCO_2e that exceeds the facility's annual facility-level emissions-intensity standards set by the Nova Scotia OBPS.
A facility can meet its compliance obligations by paying into the Nova Scotia Climate Change Fund to obtain fund credits or surrendering performance credits.

The price of the fund credits and of the performance credits follow the federal government's backstop carbon price, which is CAD 95 (USD 69.38) in 2025, and will increase by CAD 15 (USD 10.95) annually until it reaches CAD 170 (USD 124.15) per tonne in 2030.

COMPLIANCE PERIOD
One year. The first compliance period for a regulated facility is the first year in which the facility becomes subject to the regulations. Compliance reports, showing how facilities met any compliance obligation, are due at the start of December of the year following the reporting period.

MRV
REPORTING: GHG emission reports must be submitted annually by June of the year following the reporting period.

VERIFICATION: These reports must be verified in accordance with the regulations.

PENALTIES AND ENFORCEMENT
If a covered facility fails to submit the necessary compliance units, it must pay the amount of the obligation shortfall to the Government of Nova Scotia. Obligations that remain unpaid will be subject to an interest rate set out in the Nova Scotia "Revenue Act Regulations" made under the "Revenue Act".

MARKET REGULATION

MARKET DESIGN
MARKET PARTICIPATION:
Compliance entities including mandatorily and voluntarily covered entities.

MARKET TYPES:
Primary: Compliance units are not auctioned.
Secondary: Covered entities may purchase performance credits from other covered entities that have outperformed their compliance obligation.

LEGAL STATUS OF ALLOWANCES:
Regulatory instruments.

MARKET STABILITY PROVISIONS
NOVA SCOTIA CLIMATE CHANGE FUND
Instrument type: Set price or set price trajectory (akin to a price ceiling)
Functioning: To compensate for emissions exceeding the facility's annual emissions limit, facilities can obtain fund credits from the Government of Nova Scotia. The price of fund credits acts as a price ceiling and is aligned with the federal minimum carbon price (CAD 95 [USD 69.38] in 2025).

OTHER INFORMATION

INSTITUTIONS INVOLVED
Nova Scotia Environment and Climate Change: Responsible for establishing the regulatory framework, implementing the NS OBPS, and providing compliance and enforcement services for the NS OBPS.

EVALUATION/ETS REVIEW
A progress report must be published no later than one year following the end of the first compliance year of 2023.

REGULATORY FRAMEWORK
- → Part XIB of the NS Environment Act
- → Output-Based Pricing System Reporting and Compliance Regulations
- → Output-Based Pricing System Reporting and Compliance Standard
- → Output-Based Pricing System Registration and Opt-in Regulations made under Section 112ZJ of the Environment Act
- → Annual progress report 2024

ONTARIO

ONTARIO EMISSIONS PERFORMANCE STANDARDS PROGRAM

- Transitioned from federal OBPS in January 2022
- Compliance based on emissions that exceed an allowable intensity of output of each covered entity
- Opt-in option for smaller emitters

ETS DESCRIPTION

Ontario's Emissions Performance Standards (EPS) program came into effect in January 2022, replacing the federal output-based pricing system (OBPS) that was operational in Ontario from 2019 to 2021. It is an intensity-based ETS for large industrial emitters, in which each covered entity must surrender compliance units for emissions that exceed its annual emissions limit. The annual emissions limit is based on facility-specific, sectoral, or historical emissions benchmarks, depending on the facility. The system applies to the same sectors and gases as the federal OBPS.

The federal fuel charge took effect in Ontario in 2019 and remains in effect, with the price rising CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

YEAR IN REVIEW

In 2024, Ontario launched the Emissions Performance Program, which directs the resources collected for compliance under the EPS program to fund capital or study-based projects to reduce GHG emissions at eligible industrial facilities. Eligible facilities need to: be registered in the EPS, have purchased Excess Emissions Units (EEUs), and not have electricity generation as their main industrial activity.

Additionally, Ontario made amendments to the EPS and GHG Reporting Programs to clarify program requirements, improve program implementation and administration, and address fundamental changes in some Ontario industries. Amendments included adding industrial activities, changing the terminology for production parameters, changing the total annual emissions limit determination, assigning and revoking baseline emissions intensities, and clarifying GHG emissions to be reported, among others.

Aligning with the federal benchmark requirement pricing trajectory, the EPS program price rose to CAD 80 (USD 58.42) per tCO_2e in 2024 and is planned to increase to CAD 95 (USD 69.38) per tCO_2e in April 2025.

In force

Under development

Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set price: CAD 80 (USD 58.42)

EMISSIONS & TARGETS OF ONTARIO

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	118.2	75%
Industrial processes	21.6	14%
Agriculture	9.6	6%
Waste	7.5	5%
Total	**157.0**	

Energy industries	10.5	7%
Manufacturing industries and construction	16.4	10%
Transport	55.6	35%
Commercial, institutional, and residential	31.2	20%
Other energy	4.5	3%

GHG REDUCTION TARGETS
By 2030: 30% below 2005 level by 2030

ETS COVERAGE & PHASES

PHASES
The Ontario EPS is not divided into phases, but rather “reduction periods”, each lasting one year.

CAP OR TOTAL EMISSIONS LIMIT
The total emissions limit under the Ontario EPS is the sum of the annual emissions limits based on emissions intensity benchmarks for all individual covered entities. The limit is therefore not set ex-ante and is only known after the compliance period ends.

SECTORS AND THRESHOLDS
SECTORS: Industry and electricity generation

INCLUSION THRESHOLDS: Coverage is mandatory for facilities with emissions of at least 50,000 tCO_2e/year. Smaller emitters (with emissions of at least 10,000 tCO_2e/year) may also be covered by the system, on an opt-in basis.

POINT OF REGULATION
Point source (Mining and extractives, power, industry)

TYPE OF ENTITIES
Facilities

NUMBER OF ENTITIES
216 (2023)

ALLOWANCE ALLOCATION & REVENUE

GENERATION OF EMISSIONS PERFORMANCE UNITS
The generation of emissions performance units (EPUs) is determined in relation to annual emissions limits based on emissions intensity benchmarks.

Entities that emit less than their emissions limit receive EPUs, free of charge, corresponding to the number of tCO_2e below the limit. This is similar to free allocation based on benchmarks. These EPUs can be banked for up to five years or sold to entities that emit more than their emissions limits (see section ‘Compliance Mechanism’).

USE OF REVENUES
Climate mitigation

Ontario reinvests the compliance payments collected through the EPS regulation to reduce GHG emissions at eligible industrial facilities. Eligible facilities need to: be registered in the EPS, have purchased EEUs, and not have electricity generation as their main industrial activity.

Resources are used to fund capital or study-based projects, and examples of eligible project activities include stationary equipment retrofits for energy efficiency and fuel switching, heat recovery, industrial process changes and carbon capture and storage.

Total revenue data is not yet publicly available.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Banking is allowed, but each EPU has an expiry date of 15 December in the year that is five years after the compliance period for which it is distributed.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is not allowed as a compliance option in the initial years of the system. Ontario is monitoring developments in the offset policy of the Canada federal OBPS and may consider allowing offsets in the future.

LINKS WITH OTHER SYSTEMS

The Ontario EPS is not linked with any other system. However, covered facilities can be exempted from the Canada federal fuel charge.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Canada federal fuel charge

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities can achieve compliance through either:

A) Reducing GHG emissions

B) Obtaining compliance units, which include:

1. EEUs: non-tradeable units purchased from the Government of Ontario that must be used in the year in which they are purchased; and
2. EPUs, tradeable units that are distributed to facilities which emit below their limit. These are bankable for up to five years.

Covered entities must surrender the number of compliance units equal to their compliance obligation (i. e., the amount of GHG emissions that exceed the facility's annual emissions limit).

Since 2023, the Ontario EPS has begun recognizing CO_2 emissions that are captured and stored permanently in certain CCS projects as emissions reductions.

Covered entities must have enough compliance units in their account to be surrendered by 15 December of the year following the compliance period.

COMPLIANCE PERIOD

One year

MRV

REPORTING: GHG emissions reports, including an electricity importation report, must be submitted annually by the start of June of the year following the reporting period.

VERIFICATION: The owner or operator must submit a verification statement and a verification report from an accredited verification body by the start of September of the year in which the report to be verified is required to be submitted.

FRAMEWORK: The rules for reporting GHG emissions are outlined in Ontario's "Greenhouse Gas Emissions: Quantification, Reporting and Verification" regulation, and the incorporated reference document "Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions."

PENALTIES AND ENFORCEMENT

If a covered entity does not meet its compliance obligation by 15 December of the year following the compliance period, the operator must ensure that additional compliance units are in their account equal to three times the amount of the compliance obligation shortfall by 15 February in the year that is two years after the compliance period.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned. Facilities can purchase EEUs from the government to address any emissions in excess of their annual limits.

Secondary: Covered entities may purchase EPUs from other covered entities that have outperformed their emissions limit.

Transactions are reflected in a registry that is managed by the Director appointed by the Ontario Minister of the Environment, Conservation and Parks.

MARKET STABILITY PROVISIONS

EXCESS EMISSIONS UNITS

Instrument type: Set price or set price trajectory

Functioning: Covered entities can purchase and surrender EEUs at the fixed cost set out in the regulation, which is aligned with the federal minimum carbon price (CAD 95, USD 69.38, in 2025). The regulated price of EEUs acts as a price ceiling for EPUs. The price of EEUs increases by CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ontario Ministry of the Environment, Conservation and Parks: Department responsible for administering and enforcing the regulatory framework in Ontario. The Director appointed by the Minister is in charge of the operation of the EPS program.

REGULATORY FRAMEWORK

- → Environmental Protection Act
- → Emissions Performance Standards Regulation (O. Reg. 241/19)
- → Greenhouse Gas Emissions: Quantification, Reporting, and Verification (O. Reg. 390/18)
- → GHG Emissions Performance Standards and Methodology for the Determination of the Total Annual Emissions Limit, March 2024
- → Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions, March 2024

OREGON

CLIMATE PROTECTION PROGRAM (CPP)

- **Designed to achieve a 50% GHG reduction by 2035 and 90% by 2050**
- **Covers emissions from fossil fuels in residential, commercial, industrial, and transportation sectors (excluding electricity)**
- **Revised CPP effective from January 2025 after previous CPP was invalidated**

DESCRIPTION

The Climate Protection Program (CPP) is critical to meeting Oregon's GHG reduction goals. Oregon's emissions trading system is designed to reduce GHG emissions by 50%, compared with a baseline of 2017 to 2019, by 2035 and 90% by 2050.

Following a court ruling in December 2023 that invalidated the prior program due to procedural issues, the current program was adopted by Oregon's Environmental Quality Commission (EQC) in November 2024, with the first compliance period starting from January 2025. In addition to reducing GHG emissions, the CPP supports reductions in other types of air pollution; prioritizes equity by promoting benefits and reducing burdens for environmental justice communities including communities of color, tribal, low-income, and rural communities; enhances public health and welfare, particularly for environmental justice communities; and provides regulated companies with compliance flexibility options.

The program imposes a declining cap on emissions from covered entities, including emission-intensive, trade-exposed (EITE) sources, natural gas utilities, also called local distribution companies, and liquid fuel and propane suppliers. EITE sources and direct natural gas sources will first have compliance obligations in the second compliance period (2028 to 2029).

The CPP incorporates flexibility mechanisms, such as community climate investment (CCI) credits, which allow entities to meet up to 15% of their compliance obligations with credits during the first period (increasing to 20% thereafter). These credits fund future emissions reduction projects within Oregon and will initially cost USD 129 apiece, including a 4.5% fee for oversight and transparency. Additionally, the program includes safeguards to address potential cost impacts on consumers, with provisions for review in collaboration with the Public Utilities Commission.

YEAR IN REVIEW

In 2024, the Oregon Department of Environmental Quality (DEQ) and EQC focused on reinstating the CPP after its invalidation in 2023. The DEQ conducted an extensive rulemaking process, emphasizing transparency and public engagement through hearings and interested parties' input. DEQ convened listening sessions, a rulemaking advisory committee, public meetings, and received over 10,000 comments during the official comment period.

In November, the EQC adopted the current CPP, introducing enforceable and declining caps on GHG emissions from fossil fuels. The program targets a 50% reduction below a 2017 to 2019 baseline by 2035 and a 90% reduction by 2050, aligning with Oregon's climate goals.

1 Emissions resulting from fuels used in petroleum and natural gas production are excluded.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES[1]
- WASTE
- INDUSTRY
- MARITIME
- BUILDINGS
- AGRICULTURE AND/OR FORESTRY FUEL USE
- TRANSPORT

CAP

24.1 $MtCO_2e$ (2025)

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 NF_3

OFFSET CREDITS

State-sourced alternative compliance credits are allowed with quantitative limits

ALLOCATION

Free Allocation: Grandparenting

Prior to the second compliance period, DEQ intends to conduct rulemaking to establish declining emissions intensity values for EITE and direct natural gas sources for future compliance periods. No other upcoming regulations or reviews have been announced; however, DEQ will monitor the CPP's implementation.

EMISSIONS & TARGETS OF OREGON

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Electricity use	18	29%
Natural gas use	7	11%
Agriculture	7	11%
Transport	22	36%
Other residential and commercial	4	7%
Other industrials	4	7%
Total	**62**	

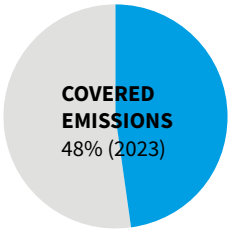
GHG REDUCTION TARGETS

By 2035: 45% reduction below 1990 levels ("Executive Order 20-04")
By 2050: 80% reduction below 1990 levels ("Executive Order 20-04")
By 2050: At least 75% below 1990 levels (Oregon Legislature)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2023

ETS emissions: 29.5 $MtCO_2e$



PHASES

FIRST COMPLIANCE PERIOD: Three years (2025 to 2027)
SECOND COMPLIANCE PERIOD: Two years (2028 to 2029)
THIRD COMPLIANCE PERIOD: Two years (2030 to 2031)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system. It is set to reduce carbon emissions from covered sources by 50% by 2035 and 90% by 2050, compared with the average of 2017 to 2019 covered emissions. By 2035, the cap will decline to 15.9 $MtCO_2e$, and by 2050, it will further drop to 3.2 $MtCO_2e$. DEQ will adjust the cap as it lowers the threshold for inclusion, bringing a greater portion of the emissions from covered sectors into the program.

The system started in 2022 with a cap of 28 $MtCO_2e$ covering fuel suppliers and was set to decline to 25.9 $MtCO_2e$ in 2024, before the program was shut down in December 2023. The updated CPP rules adopted in 2024 include EITE sources under the cap, so an adjustment was made to account for those emissions.

FIRST COMPLIANCE PERIOD: 24.1 $MtCO_2e$
SECOND COMPLIANCE PERIOD: 25.5 $MtCO_2e$
THIRD COMPLIANCE PERIOD: 23.1 $MtCO_2e$

SECTORS AND THRESHOLDS

SECTORS:

Natural gas utilities: These include companies that import, sell, or distribute natural gas, compressed natural gas, or liquefied natural gas to end users in Oregon. Covered emissions include those resulting from the combustion or oxidation of supplied natural gas, excluding emissions from electric power generation plants with a capacity of 25 MW or greater, emissions captured and stored, and emissions from biomass-derived fuels.

Suppliers of liquid fuels and propane: These include entities that produce, import, sell, or distribute gasoline, distillate fuel oil, and propane for use in Oregon. Covered emissions are those from the complete combustion or oxidation of these fuels, excluding emissions from aviation fuels, biomass-derived fuels, and fuels used in non-combustive processes.

EITE sources: A source is classified as EITE if it belongs to a sector listed under specific NAICS codes in the program rules (including chemicals and plastics, pulp and paper, food and agriculture, other industrial processes, high-tech manufacturing, and aerospace).

Direct natural gas sources: These include industrial sources that are not classified as an EITE source but that use natural gas supplied by an entity other than a natural gas utility.

INCLUSION THRESHOLDS:
Inclusion thresholds for fuel suppliers:

First Compliance Period:
Emissions of or greater than 100,000 $MtCO_2e$ in 2020 or any subsequent year.

Second Compliance Period:
Emissions of or greater than 50,000 $MtCO_2e$ in 2025 or any subsequent year.

Third Compliance Period:
Emissions of or greater than 25,000 $MtCO_2e$ in 2028 or any subsequent year.

Subsequent years:
If emissions meet or exceed 25,000 $MtCO_2e$ in any subsequent year, suppliers become covered in subsequent compliance periods

Inclusion threshold for EITE and Direct Natural Gas facilities:
Covered if annual GHG emissions meet or exceed 15,000 $MtCO_2e$ from 2020 or any subsequent year. Covered emissions include those from the use of natural gas and solid fuels but exclude emissions from biomass-derived fuels, liquid fuels, propane, interstate natural gas pipeline facilities, and emissions from electric power plants with a generating capacity of 25 MW or more.

POINT OF REGULATION
Upstream: natural gas utilities and liquid fuels and propane suppliers (mining and extractives, industry, buildings, transport, waste, forestry, maritime, agriculture/forestry)

Point source: selected EITE industrial sources and direct natural gas sources

TYPE OF ENTITIES
Installations (covered EITE sources), fuel distributors

NUMBER OF ENTITIES
Suppliers of liquid fuels and propane: 31
Natural gas utilities: 3
EITE and direct natural gas sources: 40

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

DEQ generates compliance instruments in amounts equal to each annual emissions cap and distributes them for free to covered entities as follows:

FIRST COMPLIANCE PERIOD:

EITE and direct natural gas sources:
No allocation during the first compliance period. These sources also have no compliance obligations during this period.

SECOND COMPLIANCE PERIOD AND BEYOND:

EITE and direct natural gas sources:
DEQ intends to conduct a rulemaking process to determine carbon emissions intensity targets for EITE and direct natural gas sources before the second compliance period. If DEQ is not able to establish carbon emissions intensity targets before the second compliance period, the allocation matches the average annual covered emissions from 2022 and 2023, multiplied by an emission reduction target that decreases each compliance period. If historical data is unavailable, the most recent years' emissions data (up to 2021) are used.

Reduction targets for EITE sources decrease progressively over compliance periods, aiming to reduce emissions by 55% by 2050 from baseline levels. Specific targets include:

- Second compliance period: 1
- Third compliance period: 0.95
- Fourth compliance period (2032 to 2033): 0.90
- Thirteenth compliance period (2050 to 2051): 0.45

Fuel suppliers:
- Natural gas utilities receive a fixed percentage of compliance instruments for each year under the cap. Each natural gas utility's share is adjusted slightly downward as the cap scope increases to reflect their lower share of overall historical emissions. Before allocating compliance instruments to natural gas utilities, the total number of compliance instruments allocated to EITE and direct natural gas sources is subtracted from the cap.
- Suppliers of liquid fuels and propane receive compliance instruments proportionate to their share of total covered and biofuel emissions. The calculation follows the formula:

Number of Compliance Instruments = (Total compliance instruments to distribute ([Covered fuel supplier covered emissions + covered fuel supplier biofuel emissions] / Total emissions)) ± Verified emissions data correction factor – Compliance instrument holding limit reduction*

Allocations are subject to corrections if discrepancies arise in emissions reporting, using a "verified emissions data correction factor". In 2025, DEQ will also distribute a limited number of early action or early reduction compliance instruments for reductions achieved from 2022 to 2024.

A proportion of the compliance instruments are held in a reserve for liquid fuel suppliers that are new entrants to the market.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Covered entities may bank compliance instruments indefinitely.

Covered fuel suppliers that are not natural gas utilities are subject to a holding limit. Each year after a compliance period ends, the compliance instrument holding limit reduction is calculated by DEQ. The holding limit equals the number of compliance instruments held from prior years that exceed 1.5 times the sum of the fuel supplier's annual covered and biofuel emissions for each year of the prior compliance period.

If a fuel supplier holds compliance instruments above their holding limit, their compliance instrument distribution in the following year will be reduced by the amount they are in exceedance. If the holding limit is exceeded by more compliance instruments than the covered fuel supplier would have received in the following distribution, the holding limit reduction can be carried over for a second year.

CCI credits may be used during the compliance period in which they are received or banked for one compliance period.

Borrowing is not allowed.

OFFSET CREDITS

Covered entities may cover a percentage of their compliance obligations with CCI credits, earned by contributing funds to DEQ-approved non-profit entities that implement community projects that reduce anthropogenic GHG emissions in Oregon. Investments are prioritized for projects that benefit environmental justice communities. Overall, the CCI program is responsible for reducing an average of one tCO_2e per credit awarded. The quantity of CCI credits used to meet compliance obligations must not exceed the allowable percentage specified below.

The contribution cost for CCI credits begins at USD 129 per credit in 2024 dollars, with incremental annual increases based on inflation.

To obtain CCI credits, covered entities must apply using DEQ-approved forms and provide detailed documentation. Applications for CCI credits must be submitted to DEQ by November 14 of the compliance year. DEQ will generate and distribute credits based on verified contributions from covered entities.

DEQ-approved CCI entities must be non-profit organizations, but subcontractors need not be. The Equity Advisory Committee helps to ensure the program generates equitable outcomes and benefits communities that are overburdened by pollution and climate change and have historically been marginalized (see 'Institutions Involved' section).

QUANTITATIVE LIMITS:
First compliance period: 15%
Second compliance period and beyond: 20%

QUALITATIVE LIMITS: A CCI entity may only use funds received by regulated entities to implement eligible projects in Oregon that reduce anthropogenic GHG emissions. CCI priorities include:

- providing compliance flexibility for covered entities;
- reducing emissions by an average of at least one tCO_2e per CCI credit;
- reducing emissions of other air contaminants;
- providing benefits for environmental justice communities in Oregon; and
- accelerating the transition from fossil fuels to zero or low emission energy sources to protect environmental justice communities

LINKS WITH OTHER SYSTEMS

The CPP is not linked with any other system.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance instrument per tCO_2e emitted for all their covered emissions.

Covered entities may cover a percentage of their compliance obligations with CCI credits, earned by contributing funds to DEQ-approved non-profit entities that implement community projects that reduce anthropogenic GHG emissions in Oregon.

COMPLIANCE PERIOD

First compliance period: Three years
Second and future compliance periods: Two years

Covered entities must demonstrate compliance by December 9 of the year following the compliance period or 40 days after notification from DEQ, whichever is later (December 2028 for the first compliance period). Covered entities must demonstrate compliance for the total emissions by surrendering an equivalent number of compliance instruments and/or CCI credits, subject to the limits above, as their covered emissions. EITE and direct natural gas sources are not required to demonstrate compliance for the first compliance period.

MRV

MONITORING: Covered entities must retain records related to trades, CCI contributions, and demonstrations of compliance for a minimum of seven years following the submission date. This includes financial records and any additional data requested by DEQ.

REPORTING: Covered entities are subject to the detailed emission reporting requirements established by the state's GHG emissions reporting program. This emissions data is used to implement the CPP, including calculations of covered emissions and compliance obligations, and determining compliance instrument distribution.

Covered entities are required to provide certain information about compliance instrument trading, including but not limited to, the number of instruments traded, the agreed upon date of the trade(s), and the total price per compliance instrument (USD). All trades must be reported to DEQ using the compliance instrument trade form provided by DEQ.

VERIFICATION: Covered entities are subject to third-party verification of calculations of covered emissions, compliance obligations, and distribution of compliance instruments.

PENALTIES AND ENFORCEMENT

DEQ's enforcement provisions and civil penalties include significant penalties for failing to comply with the program. Civil penalty amounts are determined based on DEQ's general enforcement and civil penalty rules, with a base penalty of USD 12,000 per violation. This penalty amount may be modified based on the economic benefit from the violation and other aggravating and mitigating factors. Each tCO_2e of a compliance obligation not covered by a corresponding compliance instrument or CCI credit is considered a separate violation. In addition to failure to comply, covered entities can face financial penalties for providing untrue, inaccurate, or incomplete information when reporting, applying, or providing information to the DEQ under the CPP.

Covered entities also face penalties for failing to comply with the requirements for trading compliance instruments under the CPP, for operating covered facilities without a CPP permit, or for violating any requirement under the CPP.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Only compliance entities may hold and trade allowances.

MARKET TYPES:

Primary: Compliance instruments are distributed for free by DEQ.

Secondary: Covered entities may only trade compliance instruments with other covered entities. Trading must be notified to DEQ, and both parties must sign and submit a compliance instrument trade form. CCI credits cannot be traded.

LEGAL STATUS OF ALLOWANCES:

A compliance instrument is a regulatory instrument and does not constitute personal property, a security, or any other form of property.

MARKET STABILITY PROVISIONS

RESERVE FOR NEW ENTRANTS

Instrument type: Quantity-based instrument

Functioning: DEQ establishes a reserve for covered liquid fuels and propane suppliers that are new to the program. DEQ will hold instruments in the reserve as a subset of compliance instruments under the cap. DEQ can only distribute the instruments in the reserve to covered suppliers of liquid fuels and propane.

A covered supplier of liquid fuels and propane may request a distribution from the reserve if it did not receive compliance instruments in the corresponding annual distribution due to a lack of information, or if it became a covered entity after DEQ had distributed the compliance instruments.

DEQ may also decide to distribute the instruments in the reserve as it adjusts the reserve size over time. DEQ can also choose to retire these instruments. DEQ will only distribute instruments if there are at least 10,000 compliance instruments above the applicable reserve size limit.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Oregon Department of Environmental Quality (DEQ): Implementing state agency for the CPP.
Oregon Environmental Quality Commission (EQC): Panel appointed by the governor of Oregon to serve as DEQ's policy and rulemaking board. EQC adopted the CPP rules in 2024.
Equity Advisory Committee: Selected from across Oregon, the committee is a key partner for the program, particularly the Community Climate Investment credits playing an important role on what types of projects are supported by these investments and where they are located.

EVALUATION/ETS REVIEW

DEQ will report on alternative compliance credits with the first report by August 30, 2027, and a report every two years thereafter. Reports include credits distributed, estimates of GHG emissions reductions that are anticipated to be achieved by completed projects, estimates of other air pollutants anticipated to be achieved by completed projects, average anthropogenic GHG emissions reductions achieved per CCI credit distributed, and description of community benefits achieved due to investments.

DEQ will report to the EQC on the CPP's implementation, with the first report due in 2029 and at least once every five years thereafter. The review will provide a complete review of covered entities, compliance instrument distributions, trading, and demonstrations of compliance. DEQ will also continually evaluate necessary changes to achieve CPP goals and provide annual reports on ongoing program implementation starting in 2026.

DEQ tracks the average annual statewide retail cost of gasoline, diesel, and natural gas in Oregon, and if these prices increase year-over-year by an amount more than 20% higher than the average change in cost for the same fuel over the same period in Washington, Idaho, and Nevada, DEQ will investigate the cause(s) of the increase and report to the EQC regarding whether changes are needed to ameliorate a relative increase in costs in Oregon.

Lastly, DEQ will work closely with the Oregon Public Utilities Commission to request information on changes to customer rates for different classes of utility customers that may be attributed to compliance costs under the CPP. If significant rate increases are identified or projected, DEQ may recommend further adjustments to program caps, compliance instruments, or allowable CCI credit usage to mitigate these impacts.

REGULATORY FRAMEWORK

→ Division 273 – Oregon Climate Protection
→ Program 2024 Rules
→ Division 12 – Enforcement Procedure and Civil Penalties

PENNSYLVANIA

- Executive order for Pennsylvania to have a power sector ETS and participate in RGGI
- ETS regulation consistent with RGGI Model Rule finalized in April 2022
- However, court ruling prevents participation in RGGI

In force

Under development

Under consideration[1]

ETS DESCRIPTION

In October 2019, Pennsylvania's then-Governor Tom Wolf signed an executive order directing the state's Department of Environmental Protection (DEP) to develop and present to the Environmental Quality Board (EQB) a proposal for an ETS covering CO_2 emissions from the power sector and its linkage to the Regional Greenhouse Gas Initiative (RGGI). The legal basis for developing an ETS is the state's "Air Pollution Control Act", which regulates air resources necessary for the protection of public health.

In April 2022, the final regulation to establish an ETS in Pennsylvania and to participate in RGGI was published. It set a base cap of 78 million short tons (70.8 $MtCO_2$) if Pennsylvania was a participating state of RGGI as of 1 January 2022. The cap decreases by 3% annually to 58.1 million short tons (52.7 $MtCO_2$) in 2030. The regulation includes the implementation of both emissions containment and cost containment reserves, as well as quarterly auctions to allocate allowances. It includes additional features such as set-aside accounts (accounts from which allowances may be transferred to the accounts of regulated units or retired on their behalf) for waste coal and cogeneration units (including combined heat and power systems), and a limited exemption for cogeneration units that supply less than 15% of their total energy to the electricity grid.

Before its April 2022 publication, the regulation faced challenges from Pennsylvania legislators and local coal stakeholders, including power plant and mine owners and workers' unions, who sued in Commonwealth Court after its release. At the start of November 2023, the Commonwealth Court ruled the regulation unconstitutional, stating that RGGI-related revenues are a tax requiring legislative approval. Governor Shapiro's administration appealed the decision to the state Supreme Court, with no set timeline for a ruling.

In May 2024, Democrat members of the Pennsylvania House of Representatives introduced a bill (House Bill 2275) that would create Pennsylvania's own carbon reduction program. It would be structured similarly to the proposal to join RGGI, but with direction for the DEP to review the base CO_2 allowance budget (cap) which would be adopted separately after a period of public comment. By September 2024, the Pennsylvania Senate approved legislation (Senate Bill 1058) to repeal the regulation that established the ETS and the state's participation in RGGI, though the bill awaits House approval.

SECTORS

POWER

GREENHOUSE GASES

CO_2

1 Regulation finalized but not applied, pending state Supreme Court decision on Governor Shapiro's appeal.

EMISSIONS & TARGETS OF PENNSYLVANIA

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Electricity production	77.7	30%
Industrial	80.7	31%
Transportation	55.6	22%
Residential	19.6	8%
Commercial	11.5	4%
Agriculture	8.6	3%
Waste management	4.5	2%
Total	**258.2**	

GHG REDUCTION TARGETS

By 2025: 26% reduction below 2005 levels ("Executive Order 2019-1")
By 2050: 80% reduction below 2005 levels (Executive Order 2019-1)

FLEXIBILITY & LINKING

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: RGGI

OTHER INFORMATION

INSTITUTIONS INVOLVED

Pennsylvania Department of Environmental Protection (DEP): Government agency responsible for implementing, administering, and enforcing the CO_2 Budget Trading Program (RGGI regulation)

REGULATORY FRAMEWORK

→ Executive Order 2019-07
→ CO_2 Budget Trading Program
→ Pennsylvania Commonwealth Court Ruling

QUÉBEC

QUÉBEC CAP-AND-TRADE SYSTEM

- Covers ~80% of Québec's overall emissions
- Linked with California since 2014, ongoing discussions about potential linkage with Washington
- First and largest linked market between sub-national governments from different countries

ETS DESCRIPTION[1]

Québec's Cap-and-Trade (C&T) System started in 2013 and covers ~80% of the province's GHG emissions.

The system covers fuel combustion emissions in the mining, power, buildings, transport, industrial, agriculture and forestry sectors, as well as industrial process emissions. Covered entities must surrender 'emission allowances'[2] for all their covered emissions, and allocation is based on auctions or free allocation. The cap is determined top-down by the government and set in law years before compliance obligations are realized.

Most emission units are auctioned, with a portion freely allocated to emissions-intensive, trade-exposed (EITE) sectors and to electricity producers with fixed-price sales contracts concluded before the announcement of the system. Québec also keeps an emission units reserve account to sell to entities that do not have enough allowances to cover their obligations. Covered entities can also cover a part of their GHG emissions by using offset credits.

Québec has been a member of the Western Climate Initiative (WCI) since 2008 and formally linked its system with California's in 2014.

YEAR IN REVIEW

In 2024, Québec made progress to refine its C&T system and explore potential international collaboration. Following stakeholder consultations in 2023, Québec assessed the feedback received to prepare draft regulations. The process was coordinated with California, whose C&T program is linked to Québec's.

Looking ahead, Québec plans to publish draft regulations in early 2025, with enactment expected in spring 2025. Proposed changes include addressing the estimated emissions units gap between supply and demand, adjusting offset credit limits, increasing reserve trigger prices, modifying compliance periods to align with 2030 and 2050 targets and updating global warming potentials for the next compliance period.

In terms of international collaboration, key developments include the joint statement in March 2024 with California and Washington, expressing interest in exploring program linkage. This was followed by a second announcement in September 2024 to begin linkage agreement discussions.

1 "Current auction settlement price" in USD, weighted by the total number of government-owned and consignment current vintage allowances sold in the year for both California and Québec.
2 In Québec's Cap-and-Trade System, the term 'emissions allowance' includes emission units (i.e., the main compliance instrument, what other systems typically refer to as 'allowances'), offset credits, early reduction credits and any other emission allowance determined by regulation, each being equal to one tonne of GHG expressed in CO_2 equivalents.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- POWER
- INDUSTRY
- BUILDINGS
- TRANSPORT
- AGRICULTURE AND/OR FORESTRY FUEL USE

CAP

50.3 $MtCO_2e$ (2025)

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3

OFFSET CREDITS

Domestic and international offset credits from California are allowed with quantitative limits

ALLOCATION

Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction settlement price: CAD 48.22 (USD 35.21)[1]
Weighted average of priced transactions of vintage 2024 allowances: CAD 49.28 (USD 35.99)

TOTAL REVENUE

CAD 9.9 billion (USD 7.5 billion) since beginning of program
CAD 1.4 billion (USD 1.1 billion in 2024)

EMISSIONS & TARGETS OF QUÉBEC

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	53.9	68%
Industrial processes	12.9	16%
Agriculture	8.0	10%
Waste	4.6	6%
Total	**79.3**	

Energy industries (public electricity and heat production)	0.4	1%
Manufacturing industries and construction (industrial combustion)	7.9	10%
Transport	34.3	43%
Commercial, institutional, and residential	7.6	10%
Other energy (fugitive emissions)	3.7	5%

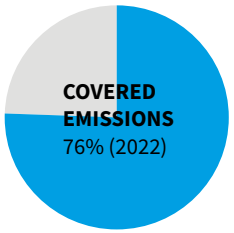
GHG REDUCTION TARGETS

By 2030: 37.5% reduction from 1990 GHG levels ("Order in Council 1018-2015")
By 2050: Carbon neutrality ("2030 Plan for a Green Economy")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 60.0 $MtCO_2e$



PHASES

FIRST COMPLIANCE PERIOD: Two years (2013 to 2014)
SECOND COMPLIANCE PERIOD: Three years (2015 to 2017)
THIRD COMPLIANCE PERIOD: Three years (2018 to 2020)
FOURTH COMPLIANCE PERIOD: Three years (2021 to 2023)
FIFTH COMPLIANCE PERIOD: Three years (2024 to 2026)

CAP

A cap limits the total emissions allowed in the system.

FIRST COMPLIANCE PERIOD: The system started in 2013 with a cap of 23.2 $MtCO_2e$.

SECOND COMPLIANCE PERIOD: With the program expanding to include fuel distribution, the cap rose to 65.3 $MtCO_2e$ in 2015. The cap declined to 61 $MtCO_2e$ in 2017, at an average rate of 3.2% per year.

THIRD COMPLIANCE PERIOD: The cap started at 59 $MtCO_2e$ and declined at an average annual rate of 3.5% to reach 54.7 $MtCO_2e$ in 2020.

FOURTH COMPLIANCE PERIOD AND BEYOND: After a slight nominal increase in the cap in 2021, to 55.3 $MtCO_2e$, due to an adjustment of the global warming potential of different GHGs, the cap will be reduced annually by ~2.2% on average until 2030. This will result in a cap of 44.1 $MtCO_2e$ in 2030.

SECTORS AND THRESHOLDS

FIRST COMPLIANCE PERIOD: Producers and importers of electricity and industrial facilities.

SECOND COMPLIANCE PERIOD AND BEYOND: Sectors from the first compliance period as well as the distribution and importation of fuels used in the transport and building sectors and in small- and medium-sized businesses.

TYPES OF FUELS COVERED: Gasoline, diesel fuel, propane, butane, kerosene, coal coke, petroleum coke, coal, distillation gas, ethanol, biodiesel, biomethane, natural gas, and heating oil.

INCLUSION THRESHOLDS: Emissions equal to or greater than 25,000 tCO_2e per year. Fuel distributors that distribute 200L or more of fuel are also included.

VOLUNTARY EMITTERS (OPT-IN COVERED ENTITIES): Since 2019, emitters from capped sectors that have reported emissions equal to or greater than 10,000 tCO_2e per year but less than 25,000 tCO_2e per year may voluntarily register with the C&T System as a covered entity. If their production activity is eligible, they may receive free allocation.

POINT OF REGULATION

Upstream (buildings, transport, agriculture and forestry fuel use); point source (mining and extractives, industry, in-province power); imported electricity at the point of first delivery onto Québec's electricity grid.

TYPE OF ENTITIES

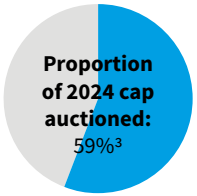
Industrial facilities, fuel distributors, and electricity importers

NUMBER OF ENTITIES

127 covered entities, representing 172 facilities (83 industrial facilities, 47 fuel distributors and 42 opt-in emitters) (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



Emission units are distributed via both auctions and free allocation by the government or can be directed to reserves for future sales.

FIRST TO THIRD COMPLIANCE PERIOD:

Free Allocation: EITE sectors received a portion of their emission units for free because they were considered vulnerable to carbon leakage. Eligible sectors included aluminum, lime, cement, chemical and petrochemicals, metallurgy, mining and pelletizing, pulp and paper, petroleum refining, and others such as manufacturers of glass containers, gypsum products, and some agro-food products. Electricity producers with a fixed-price sales contract signed before 2008 that did not allow carbon cost passthrough were also eligible to receive free units. Free allocation was also issued to compensate for the carbon cost already paid on electricity imported from a non-WCI jurisdiction (for example, RGGI).

In most cases, the volume of free allocation was determined by actual levels of production or consumption of raw materials (depending on the reference unit for the sector), a declining intensity target based on historical averages, depending on the type of emissions (e.g., fixed process, combustion, and other, mainly fugitive emissions), and an assistance factor. Until 2020, the assistance factors for all EITE sectors were set at 100%. If the available historical data was not sufficient, an energy-based methodology was used to determine the amount of free allocation issued.

Over the first three compliance periods, ~148 million emission units, representing ~36% of the cap for the period, were allocated for free.

Auctioning: Electricity and fuel distributors (included since 2015) were required to buy 100% of their allowances, with some narrow exceptions (e.g., on electricity contracts prior to 2008 that have not been renewed or extended). Emission units were auctioned quarterly. Units that remained unsold after an auction could be offered for sale again when the price at two consecutive auctions settled above the minimum price.

Over the first three compliance periods, ~256 million emission units, representing ~63% of the cap for the period, were auctioned or directed to reserves.

FOURTH COMPLIANCE PERIOD:

Free allocation: Assistance factors were determined based on trade exposure and emissions intensity. These metrics grouped the industrial sector's carbon leakage risk into three categories ("low", "medium", and "high"), with assistance factors of 90%, 95%, and 100% respectively. An assistance factor of 60% applied to steam production for industrial purposes and off-site electricity producers with the fixed-price sales contracts signed before 2008. For 2021 to 2023, ~59 million emission units, representing ~36% of the cap for the period, were allocated for free.

Auctioning: The same auctioning provisions as in the first three periods were used. For 2021 to 2023, ~96.6 million emission units, representing ~60% of the annual caps, were allocated by auction or directed to reserves.

2024 ONWARD:

Free allocation: New rules adopted in September 2022 introduced a more significant decrease in the level of free allocation from 2024. The rate of reduction is determined by the following factors: i) minimal expected effort of at least one percentage point (pp); ii) the cap decline factor of 2.34 pp; iii) an extra expected effort of 0 to 1.36 pp based on the carbon leakage risk; iv) whether the proportion of fixed process emissions exceeds 50% of total emissions in which case the extra effort expected is reduced by 0.272 pp; and v) a trajectory modulation factor, which will reduce the rate of reduction in the initial years and increase it in the later ones, with no net effect over the 2024 to 2030 period. A portion of the emission units resulting from the reduction in the level of free allocation are consigned for auction on behalf of emitters. The proceeds from the auctioning of the consigned units are set aside on behalf of each business to finance projects related to climate transition. The intensity targets for 2024 to 2030 are determined based on the intensity targets set for 2023 as well as the emission levels observed between 2017 and 2019.

Auctioning: The same auctioning provisions apply from the first four periods. The share of the 2024 cap auctioned as vintage 2024 Québec-owned allowances so far is 59%

USE OF REVENUES

Climate mitigation

All auction revenues go to the Electrification and Climate Change Fund, which replaced the Green Fund in November 2020. The new fund, entirely dedicated to climate action, supports the implementation of mitigation and adaptation measures contained in the "2030 Green Economy Plan" and includes energy efficiency, electrification, and public transport. Since the beginning of the program, more than CAD 9.9 billion (USD 7.5 billion) has been raised.

3 Excluding consigned allowances.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, but the emitter is subject to a general holding limit on emission units to which all entities in the system are held. The holding limit decreases in line with the annual emission unit budget.

Borrowing is not allowed. However, some emission units from future vintages are offered at each auction and can be traded but not used for compliance until the compliance date for the respective vintage year.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE CRITERIA: Offset credits generated in Québec from eligible projects are fungible in the WCI carbon market. A new regulatory framework based on ministerial regulations, which came into force in July 2021, will gradually replace the previous system of offset protocols. The ministerial regulations allow the following offset project types:

- reclamation and destruction of methane from landfill sites;
- destruction of halocarbons;
- carbon sequestration through afforestation or reforestation on private lands; and
- anaerobic digestion of manure.

For a transitionary period, the following project types will remain eligible under three protocols:

- destruction of methane from covered manure storage facilities;
- destruction of methane from drainage systems at active coal mines; and
- destruction of methane from ventilation systems of active underground coal mines.

Other types of projects under consideration include fuel substitution in the marine transport sector, improvements in the application practices of agricultural fertilizers, and afforestation or reforestation on public lands.

Québec offset credits are 100% guaranteed. This means that in cases where offset credits issued for a project are later deemed illegitimate by the regulator, the offset promoter (i. e., project owner) is required to replace them. If credit recovery is not possible, an equivalent number of offset credits is retired from the government's environmental integrity account. This account is funded by the automatic withholding of 3% of offset credits issued from all offset projects.

QUANTITATIVE LIMITS: Offset credits can be used for up to 8% of each entity's compliance obligation.

Over the first four compliance periods (2013 to 2023), more than 33 million offset credits were surrendered by entities in Québec, representing around 6% of the total compliance obligation. 96% of these surrendered offset credits were issued in California.

In the fourth compliance period, 13.6 million offset credits were surrendered by Québec-based entities, with 72% (9.85 million) from US forest projects, 21% (2.89 million) from mine methane capture projects, 3% (433,353) from livestock manure digester projects, 2% (280,759) from landfill methane destruction projects, and 1% (189,115) from ozone-depleting substances projects.

LINKS WITH OTHER SYSTEMS

Québec linked its system with California's in January 2014. The two extended their joint market by linking with Ontario in January 2018 until the termination of Ontario's system in mid-2018. In March and September 2024, joint statements from the governments of Québec, California and Washington have affirmed their commitment to explore potential linkage.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their verified and reported emissions.

COMPLIANCE PERIOD

Three years

The Québec C&T System is structured around three-year compliance periods, except for the first period (see 'ETS Size & Phases' section). A cap trajectory until 2030 has been set (see 'Cap' section). Allowances must be surrendered by November following the end of a compliance period.

MRV

REPORTING FREQUENCY: Annual

VERIFICATION: All covered entities in the program require independent third-party verification of emissions reports.

FRAMEWORK: Regulation on the mandatory reporting of certain emissions of contaminants into the atmosphere is outlined in the "Environment Quality Act".

PENALTIES AND ENFORCEMENT

A covered entity that fails to cover its GHG emissions with enough allowances by the compliance deadline must remit each missing allowance plus three additional allowances for each allowance it failed to surrender.

For non-compliance, entities can be fined CAD 3,000 to CAD 600,000 (USD 2,191 to USD 438,161) for each tCO_2e not covered.

In addition, the Minister of the Environment, the Fight against Climate Change, Wildlife and Parks may suspend emission unit allocation to any non-compliant emitter.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, including entities that opt into the system ("emitters"). Non-compliance entities with an establishment in Canada and individuals domiciled in Canada ("participants") can participate through:

- purchasing, holding, selling, or retiring compliance instruments;
- operating an offset project registered with the Ministry; or
- providing clearing services as qualified entities.

Emitters and participants must have an account in the Compliance Instrument Tracking System Service (CITSS). Additional eligibility criteria apply.

MARKET TYPES:

Primary: The majority of allowances are distributed via auctioning. Four auctions of emission units, held jointly with California, take place each year. Participants must have an approved account in CITSS and apply to take part in auctions at least 30 days in advance. Auctions are administered by the Western Climate Initiative, Inc.

Secondary: Exchange trading of allowances (emission units and offsets) issued by both California and Québec takes place on platforms such as the Intercontinental Exchange (ICE), the CME group or the Nodal Exchange. Allowances are traded through futures and options contracts. Any company qualified to access these platforms can trade directly or through a future commission merchant. Companies can also trade directly over the counter. All transactions must be notified to the Ministry, with information such as the quantity and vintage of allowances and the settlement price. The only exception to the notification requirement relates to transactions between related entities and bundled transfers as specified in Section 25 of the Regulation.

LEGAL STATUS OF ALLOWANCES: Under the Environmental Quality Act, emission allowances include emission units, offset credits, early reduction credits and any other emission allowance determined by regulation of the Government, each being equal to 1 tCO_2e. They can be used to comply with the pertinent regulation. They do not constitute financial instruments in Québec.

MARKET STABILITY PROVISIONS

Instrument type: Price-based instrument

Functioning: The auction reserve price is set at CAD 24.73 and USD 25.87 per allowance in 2025.

The auction reserve price in each auction is determined using the minimum prices set and released annually by Québec in CAD and California in USD in accordance with Article 49 of the "Regulation respecting a cap-and-trade system for greenhouse gas emission allowances" (Québec Regulation) and Section 95911 of California's cap-and-trade regulation. To manage multiple currencies, an Auction Exchange Rate is determined prior to each joint auction. The Auction Reserve Price in each auction is then determined as the higher of the Annual Auction Reserve Prices established in USD and CAD after applying the established Auction Exchange Rate (USD to CAD FX Rate). The auction reserve price increases annually by 5% plus inflation, as measured by the Consumer Price Index.

RESERVE ACCOUNT

Instrument type: Price-based instrument

Functioning: Québec maintains an emission unit reserve to sell to entities that do not have enough allowances to cover their obligations ("sales by mutual agreement"). The reserve is filled with set portions of the annual caps: 1% for 2013 to 2014; 4% for 2015 to 2017; 7% for 2018 to 2020, and 4% for 2021 to 2030.

Sales by mutual agreement are held a maximum of four times per year at three price categories that contain an equal share of emission units on offer. Only covered entities in Québec are eligible to purchase units from the reserve, and only if they do not have enough compliance instruments that can be used to cover emissions for the current period in their general account. To date, no sales by mutual agreement have been held.

In December 2020, Québec amended the prices of its three tiers to align more closely with California. For 2025, the prices of the three tiers are CAD 58.96 (USD 43.06), CAD 75.75 (USD 55.32), and CAD 92.57 (USD97.60). However, if partner entities have set higher prices per unit for a corresponding category, Québec units would be sold at the highest of the prices of both jurisdictions according to the daily average exchange rate of the Bank of Canada published on its website on the day preceding the sale. Unlike California, the highest tier will not act as a price ceiling for Québec. Just like auction reserve prices, reserve prices increase annually by 5% plus inflation.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks): Overall responsibility for implementing the Cap-and-Trade System in Québec.

Western Climate Initiative, Inc.: Non-profit organization that provides cost-effective administrative and technical solutions for supporting the coordinated development and implementation of participating jurisdictions' GHG emissions trading programs, such as administering auctions and maintaining the system registry.

EVALUATION/ETS REVIEW

The regulation is adjusted almost annually to implement changes and, where necessary, maintain harmonization with linked jurisdictions.

REGULATORY FRAMEWORK

- → Regulation respecting a cap-and-trade system for greenhouse gas emission allowances
- → Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere
- → Environment Quality Act

REGIONAL GREENHOUSE GAS INITIATIVE

- First mandatory GHG ETS in the United States
- Covers emissions from power production in ten US states
- A third program review is ongoing

ETS DESCRIPTION

The Regional Greenhouse Gas Initiative (RGGI) launched in 2009 and is the first mandatory GHG ETS in the United States. It started operating with ten states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont). RGGI's development was based on the "2005 RGGI Memorandum of Understanding" (MOU) and on the "2006 RGGI Model Rule". Through statutes or regulations based on the Model Rule, each state then established individual CO_2 budget trading programs. New Jersey withdrew from RGGI at the end of the first phase, or "control period" (see 'Compliance' section), in December 2011 and later rejoined in 2020. Virginia joined RGGI in 2021 but left in 2023.[2]

RGGI covers power sector emissions in participating states. In 2020, it covered around 14% of the aggregate participant states' emissions; in 2021, 228 facilities were covered by the state regulations. The aggregate cap will decrease by 30% compared to 2020 between 2021 and 2030. Under the ETS, covered entities must surrender allowances for all their covered emissions. Covered entities obtain most of their allowances through regular auctions, while some states have "set-aside" accounts from which they may transfer a limited number of allowances to entities' compliance accounts.

RGGI has undergone two review processes that updated the Model Rule and enshrined tighter caps and adjustments to system design. RGGI's third review process is currently ongoing.

YEAR IN REVIEW

The RGGI states initiated the Third Program Review in summer 2021 to analyze the program's successes, impacts, potential additional reductions to the cap post-2030, and other design elements.

In September 2024, the RGGI states released a new exploratory scenario with a higher annual base cap reduction from 2027 to 2033, aligned with a zero-by-2035 cap trajectory, with the trajectory decline lessening to a zero-by-2040 decline rate between 2033 and 2037. The scenario also proposed increasing the cost containment reserve (CCR) to 10.66 $MtCO_2$ (11.75 million short tons CO_2) annually, with an additional CCR of the same size available at a higher trigger price.

The RGGI states received stakeholder feedback on the latest exploratory scenario in October 2024, and Model Rule updates are ongoing.

Virginia repealed its CO_2 Budget Trading Program following executive action started by the state's administration in 2022 and thus stopped participating in RGGI in December 2023. However, a Virgina county circuit court in November 2024 deemed the repeal unlawful by, casting uncertainty over the state's official withdrawal.

SECTORS

POWER

CAP

69 million short tons CO_2 or 63 $MtCO_2$ (2024)[1]

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic offsets (within RGGI states only) are allowed with quantitative limits.

ALLOCATION

Auctioning

AVERAGE 2024 PRICES

Average auction price: USD 18.06

TOTAL REVENUE

USD 8.6 billion since the beginning of the program
USD 1.5 billion in 2024

MEMBER STATES

Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont

1 These values do not include Pennsylvania nor Virginia.
2 A Virgina county circuit court deemed the state's RGGI exit unlawful in November 2024, casting uncertainty over the state's official withdrawal.

EMISSIONS & TARGETS OF RGGI

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**[3]
(in $MtCO_2e$, share of total in %)

Energy	597.7	83%
Industrial processes	44.9	6%
Agriculture	54.1	8%
Waste	20.9	3%
Total	**717.7**	

Energy industries	119.8	17%
Manufacturing industries and construction	48.0	7%
Transport	260.3	36%
Commercial, institutional, and residential	150.7	21%
Other energy	18.9	3%

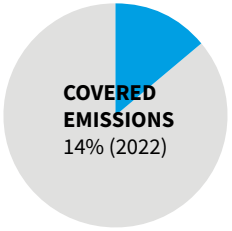
GHG REDUCTION TARGETS

By 2030: 30% reduction in power sector emissions compared to the 2020 CO_2 emissions cap ("2017 Model Rule")
Note: Participating states have their own emission targets; economy-wide targets are not defined at the level of RGGI.

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 98.1 $MtCO_2$[4]



PHASES

FIRST PHASE: Three years (2009 to 2011)
SECOND PHASE: Three years (2012 to 2014)
THIRD PHASE: Three years (2015 to 2017)
FOURTH PHASE: Three years (2018 to 2020)
FIFTH PHASE: Three years (2021 to 2023)
SIXTH PHASE: Three years (2024 to 2026)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system. A cap trajectory until 2030 has been set.

Phases in RGGI are also known as "control periods".

PHASE 1: 564 million short tons CO_2 or 512 $MtCO_2$ (188 million short tons CO_2 or 171 $MtCO_2$ per year)

PHASE 2: 413 million short tons CO_2 or 374 $MtCO_2$
2012 and 2013: 165 million short tons CO_2 or 150 $MtCO_2$ per year
2014: 83 million short tons CO_2 or 75 $MtCO_2$

PHASE 3: 194 million short tons CO_2 or 176 $MtCO_2$
2015: 67 million short tons CO_2 or 61 $MtCO_2$
2016: 65 million short tons CO_2 or 59 $MtCO_2$
2017: 62 million short tons CO_2 or 57 $MtCO_2$

PHASE 4: 193 million short tons CO_2 or 175 $MtCO_2$
2018: 60 million short tons CO_2 or 55 $MtCO_2$
2019: 58 million short tons CO_2 or 53 $MtCO_2$
2020: 74 million short tons CO_2 or 67 $MtCO_2$

PHASE 5:[5] 291 million short tons CO_2 or 264 $MtCO_2$
2021: 101 million short tons CO_2 or 91 $MtCO_2$
2022: 97 million short tons CO_2 or 88 $MtCO_2$
2023: 93 million short tons CO_2 or 85 $MtCO_2$

PHASE 6:[6]
2024: 69 million short tons CO_2 or 63 $MtCO_2$

By 2012, verified emissions under RGGI were more than 40% below the cap, so the states tightened the cap in 2014. There was a 2.5% annual reduction factor from 2015 through 2018. The revised regulations extended the 2.5% annual reduction factor through 2020.

3 This value includes Virginia but not Pennsylvania. Values presented here are taken from the "Inventory of U.S. Greenhouse Gas Emissions and Sinks by State" by the Environmental Protection Agency (EPA, available here), aggregated for the RGGI states. While each state publishes official inventory data and the values published by the EPA should not be viewed as official state data, the EPA estimates are presented here to ensure the methodological consistency of data collection and aggregation for inventory categories across RGGI states, as well as to ensure a common reporting year in the data. There may be differences between the EPA estimates and the official state inventories.
4 This value includes Virginia but not Pennsylvania.
5 These values do not include Pennsylvania.
6 These values do not include Pennsylvania nor Virginia.

The RGGI states further adjusted the caps between 2014 and 2020 to account for banked CO_2 allowances from the first and second phases. The annual reduction factor between 2021 and 2030 as set out in the 2017 Model Rule is ~3% of the 2020 cap.

The caps above include New Jersey from 2020 and Virginia from 2021, but the latter only until 2023.

SECTORS AND THRESHOLDS

SECTORS: Fossil fuel electric generating units (i. e., fossil fuel-fired stationary boilers, combustion turbines, or combined cycle systems). Sources include governmental, institutional, commercial, or industrial structures, installations, plants, buildings, or facilities that emit or have the potential to emit any air pollutant that include one or more units.

INCLUSION THRESHOLDS: Most RGGI states cover units with capacity equal to or greater than 25 MW.

In New York, since January 2021, the program applies to power plants that have nameplate capacity equal to or above 15 MW and reside at a covered generating unit or near two or more units of the same source.

POINT OF REGULATION

Point source (power sector)

TYPE OF ENTITIES

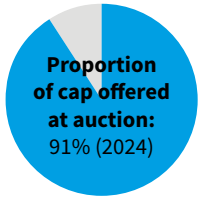
Installations/facilities (Units that serve an electricity generator with the nameplate capacity defined in the regulation)

NUMBER OF ENTITIES

222 (current control period)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



CO_2 allowances issued by each RGGI state are distributed through quarterly auctions. States hold a limited amount in “set-aside” accounts and distribute them according to state-specific regulations.

Of the 69.4 million 2024 allowances (after the adjustment for banked allowances), 91% were sold at auction. The remainder were either transferred from state set-aside accounts, retired, or remained in set-aside accounts. No offset allowances were awarded. Additionally, 8.4 million allowances were sold from the cost containment reserve (see ‘Market Stability Provisions’ section).

USE OF REVENUES

- Assistance for individuals, households, and businesses
- Climate mitigation
- Low-carbon innovation

Revenues from the quarterly auctions are returned to the RGGI states and have been primarily invested in the following consumer benefit programs: energy efficiency, direct bill assistance, beneficial electrification, GHG abatement, and clean and renewable energy. A report released in July 2024 found that the direct lifetime benefits of RGGI investments made in 2022 are projected to avoid 7.5 million short tons of CO_2 (6.8 $MtCO_2$) and return approximately USD 1.8 billion in lifetime energy bill savings to 246,000 households and over 2,600 businesses that participated in programs funded by RGGI proceeds.

The distribution of RGGI investments in 2022 was: energy efficiency (49%); direct bill assistance (21%); beneficial electrification[7] (14%); clean and renewable energy (7%); and GHG abatement and climate change adaptation[8] (3%).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed without restrictions. Current regulations include provisions to adjust the cap to address the aggregate bank, so that allowances available for auction are reduced by the number of allowances not used for compliance in previous control periods (see also ‘Cap’ section above). The RGGI states are currently implementing the third adjustment for banked allowances, which runs until 2025. As part of the RGGI review process, the states are considering whether to address or adjust for banked allowances into the future if a bank of surplus allowances remains in circulation after 2025.

Borrowing is not allowed.

7 Programs implementing or facilitating replacement of fossil fuel use with electric power.
8 Diverse programs, including the promotion of technology, research, and development programs, climate change policy research, coastal resilience, and flood preparedness programs.

OFFSET CREDITS

The use of offsets is allowed.

53,506 offset allowances have been awarded during RGGI's time of operation, all of which were from a 2017 landfill methane capture and destruction project.

QUALITATIVE LIMIT: Currently, the program allows offset credits from three offset types located in RGGI states:

1. landfill methane capture and destruction;
2. sequestration of carbon due to reforestation, improved forest management, or avoided conversion; and
3. avoidance of methane emissions from agricultural manure management operations.

Some states have discontinued specific offset protocols, but all accept offset allowances issued by any participating state. To date, only one offset project (landfill methane capture and destruction) has been approved under RGGI.

QUANTITATIVE LIMIT: 3.3% of an entity's liability may be covered by offset credits. This share will remain unchanged between 2021 and 2030.

Between the first and the fourth control periods (2009 to 2020), no CO_2 offset allowances were deducted. As of the 2022 interim compliance summary report, no CO_2 offset allowances had been deducted in the fifth control period (2021 to 2023).

LINKS WITH OTHER SYSTEMS

RGGI is a cooperative effort between participating states. Each state establishes an individual CO_2 budget trading program based on the RGGI Model Rule. Covered sources in each participating state can surrender allowances issued by any participating state for compliance and participating states use joint auctions.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

State-level ETS: Massachusetts Limits on Emissions from Electricity Generators
State-level ETSs are also being considered or developed in the following RGGI states: Maryland, New York, Vermont

Domestic crediting mechanism: RGGI Crediting Mechanism

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per short ton of CO_2 emitted.

COMPLIANCE PERIOD

Three years.

Compliance is evaluated at the end of each three-year phase (control period). From the third phase, covered entities must surrender allowances corresponding to 50% of their verified emissions in each of the first two years of a phase. They must cover 100% of the remaining allowances at the end of the three-year phase.

As part of the third RGGI review process, RGGI states are considering whether to modify the control period so that covered entities need to surrender allowances for 100% of their regulated emissions every year.

MRV

MONITORING: Operators must comply with all monitoring and recordkeeping requirements laid out in the Model Rule.

REPORTING: CO_2 monitoring reports must be submitted quarterly.

VERIFICATION: Emission data reports and their underlying data are required to undergo periodic quality assurance and quality control procedures in accordance with US Environmental Protection Authority (EPA) regulations.

FRAMEWORK: Emissions data are recorded in the US EPA's Clean Air Markets Division database in accordance with state CO_2 budget trading program regulations and agency regulations. Provisions are based on the US EPA monitoring provisions. Data are then automatically transferred to the electronic platform of the RGGI CO_2 Allowance Tracking System (COATS), which is publicly accessible.

PENALTIES AND ENFORCEMENT

In cases of excess emissions (i.e., if entities do not surrender all required allowances by the deadline), allowances equivalent to three times the amount of excess emissions must be surrendered. Furthermore, covered entities may also be subject to specific penalties imposed by the RGGI state where it is located.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, non-compliance entities (domestic and international), and individuals can participate if they provide a financial security.

MARKET TYPES:

Primary: Most CO_2 allowances issued by each RGGI state are distributed through quarterly regional auctions. The RGGI COATS records and tracks data for each state's CO_2 budget trading program, including the transfer of allowances offered for sale by the states and purchased by the winning qualified bidders in the quarterly auctions. Auctions are open to all parties with financial security, with a maximum bid of 25% of the volume on offer per sale. There is no allowance holding limit. Auctions are managed by Enel X.

Secondary: The secondary market for RGGI CO_2 allowances comprises the trading of physical allowances and financial derivatives, including futures, forwards, call options, and put options. RGGI COATS facilitates participation in the secondary market and enables the public to view and download RGGI data and CO_2 allowance market activity reports. Financial derivatives are traded on the ICE platform.

Potomac Economics, an independent market monitor, monitors the performance and efficiency of the RGGI CO_2 allowance auctions and the secondary CO_2 allowance market.

LEGAL STATUS OF ALLOWANCES: The RGGI Model Rule specifies that allowances are limited authorizations by the participating state's regulatory agencies to emit up to one short ton of CO_2.

MARKET STABILITY PROVISIONS

AUCTION PRICE FLOOR

Instrument type: Price-based instrument
Functioning: Auctions have a price floor of USD 2.62 per short ton in 2025, increasing by 2.5% per year (to reflect inflation).

COST CONTAINMENT RESERVE (CCR)

Instrument type: Price-based instrument
Functioning: Since 2014, RGGI has operated with a CCR, consisting of a number of allowances in addition to the cap held in reserve and only released to the market if certain trigger prices are reached. Beginning in 2021, allowances provided within the CCR are equal to 10% of the regional cap. The trigger price is USD 17.03 in 2025 and increases by 7% per year. It had previously increased by 2.5% annually between 2017 and 2020, from a starting value of USD 10.

The CCR was triggered in 2014 and 2015, when all 15 million allowances it contained were sold. The CCR was also triggered in the last quarterly auction of 2021, where 3.9 million of the available 11.9 million allowances were sold. It was triggered again in the final auction of 2023, with 5.6 million of the 11.2 million CCR units on offer sold. The CCR was also triggered in March 2024, when all 8.4 million allowances it contained were sold.

EMISSIONS CONTAINMENT RESERVE (ECR)

Instrument type: Price-based instrument
Functioning: In 2021, RGGI started implementing an ECR, which withholds allowances from auction if certain trigger prices are reached, up to an annual withholding limit of 10% of the emission budgets (i. e., the share of each state in the regional cap) of participating states. Allowances withheld will not be re-offered for sale, effectively adjusting the cap downward. In 2025, the trigger price is USD 7.86, increasing by 7% per year. Maine and New Hampshire are not participating in the ECR.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Statutory and/or regulatory authority of each RGGI state: Each state implements the program under its particular statutory authority.
Environmental and energy agencies for each RGGI state: Agencies implementing the respective CO_2 budget trading programs.
RGGI Inc.: Non-profit cooperative supporting RGGI's development and implementation. This includes engaging contractors for various tasks such as allowance and emissions tracking, market monitoring, and management of the auctions.
Potomac Economics: Monitors the conduct of market participants in the auctions and in the secondary market to identify indications of anti-competitive conduct.
Enel X: Manages the auctions.

EVALUATION/ETS REVIEW

The RGGI participating states periodically review the ETS to consider program successes, impacts, and design elements. The first program review process (known as the 2012 Program Review) was completed in early 2013. A second review process was completed in 2017, resulting in the 2017 Model Rule. Program reviews were accompanied by stakeholder meetings and the submission of comments from interested parties.

The RGGI states initiated the third review in summer 2021 to analyze program successes, impacts, potential additional reductions to the cap post-2030, and other design elements. The review is ongoing.

REGULATORY FRAMEWORK

→ 2017 RGGI Model Rule
→ 2017 RGGI Model Rule Updates (Summary)
→ RGGI States' Statutes & Regulations
→ RGGI Program Design

SASKATCHEWAN

SASKATCHEWAN OUTPUT-BASED PERFORMANCE STANDARDS PROGRAM

- **Compliance based on emissions that exceed a permitted emissions level, determined by the baseline emissions intensity and production output**
- **Opt-in possible for smaller emitters**
- **Coverage expanded from January 2023 with the discontinuation of the Federal OBPS in Saskatchewan**

ETS DESCRIPTION

Saskatchewan's Output-Based Performance Standards (OBPS) Program came into effect in 2019. It is an intensity-based ETS for large industrial emitters, in which regulated facilities are required to satisfy a facility specific performance standard.

When registering in the OBPS Program, each facility must first establish a baseline emission intensity. A facility's permitted emissions are calculated each year by applying a sector-specific performance standard to the facility's baseline emission intensity and multiplying the result by the production output at the facility for the current year. Facilities in the power sector do not set a baseline and are subject to pre-determined performance standards.

Facilities with emissions below the permitted level are awarded performance credits for the difference. Facilities with emissions above their permitted emissions level must either retire performance credits or CCUS credits, or make a payment at a prescribed rate per tonne of CO_2e.

The system applies to the same gases and covers equivalent sectors as those under the federal system, and follows the same price trajectory, rising CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e for 2030 emissions. The inclusion thresholds are set lower than in the Canadian federal system, covering GHG emissions from facilities in covered sectors with emissions exceeding 25,000 tCO_2e/year and with a voluntary opt-in option for any emitting facility that is in a sector already covered by Saskatchewan's OBPS Program or that demonstrates that it operates in an emissions-intensive, trade-exposed sector.

YEAR IN REVIEW

In May 2024, the Performance Credit Standard was updated to reflect that, if a performance credit is found to be invalid, the original seller (i. e., the regulated facility that originally generated the credit) assumes the risk that it may be revoked. Other Standards (such as the Industrial Facility, Aggregate Facility, Electricity Facility, and Carbon Capture, Utilization and Storage standards) underwent minor edits.

In September, the Saskatchewan Technology Fund announced more than CAD 25 million (USD 18.3 million) to support 13 industry-driven projects focused on reducing GHG emissions in the provinces. The projects leveraged more than CAD 277 million (USD 202.3 million) in private and additional government investment.

The first Clean Electricity Transition Grant of CAD 140 million (USD 102.2 million) was awarded in 2024–25.

1 This does not include any value from the generation or sale of credits within Saskatchewan's OBPS Program.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES

POWER

INDUSTRY

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Set price: CAD 80 (USD 58.42)

TOTAL REVENUE

CAD 489.7 million (USD 358.7 million) since the beginning of the program[1]
CAD 460.5 million (USD 336.3 million) in FY 2023–2024

EMISSIONS & TARGETS OF SASKATCHEWAN

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	62.4	82%
Industrial processes	0.8	1%
Agriculture	11.0	15%
Waste	1.4	2%
Total	**75.6**	

Energy industries	25.1	33%
Manufacturing industries and construction	1.2	2%
Transport	15.7	21%
Commercial, institutional, and residential	3.8	5%
Other energy	16.1	21%

SECTORS AND THRESHOLDS

PHASE 1: Industry
PHASE 2: Industry plus electricity generation and natural gas transmission pipeline sectors, and lowered threshold for voluntary opt-in to zero.

INCLUSION THRESHOLDS: Coverage is mandatory for industrial facilities with emissions exceeding 25,000 tCO_2e/year and electricity facilities with emissions exceeding 10,000 tCO_2e/year. Other emitters may also be covered by the system, on an opt-in basis if they are in a sector already covered by Saskatchewan's OBPS Program or demonstrate that they operate in an emissions-intensive, trade-exposed sector. Prior to the expansion of the Saskatchewan OBPS in January 2023, the minimum threshold for voluntary opt-in coverage was 10,000 tCO_2e/year.

POINT OF REGULATION

Point source (Mining and extractives, Power, Industry)

TYPE OF ENTITIES

Facilities

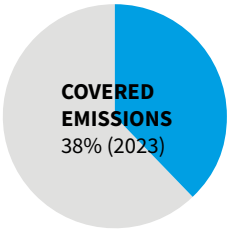
NUMBER OF ENTITIES

178 registered facilities (as of December 2024)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2023[2]

Emissions from current ETS covered sectors: 28.9 $MtCO_2e$



PHASES

PHASE 1: Three years (2019 to 2022)
PHASE 2: From 2023

CAP OR TOTAL EMISSIONS LIMIT

The total emission limit under the Saskatchewan OBPS is determined bottom-up: it is the sum of the annual emissions limits for each individual regulated facility. The emissions limit is set for each facility or aggregate facility, and is determined based on the applicable emissions intensity standard for the year and the level of production in the same reduction period. The limit is therefore not set ex-ante and is only known after the compliance period ends. It doesn't represent an absolute cap. As of 18 December 2023, the system had covered approximately 28.9 $MtCO_2e$.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Facilities in Saskatchewan's OBPS Program determine their annual permitted emissions based on their performance standard and their level of production for the applicable year.

When registering in the Program, each facility must first establish a baseline emissions intensity, which is derived from its historical emissions intensity or, for new facilities, the first three years of operation. A facility's permitted emissions are calculated each year by applying a sector-specific performance standard to the facility's baseline emission intensity and multiplying the result by the production output at the facility for the current year.

Facilities with emissions above their permitted emissions level must pay compliance. Facilities that emit less than their permitted emissions receive compliance units (called "performance credits"), free of charge, corresponding to the number of tCO_2e below the permitted level. This is similar to free allocation based on benchmarks. These compliance units can be sold to facilities that emit more than their permitted emissions or banked for future use (see 'Market Design' section below for more details).

2 As of 18 December 2023

Moreover, regulated emitters which operate CCUS projects that capture CO_2 directly from a facility in Saskatchewan and inject it into a reservoir in Saskatchewan that can permanently store the CO_2, can earn CCUS credits that can be used for compliance.

USE OF REVENUES

Climate mitigation

The Provincial Output-Based Performance Standards (OBPS) Program has regulated the industry and mining and extractive sectors since 2019. Compliance payments made by facilities in these sectors have gone into the Saskatchewan Technology Fund.

Money collected in the Saskatchewan Technology Fund is used to fund industry-driven projects that reduce, sequester, or capture emissions. Funds are awarded through a merit-based application process. To receive resources from the Fund, applicants must be regulated emitters with an established baseline under "The Management and Reduction of Greenhouse Gases (Standards and Compliance) Regulations, 2023".

Starting in 2023, the Program expanded to the power sector and compliance payments from covered facilities in this sector are directed towards the Small Modular Reactor Investment Fund and the Clean Electricity Transition Grant.

Funds allocated to the Small Modular Reactor Investment Fund are to be used to support the future development of the province's first small modular nuclear reactor, which will provide zero emission baseload power.

Funds allocated to the Clean Electricity Transition Grant are used for clean electricity operating costs (e.g., purchasing renewable electricity from independent power producers, funding demand-side management programs).

The Saskatchewan Technology Fund had total financial assets of CAD 151 million (USD 110.3 millions) as of 31 March 2024.

The Small Modular Reactor Investment Fund currently holds approximately CAD 466 million (USD 340.3 million) in compliance payments from facilities in the power sector.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Performance credits and CCUS credits (compliance units) may be banked for future compliance years. Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits (i.e., credits for any prescribed activity that reduces, sequesters, or captures GHGs and prevents their release into the atmosphere, as defined by "The Management and Reduction of Greenhouse Gases Act") is not allowed. Section 7(2)(i)(ii) of the Act provides that the minister in charge may determine the manner in which offset credits may be used as a compliance option. However, no offset credit program exists.

LINKS WITH OTHER SYSTEMS

The Saskatchewan OBPS is not linked with any other system. However, a covered facility can receive an exemption certificate from the Canada Revenue Agency so it does not have to pay the federal fuel charge on purchases from fuel distributors.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Canada federal fuel charge

COMPLIANCE

COMPLIANCE MECHANISM

Facilities that have exceeded their annual emissions limit incur a compliance obligation. They can fulfill this obligation by retiring performance credits, CCUS credits, or paying for each tCO_2e by which the emissions limit was exceeded (see 'Use of Revenues' section above for more details).

COMPLIANCE PERIOD

One year

MRV

REPORTING: GHG emissions for covered entities must be reported by June of the year following the reporting period.

When registering baselines, covered entities that do not have new products must submit their verified baseline submission within six months of the date of registration. Facilities with a new product must submit their verified baseline submissions by June of the first and second compliance years.

VERIFICATION: Covered entities must ensure that emissions and production data are verified and reviewed by an accredited verification body. Flexibility in verification is provided to small oil and gas aggregate facilities (comprised of two or more small oil and gas facilities that are owned or operated by the same company). An aggregate facility with emissions below 1,000 tCO_2e is not required to verify emissions.

FRAMEWORK: There are three standards that prescribe reporting requirements for the Saskatchewan OBPS Program: "the Industrial Facility Standard", "the Electricity Facility Standard", and "the Aggregate Facility Standard".

PENALTIES AND ENFORCEMENT

An unfulfilled compliance obligation becomes a debt owing to the Government of Saskatchewan, which it may recover by any legally authorized manner. The debt bears interest at a rate equal to the prime lending rate of the bank holding of Saskatchewan's general revenue fund plus three percentage points. The maximum administrative penalty the environment minister may assess with respect to each contravention is CAD 10,000 (USD 7,303).

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, including mandatorily and voluntarily covered entities (for inclusion thresholds see 'Sectors and Thresholds' section.)

MARKET TYPES:

Primary: Compliance units are currently not auctioned.

Secondary: regulated facilities may purchase performance credits from other regulated facilities. Transactions are conducted via a registry that is managed by the Ministry of Environment.

MARKET STABILITY PROVISIONS

TECHNOLOGY FUND

Instrument type: Set price or set price trajectory (akin to a price ceiling)

Functioning: Regulated facilities, except those in the power sector, can pay directly into Saskatchewan's Technology Fund to satisfy their compliance obligation. Facilities in the power sector can make payment directly to the Government of Saskatchewan to fulfill a compliance obligation. The price paid in either scenario acts as a price ceiling and is aligned with the federal minimum carbon price (CAD 80, USD 58.42, in 2024). The price increases by CAD 15 (USD 10.95) each year until 2030, resulting in a price of CAD 170 (USD 124.15) per tCO_2e in 2030.

The performance standards in the OBPS Program were set such that the supply of performance credits will not exceed the total compliance owed in the program. This balance helps ensure a healthy and stable OBPS credit market.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Saskatchewan Ministry of Environment: Regulates the OBPS program, ensures compliance obligations are fulfilled, and maintains regulatory and policy oversight over the Technology Fund.
Innovation Saskatchewan: Government office that receives and tracks compliance payments and performs general accounting of the Technology Fund.

EVALUATION/ETS REVIEW

Saskatchewan has a mandatory ten-year review for all regulations. In addition, Saskatchewan's OBPS Program will undergo review as part of the 2026 federal benchmark.

REGULATORY FRAMEWORK

- → The Management and Reduction of Greenhouse Gases Act
- → The Management and Reduction of Greenhouse Gases (Standards and Compliance) Regulations, 2023
- → 2023 Standards for Regulated Emitters
- → Saskatchewan Technology Fund: Governance, Administration and Operations Standard

VERMONT

- **Legislation passed in 2024 mandates study of a cap-and-invest program to achieve climate goals**
- **Would work complementarily with RGGI, which covers the state's power sector emissions**
- **Study results to inform policy recommendation to the legislature in 2025 session**

ETS DESCRIPTION

In June 2024, the Vermont State Legislature passed "Act 148 (the Transportation Bill)" which included a requirement for the Agency of Natural Resources and the Agency of Transportation to study a cap-and-invest program as a potential approach to help the State achieve its climate pollution reduction goals. Vermont participates in the Regional Greenhouse Gas Initiative (RGGI) for CO_2 emissions from the power sector. The cap-and-invest study will explore the advantages and disadvantages of covering additional sectors in a multi-jurisdictional program.

A cap-and-invest program was also presented in the 2023 "Vermont Transportation Carbon Reduction Strategy" as a potential policy to close the gap between actual and required GHG emissions levels in Vermont's transportation sector.

The study legislated by Act 148 is guided by a Technical Advisory Committee that includes representatives from the Vermont Climate Council and the State Treasurer's Office in addition to staff for the two agencies. After scenario analyses and stakeholder and public engagement meetings in October 2024 and January 2025, the study will culminate in a recommendation from the Treasurer's Office to the legislature for a policy approach for consideration in the 2025 session.

EMISSIONS & TARGETS OF VERMONT

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Energy	6.1	73%
Industrial processes	0.6	8%
Agriculture	1.3	16%
Waste	0.2	3%
Total	**8.3**	

Electricity	0.2	3%
Residential, commercial and industrial fuel use	2.6	31%
Transport	3.2	39%
Fossil fuel industry	0.0	<1%

GHG REDUCTION TARGETS

By 2025: 26% reduction from 2005 baseline ("Global Warming Solutions Act")
By 2030: 40% reduction from 1990 baseline (Global Warming Solutions Act)
By 2050: 80% reduction from 1990 baseline (Global Warming Solutions Act)

FLEXIBILITY & LINKING

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: RGGI

OTHER INFORMATION

INSTITUTIONS INVOLVED

Vermont Agency of Natural Resources: Agency responsible for co-coordinating and managing the study.
Vermont Agency of Transportation: Agency responsible for co-coordinating and managing the study.
Technical Advisory Committee: Group responsible for guiding the study, including representatives from the Vermont Climate Council and the State Treasurer's Office in addition to staff from the Agency of Natural Resources and the Agency of Transportation.

REGULATORY FRAMEWORK

→ Transportation Bill (Act 148)
→ Vermont Transportation Carbon Reduction Strategy
→ Global Warming Solutions Act (Act 153)

WASHINGTON

CAP-AND-INVEST PROGRAM

- "Senate Bill 6058" facilitating potential linkage with California and Quebec in force from January 2025
- Initiative 2117 to repeal "Climate Commitment Act" rejected in November 2024
- First Compliance Event completed with over 99.9% of compliance obligation met

ETS DESCRIPTION

Washington's cap-and-invest program began operating in January 2023. It covers around 70% of the state's emissions, and its cap trajectory is consistent with the long-term target to reduce statewide emissions to 95% below 1990 levels by 2050.

The program covers emissions from 97 entities in the mining, energy, industrial, buildings, and transport sectors. Many of the "Cap-and-Invest Program" design elements are similar to those of California's Cap-and-Trade Program. Covered entities must surrender allowances for all their covered emissions. Allowances are distributed through auctioning and free allocation, with the latter based primarily on benchmarking. The program has a cost containment reserve and auction reserve price to support market stability and moderate covered entities' compliance costs.

The "Cap-and-Invest Program" was established by the Climate Commitment Act (CCA), signed into law by then-Governor Jay Inslee in May 2021. Washington is the second state in the United States to pass a law requiring such an economy-wide program, after California. Launched as a standalone system, the CCA directed the Department of Ecology to pursue linking. Senate Bill 6058, which is designed to facilitate linkage, went into effect in January 2025.

YEAR IN REVIEW

2024 was a pivotal year for Washington's "Cap-and-Invest Program". In March, Initiative 2117, aimed at repealing the CCA, was certified for the ballot. Later in March, the governments of Washington, California, and Québec issued a joint statement on the potential to form a shared carbon market through linkage. At the end of the month, Governor Inslee signed Senate Bill 6058 into law. The bill modified certain provisions of the CCA to facilitate linkage with California and Québec. Some provisions went into effect on 1 January 2025, and some will be implemented through rulemaking.[2] Discussions about potential linkage with California and Québec are ongoing.

The year's most significant event occurred in November's polling day, when Initiative 2117 was defeated by a margin of almost 24 percentage points, securing the program's future and paving the way for a potential future linkage.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES
TRANSPORT
POWER
BUILDINGS
INDUSTRY

CAP

53.7 $MtCO_2e$ (2025)

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, NF_3, other fluorinated GHGs

OFFSET CREDITS

Domestic offset credits are allowed with quantitative limits[1]

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Fixed Benchmarking
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction price (current vintage): USD 31.64

TOTAL REVENUE

USD 2.6 billion of state revenue since the beginning of the program (USD 3.3 billion including consigned auctions)
USD 810.8 million in 2024 (USD 1.1 billion including consigned auctions)

1 100% of these offsets entail direct environmental benefits to Washington State.
2 Washington Department of Ecology CCA Market Notice on Senate Bill 6058 implementation available here.

EMISSIONS & TARGETS OF WASHINGTON

OVERALL GHG EMISSIONS (INCL. INDIRECT CO_2, EXCL. LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Energy	82	85%
Industrial processes	4.3	5%
Agriculture	6.6	7%
Waste	3.2	3%
Total	**96.1**	

Electricity	18.7	19%
Transport	38.2	40%
Commercial, Industrial and Residential	23.7	25%
Other energy	1.4	2%

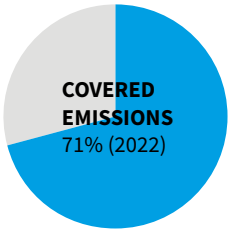
GHG REDUCTION TARGETS

By 2030: 45% reduction from 1990 GHG levels ("Greenhouse Gas Emission Limits – Amendment 2020")
By 2040: 70% reduction from 1990 GHG levels (Greenhouse Gas Emission Limits – Amendment 2020)
By 2050: 95% reduction of total GHG emissions below 1990 levels and achievement of net-zero emissions (Greenhouse Gas Emission Limits – Amendment 2020)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 68.2 $MtCO_2e$[3,4]



PHASES

FIRST COMPLIANCE PERIOD: Four years (2023 to 2026)
SECOND COMPLIANCE PERIOD: Four years (2027 to 2030)
THIRD COMPLIANCE PERIOD: Four years (2031 to 2034)

Under Senate Bill 6058, the Department of Ecology may be required to revise the definition of "compliance period" through rulemaking to align with a linked jurisdiction. However, the length of the first compliance period will not change.

CAP

A cap limits the total emissions allowed in the system.

FIRST COMPLIANCE PERIOD: The cap for 2023 was set at 63 $MtCO_2e$, which is equal to 93% of average emissions levels of covered entities between 2015 and 2019. The cap declines annually by 7%, to reach 49 $MtCO_2e$ in 2026.

SECOND COMPLIANCE PERIOD: The cap for 2027 will be set at 93% of the sum of the 2026 cap and emissions from new entities entering the program for the second compliance period. The cap declines by 7% annually through 2030.

THIRD COMPLIANCE PERIOD AND BEYOND: The cap for 2031 will be set at 98.2% of the sum of the 2030 cap and emissions from new entities entering the program for the third compliance period. In the period from 2032 to 2042, the cap declines annually by 1.8%.

In the period from 2043 to 2049, the cap declines annually by 2.6%, reaching a 95% reduction from 1990 emissions levels by 2050.

SECTORS AND THRESHOLDS

FIRST COMPLIANCE PERIOD: All facilities with emissions over 25,000 tCO_2e, including industrial facilities, electricity generators, importers of electricity, fuel distributors, and natural gas suppliers. Excludes emissions from waste-to-energy and solid waste management. From 2025 onward, Senate Bill 6058 reduces the threshold for inclusion for some unspecified electricity imports to zero.

SECOND COMPLIANCE PERIOD: Waste-to-energy facilities with emissions over 25,000 tCO_2e in at least one year between 2023 and 2025 will be added.

THIRD COMPLIANCE PERIOD: Railroad companies with emissions over 25,000 tCO_2e in at least one year between 2027 and 2029 will be included.

VOLUNTARY OPT-IN PARTICIPATION: Any facility that is already covered by the mandatory MRV system but with emissions below the 25,000 tCO_2e "Cap-and-Invest Program" inclusion threshold may voluntarily participate as an opt-in entity. Other facilities, including federal power marketing administrations (FPMA), can also participate as opt-in entities. Opt-in entities become covered by the mandatory MRV system and must follow the same MRV requirements as other covered entities.

3 This value excludes biogenic emissions.
4 These emissions are reported but not third-party verified. Verification started for emissions year 2023.

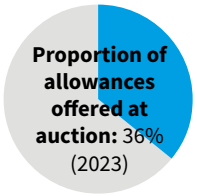
POINT OF REGULATION
Upstream (building, power [imported electricity] transport); point source (mining, industry, power).

TYPE OF ENTITIES
Facilities, fuel distributors

NUMBER OF ENTITIES
97 covered entities and 96 general market participants, offset providers, and utilities that do not have a compliance obligation but receive allowance allocation (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



Allowances are distributed via free allocation, free allocation with consignment, and auction.

FREE ALLOCATION: Emissions-intensive, trade-exposed facilities receive free allowances to mitigate the risk of carbon leakage. Allocation is done using facility-specific benchmarks, based on their average carbon intensity over the period between 2015 and 2019. Facilities could request free allocation based on their average emissions (i.e., grandparenting) only in a few instances where they were unable to calculate the emissions intensity of their production over this period. The reduction schedule that is applied to the allocation of no-cost allowances to eligible facilities will be based on four-year periods that are specified in the statute, instead of compliance periods.

FIRST COMPLIANCE PERIOD: Set at 100% of the benchmark multiplied by actual production, or historical emissions level.

SECOND COMPLIANCE PERIOD: Set at 97% of the benchmark multiplied by actual production, or historical emissions level.
THIRD COMPLIANCE PERIOD: Set at 94% of the benchmark multiplied by actual production, or historical emissions level.

FREE ALLOCATION WITH CONSIGNMENT: Electricity utilities receive free allowances based on forecasts of the electricity supply and administrative costs associated with complying with the "Cap-and-Invest Program". During the first compliance period, they can choose to consign up to 100% of their allowances to auction. Natural gas facilities received an initial free allocation equal to 93% of their average emissions in the period from 2015 to 2019. The amount reduces annually in line with the cap decline factor. In 2023, 65% of free allowances must have been consigned for auction. This amount increases by 5% each year, reaching full consignment in 2030. Freely allocated allowances that are not consigned for auction may only be used for surrender and cannot be traded. Whether consigned or not, the allowance value allocated to electricity utilities and natural gas suppliers is required to be used for ratepayer benefit.

AUCTIONING: Auctions occur four times a year. Unsold allowances are held for future auctions and only sold if the settlement price is above the auction floor price for two consecutive auctions. Any that remain unsold within 24 months are transferred to an emissions containment reserve (see 'Market Stability Provisions' section).

USE OF REVENUES

Climate mitigation

Pursuit of other development objectives, such as education and health

Assistance for individuals, households, and businesses

USE OF REVENUE FROM FREE ALLOWANCES CONSIGNED FOR AUCTION: Revenues raised from the auctioning of free allowances on behalf of electricity utilities and natural gas facilities must be used to benefit rate payers or customers, prioritizing those from low-income groups. In most cases how the revenues are used is determined by the state's Utilities and Transportation Commission.

USE OF REVENUES FROM ALLOWANCES AUCTIONED BY THE DEPARTMENT OF ECOLOGY: Proceeds from auctions are split into seven accounts:
- Carbon Emissions Reduction Account (CERA);
- Climate Active Transportation Account (CATA);
- Climate Transit Programs Account (CTPA);
- Climate Investment Account (CIA);
- Climate Commitment Account (CCA);
- Natural Climate Solutions Account (NCSA); and
- Air Quality and Health Disparities Improvement Account (AQHDIA).

Each account is intended for different environmentally beneficial activities. Not all projects funded from these accounts are intended to reduce GHG emissions. Funds in each of these seven accounts are to be appropriated for specific types of climate, environmental justice, and ecological projects. The CCA requires that a minimum of 35%, with a goal of 40%, of money from CCA accounts be used for projects that provide a direct and meaningful benefit to vulnerable populations within overburdened communities. At least 10% of CCA account funds are required to be used for projects formally supported by the resolution of a Tribe.

During fiscal year 2024 (1 July 2023 through 30 June 2024), 37 agencies received appropriations totaling USD 3.2 billion and approximately USD 472 million was spent.[5] During the 2024 legislative session, the Legislature specified that approximately USD 645 million of the USD 3.2 billion in appropriations could not be spent until January of 2025, pending the results of Initiative 2117. As the initiative failed to pass, agencies will have until June 30, 2025, to spend these funds. Of the amount already spent, approximately USD 200 million was through CTPA and about USD 100 million through each of CCA and NCSA.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Unlimited banking is allowed between periods; however, covered entities are subject to general holding limits, which depend on the cap level. Allowances held in a compliance account to be used for compliance or that are to be consigned for auction do not count towards the holding limit.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE LIMITS: Washington has adopted – with modifications – the following offset credit protocols developed under the California Cap-and-Trade Program:

- Livestock projects;
- Ozone depleting substance projects;
- US forest projects; and
- Urban forestry projects.

QUANTITATIVE LIMITS:

First compliance period: Up to 5% of an entity's compliance obligation from projects not located on federally recognized tribal land. The ongoing rulemaking process will increase this limit to 8%. An additional 3% can be met from projects located on federally recognized tribal land.

Second compliance period: Up to 4% of an entity's compliance obligation from projects not located on federally recognized tribal land. The ongoing rulemaking process will increase this limit to 6%. An additional 2% can be met from projects located on federally recognized tribal land.

Third compliance period and beyond: Up to 4% of an entity's compliance obligation, which can include projects located on federally recognized tribal land. An additional 2% can be met from projects located on federally recognized tribal land.

In the event of a link to another trading system, at least 50% of offset credits must provide direct environmental benefits to the state (DEBS) in the first compliance period, rising to 75% from the second compliance period. Without a link, all offset credits must provide DEBS.

Entities surrendered 26,280 offset credits in 2023, corresponding to 0.13% of total instruments surrendered for compliance.

LINKS WITH OTHER SYSTEMS

The Washington Cap-and-Invest Program is not currently linked with any other system. However, in November 2023, the Department of Ecology announced that it would pursue linkage with the cap-and-trade programs of California and Québec. In March and September 2024, joint statements from the governments of Washington, California and Québec affirmed their commitment to explore potential linkage.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (allowance or offset credit) per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

Four years

Except for the year following the last year of a compliance period, compliance instruments equal to at least 30% of the previous year's verified emissions must be surrendered annually, by the start of November (or the first business day thereafter). Compliance instruments equal to all remaining emissions must be surrendered by the start of November (or the first business day thereafter) of the year following the last year of a compliance period.

MRV

REPORTING FREQUENCY: Annual

VERIFICATION: All reports are verified by independent third-party verifiers and by the Department of Ecology.

FRAMEWORK: The MRV framework was established by the regulation "Reporting of Emissions of Greenhouse Gases".

5 The annual report titled "Distribution of Funds from CCA Accounts" for Fiscal Year 2024 is available **here**.

PENALTIES AND ENFORCEMENT

Should an entity have insufficient allowances to cover its annual and final compliance obligations, within six months of the deadline it must submit four allowances for each missing allowance it did not surrender. If the entity fails to comply, a fine of up to USD 10,000 per day per missing allowance will be incurred.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, including opt-in entities; non-compliance entities, including offset project participants; individuals with primary residence in the United States.

MARKET TYPES:

Primary: Auctions are held four times per year, with a calendar giving dates and volumes published in January of each year. Participants must have an account in the Compliance Instrument Tracking System Service (CITSS). Auctions are delivered through the Western Climate Initiative, Inc.

Secondary: Futures and options contracts for allowances are traded on the Intercontinental Exchange and Nodal Exchange. Allowances can be traded over the counter directly between market participants.

MARKET STABILITY PROVISIONS

AUCTION PRICE FLOOR

Instrument type: Price-based instrument

Functioning: The auction price floor is set at USD 25.85 for 2025. It increases by 5% plus inflation annually, as measured by the nationwide Consumer Price Index for All Urban Consumers (CPI-U) identified by the US Bureau of Labor Statistics.

ALLOWANCE PRICE CONTAINMENT RESERVE (APCR)

Instrument type: Price-based instrument

Functioning: The APCR is a separate account managed by the Department of Ecology, from which allowances can be auctioned at pre-defined prices in the event of unexpectedly high allowance costs. The APCR was frontloaded, with 5% of the caps in the first and second compliance periods (covering 2023 to 2030) set aside at the outset of the program. The APCR has two price tiers, which in 2025 are set at USD 60.43 and USD 77.63 for Tiers 1 and 2 respectively.[6] Prices increase annually by 5% plus inflation, as measured by the CPI-U.

Auctions from the APCR are held if the settlement price in the last auction reaches the Tier 1 price level. These sales may only be held once a year before the compliance deadline, and only covered and opt-in entities can participate. Bids must be at one of the two price levels. Purchased allowances are deposited directly into entities' compliance accounts and cannot be traded on secondary markets. Any unsold allowances are carried over to future APCR auctions. Three APCR Auctions (in August 2023, November 2023 and October 2024) have taken place since the Program's launch, with a total of just over 7 million allowances sold.

PRICE CEILING UNITS

Instrument type: Price-based instrument

Functioning: If there are no units remaining in the APCR, price ceiling units are made available to covered entities with insufficient allowances to meet their compliance obligations. Price ceiling unit sales only occur at the end of a compliance period and following the request of a covered entity, which must be at least ten days before the compliance deadline. The ceiling price is USD 94.85 for 2025, increasing annually by 5% plus inflation, as measured by the CPI-U.

EMISSIONS CONTAINMENT RESERVE (ECR)

Instrument type: Price-based instrument

Functioning: Allowances can be withheld from an auction and placed in the ECR if auction settlement prices fall below the ECR trigger price. The trigger price is currently suspended, and this provision is therefore not operational.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Department of Ecology: Responsible for the program rules and implementation of the "Cap-and-Invest Program".

Western Climate Initiative Inc.: Non-profit organization responsible for administering auctions, the CITSS registry, and conducting market surveillance.

EVALUATION/ETS REVIEW

By December 2027, and every four years thereafter, the Department of Ecology is required to submit a comprehensive review of the program to the legislature.

REGULATORY FRAMEWORK

→ Climate Commitment Act
→ Climate Commitment Act Program Rule
→ Senate Bill 6058

6 Until a linkage agreement is signed, APCR auctions only include allowances at the Tier 1 price.

LATIN AMERICA & THE CARIBBEAN

ARGENTINA

- The Argentinian government is exploring the implementation of an ETS
- ETS proposal removed from Framework Law after legislative opposition in April 2024
- Proposed bill seeks to operationalize a 2023 framework for carbon market implementation

In force

Under development

Under consideration

ETS DESCRIPTION

The “National Strategy for the Use of Carbon Markets” (ENUMeC), approved in 2023, establishes a framework for compliance and voluntary carbon markets in Argentina in line with the country’s NDC’s, the Long-Term Strategy to 2050, and the “National Climate Change Adaptation and Mitigation Plan” (PNAyMCC). Compliance carbon markets are highlighted as key instruments under the “Financiamiento para la Transición” strategy, aiming to provide transparency and reliability for carbon market implementation at national and international levels.

An initial legislative proposal for an ETS in Argentina was included in a Bill introduced by President Milei in December 2023. Aligned with ENUMeC’s objectives, the proposed ETS would have initially covered the energy sector, with potential for expansion to other sectors. However, due to significant opposition, all ETS references were removed from the revised Framework Law (Ley Bases) in April 2024. Despite this, there are signs that the administration remains open to market-led decarbonization approaches.

In November 2024, legislative proposals were introduced in the Chamber of Deputies (6538-D-2024) and Senate (S2134/34) titled “Bill for Minimum standards for the implementation of greenhouse gas mitigation projects in Argentina” (Proyecto de Ley de Presupuestos Mínimos para la Implementación de Proyectos de Mitigación de Gases de Efecto Invernadero). The proposed Bill aims to operationalize ENUMeC, mandate regulations for voluntary carbon markets, establish the National Registry of Greenhouse Gas Mitigation Projects (ReNaMi) and facilitate Article 6 implementation under the Paris Agreement. ETS development is not included in the proposal.

Additionally, in September 2024, Argentina partnered with the Inter-American Development Bank (IDB) to commission an ETS blueprint that includes international benchmarking and an impact cost assessment.

EMISSIONS & TARGETS OF ARGENTINA

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	200.4	57%
Industrial processes	23.6	7%
Agriculture	102.2	29%
Waste	23.3	7%
Total	**349.5**	

Energy Industries	55.4	16%
Manufacturing Industries and Construction	28	8%
Transport	56	16%
Commercial, Institutional, and Residential	30.3	9%
Other Energy	30.7	9%

GHG REDUCTION TARGETS

By 2030: Argentina aims to limit its net emissions to 349 $MtCO_2e$, representing a 21% decrease in emissions compared to the historical peak in 2007 (2022 NDC).
By 2050: Climate neutrality, as submitted to the UNFCCC in November 2022 (2022 NDC).

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Foreign Affairs, International Trade, and Worship: Support and oversight of the voluntary cooperation mechanisms established in Article 6 of the Paris Agreement under the United Nations Framework Convention on Climate Change.
Undersecretariat of Environment and Sustainable Development: Manages environmental and climate policies, focusing on the potential of various sectors to achieve the country's 2030 mitigation goals, and develops calculations for GHGs in the National Inventory (INGEI in Spanish).

REGULATORY FRAMEWORK

- → **Ministry of Environment and Sustainable Development Resolution (Resolución del Ministerio de Ambiente y Desarrollo Sostenible)– MAyDS N° 385/2023**
- → **Proyecto de Ley de Presupuestos Mínimos para la Implementación de Proyectos de Mitigación de Gases de Efecto Invernadero**

1 This value only includes categories 3A, 3B and 3C.

BRAZIL

BRAZILIAN GREENHOUSE GAS EMISSIONS TRADING SYSTEM

- "Law No. 15,042/2024" approved, formally establishing the system
- Broad sectoral coverage, with agricultural sector exempted and forestry sector expected to generate carbon credits
- First compliance obligations expected in 5-6 years

ETS DESCRIPTION

Law No. 15,042/2024 establishes the Brazilian Greenhouse Gas Emissions Trading System (Sistema Brasileiro de Comércio de Emissões de Gases de Efeito Estufa, SBCE). The SBCE aims to support the implementation of "Law No. 12,187 – Brazilian National Climate Change Policy" and the achievement of the country's climate targets. The law lays out the governance framework and the legal foundation for obligations by covered entities, with key design elements (such as scope, cap, and allocation) to be determined in the coming years.

The ETS will impose compliance obligations on entities emitting more than 25,000 tCO_2e per year, with reporting obligations applying to those emitting more than 10,000 tCO_2e per year. Covered entities will have to surrender allowances for all their covered emissions (see 'Compliance Period' below). A priori, the ETS applies to all sectors of the economy – with the explicit exemption of agricultural activities, and with forestry activities expected to generate carbon credits. The extent to which some sectors will see entities covered by the SBCE will depend on whether participation thresholds will apply to individual sources or e.g., at company level, which is yet to be determined.

The system will be overseen by the Interministerial Climate Change Committee, and operated by the SBCE management body, which will be supported by a technical consultative body. National Allocation Plans – to be published regularly – will set out the cap and its expected trajectory, allocation methods, the percentage of offset credits allowed for compliance, market stability provisions, as well as provisions to protect against reversals and leakage, among others. The cap is to be set in accordance with Brazilian climate targets. Revenues from the trade of allowances and offset credits will be subject to net gains and capital gains tax. Non-compliance will be punishable by fines and embargoes, among other penalties.

Covered entities will be allowed to surrender domestic offset credits to meet part of their compliance obligation. Eligible activities are those that make use of methodologies accredited by the SBCE management body (to be determined); verified by an independent entity; and registered in the SBCE Central Registry. Once registered in the SBCE registry as Verified Emissions Reduction or Removal Certificates (Certificado de Redução ou Remoção Verificada de Emissões - CRVE), the offset credits will become eligible for use under the SBCE. The agriculture, land-use change and forestry sectors – responsible for more than 60% of emissions in Brazil – are expected to play a key role in the generation of CRVE. Provisions for REDD+ credits are included in the law.

The law also explicitly defines the rights of indigenous peoples and traditional communities with regard to carbon crediting. This includes the right to commercialize offset credits generated on lands they traditionally occupy, as well as the compensation for any damages resulting from offset credit projects. Actors involved in offset credit projects would also have to adhere to a benefit-sharing regulation.

1 Aviation, transport and maritime sectors are subject to the regulation in principle. Whether or not these sectors will see entities covered by the ETS will depend on whether participation thresholds will apply to individual sources or e.g., at company level, which is yet to be determined.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- AVIATION[1]
- POWER
- MARITIME[1]
- INDUSTRY
- WASTE
- TRANSPORT[1]

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, SF_6, PFCs

OFFSET CREDITS

Domestic offset credits will be allowed, with quantitative limits

ALLOCATION

Free Allocation: TBD
Auctioning

The law also stipulates that CRVEs may be eligible for international transfers under Article 6 of the Paris Agreement, subject to authorization by a designated national entity. The SBCE registry will track both national and international transactions.

The implementation of the law will occur in five stages:

- Phase I: government enacts regulations needed to implement the system (one to two years).
- Phase II: regulated entities operationalize emissions monitoring and reporting (one year).
- Phase III: regulated entities face monitoring and reporting obligations (two years).
- Phase IV: implementation of the first national allocation plan, with free allowance allocation.
- Phase V: full operationalization of the SBCE, following the end of the first national allocation plan.

EMISSIONS & TARGETS OF BRAZIL

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	418.5	34%
Industrial processes	102.3	8%
Agriculture	622.0	50%
Waste	90.8	7%
Total	**1,233.6**	

Energy industries	56.6	5%
Manufacturing industries and construction	69.1	6%
Transport	217.4	18%
Commercial, institutional, and residential	31.3	3%
Other energy	44.1	4%

GHG REDUCTION TARGETS

By 2030: 1.2 $GtCO_2e$ (53.1% below 2005) (2030 NDC)
By 2035: between 850 $MtCO_2e$ and 1.05 $GtCO_2e$ (2035 NDC, upcoming)
By 2050: Long-term objective to achieve climate neutrality by 2050 (2030 NDC)

ETS COVERAGE & PHASES

SECTORS AND THRESHOLDS

INCLUSION THRESHOLDS: The SBCE will impose obligations on the operators responsible for installations and sources that emit:

- 10,000 tCO_2e/year for monitoring and reporting obligations; and
- 25,000 tCO_2e/year for compliance obligations.

Inclusion thresholds may be amended upwards by the SBCE management body. Obligations will apply only to activities for which consolidated MRV regulations are available.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Operators responsible for installations and sources that surpass the thresholds (see 'Sectors and Thresholds' section).

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

To be determined through the National Allocation Plan. Allowance allocation may be free of charge or auctioned. Auctions are not permitted during the first commitment period.

USE OF REVENUES

Climate mitigation

Assistance for individuals, households, and businesses

ETS revenues – such as from allowance auctions and non-compliance fees – are to be disbursed as follows:

- at least 15% for the operationalization and maintenance of the SBCE;
- at least 75% for the National Climate Change Fund, to support the financing of mitigation activities; and
- at least 5% for indigenous peoples and traditional communities to compensate them for forest preservation and ecosystem services.

FLEXIBILITY & LINKING

OFFSET CREDITS

QUALITATIVE LIMITS: Eligible activities are those that make use of methodologies accredited by the SBCE management body (to be determined); are measured and reported by those responsible for developing or implementing the project or program and verified by an independent entity, in accordance with the methodology accredited by the SBCE; and registered in the SBCE Central Registry. Once registered in the SBCE registry as Verified Emissions Reduction or Removal Certificates (Certificado de Redução ou Remoção Verificada de Emissões - CRVE), the CVRE credits will become eligible for use under the SBCE.

QUANTITATIVE LIMITS: Quantitative limits for the use of CRVEs against compliance obligations will be determined as part of each National Allocation Plan.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities will have to surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

To be determined by implementing regulation. As per the law, compliance must occur at the end of each compliance period or at shorter frequency as defined by the SBCE management body.

MRV

MONITORING: Covered entities will have to submit a monitoring plan to the SBCE management body for approval. Rules for the establishment of monitoring plans will be developed in the 12 to 24 months following the approval of the bill introducing the ETS.
REPORTING: Operators will have to submit an annual report on GHG emissions and removals, adhering to the approved monitoring plan and specific guidelines set by the SBCE management body.
VERIFICATION: The report must undergo a conformity assessment by an accredited inspection body to ensure accuracy and compliance.

PENALTIES AND ENFORCEMENT

Non-compliance will be punishable by fines and activity embargoes, among other penalties. Fines will be limited to 3% of the gross revenue for legal entities (up to 4% in case of repeat offense). For other individuals, as well as for legal entities without revenue, the fine will range from BRL 50,000 (USD 9,278) to BRL 20 million (USD 3.71 million).

MARKET REGULATION

MARKET DESIGN

LEGAL STATUS OF ALLOWANCES: Allowances and CRVEs, when traded on financial and capital markets, are securities (valores mobiliários) subject to relevant laws and to the Brazilian Securities and Exchange Commission (Comissão de Valores Mobiliários – CVM).

OTHER INFORMATION

INSTITUTIONS INVOLVED

Interministerial Climate Change Committee: Responsible for general guidance and regulatory framework.
SBCE management body: Implementing authority, responsible for setting the cap, receiving emissions report, run the registry among other responsibilities.
Permanent Consulting Technical Committee: Advisory body responsible for presenting inputs and recommendations for improving the SBCE. The Permanent Consulting Technical Committee will have a Regulatory Affairs Chamber, composed of entities representing the regulated sectors.

REGULATORY FRAMEWORK

→ Law 15042/2024 establishing the SBCE

CHILE

- **Provisions for a system of GHG emissions limits contained in the "Framework Law on Climate Change"**
- **Green Hydrogen Action Plan, Decarbonization Plan (in draft form), and Sectoral Mitigation and Adaptation Plan, foresee a pilot ETS to be developed in 2025**
- **Plans to increase carbon price trajectory between 2025 and 2030**

ETS DESCRIPTION

In June 2022, Chile enacted its Framework Law on Climate Change, which sets a 2050 carbon neutrality goal and describes the national, regional, and local climate policies that Chile will implement to achieve it. These include Chile's NDC, "Long-Term Climate Strategy", "Climate Change Financial Strategy", and sectoral mitigation and adaptation plans.

Article 14 of the law mandates the Ministry of Environment to specify GHG emissions limits set by technology, sector, or activity. GHG emissions limits may be set as emissions benchmarks for individual installations or in aggregate, for a group of installations or a sector. If set in aggregate, GHG emissions limits could be akin to a cap. According to Article 15, installations that perform better than their benchmark will have their surplus emissions reductions certified, which may then be used by other regulated entities for compliance with their respective emissions limits.

The specific design of the emissions limits system is not yet defined and could be implemented either as an ETS or a tradable performance standard. The "Rules for the Development of GHG Emissions Standards and Short-Lived Climate Pollutant Limits" was approved in March 2024 by Chile's Council of Ministers for Sustainability and Climate Change[1]. The document specifies procedures and characteristics of the emission limits to be developed under the Framework Law. Similarly, the "Rules for the Emissions Compensation System of GHG Emissions Standards and Short-Lived Climate Pollutant Limits" underwent public consultation in 2024 and was reviewed by the Council of Ministers for Sustainability and Climate Change in early 2025. It specifies the rules and procedures to verify and approve GHG emission or short-lived climate pollutant reduction or absorption projects, as well as to generate credits from reductions, absorptions or excess in compliance with the standards.

Based on Article 37 of the Law, which provides a basis for the development of market-based, fiscal, and financial instruments to address the negative impacts of GHG emissions, the country's "2022-2026 Energy Agenda" states that a pilot ETS project for the energy sector will be developed.

The Green Hydrogen Action Plan, the Decarbonization Plan (in draft form), and the Sectoral Mitigation and Adaptation Plan, foresee that a pilot ETS for the energy sector will be designed in 2025 and start operating in 2026. Moreover, the draft Sectoral Mitigation and Adaptation Plan specifies that work around this will be supported by the World Bank's Partnership for Market Implementation.

Chile has had a carbon tax in place since 2017. The country's "Long-Term Climate Strategy", presented in October 2021, specifies that Chile will set an increasing trajectory for its carbon price between 2025 and 2030. It also specifies that the country seeks to have an integral carbon pricing portfolio to deliver coherent and predictable price signals. In line with this, the government launched its "National Energy Policy by 2050", which states that carbon prices in Chile should reach USD 35/tCO_2e by 2030 and USD 80/tCO_2e by 2040.

1 Rules for the Development of GHG Emissions Standards and Short-Lived Climate Pollutant Limits, March 2024

In force

Under development

Under consideration

SECTORS

POWER

EMISSIONS & TARGETS OF CHILE

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	84.8	76%
Industrial processes	8.1	7%
Agriculture	9.2	8%
Waste	8.9	8%
Total	**111.0**	

Energy industries	29.0	26%
Manufacturing industries and construction	16.4	15%
Transport	30.0	27%
Commercial, institutional, and residential	7.5	7%
Other energy	1.9	2%

GHG REDUCTION TARGETS

By 2025: Peak GHG emissions (updated NDC). Revert the increasing trend of methane emissions (NDC Strengthening Annex)
By 2030: GHG emissions of 95 $MtCO_2e$. Minimum 25% reduction of total emissions of black carbon, as compared to 2016. Carbon budget of 1,100 $MtCO_2e$ between 2020 and 2030 (updated NDC)
By 2050: Climate neutrality (Framework Law on Climate Change)

FLEXIBILITY & LINKING

OFFSET CREDITS

Article 14 of the Framework Law on Climate Change stipulates that emissions reduction or removal certificates from projects implemented within Chile may be used for compliance with the emissions standards defined in Articles 14 and 15 of the law. The Draft Rules for the Development of GHG Emissions and Short-Lived Climate Pollutant Limits specify that a limit of 5% for the use of emissions reduction or removal certificates in lieu of the compliance obligation of entities regulated under Article 14 of the Framework Law.

The government has also developed a National Mitigation Actions Registry (Registro Nacional de Acciones de Mitigación – RENAMI). This will allow the implementation of the offset scheme approved in the carbon tax reform and would constitute a key element for other instruments, such as the scheme proposed in the Framework Law on Climate Change or emerging instruments under Article 6 of the Paris Agreement.

As per the "Agreement N°17/2022 - Regulation of Projects for The Reduction of Pollutant Emissions to Offset Taxable Emissions Pursuant to Article 8 of Law No. 20.780", entities under the carbon tax scheme can use offset credits to meet their compliance obligations. Third-party verification is required to issue offset credits.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Chile Carbon Tax
Domestic offsetting mechanisms: Chile Green Tax Emissions Offsetting Scheme

COMPLIANCE

MRV

The current GHG MRV system primarily serves the implementation of the carbon tax. Entities that emit more than 25,000 tCO_2 and/or 100 tonnes of particulate matter due to combustion processes per year are required to monitor and report emissions through government-approved methodologies. Current methodologies are expected to be updated in the future to incorporate all possible regulated fixed sources.

VERIFICATION: Verification procedures are administered by the Superintendency of the Environment under the Ministry of the Environment (no third-party verification is currently used).

FRAMEWORK: The government has developed a "Unified Atmospheric Emissions Report" (*Reporte Único de Emisiones Atmosféricas*) under the "Pollutant Release and Transfer Register" for entities regulated under the tax and other norms. This has streamlined various reporting needs and aims to improve the quality of the information provided. This system is considered a basis for Chile to advance the development of a Unified GHG Emissions Report, which will help evaluate Chile's National Climate Policy.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Energy: Responsible for the development and implementation of the Energy Policy for 2050, the Energy Sector Decarbonization Plan (under development), the Sectoral Mitigation and Adaptation Plan, and the carbon budgets, the market instruments and the mitigation and adaptation action plan for the energy sector under the Framework Law on Climate Change.
Ministry of Environment: Responsible for the development and implementation of the system specified in Articles 14 and 15 of the Framework Law on Climate Change.
Ministry of Finance: Responsible for revising the carbon tax under the Tax Reform.
Ministry of Foreign Affairs: Leads the national board under the Joint Crediting Mechanism and cooperation agreements in the context of Article 6.

Ministry of Agriculture: Leads discussions on carbon credits in the non-energy sector, specifically LULUCF and Nature-Based Solutions.
Council of Ministers for Sustainability and Climate Change: Proposes declarations, draft laws, and administrative acts on climate change to the President of the Republic.

REGULATORY FRAMEWORK

- → Framework Law on Climate Change
- → Draft Rules for the Development of GHG Emissions and Short-Lived Climate Pollutant Limits
- → Draft Rules for the Emissions Compensation System of GHG Emissions Standards and Short-Lived Climate Pollutant Limits
- → Energy Agenda 2022-2026
- → Energy Policy for 2050
- → Green Hydrogen Action Plan
- → Agreement N°17/2022 - Regulation of Projects for The Reduction of Pollutant Emissions to Offset Taxable Emissions Pursuant to Article 8 of Law No. 20.780
- → Draft Decarbonization Plan
- → Sectoral Mitigation and Adaptation Plan

COLOMBIA

NATIONAL PROGRAM OF TRADABLE GREENHOUSE GAS EMISSION QUOTAS

In force

Under development

Under consideration

- **Climate Change Law outlines basic provisions for the establishment of an ETS**
- **ETS pilot phase expected to start in the next years**
- **Full ETS operation expected by 2030**

ETS DESCRIPTION

In 2018, Colombia adopted a law for climate change management ("Climate Change Law", Ley de Cambio Climático), which outlines basic provisions for the establishment of an ETS, or the "National Program of Tradable GHG Emission Quotas" (Programa Nacional de Cupos Transables de Emisión de Gases de Efecto Invernadero – PNCTE). Non-compliance is to be punishable by a fine of up to double the auction price. Auction revenues, as updated by Article 262 of Law 2294 of 2023, will now be allocated to the "Fund for Life and Biodiversity" (formerly the "Fund for Sustainability and Climate Resilience"). These resources are designated for purposes set by the national carbon tax, as well as for administering the PNCTE and the Mandatory Emissions Report under Law 2169 of 2021 (the "Climate Action Law", Ley de Acción Climática). The Climate Change Law also includes crediting provisions: voluntary actions of non-regulated entities that generate GHG emissions reductions or removals may be issued allowances if they are verified, certified, and registered in the National Emission Reductions Registry (Registro nacional de reducción de emisiones de GEI – Renare), and deemed eligible for the program.

On September 2024, the Colombian government opened a public consultation on the Decree for the regulation of the PNCTE. According to the consultation document, the PNCTE would have several phases leading to full implementation of the system in 2030. Minambiente would publish the cap annually, and the caps of the introductory period (2025 to 2030) would be in line with the NDC goal of emitting a maximum of 169.44 $MtCO_2e$ in 2030. Minambiente would also be in charge of determining covered entities and emissions, as well as allocation methods; auctioning is expected to be the main method. Banking of allowances would be allowed within the same implementation phase. The draft Decree proposes a reference price for allowances equal to the carbon tax rate and specifies that Minambiente may define a starting auction price. Monitoring periods would be one calendar year.

The draft Decree would establish the preliminary phase in accordance with the graduality principle of the PNCTE. The objectives of the preliminary phase would be to test and adjust the operational rules of the PNCTE, generate information to evaluate the design elements of the system, contribute to the achievement of the mitigation goals, and identify opportunities for improvement before the start of the second phase.

The 2021 Climate Action Law sets a goal to fully implement the ETS by 2030, as well as an obligation for legal persons to report direct and indirect GHG emissions, following criteria to be set by Minambiente.

EMISSIONS & TARGETS OF COLOMBIA

OVERALL GHG EMISSIONS (GHG EMISSIONS EXCL. LULUCF), 2021

(in $MtCO_2e$, share of total in %)

Energy	91.6	50%
Industrial processes	11.7	6%
Agriculture	58	31%
Waste	22.2	12%
Total	**183.5**	

Energy industries	19.6	11%
Manufacturing industries and construction	13.5	7%
Transport	42.2	23%
Commercial, institutional, and residential	8.3	5%
Other energy	8	4%

GHG REDUCTION TARGETS

By 2030: 51% reduction of GHG emissions compared to BAU by 2030. 40% reduction of black carbon emissions compared to 2014 (updated NDC)

By 2050: Carbon neutrality (Climate Action Law 2021)

ETS COVERAGE & PHASES

PHASES

According to the draft Decree, the system will have three phases from the beginning to 2030, including a preliminary phase.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed within the same implementation phase.

OFFSET CREDITS

QUANTITATIVE LIMITS: According to the draft Decree, Minambiente may allocate up to 10% of the cap in each compliance period to reduction or removal activities.

LINKS WITH OTHER SYSTEMS

The PNCTE is not linked with any other system. The Colombia carbon tax rate serves a reference price.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon Tax: Colombia carbon tax

Domestic crediting mechanism: Colombia crediting mechanism (carbon tax exemption mechanism)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance for every tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

1 year

MARKET REGULATION

MARKET DESIGN

LEGAL STATUS OF ALLOWANCES:

Article 29 of the 2018 Climate Change Law defines an emissions allowance as a tradeable right that gives its holder the authorization to emit a tonne of CO_2e into the atmosphere.

MARKET STABILTY PROVISIONS

PRICE STABILIZATION RESERVE

Instrument type: Quantity-based instrument (predominantly)

Functioning: Minambiente may create and reserve a percentage of the allowances of a given compliance period, as a means to stabilize or control allowance prices.

REFERENCE AUCTION PRICE

Instrument type: Price-based instrument

Functioning: The reference price of allowances for the starting auction price might be equal to the carbon tax rate. Minambiente may define a starting auction price.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Environment and Sustainable Development: Responsible for defining national environmental policy and promoting the recovery, conservation, protection, ordering, management, use and exploitation of renewable natural resources.

Department of National Planning: Entity of the national government that coordinates, articulates, and supports Colombia's short-, medium-, and long-term planning and guides the cycle of public policies and the prioritization of investment resources.

Ministry of Finance: Coordinates macroeconomic policy; defines, formulates, and executes the fiscal policy of the country; and manages the nation's public resources from the budgetary and financial perspective.

National Climate Change System (SISCLIMA): A set of state, private, and non-profit entities, policies, standards, processes, resources, plans, strategies, instruments, mechanisms, and information related to climate change applied to manage the mitigation of GHGs and adaptation to climate change in the country.

REGULATORY FRAMEWORK

→ Climate Change Law (Ley 1931 de 2018: Ley de Cambio Climático)
→ Climate Action Law (Ley 2169 de 2021: Ley de Acción Climática)
→ Public consultation on the Decree Project to Regulate the PNCTE

DOMINICAN REPUBLIC

In force

Under development

Under consideration

- Roadmap for ETS developed in 2020
- Simulation exercise conducted with stakeholders in November 2023
- The United Nation's Regional Collaboration Center (RCC) is supporting ETS pilot design

ETS DESCRIPTION

The Dominican Republic, through the National Council for Climate Change and Clean Development Mechanism (CNCCMDL) and in collaboration with the RCC Caribbean, has achieved significant milestones under the Collaborative Instruments for Ambitious Climate Action (CIACA) initiative for carbon pricing evaluation and implementation. This effort was incorporated into the Dominican Republic's 2020 NDC, as an element that will contribute to the development of mitigation actions supported by national and international technical assistance (2015 to 2020).

One key achievement was the creation of a Roadmap for Designing an Emissions Trading System (ETS) in the Dominican Republic in 2020, followed by a simulation exercise involving key national stakeholders in November 2023.

Building on the roadmap's recommendations, the CIACA initiative is now supporting the CNCCMDL in designing a pilot ETS. In June, the RCC Caribbean published terms of reference for consultancy services to develop this pilot plan. The pilot design includes the following components:

- define emissions, sectors, and facilities to be included, and establish a cap aligned with the Dominican Republic's NDC targets;
- design an allowance allocation process and draft a framework for using offsets, considering economic impacts and eligibility criteria;
- develop compliance mechanisms and ensure stakeholder involvement throughout the pilot's design; and
- prepare a comprehensive report detailing design decisions, impacts, and implementation plans, followed by a validation workshop in the Dominican Republic.

EMISSIONS & TARGETS OF THE DOMINICAN REPUBLIC

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2015**
(in $MtCO_2e$, share of total in %)

Energy	22.3	63%
Industrial processes	2.9	8%
Agriculture	4.8	13%
Waste	5.6	16%
Total	**35.5**	

Energy industries	10	28.1%
Manufacturing industries and construction	2.8	7.9%
Transport	7.6	21.4%
Commercial, institutional, and residential	1.6	4.5%
Other energy	0.3	0.4%

GHG REDUCTION TARGETS

By 2030: 20% conditional reduction from the BAU scenario of 0.051 $GtCO_2e$ by 2030 and a 7% unconditional reduction through domestic resources, divided into 5% from the private sector and 2% from the public sector (2022 NDC).

OTHER INFORMATION

INSTITUTIONS INVOLVED

The National Council for Climate Change and Clean Development Mechanism (CNCCMDL): Coordinates and unifies efforts from various institutions across the country's development sectors to address climate change. It coordinates the national MRV System and the national GHG Inventory.

REGULATORY FRAMEWORK

- → NDC-RD 2020, Dominican Republic Nationally Determined Contribution
- → Decree No. 348-21 amending Article 1 of Decree No. 601-08, creating and integrating the National Council for Climate Change and the Clean Development Mechanism
- → Decree 269-15, National Climate Change Policy

MEXICO

MEXICO EMISSIONS TRADING SYSTEM

- First ETS in operation in Latin America
- Pilot phase started in 2020, with 2022 as a transition year to the operational phase
- Pilot regulation remains in force until the operational phase regulation is published
- Covers direct emissions from fixed sources emitting at least 100,000 tCO_2

ETS DESCRIPTION1

The Mexico ETS, the first in Latin America, started its pilot phase in January 2020. It covers direct CO_2 emissions from fixed sources in the energy and industry sectors emitting at least 100,000 tCO_2 per year, representing around 40% of national GHG emissions and 90% of emissions reported in the National Emissions Registry (RENE).[2] Under the Mexico ETS, covered entities must surrender allowances for all their covered emissions. Allowances are allocated through grandparenting based on historical emissions, which are verified annually. The level of free allocation is expected to be reduced from the first year of the operational phase, expected to begin in 2025.

The Mexican ETS started with a Pilot Program with two phases: a pilot phase between 2020 and 2021, and a transition phase in 2022. The Pilot Program aimed to test system design, contribute to the NDC and other national mitigation goals, enhance the quality of emissions data, and build capacity in emissions trading, ultimately improving the design of the operational phase.

The regulation of the Pilot Program ("the Agreement on the establishment of the preliminary basis of the Pilot Program of the Emissions Trading System") remains in force until the regulation for the operational phase has been published.

YEAR IN REVIEW

In 2024, the fifth allocation took place.

Mexico's Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, or SEMARNAT) prepared a draft regulation in coordination with the Consultative Committee of the Emissions Trading System (COCOSCE). In January 2024, the letter to validate the draft regulation was signed.

SEMARNAT also undertook several meetings with the industry and energy sectors, as well as other interested stakeholders, to understand their opinions on the technical elements foreseen for the next phase of the Mexico ETS.

The country also published its update to the "National Climate Change Strategy" in September 2024. One of its lines of action (T2.5), under the strategic area of Climate Finance, mentions the strengthening and promotion of economic and finance instruments that are innovative and fair, such as the ETS. Moreover, the updated "Transition Strategy to Promote Cleaner Technologies and Fuels" mentions the evaluation of the technical and economic viability to create or add synergies with the ETS, as a line of action around CCS.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES
POWER
INDUSTRY

CAP

273.1 $MtCO_2$ (2021)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic[1]

ALLOCATION

Free Allocation: Grandparenting

AVERAGE 2024 PRICES

No information on secondary market prices during 2024 available

1 The Ministry of Environment and Natural Resources is in the process of establishing a domestic offsetting program.
2 According to SEMARNAT.

During its participation in COP 29, Mexico joined a group of countries (Canada, Chile, Georgia, Norway, Switzerland and the EU) that plan to present NDCs that are consistent with IPCC emission trajectories aligned with the 1.5°C Paris objective. These NDCs also plan to introduce absolute emissions reductions across all sectors of the economy and GHGs, and be aligned with real and significant emissions reductions towards carbon neutrality by mid-century.

EMISSIONS & TARGETS OF MEXICO

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), 2022

(in $MtCO_2e$, share of total in %)

Energy	480.4	63%
Industrial processes	73	10%
Agriculture, forestry, and other land use[3]	142	18%
Waste	64.9	9%
Total	**760.2**	

Energy industries	162.2	21%
Manufacturing industries and construction	46.9	6%
Transport	191.2	25%
Commercial, institutional, and residential[4]	24.7	3%
Other energy	55.4	7%

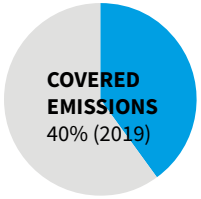
GHG REDUCTION TARGETS

By 2030: Unconditional 35% below BAU GHG emissions baseline (Updated NDC)

By 2050: 50% below 2000 GHG levels (aspirational, included in the "General Law of Climate Change")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2019



PHASES

PILOT PHASE: Two years (2020 and 2021)

TRANSITIONAL PHASE: One year (2022)

OPERATIONAL PHASE: From 2025 (The regulation of the Pilot Program remains in force until the regulation for the operational phase has been published).

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

PILOT (2020-2021):

2020: 271.3 $MtCO_2$

2021: 273.1 $MtCO_2$[5]

Three reserves are filled each year with allowances additional to the cap:

- auctions reserve (equivalent to 5% of the cap, for regular auctions, which have not yet happened);
- new entrants' reserve (equivalent to 10% of the cap, for new entrants as well as increases in production among existing regulated entities); and
- general reserve (equivalent to 5% of the cap, for ex-post adjustment allocation for entities with higher emissions relative to their baselines).

The reserves function as safeguards to avoid economic impacts on regulated entities during the Pilot phase, as required by the 2018 General Law on Climate Change.

SECTORS AND THRESHOLDS

PILOT: The Pilot ETS covered the energy and industrial sectors. The energy sector encompasses electricity generation, transmission, and distribution, as well as fossil fuel extraction, production, transport, and distribution.

The industrial sector includes automobile manufacturing, cement, lime, chemicals, food and beverages, glass, iron and steel, metals, mining, petrochemicals, and pulp and paper, as well as other industrial sub-sectors generating direct CO_2 emissions from stationary sources at or above the threshold.

Inclusion thresholds: The Pilot ETS covers installations with annual direct emissions from stationary sources amounting to at least 100,000 tCO_2.

OPERATIONAL PHASE: Sectors and thresholds are not expected to change during the operational phase.

3 Mexico uses the sectors defined in the latest IPCC guidelines (2006 IPCC Guidelines for National Greenhouse Gas Inventories) for the preparation of its inventory, in which the Agriculture and the LULUCF sectors are integrated into "Agriculture, Forestry and Other Land Use." In an effort to make the display of overall GHG emissions comparable with other jurisdictions, the figure shown here excludes the categories "3B Land" and "3D1 Products of collected wood" but includes the categories "3A Livestock" and "3C Aggregate sources and non-CO_2 emissions sources on land".

4 Corresponding to categories 1A4a and 1A4b

5 The increase in the cap between 2020 and 2021 is due to an extension in the sectoral allocation for regulated entities categorized as "others".

POINT OF REGULATION
Point source (all sectors)

TYPE OF ENTITIES
Installations in the power and industry sectors with annual direct emissions from stationary sources of at least 100,000 tCO_2.

NUMBER OF ENTITIES
~289 currently[6]

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
PILOT: The Pilot featured free allocation with the following specifications:

Initial allocation: Entities receive free allowances equivalent to 100% of their most recent verified emissions. New entrants receive free allowances based on their verified emissions in the year in which they first crossed the 100,000 tCO_2 threshold. For participants that have not yet verified their emissions, initial allocation is done based on their historical emissions as reported to RENE.

Ex-post adjustment: An adjustment allocation is carried out from the general reserve for those participants that did not receive a quantity of free allowances equivalent to their verified emissions.

Participants may request additional allowances when an expansion in their production results in additional direct CO_2 emissions from stationary sources.

Plant closures: When an installation closes permanently, it may have to surrender the allowances that it has for the compliance period of the year before its closure. As well, it should return the free allowances received for the compliance period in which it closes. Whether the installation must only surrender allowances, return allowances, or both, depends on the date of the year in which it closes. SEMARNAT then cancels these allowances.

Auctions: SEMARNAT may auction allowances from the auction reserve.

OPERATIONAL PHASE: Free allocation is expected to be reduced from the beginning of the operational phase. SEMARNAT is in the process of developing the auctioning mechanism.

USE OF REVENUES
SEMARNAT is developing institutional arrangements to manage revenues during the operational phase.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Allowances allocated during the Pilot will not be eligible for banking into the operational phase. For the operational phase, banking will be allowed between phases and compliance years.

Although the possibility of borrowing is not explicitly stated, surrender of allowances for a given compliance period is done after allocation of allowances for the subsequent compliance period takes place.

OFFSET CREDITS
The use of offset credits will be allowed in the operational phase.

QUALITATIVE LIMITS: Two types of flexibility instruments are foreseen, both of which will generate offset credits eligible for use under the ETS: offset credits and early action.

Offset credits: SEMARNAT will establish a domestic program for the generation of offset credits that can be surrendered for compliance. Domestic projects that have been validated and verified under internationally or domestically recognized protocols will be eligible. Emission reductions related to all GHGs will be eligible, except for those related to direct CO_2 emissions.

Early action: Offset credits generated by mitigation projects operating in Mexico under recognized protocols before the pilot came into force (2020) can be eligible for use in the ETS. SEMARNAT issues offset credits only if a certificate of cancellation is presented and if they were not used for other compliance proposes. These projects will be expected to continue generating offset credits during the operational phase.

QUANTITATIVE LIMITS: Participants can meet up to 10% of their compliance obligations with offset or early action credits.

SEMARNAT is currently working on the regulations to implement the offset and early action provisions in the Pilot ETS. The eligibility rules for the use of offset credits within the ETS are being developed based on a mapping of activities and projects that could be used for this purpose.

Articles 89 and 90 of the General Law of Climate Change provide the general framework for the registry of mitigation outcomes, whereas articles 26-29 of the RENE regulation provide additional specifications on the projects that can be registered, such as the procedure for registration and basic information on which certificates from international registries are to be accepted.

6 According to SEMARNAT.

LINKS WITH OTHER SYSTEMS

The Mexico ETS is not linked with any other system. However, the General Law of Climate Change provides for linkages with other systems.

Various cooperation activities have taken place in recent years. Mexico signed a Memorandum of Understanding with California in 2014 and with Québec in 2015 that includes cooperation on emissions trading. In August 2016, Mexico, Québec, and Ontario issued a joint declaration on carbon markets collaboration. Additionally, in December 2017, Mexico – together with four countries and seven sub-national governments – issued the Paris Declaration on Carbon Pricing in the Americas for carbon pricing implementation, which creates a platform for cooperation in the region.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: National carbon tax.

Carbon taxes (state level): Colima, Durango, Guanajuato, Mexico City, Querétaro, San Luis Potosí, State of Mexico, Tamaulipas, Yucatán.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2 emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. SEMARNAT is evaluating the surrender date of allowances based on the experience obtained during the pilot.

MRV

REPORTING FREQUENCY: Annual self-reporting based on electronic templates prepared by SEMARNAT.

VERIFICATION: Verification by independent accredited verifiers is required by the end of June of the subsequent year.

Reporting and verification should be made according to the criteria and procedures of the RENE.[7]

FRAMEWORK: A monitoring plan is expected to be required in the operational phase from all regulated entities as a part of their obligations.

Verified annual CO_2 emissions are reported both to the RENE (in addition to other obligations that regulated entities have to report to the RENE) and to the ETS registry.

Under RENE, emitters with annual emissions of at least 25,000 tCO_2 in the energy, industrial, transport, agricultural, waste, commercial, and services sectors are required to report the six key GHGs identified by UNFCCC, as well as black carbon, chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halogenated ethers, halocarbons, and their mixes. Articles 87 and 88 of the General Law of Climate Change provide the general framework for GHG reporting to RENE.

PENALTIES AND ENFORCEMENT

The Pilot Program is designed to pose no economic impact on regulated entities; however, non-compliant entities lose the opportunity to bank unused allowances into subsequent compliance periods within the pilot and will receive fewer allowances in the first allocation of the operational phase of the ETS (two fewer allowances for each non-delivered allowance during the pilot).

Sanctions are expected to be implemented in the operational phase of the ETS.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Under the pilot rules, market participation is limited to compliance entities and those that provide offset credits. SEMARNAT is designing and developing the process and rules to allow participants without obligations.

MARKET TYPES:

Primary: As of the end of 2024, there had been no auctions in the Mexican ETS pilot. SEMARNAT is preparing institutional arrangements to implement auctions during the operational phase.

Secondary: There is no exchange that trades allowances. As of the end of 2024, transactions can only take place via negotiation between participants.

LEGAL STATUS OF ALLOWANCES: Allowances in the Mexican ETS Pilot are “administrative instruments” and are not considered financial instruments. They are expected to remain as such in the operational phase.

MARKET STABILITY PROVISIONS

None

7 According to SEMARNAT.

OTHER INFORMATION

INSTITUTIONS INVOLVED

SEMARNAT: Ministry in charge of implementing the ETS.

COCOSCE: Formal technical forum for consultation, orientation, social participation, and advice for the Pilot ETS. Its members are representatives from SEMARNAT as well as the ministries of Finance, Energy, and Economy; a representative from the National Institute of Ecology and Climate Change; a representative of the Confederation of Industrial Chambers; a representative from the Coordinating Business Council; and representatives of the regulated sectors.

EVALUATION/ETS REVIEW

Article 10 of the Agreement on the establishment of the preliminary basis of the Pilot Program provided for SEMARNAT to annually review the Pilot, publishing reports on topics such as price behavior and emissions reductions achieved. SEMARNAT developed an internal evaluation on the ETS´s components during the Pilot, in order to improve and update the regulation of the operational phase. Moreover, an evaluation of the Pilot, supported by the COCOSCE, has been conducted to determine if adjustments to the ETS design are necessary.

COCOSCE's working groups have developed different recommendations to the Federal Government on the cap and allocation methods, offset credits, as well as key topics on the energy sector and legal recommendations.

REGULATORY FRAMEWORK

- → General Law of Climate Change
- → Agreement on the establishment of the preliminary basis of the Pilot Program of the Emissions Trading System (implementing regulation of the pilot)
- → Regulation of the General Law of Climate Change on the National Emissions Register
- → Notice on the cap for the years 2020 and 2021
- → Notice on the reserve and sectoral allocation of allowances for the years 2020 and 2021
- → Mexico Emissions Trading System Website
- → Update to the National Strategy on Climate Change
- → Strategy of Sustainable Finance Mobilization of the Ministry of Finance
- → General Organization Manual of SEMARNAT

ASIA-PACIFIC

AUSTRALIA

SAFEGUARD MECHANISM

- Reforms to the Safeguard Mechanism commenced on 1 July 2023
- Intensity-based system, regulating the largest industrial facilities
- Facility-level baselines reduce by 4.9% per year to 2030

ETS DESCRIPTION

The Safeguard Mechanism assigns mandatory facility-level emissions baselines for over 200 large facilities in Australia. It applies to all facilities that emit more than 100,000 tonnes CO_2e of covered emissions in a financial year. Covered entities must surrender credits for emissions that exceed the installation's annual emissions limit (baseline), which is set using an emissions intensity framework.

Facilities emitting above their baseline must offset excess emissions by surrendering Safeguard Mechanism Credits (SMCs) or Australian Carbon Credit Units (ACCUs). In some cases, facilities can also apply to average their emissions over a longer period, reduce their baseline decline rate if eligibility criteria are met, or borrow from their baseline from a future year.

The Safeguard Mechanism was introduced in 2016 but had not been classified as a baseline-and-credit system as no tradeable permits were issued. However, following legislative changes passed in March 2023 which took effect as of July 2023, the government is able to issue SMCs to facilities that over-achieve on their baseline. This reform was accompanied by a tightening of baselines and a default decline rate of 4.9% per year, to align the outcome with Australia's 2030 targets and pave the way towards carbon neutrality by 2050. This in effect turned the Safeguard Mechanism into a baseline-and-credit system.

YEAR IN REVIEW

FY2024 was the first full compliance year under the reformed Safeguard Mechanism. Australia's Clean Energy Regulator (CER) issued the first SMCs in February 2025, following emissions reporting for the FY2024.

In force

Under development

Under consideration

SECTORS

- MINING AND EXTRACTIVES
- AVIATION
- INDUSTRY
- WASTE
- TRANSPORT

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

OFFSET CREDITS

Domestic, unlimited

ALLOCATION

Free Allocation: Output-based Benchmarking

EMISSIONS & TARGETS OF AUSTRALIA

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF)**, 2022**
(in $MtCO_2e$, share of total in %)

Energy	396.7	76.1%
Industrial processes	33.0	6.3%
Agriculture, forestry, and other land use	77.5	14.9%
Waste	13.9	2.7%
Total	**521.0**	

Energy industries	191.2	37%
Manufacturing industries and construction	43.1	8%
Transport	89.8	17%
Commercial, institutional, and residential	16.2	3%
Other energy	56.4	11%

GHG REDUCTION TARGETS

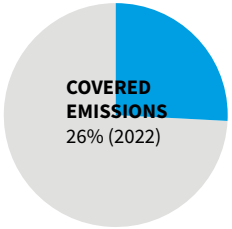
By 2030: 43% below 2005 levels (updated NDC, 2022)
By 2050: Net zero emissions (NDC, 2021 and 2022)

Australia's GHG reduction targets cover LULUCF and all other sectors, categories and carbon pools, as defined by the IPCC 2006 guidelines, and additional sources reported in Australia´s annual National Inventory Report.

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 138.7 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

The total net emissions limit under the Safeguard Mechanism is the sum of the bottom-up installation-level emissions limits (baselines) for all individually covered entities. However, the bottom-up emissions limits do not represent an absolute cap.

The facility-level baselines are calculated using output-based benchmarking based on emissions intensity (see 'Allowance Allocation' section). A default decline rate of 4.9% per year applies to standard and landfill baselines up to 2030.

Standard baselines apply to all covered facilities that produce products, whereas landfill baselines are calculated differently and apply exclusively to waste facilities as they provide a service rather than a product.

Net emissions from all Safeguard facilities should not exceed 100 $MtCO_2e$ in FY2030; the total net emissions should not exceed 1,233 million tCO_2e between FY2021 and FY2030; and should reach net zero by FY2050.

Gross emissions from all Safeguard facilities must also reduce over time, measured on a five-year rolling average. From July 2024, the rolling average of Safeguard-covered emissions over the previous five years must be lower than the five-year rolling average from three years earlier; and from July 2027, the five-year rolling average of Safeguard-covered emissions must be lower than the five-year rolling average from two years earlier.

SECTORS AND THRESHOLDS

SECTORS: The Safeguard Mechanism covers all direct (scope 1) GHG emissions from facilities emitting over 100,000 tCO_2e per year. This currently includes around 220 facilities in the mining, manufacturing, domestic transport, oil, gas and waste sectors.

Grid-connected electricity facilities are covered by a "sectoral" baseline that is not expected to be exceeded and is not declining. Individual grid-connected electricity generators are not covered as long as total emissions do not exceed the sectoral baseline. Grid-connected power sector facilities thus do not face a compliance obligation. Off-grid generators, including electricity generation integrated into Safeguard facilities, are not covered by the sectoral baseline. Their emissions are reported by the facility.

In the waste sector, only a very small share of total sectoral emissions (~1%) is covered as the majority of installations do not exceed the coverage threshold.

COVERAGE THRESHOLDS: Facilities and companies with annual scope 1 emissions over 100,000 tCO_2e.

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Facilities, domestic transport companies (rail/road freight, shipping and aviation)

NUMBER OF ENTITIES

219 entities (FY2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Under the reformed Safeguard Mechanism, baselines are set using a production adjusted emissions intensity framework. Baselines are initially weighted towards a facility's emissions intensity. However, by 2030, baselines transition to being set based on an industry average emissions intensity value. Baselines for new products produced by existing facilities, as well as all products produced by new facilities, from July 2023 are set using 'best-practice' emissions intensity values.

A sectoral baseline applies to grid-connected electricity generation, based on historical emissions.

For facilities with no other baseline determined or where a baseline of less than 100,000 tCO_2e is calculated, a default of 100,000 tCO_2e is applied.

Facilities that overachieve on their baseline (with the exception of landfills and facilities accessing borrowing arrangements or during a multi-year monitoring period) are issued SMCs that can be banked for future use or sold to other facilities.

Facilities that are considered at risk of carbon leakage ("trade-exposed baseline-adjusted", or TEBA facilities) can apply for reduced baseline decline rates (see 'Compliance Mechanism' section).

FLEXIBILITY & LINKING

BANKING AND BORROWING

Unlimited banking of SMCs is allowed up to 2030. The option to use banked SMCs after 2030 will be considered in the 2026 to 2027 review of the Safeguard Mechanism (see 'Evaluation/ETS review' section).

Borrowing up to 10% of a facility's baseline each year will be allowed until 2030. The facility's baseline would then decrease by a corresponding amount the following year, plus:

- 2% interest for FY2025 and FY2026;
- 10% interest for financial years from FY2027 onwards.

OFFSET CREDITS

The use of ACCUs issued under the domestic offset scheme is allowed.

QUALITATIVE LIMITS: Only ACCUs allowed for compliance.

QUANTITATIVE LIMITS: None. However, if a facility surrenders ACCUs equal to more than 30% of its baseline in a given financial year, it must submit a statement to the CER setting out why more onsite abatement has not been undertaken. This statement is then published on the CER's website.

In FY2023, a total of 965,000 ACCUs were surrendered for compliance purposes under the Safeguard Mechanism.

LINKS WITH OTHER SYSTEMS

The Safeguard Mechanism is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Domestic offsetting mechanism: Australian Carbon Credit Unit (ACCU) Scheme

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one SMC or ACCU unit per tCO_2e that exceeds the installation's annual emissions baseline, which is set using a production-adjusted emissions intensity framework based on an emissions intensity benchmark.

For existing facilities, baselines are initially set weighted towards a facility's current emissions intensity but, over the years to 2030, baselines will transition to being set based on an industry-average emissions intensity value.

A default decline rate of 4.9% per year applies to the baselines of existing and new facilities until 2030. Post-2030 decline rates will be set in predictable five-year periods, aligned with future updates to the Australian NDC targets. The decline rate is consistent with Australia's emissions projections and includes a 'reserve' to account for higher than expected production from both new and existing facilities and greater than expected access to trade exposed baseline adjustments.

Trade exposed facilities can reduce their decline rate to as low as 1% per year for the manufacturing sector, or 2% per year for other sectors if they apply for TEBA status and demonstrate that they are at an elevated risk of carbon leakage. TEBA facilities receive a discounted baseline decline rate for three years, with the adjusted decline rate being commensurate with their scheme costs.

In some cases, facilities can apply for a multi-year monitoring period (i.e., multi-year baselines) of up to five years to smooth their obligation and abatement trajectories up to 2030, but this mechanism is only available where facilities can demonstrate they will undertake on-site abatement to achieve below baseline emissions at the end of the monitoring period.

COMPLIANCE PERIOD

Annual reporting and compliance

- End of compliance period: 30 June
- Reporting deadline: 31 October
- SMC issuance: early February in the following year
- Surrendering deadline: 31 March in the following year

MRV

MONITORING: Emissions monitoring according to the "National Greenhouse and Energy Reporting Act" (NGER Act) 2007.

REPORTING: Annual self-reporting according to the NGER Act.

VERIFICATION: Verification according to the NGER Act. All facilities with emissions greater than 1 $MtCO_2e$ per year are required to undergo an independent emissions audit each year.

PENALTIES AND ENFORCEMENT

The maximum civil penalty is set at one penalty unit per tonne of excess emissions per year. As of July 2024, a penalty unit is AUD 330 (USD 210). The infringement notice is charged at one-third of the maximum civil penalty to a maximum of 150,000 penalty units.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, non-compliance entities (ACCU project proponent).

MARKET TYPES:

Primary: Allowances are currently not auctioned.

Secondary: The CER is currently in the process of establishing an Australian Carbon Exchange which will consolidate current unit registers and will enable the trading, clearing and settling of ACCUs. Over time it will support new units, such as SMCs.

LEGAL STATUS OF ALLOWANCES: ACCUs and SMCs are treated as financial products under "Australia's Corporations Act (2001)". Certain exemptions apply.

MARKET STABILITY PROVISIONS

COST CONTAINMENT MEASURE:

Instrument type: Set price (rising over time)

Functioning: Safeguard facilities that exceed their baseline may apply to the CER to purchase the required number of ACCUs at a fixed price. The price of these ACCUs is set at AUD 75 (USD 49.90) in FY2024 and will be indexed in future financial years by the Consumer Price Index (CPI) plus an additional 2% per year. This measure is intended to provide certainty to Safeguard facilities about the maximum compliance costs they will face under the reformed scheme.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Clean Energy Regulator (CER): Federal authority overseeing the mechanism; tasked with setting baselines, collecting and publishing emissions data, issuing SMCs and making determinations on borrowing, MYMPs and TEBA applications.

Department of Climate Change, Energy, Environment and Water (DCCEEW): Federal ministry responsible for climate policy and the Safeguard Mechanism.

Climate Change Authority (CCA): Independent advisory body providing expert advice to the Australian government on climate policy, including the performance of the Safeguard Mechanism.

EVALUATION/ETS REVIEW

The Government will review Safeguard Mechanism policy settings from 2026 to 2027, to ensure they are appropriately calibrated. As part of this review, the CCA will advise the government on the extent to which on-site abatement is being driven by the reforms, and whether any additional incentives are required.

Following the reforms to the Safeguard Mechanism in 2023, the Government committed to review additional policy options to address carbon leakage due to differences in emissions reduction policies between Australia and key trading partners. Two consultation papers were published in November 2023 and November 2024. The second consultation paper found current Safeguard settings are effective at mitigating carbon leakage risk in the short- to medium- term, but some commodities may need to be augmented with additional measures over time, such as a border carbon adjustment for imports.

REGULATORY FRAMEWORK

- National Greenhouse and Energy Reporting Act 2007 (NGER Act)
- National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015
- Carbon Credits (Carbon Farming Initiative) Rule 2015
- Australian National Registry of Emissions Units Act 2011
- Australian National Registry of Emissions Units Regulations 2011

BEIJING

BEIJING PILOT EMISSIONS TRADING SYSTEM

- One of three Chinese pilots with ETS regulation passed by regional congress
- Pioneered cross-regional trading and a price corridor as price stability mechanism
- Wide coverage of sectors and experience of scope expansion

ETS DESCRIPTION

The Beijing Pilot ETS was launched in November 2013 and is one of three Chinese pilots with ETS regulation passed by its regional congress. Beijing applies a bottom-up approach to cap-setting. The ETS covers 30% of the city's total emissions, including those from: heat, cement, petrochemicals, and other industrial enterprises; manufacturers; the service sector; and public transport. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

From 2013 to 2023, Beijing was the only regional pilot in China that used a price floor (CNY 20, USD 2.78) and ceiling (CNY 150, USD 20.84) as a price stability mechanism. In cases of consecutively high or low average prices, the government can auction or buy back extra allowances. The Beijing pilot has seen a relatively high carbon price level compared to the other ETS pilots in China.

Beijing plays a supporting role in the national offset crediting program. The Beijing Green Exchange operates the China Certified Emissions Reduction (CCER) national exchange.

YEAR IN REVIEW

In March 2024, the People's Government of Beijing Municipality updated the "Measures for the Management of Emissions Trading in Beijing", which from May replaced the previous "Interim Measures for the Management of Emissions Trading in Beijing" issued in 2014. The new measures clarify the management responsibilities of the Beijing Municipal Ecology and Environment Bureau (Beijing EEB) and relevant departments in the Beijing pilot ETS, as well as the policy framework.

In May, the Beijing EEB, which manages the pilot, released a notice on the "Management of Key Carbon Emission Units and the Pilot Work of Carbon Emissions Trading in 2024", which included several documents on MRV, allowance allocation, and offset credits. In this document, the Beijing EEB set the compliance deadline for 2023 emissions to November 15, 2024.

In September, the Beijing EEB released a notice on the "Measures for the Administration of offset use in Beijing pilot", which introduced new rules for offset credits use (See 'Offset credits' section).

In October, the Beijing EEB released a notice on the "Measures for the Administration of Auction and Repurchase of the allowance in Beijing pilot", which introduced new market stability rules (See 'Market Stability Provisions' section).

Beijing organized two allowance auctions in September and November. The Beijing EEB auctioned 418.3 thousand allowances for a total of CNY 44.9 million (USD 6.24 million).

1 The power sector transferred to the national ETS in 2020. However, one powercompany remains covered by the Beijing pilot ETS for management reasons.

SECTORS

POWER[1]
BUILDINGS
INDUSTRY
TRANSPORT

CAP

~44 $MtCO_2$ (2022)

GREENHOUSE GASES

CO_2

OFFSETS AND CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 ALLOWANCE PRICE

Average auction price: CNY 107 (USD 15)
Average secondary market price: CNY 102 (USD 14)

TOTAL REVENUE

CNY 318.84 million (USD 43.3 million) since beginning of program
CNY 44.91 million (USD 6.24 million) in 2024

EMISSIONS & TARGETS OF BEIJING

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF)
132.1[2] $MtCO_2e$ (2020)

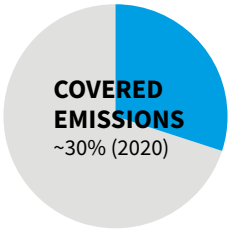
GHG REDUCTION TARGETS

By 2025: At least 10% reduction in CO_2 emissions (excluding passenger and cargo aviation) compared to the peaking level; reduce CO_2 intensity by ~18% compared to 2020 levels (Beijing 14th Five-Year Plan on Environment Protection)
By 2030: Peak Beijing CO_2 emissions ("Beijing Carbon Peaking Plan")
By 2035: "Significant" reduction of CO_2 emissions (Beijing 14th Five-Year Plan on Energy Saving and Climate Change)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2020

~30%



CAP OR TOTAL EMISSIONS LIMIT

The cap under the Beijing Pilot ETS is the sum of the bottom-up installation level emissions of all individual covered entities.
Caps over the past years have been as follows:
2020: ~50 $MtCO_2$
2021: ~35 $MtCO_2$[3]
2022: ~44 $MtCO_2$[4]

SECTORS AND THRESHOLDS

Industrial and non-industrial companies and entities, including power grid operators, heating, cement, petrochemicals, other industrial enterprises, manufacturers, the service sector, public transport, and domestic aviation.[5] The power sector transferred to the national ETS in 2019; however, one entity remains covered by the Beijing pilot ETS for management reasons.

INCLUSION THRESHOLDS:
Until 2015: 10,000 tCO_2 per year, considering both direct and indirect emissions.
From 2016 onwards: 5,000 tCO_2 per year, considering both direct and indirect emissions.
MANDATORY REPORTING: 2,000 tonnes of coal equivalent (tce) energy consumption per year.

POINT OF REGULATION

Point source (power and industry); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES

Companies

NUMBER OF ENTITIES

882 entities within the pilot. In addition, 409 other entities had mandatory reporting but no surrender obligations for the 2024 compliance year.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Beijing carbon emission allowances (BEAs) are distributed for free, using benchmarking or grandparenting. For sectors using benchmarking or historical intensity methods, a pre-allocation method is adopted for the annual allowance allocation. Allocation is then adjusted ex-post to reflect the actual production in the respective compliance year.

FREE ALLOCATION: Free allocation through grandparenting based on historical emissions or emissions intensity in the baseline years (2016 to 2018).

Benchmarking is used for new entrants and entities with expanded capacity in the power sector, heat production, cement, and data centers (three new sectors with benchmarking from 2019).

To prevent an excessive surplus or shortage of allowances, the Beijing EEB set upper limits for allowance surplus and shortage at 20% of the emissions for 2022 and 2023 compliance year. Covered entities with free allowance below 80% of their verified emissions will have their allocation adjusted upwards to 80% of their verified emissions. Covered entities with free allowances higher than 120% of their verified emissions will have their allocation adjusted downwards to 120% of their verified emissions.

AUCTIONING: Beijing may set aside up to 5% of allowances for irregular auctions (see 'Market Stability Provisions' section).

2 No data is publicly available for recent years; the data here is estimated by local experts.
3 Lower than 2020 mainly due to transfer of the power sector to the national ETS.
4 Higher than 2021 mainly due to 41 new covered entities in Beijing ETS.
5 Currently, the domestic aviation sector is only subject to mandatory reporting.

USE OF REVENUES


General budget, including debt reduction

Revenues are attributed to the city treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed.
Borrowing is not allowed.

OFFSETS AND CREDITS

The use of offset credits is allowed. These are Chinese domestic, project-based offset credits (CCERs) and Beijing Certified Emission Reduction (BCERs). Eligible BCER projects include green architecture, low-carbon transportation, landscaping, renewable energy and energy saving.

QUANTITATIVE LIMIT: The use of offset credits is limited to 5% of the annual emissions.

QUALITATIVE LIMIT: CCERs issued under the old CCER scheme, which ran from 2012 to 2017, may still be used to offset emissions in the 2023 compliance period, but will no longer be valid starting in 2024. No qualitative limits on new CCERs issued after January 2024 under the new CCER scheme.

Of the 5% limit, at least 50% must come from projects within the jurisdiction of the city of Beijing. Among non-Beijing CCERs, priority is given to those with regional climate or pollution control cooperation agreements (e.g., Hebei and Tianjin).

LINKS WITH OTHER SYSTEMS

The Beijing Pilot ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic crediting mechanisms: Tan Pu Hui local offset credits in Beijing (BCER)
Domestic credit mechanism (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2 emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year: the deadline to surrender allowances is set by Beijing EEB in the annual management notice.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Annual

VERIFICATION: Third-party verification is required. In addition, the government organizes expert review of all verification reports and some reports are subject to further fourth-party verification.

FRAMEWORK: The Beijing EEB has general rules for monitoring and reporting, as well as for sector-specific guidelines for the following sectors: heat production and supply, thermal power generation, cement, petrochemicals, public transport, aviation, other industrial enterprises, and the service sector.

OTHER: In addition to covered entities under the ETS, all legal entities with energy consumption over 2,000 tce must report their emissions. Verification is not required.

PENALTIES AND ENFORCEMENT

Penalties for failing to submit emissions or verification reports on time can result in fines of up to CNY 50,000 (USD 6,947). Furthermore, companies failing to surrender enough allowances to match their emissions are fined up to five times the average market price over the previous six months for each missing allowance.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Covered entities, domestic non-compliance entities, and domestic individuals that meet the requirements of the carbon emission trading rules set up by Beijing Green Exchange.

MARKET TYPES:
Primary: BEAs are distributed through free allocation. Beijing set aside up to 5% of allowances for irregular auctions.

Secondary: Trading consists of five spot products: BEAs, CCERs, BCERs. The Beijing Green Exchange manages the trading of all three products. The Beijing ETS also allows over-the-counter trading.

Due to financial market regulations in China, no forward markets or derivatives are allowed.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

EXTRA ALLOWANCE AUCTIONS

Instrument type: Price-based instrument

Functioning: The Beijing EEB can auction extra allowances if the weighted average price of allowances exceeds 60% of the average transaction price in the previous calendar year for ten consecutive trading days, or when market liquidity is too low. It can also buy back allowances from the market using a special funding source from the municipal budget if the weighted average price of allowances is lower than 40% of the average transaction price of the previous calendar year for ten consecutive trading days.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The Beijing Green Exchange implements a system of limits on price increases and decreases for listed trading over the exchange. This is 20% above or below the reference price (the weighted average price of all transactions on the previous trading day) to prevent large price fluctuations. It also sets the maximum position limit for the different market participants: the sum of their annual allocated allowances plus one million tonnes for compliance entities, one million tonnes for institutional investors, and 50,000 tonnes for natural persons.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Beijing Municipal Commission of Development and Reform: Responsible for establishing the Beijing ETS until governmental restructure in 2019.
Beijing Ecology and Environment Bureau: Responsible for the Beijing ETS after governmental restructure in 2019.
Beijing Green Exchange (previously known as the Beijing Environment Exchange): Responsible for the trading platform.
Beijing Climate Change Management Center: Responsible for the registry.

EVALUATION/ETS REVIEW

No public information is available on system's evaluation or review. However, the local carbon exchange has published annual reports with an overview of the system's performance from 2014 to 2018. In addition, research on improving legislation, MRV, and benchmarking, among other issues, has been funded by the local government.

REGULATORY FRAMEWORK

- → Beijing Municipal People's Congress ETS Pilot Bill (2013)
- → Measures for the Management of Emissions Trading in Beijing (2024)
- → Beijing Local MRV Standards for Eight Industries (power generation, cement, petrochemical, heat production, service, road transportation, aviation and other industries) (2021)
- → Beijing EEB Notice on the Management of Key Carbon Emission Entities and the Pilot Work of Carbon Emission Trading in (2024)
- → Measures for the Administration of offset use in Beijing ETS (2024)
- → Measures for the Administration of Auction and Repurchase of the allowance in Beijing ETS (2024)

CHINA

CHINA NATIONAL EMISSIONS TRADING SYSTEM

- **Began in 2021 as the world's largest ETS, now covering around 8 billion tCO_2**
- **Operates as an intensity-based ETS**
- **Covers the power sector and started expansion to selected industrial sectors in 2024**

ETS DESCRIPTION

China's national ETS began operating in 2021, with the objective of contributing to the effective control and gradual reduction of CO_2 emissions. China's national ETS is the world's largest in terms of covered emissions, estimated to cover around 8 billion tCO_2 – or more than 60% of the country's CO_2 emissions.

The China national ETS regulates more than 3,500 companies from the power, steel, cement, and aluminum smelter sectors with annual emissions in excess of 26,000 tCO_2e. Covered entities must surrender allowances for all their covered emissions. The allowances in the China national ETS are 100% freely allocated using an output-based approach. Compliance obligations are currently limited and vary between different types of facilities. The system's coverage will expand to other sectors over time.

In January 2024, China launched its national GHG voluntary emission reduction trading market, the Chinese Certified Emissions Reduction scheme (CCER). This came after six years of suspension, during which time it was undergoing reform. This reform could contribute to the implementation of an offsetting scheme in the domestic ETS (see 'Offset Credits' section).

The national ETS builds on the successful experience of regional carbon markets implemented in seven regions. These pilots continue to operate in parallel with the national ETS, covering sectors and entities not included in the national system.

YEAR IN REVIEW

In January 2024, the State Council of China promulgated the "Interim Regulations for the Management of Carbon Emissions Trading" (Interim Regulations) that establishes a robust legal foundation for the national ETS, which took effect as of May 2024. It further enhances enforcement measures and non-compliance penalties for different stakeholders.

In October, the Ministry of Ecology and Environment (MEE) released the allocation plan and compliance work plan for the power sector for 2023 and 2024. The allocation plan updates benchmarks and excludes indirect emissions. It also sets a limit on banking and cancels borrowing. According to this plan, the compliance is shifting from a two-years cycle to a one-year cycle.

After the launch of the CCER program in January 2024, the Certification and Accreditation Administration (CNCA) announced the list of accredited verifiers in June 2024. In August, the MEE started accepting new project applications and verifications. As of April 2025, there are five accredited validation and verification agencies for the CCER program. More than 70 emission reduction projects have applied for CCER project status, and nine of these projects have successfully had their emission reductions issued, totaling 9.48 million tonnes CO_2e.

1 Captive power plants in other sectors are also covered.

In force
Under development
Under consideration

SECTORS

POWER[1]

INDUSTRY

CAP

~8,000 $MtCO_2$ (2024)

GREENHOUSE GASES

CO_2
CF_4 and C_2F_6 (only for aluminum smelter sector)

OFFSET CREDITS

Domestic (national) with quantitative limits

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Average secondary market price: CNY 95.96 (USD 13.33)

In March 2025, the MEE published a work plan for extending the sectoral coverage of the national ETS after a public consultation in September 2024. The plan expands the ETS to include the steel, cement, and aluminum smelter sectors, implemented over two phases. Phase 1 (2024 to 2026) aims to familiarize companies in these sectors with the national ETS and enhance emissions data quality. Phase 2 (starting in 2027) aims to decrease the emission intensity and further improve the functioning of the system. This scope expansion brings an additional 1,500 companies into the Chinese national ETS, increasing the system's emissions coverage by 3 billion tCO_2e.

EMISSIONS & TARGETS OF CHINA

OVERALL GHG EMISSIONS (including indirect CO_2, excluding LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Energy	11,007	77%
Industrial processes	2,140	15%
Agriculture	931	7%
Waste	236	2%
Total	**14,314**	

CO_2 emissions from fuel combustion ($MtCO_2$)

Energy industries	5,354	37%
Manufacturing industries and construction	3,269	23%
Transport	1002	7%
Commercial, institutional, and residential	532	4%
Other energy	850	6%

GHG REDUCTION TARGETS

By 2025: Reduction in carbon emissions per unit of GDP of 18% compared to 2020 levels ("14th Five-Year Plan")
By 2030: Peak CO_2 emissions; reduction of CO_2 emissions per unit of GDP by over 65% from 2005 levels ("'1+N' policy framework"; updated NDC)
By 2060: Carbon neutrality ('1+N' policy framework; updated NDC)

ETS COVERAGE & PHASES

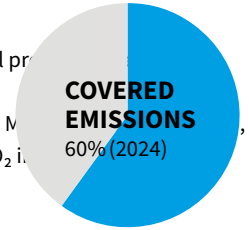
COVERED EMISSIONS

PHASES

There are currently no specific phases for the Chinese national ETS.

CAP OR TOTAL EMISSIONS LIMIT

The cap is the sum of the bottom-up total allowance allocation to all individual covered entities. The cap is adjusted according to the actual pr



The national ETS is estimated to have had an annual cap of ~4,500 M , ~5,100 $MtCO_2$ in 2021 and 2022, ~5,200 $MtCO_2$ in 2023 and ~8,000 $MtCO_2$ i

SECTORS AND THRESHOLDS

Power (including combined heat and power, as well as captive power plants of other sectors), steel, cement, and aluminum smelter.

Compliance obligations are currently limited (see 'Allocation' section).

The scope is expected to be gradually expanded to cover other sectors: petrochemicals, chemicals, flat glass, copper smelter, paper, and aviation. Entities in these sectors have MRV obligation since 2015.

INCLUSION THRESHOLDS:
For 2019 to 2020: Entities with annual emissions of 26,000 tCO_2 or greater in any year from 2013 to 2019.
For 2021 to 2022: Entities with annual emissions of 26,000 tCO_2 or more in any year from 2020 to 2021.
From 2023: Entities with annual emissions of 26,000 tCO_2 or more in the previous year.

POINT OF REGULATION

Point source

TYPE OF ENTITIES
Companies[2]

NUMBER OF ENTITIES
~3,500 entities (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
Allowances are distributed for free, using benchmarking.

FREE ALLOCATION (Power sector): Output-based benchmarking is used as the main allocation method, with four distinct benchmarks: conventional coal plants below 300 MW; conventional coal plants above 300 MW; unconventional coal; and natural gas.

A pre-allocation method is adopted for the annual allowance allocation. Allocation is then adjusted ex-post to reflect the actual production in the respective compliance year.

Entities received allowances at 70% of their verified emissions in the previous year. Allocation was subsequently adjusted to reflect actual generation in 2023 and 2024. A unit load (output) adjustment factor distributed more allowances for coal-fired entities operating at load rates below 65%. This may have provided more allowances for less efficient power units.

According to the 2023 to 2024 allocation plan, compliance obligations are limited. Gas-fired plants only need to surrender allowances up to their level of free allocation as per the benchmarks. Coal-fired plants with free allowance below 80% of their verified emissions will have their allocation adjusted upwards to 80% of their verified emissions. This means that 20% remains the maximum shortfall, similar to the previous compliance periods.

FREE ALLOCATION (Steel, cement, and aluminum smelter sector):
For the compliance year of 2024, covered entities will receive free allowance equal to their verified emissions.

The MEE will design and publish the annual allocation method for the compliance year 2025 and subsequent years, which will be output-based and intensity-controlled.

AUCTIONING: Allocation currently takes place through free allocation, but the Interim Regulations clarify that auctioning is to be introduced and gradually expanded. There is currently no timeline for this.

USE OF REVENUES
There is currently no arrangement for the use of revenues generated by the scheme.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Borrowing was temporarily allowed in 2021 to 2022.
Banking was allowed with no limit in the first three compliance periods. In the following compliance period, covered entities are allowed to bank up to 10,000 tonnes plus 1.5 times their net sales over 2024 and 2025.

OFFSET CREDITS
The use of offset credits is allowed.

QUANTITATIVE LIMITS: Covered entities can use CCERs generated from projects not covered by the national ETS for up to 5% of their verified emissions.

QUALITATIVE LIMITS: There were no additional project or vintage restrictions.

In 2012, the National Development and Reform Commission (NDRC) issued the “Interim Measures for the Management of Voluntary GHG Emissions Reduction Transactions”, which provided guidelines for the issuance of CCERs. The registration of CCER projects started in 2015 but the program was suspended in 2017 while regulations were reviewed. MEE launched the CCER system in 2024 with new methodologies, registry, verifiers and exchange.

Only credits from projects registered in the new CCER program are eligible for offset use in China’s national ETS after January 2025.

The National Center for Climate Change Strategy and International Cooperation (NCSC) operates the CCER registry. The Beijing Green Exchange is dedicated to CCER trading platforms.

LINKS WITH OTHER SYSTEMS
The China national ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION
ETS: Regional ETSs in Beijing, Chongqing, Fujian, Hubei, Guangdong, Shanghai, Shenzhen and Tianjin
Domestic crediting mechanism (national): China Certified Emissions Reduction (CCER)
Domestic crediting mechanisms: Local offset crediting mechanism in Beijing, Chongqing, Fujian, Hubei, Guangdong, Shanghai, Shenzhen, Tianjin, etc.

2 MRV and compliance obligations apply to the stationary emission facilities operated by these companies, but they are typically handled at the company level. The 3,500 'entities' mentioned here refer to companies, each of which may operate several facilities.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions, and allocation is based on an emissions intensity benchmark.

COMPLIANCE PERIOD

Two calendar years from 2019 to 2022. One calendar year from 2023 onwards.

MRV

MEE publishes an ETS work plan to set the timeline for MRV work each year. MEE published the 2025 work plan in April 2025.

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING FREQUENCY: Covered entities must submit a monthly emission report within 40 calendar days after the end of each month, including fuel consumption, low-level calorific value, carbon content of the fuel, purchased electricity, output products, as well as other parameters. Covered entities in the power sector must submit the 2024 emissions reports by the end of March 2025. Covered entities in the steel, cement and aluminum smelter sectors must submit the 2024 emissions reports by the end of June 2025.

VERIFICATION: Provincial-level ecological and environmental authorities are responsible for organizing the verification of GHG reports. They may commission technical service agencies to provide verification services. Verification of 2024 emissions from the power sector must be completed by the end of June 2025. Verification of the 2024 emissions from the cement, aluminum smelter and steel sectors should be completed before the end of August 2025. Verification of other key industries should be completed by the end of September 2025.

FRAMEWORK: MRV guidelines, supplementary data sheets, verification guidelines, and other guidance are available for the eight sectors expected to be covered by the ETS. This MRV framework has evolved continuously since 2013 (see 'Sectors and Thresholds' section).

PENALTIES AND ENFORCEMENT

The Interim Regulations enhanced enforcement measures and penalties for different parties. Covered entities face a fine for not reporting or cheating in reporting, ranging from CNY 500,000 (USD 69,469) to ten times the illegal gains. Failures in compliance obligations result in fines ranging from five to ten times the market value of the gap, a significant increase from the previous maximum fine of CNY 30,000 (USD 4,416). For those who refuse to surrender allowances after receiving a warning, deductions from the following year's allocation and potential production suspension are now in force.

Consultancy firms, third-party verifiers and testing organizations involved in MRV data fraud may face penalties up to ten times of their illegal gains, as well as disqualification. Similar punishments also apply for market manipulation. The regulation rectifies the previous absence of penalties for misconduct by technical service providers and market participants.

Market participants involved in market manipulation behaviors may face penalties up to ten times their illegal gains, starting from CNY 500,000 (USD 69,469).

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities. The Interim Regulations indicate that other types of institutions or individuals may in the future also be allowed to participate in the market; however, there is no specific timeline for this.

MARKET TYPES:

Primary: Allowances are currently only distributed by free allocation. The Interim Regulations state the intention to introduce auctioning, though without a specific timeline.

Secondary: China Emission Allowances (CEA) can be traded on a dedicated trading platform managed by the Shanghai Environment and Energy Exchange. CEAs for the 2019 to 2020 period, CEAs for 2021, CEAs for 2022, and CEAs for 2023 are categorized as four different products on the exchange, and have similar prices.

Due to financial market regulations, other products (i. e., derivatives) are currently not allowed.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments. For financial accounting purposes, the Ministry of Finance published an interim policy that categorizes only purchased allowances, and not those received for free, as assets in financial statements.

MARKET STABILITY PROVISIONS

In May 2021, the MEE announced the option of establishing a market-regulating and protection mechanism. This would enable the MEE to respond to abnormal fluctuations in trading prices, for instance through buy-back, auctioning, or adjusting the rules related to CCER use. The necessary triggers and specifics of this mechanism are yet to be defined.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The Shanghai Environment and Energy Exchange implements a system of limits on price increases and decreases for trading over the exchange. For listed trading (the maximum volume for a single transaction does not exceed 100,000 tCO_2e), this is 10% above or below the reference price (the closing price of the previous trading day). For block trading (with minimum

transaction volume of 100,000 tCO_2e), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange. It also sets the maximum position limit for the different market participants: the sum of their annual allocated allowances plus 1 $MtCO_2$ for compliance entities, 1 $MtCO_2$ for institutional investors, and 50,000 tCO_2 for natural persons.

OTHER INFORMATION

INSTITUTIONS INVOLVED

The China national ETS has a multi-level governance structure involving three levels of government:

Ministry of Ecology and Environment (MEE): Acts as the national competent authority setting the rules and overseeing the system, jointly with other national regulators.
Provincial-level MEE subsidiaries: Oversee the implementation of the ETS, including identifying covered entities, organizing MRV, hiring verifiers, calculating allowance, managing provincial registry account, oversee compliance.
Municipal-level authorities: Responsible for managing covered entities directly.
China Carbon Emissions Registration and Clearing Co., Ltd.: Responsible fo.lr operating the CEA registry and clearing platform.
Shanghai Environment and Energy Exchange: Operates the CEA trading platform.
National Center for Climate Change Strategy and International Cooperation (NCSC): Operates the CCER registry.
The Beijing Green Exchange: Responsible for operating the CCER trading and clearing platform.

EVALUATION/ETS REVIEW

An evaluation framework is currently under development.

REGULATORY FRAMEWORK

- The National Measures for the Administration of Carbon Emission Trading (trial) (2021)
- Allocation Plan for the Power Sector (2019-2020) and list of covered entities (2021) (English translation)
- Guidelines for Enterprise Greenhouse Gas Verification (trial) (2021)
- Notice on Strengthening the Management of Enterprise Greenhouse Gas Emissions Reporting (2021)
- Allocation Plan for the Power Sector (2023-2024)
- Management Measures for voluntary Greenhouse Gas Emission Reduction Trading (Trial) (2023)
- Guidelines for GHG Monitoring and Reporting for various sectors (2013, 2014, and 2015)
- Updated Guidelines for GHG Monitoring and Reporting for the power sector (2023)
- Updated Guidelines for GHG Monitoring and Reporting for industrial sectors (2023)
- Interim Regulations on the Administration of Carbon Emission Trading (2024)
- Guidelines for GHG Monitoring and Reporting for Cement, aluminum smelter and steel industries (2024 and 2025)
- Work Plan for National ETS covering steel, cement and aluminum smelter sectors (2025)

CHONGQING

CHONGQING PILOT EMISSIONS TRADING SYSTEM

- The only Chinese pilot to cover non-CO_2 gases
- Up to 8% of an emitter's shortfall can be offset with eligible non-fossil energy purchases
- Absolute caps used in 2014 to 2020 but replaced with intensity-based caps in 2021

ETS DESCRIPTION

Chongqing launched its pilot ETS in June 2014. Among the eight Chinese pilots, the Chongqing ETS is the only one that covers non-CO_2 gases.

The Chongqing Pilot ETS covers 334 entities in the electrolytic aluminum, ferroalloys, calcium carbide, cement, caustic soda, iron and steel, and other industrial sectors. From 2014 to 2020, the Chongqing Pilot ETS operated with an absolute cap with an annual reduction rate applied to the base-year emissions level (i.e., the sum of each covered entity's highest annual emissions from 2008 to 2012). Until 2015[1], the annual reduction rate was 4.13% and thereafter 4.85%. Auctioning was introduced in 2021 to provide covered entities with additional supply to meet their compliance demand. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

The Chongqing Ecology and Environment Bureau (EEB) revised the ETS management rules in 2022, including general management rules and specific rules for MRV, managing allowances, allocation, and registry. Since the revision, there has been no absolute cap for the system. Output-based methods are now applied in several industrial sectors.

In the short term, the Chongqing Pilot ETS operates in parallel with the national Chinese carbon market. When the national ETS expands to new sectors, the covered entities in these sectors will be integrated into the national ETS.

YEAR IN REVIEW

In September 2024, Chongqing EEB published the allocation plan for the compliance year 2023. In this plan, it introduced a "synergies mechanism for reducing pollution and carbon emissions," rewarding entities that achieve emission reduction and air pollution control with a 0.3 to 0.5% increase in their allowance allocation.

In addition, Chongqing became the fifth city in China to implement the "electricity and carbon synergy" policy and allowed entities to offset up to 8% of the shortfall in allowance with eligible non-fossil energy purchases outside of the city (see 'Offset Credits' section).

1 Chongqing ETS launched in 2014, covering the emissions from 2013 in the first compliance period.

In force
Under development
Under consideration

SECTORS

INDUSTRY

CAP

78.39 $MtCO_2e$ (2020)

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, PFCs, SF_6

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: CNY 40.05 (USD 5.56)
Average primary market data: CNY 44.8 (USD 6.22)

TOTAL REVENUE

CNY 358.63 million (USD 49.83 million) since beginning of program
CNY 22.79 million (USD 3.17 million) in 2024

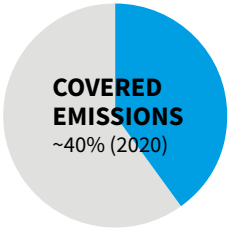
EMISSIONS & TARGETS OF CHONGQING

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF)
188.1 $MtCO_2e$ (2020)[2]

GHG REDUCTION TARGETS
By 2030: Peak emissions ("Chongqing Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy")
By 2060: Climate neutrality (Chongqing Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2020



PHASES
2013 and ongoing

CAP OR TOTAL EMISSIONS LIMIT
Currently, the total emissions limit under the Chongqing Pilot ETS is the sum of the bottom-up output-based levels for all individual covered entities. Previously, the system used absolute caps that declined annually at a pre-determined rate. The cap was set in 2013 at 125 $MtCO_2e$. Until 2015, the annual reduction rate of the cap was 4.13%. From 2016 onwards, it was revised to 4.85%. Caps for the following years were:
2018 and 2019: 97 $MtCO_2e$
2020: 78.4 $MtCO_2e$
The absolute caps were replaced by intensity-based caps in 2021.

SECTORS AND THRESHOLDS
Unlike most other Chinese pilots, Chongqing does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all entities in the industrial sectors, including production of electrolytic aluminum, ferroalloys, calcium carbide, cement, caustic soda, and iron and steel, and other industrial sectors. Entities in these sectors with emissions above the threshold are covered by the ETS.

The power sector was covered until 2019, after which it transitioned to the national ETS.

INCLUSION THRESHOLDS:
Until 2020: Emissions of 26,000 tCO_2e per year or energy consumption of 10,000 tonnes of coal equivalent (tce) per year.
From 2021 to 2023: Chongqing lowered the threshold to 13,000 tCO_2e per year or energy consumption of 5,000 tce per year.

POINT OF REGULATION
Point source (power and industry); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES
Companies

NUMBER OF ENTITIES
334 entities (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
FREE ALLOCATION: From 2014 to 2020, Chongqing employed free allocation through grandparenting based on historical emissions: the highest number in the period spanning 2008 to 2012. Covered entities submitted their allowance allocation demand on a yearly basis, forming the basis of their free allocation. This value was adjusted if it exceeded the highest historical annual emissions (from 2008 to 2012) of the respective entities, by using the average of the two numbers. In addition, if the sum of the allocation for all the entities exceeded the top-down cap (see 'Cap or Total Emissions Limit' section), a reduction factor was applied to all the covered entities.

In the 2021 to 2022 allocation plan, the Chongqing EEB introduced both a historical intensity method and benchmark method for allocation. There were four methods in the plan. Benchmarks were used in cement clinker and electrolytic aluminum production. The historical intensity was used for other processes in the cement and aluminum sector. Grandparenting is used in all other sectors. For waste-to-power plants, shell gas production, new entrants, non-CO_2 emissions in all sectors, allocation was equal to the emissions.

Chongqing used free allocation in 2021, 2022 and 2023. In 2024, in the absence of the final allocation plan, the government pre-allocated allowances to covered entities, which accounted for 70% of the region's emissions of 2023. Covered entities from cement, iron and steel and aluminium sectors are to be included under the national ETS from 2024, and their allowances under the regional system will not be pre-allocated.

2 No data is publicly available for recent years. Data here is provided by local experts.

Covered entities that demonstrate strong efforts in reducing both air pollution and carbon emissions and are not subject to environmental penalties or violations during 2023 and 2024, and will receive an additional 0.3 to 0.5 % of their 2023 allowance.

Covered entities that achieve a reduction in carbon emissions intensity or total carbon emissions in 2023 compared to 2022 and are graded A for air pollution control, will receive an additional 0.5% of their 2023 allowance (maximum 2,000 allowances per company). Those that achieve emission reductions and are graded B for air pollution control, will receive an additional 0.3% of their 2023 allowance.

Covered entities that met the national benchmark for product energy efficiency in 2023 will also be granted an extra 0.3% of their product allowance (maximum 500 allowances per company.

AUCTIONING: Auctioning was introduced in 2021. A small share of the annual cap could be auctioned. The main purpose of auctions is to provide compliance entities with additional supply to meet their compliance demand. To date, auctions have been held on an ad hoc basis. Three auctions have been held, in November and December 2021, and February 2022.

USE OF REVENUES

General budget, including debt reduction

Revenues are attributed to the city treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed. Borrowing was not allowed from 2014 to 2020. In the 2021 to 2022 and 2023 allocation plan, borrowing was allowed. Companies with a shortfall of 10% or more could apply to borrow from a pre-allocated allocation for 2024.

OFFSET CREDITS

The use of offset credits is allowed. Since September 2021, a local carbon offset program has been also operationalized which generates Chongqing Certified Emission Reduction (CQCER) credits for both compliance and voluntary use.

QUANTITATIVE LIMITS: Starting from the compliance year 2023, only CQCERs are allowed for up to 5% of an entity's compliance obligation.

QUALITATIVE LIMITS: For compliance year 2023, Chongqing also allows entities to offset up to 8% of the shortfall in allowance with eligible non-fossil energy purchases outside of the city.

LINKS WITH OTHER SYSTEMS

The Chongqing ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic crediting mechanisms: Chongqing Certified Emission Reduction (CQCER)
Domestic crediting mechanism (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions, and allocation is based on auctions or free allocation.

COMPLIANCE PERIOD

One calendar year. The exact date for the covered entities to surrender allowances is set by the government on an annual basis and varies across years.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Reporting of GHG emissions must be complete by the end of April for the previous year.

VERIFICATION: Third-party verification is required.

FRAMEWORK: The competent authority has published a guidance document for monitoring and reporting that includes methods for different emissions sources, including combustion, industrial processes, and electricity consumption.

ENFORCEMENT

There are no financial penalties for non-compliance. Non-financial penalties may include public reporting, and a record entered in the Chongqing City Enterprise environmental credit system.

According to the 2021 to 2022 allocation plan, compliance obligations are limited. Covered entities with free allowance that account for less than 80% of their verified emissions will have their allocation adjusted upwards to 80%, meaning a maximum 20% shortfall.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance and non-compliance entities and individuals that meet the requirements of the carbon emission trading rules.

MARKET TYPES:

Primary: Allowances thus far have largely been allocated for free, with auctioning introduced in 2021 without a fixed schedule.

Secondary: There is a spot market at Chongqing Carbon Emissions Trading Center for trading of allowances, CCERs and CQCERs. Due to the financial market-related regulations in China, no forward markets or derivatives are allowed yet.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

RESERVE

Instrument type: Price-based instrument Functioning: 5% of allowances from the total emissions limit may be set aside for market stability. The Chongqing EEB can organize irregular auctions according to market demand, no fixed triggers are envisaged.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The Chongqing Asset and Equity Exchange implements a system of limits on price increases and decreases for trading over the exchange. For listed trading, this is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day). For block trading (with a minimum trading volume of 10,000 tonnes), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Chongqing Ecology and Environment Bureau: Responsible for establishing the Chongqing ETS after governmental restructure in 2020.

Chongqing Carbon Emissions Trading Center: Responsible for operating the trading platform, which belongs to the **Chongqing Asset and Equity Exchange**.

Chongqing Resource and Environment Trading Center: Responsible for the registry.

EVALUATION/ETS REVIEW

No public information is available about the evaluation or review system. However, the Chongqing EEB has been revising the major managements rules since 2021.

REGULATORY FRAMEWORK

- → Management rules of Emissions Trading in Chongqing (2023)
- → Chongqing Working Guidance For Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy (2021)
- → Management Rules of Allowance in Chongqing (2023)
- → Management Rules of Registry in Chongqing (draft for comments) (2022)
- → Measures for Management of Verification agency in Chongqing (draft for comments) (2022)
- → MRV Guidelines for Chongqing ETS (draft for comments) (2022)
- → Chongqing Allowance Allocation Plan for 2023 (2024)

FUJIAN

FUJIAN EMISSIONS TRADING SYSTEM

- Not one of the original seven regional pilots
- Own provincial offset credit scheme with focus on carbon sinks and forestry
- Broad sectoral coverage, with 100% compliance for seven consecutive years

ETS DESCRIPTION

The province of Fujian launched its ETS in September 2016. It covers nearly 300 entities across nine sectors: electricity grid, petrochemicals, chemicals, building materials, iron and steel, nonferrous metals, paper, aviation, and ceramics. The ETS covered electricity generation until 2019, after which the sector was incorporated into the national ETS.

Covered entities must surrender allowances for all their covered emissions, and allocation is based predominantly on free allocation, using benchmarking or grandparenting based on production levels. Auctioning may take place when considered appropriate by the ETS authorities.

The Fujian ETS pilot has a special focus on carbon sinks. In 2017, the Fujian government outlined a plan to promote forestry offset projects in the province. By the end of 2023, 4 million forestry offset credits had been traded in the Fujian ETS.

Unlike other Chinese pilots, which were mandated by the National Development and Reform Commission (NDRC), the mandate for the Fujian ETS came from the State Council with the endorsement of the "National Ecological Civilization Pilot Area (Fujian) Implementation Plan". In the short term, it operates in parallel with the national carbon market. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national ETS.

YEAR IN REVIEW

In January 2024, the Fujian Provincial Ecology and Environment Bureau (EEB) released the draft allocation plan for 2023. The draft plan is similar to the 2022 allocation plan, with slightly reduced benchmarks and changes to the base year for the grandparenting method.

In force
Under development
Under consideration

SECTORS

INDUSTRY

DOMESTIC AVIATION

CAP

116.2 $MtCO_2$ (2022)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: CNY 21.52 (USD 2.99)

TOTAL REVENUE

CNY 1.25 million (USD 173,672) since beginning of program[1]

1 The Fujian ETS has held only one auction, in 2016, which provided 50,000 allowances at a floor price of CNY 25 (USD 3.47) per tonne. The exchange did not disclose the final volume and price. The calculation here assumes that all allowances were sold at the floor price.

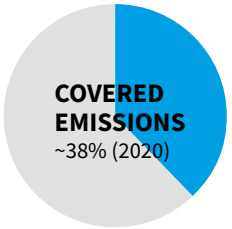
EMISSIONS & TARGETS OF FUJIAN

OVERALL GHG EMISSIONS (EXCLUDING LULUCF)
299.81 $MtCO_2$ (2021)2

GHG REDUCTION TARGETS
By 2030: Peak CO_2 emissions ("Carbon Working Guidance")
By 2060: Achieve carbon neutrality (Carbon Working Guidance)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2020



PHASES
2016-ongoing

CAP OR TOTAL EMISSIONS LIMIT
A cap limits the total emissions allowed in the system.
The cap in recent years has been as follows:
2016 to 2018: ~200 $MtCO_2$
2019: ~220 $MtCO_2$3
2020: ~126 $MtCO_2$
2021: 131.72 $MtCO_2$
2022: 116.22 $MtCO_2$

The cap comprises three elements: existing entities' allowances, the new entrants' reserve, and the market stability reserve.

SECTORS AND THRESHOLDS
Petrochemical, chemical, building materials, iron and steel, nonferrous metals, paper, aviation, and ceramics. Electricity production was covered until 2019, after which it transitioned to the Chinese national ETS.

INCLUSION THRESHOLDS:
2016 to 2019: Energy consumption of 10,000 tonnes of coal equivalent (tce) per year, for any year between 2013 and 2019.

2020 to 2021: Emitters with energy consumption of 5,000 tce or more in any year from 2013 to 2020 were also included.

2022: Emitters with energy consumption of 5,000 tce or more in any year from 2019 to 2022 were further included.

POINT OF REGULATION
Point source (industry, aviation); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES
Companies

NUMBER OF ENTITIES
293 (2022)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
Allowances are distributed for free, using benchmarking or grandparenting. A pre-allocation method is adopted for the annual allowance allocation. Allocation is then adjusted ex-post to reflect the actual production in the respective compliance year.

FREE ALLOCATION:
Benchmarking: Benchmarking is applied to the grid operator cement, ordinary steel (non-stainless), aluminum, plate glass, chemical and aviation sectors.

Grandparenting: The remaining sectors are allocated allowances based on historical carbon intensity. These entities can also apply for more allowances as a reward for early mitigation action.

According to the 2022 allocation plan, compliance obligations are limited. For sectors using the benchmarking method, the minimum allocation is 80% of their verified emissions and the maximum is 120%. For sectors using historical intensity methods, the surplus or shortfall is limited to 3 to 10% of verified emissions, according to their emission levels. On top of this limitation, the maximum amount of surplus or shortfall is 200,000 tCO_2e.

AUCTIONING: Auctioning may take place when considered appropriate by the ETS authorities (see 'Market Stability Provisions' section) and may be introduced as a method for allowance allocation over time. Up to 10% of the total cap is reserved for market intervention.

2 No data is publicly available for more recent years. Data here is provided by local experts. Previously reported data is based on public sources from the launch year of the ETS in 2014, of 240.0 $MtCO_2$.
3 There is no public data on the total cap or its elements. This number is based on an estimate by experts. The cap for 2019 was estimated to cover 87% of carbon emissions.

In order to increase market liquidity and price discovery, the Fujian DRC organized a discriminatory (non-uniform price) auction of 50,000 allowances in 2016 from the government reserve, with the settlement prices ranging from CNY 26.50 (USD 3.68) to CNY 30 (USD 4.17). No further auctions have taken place to date.

USE OF REVENUES


General budget, including debt reduction

Revenues are attributed to the central treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed.
Borrowing is not allowed.

OFFSET CREDITS

The use of domestic project-based carbon offset credits (CCERs) and Fujian Forestry Certified Emission Reduction credits (FFCERs) is allowed.

QUANTITATIVE LIMITS: The use of CCERs is limited to 5% of the annual compliance obligation. The limit is increased to 10% for companies that use both FFCER and CCER offset credits.

QUALITATIVE LIMITS: Eligible offset credits are restricted to those generated in Fujian province from entities not regulated under the ETS, and from CO_2 or CH_4 reduction projects. Hydropower-related offset credits are not eligible. FFCER projects from three project types (afforestation, forest management, and bamboo management) are eligible if implementation took place after mid-February 2005 and if the project developers have independent legal status.

LINKS WITH OTHER SYSTEMS

The Fujian ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic crediting mechanisms: Local Forest offset credits in Fujian (FFCER)
Domestic crediting mechanism (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions, and allocation is based primarily on free allocation.

COMPLIANCE PERIOD

One calendar year. Covered entities have until the end of June of the following year to surrender allowances.[4]

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Annual reporting of CO_2 emissions to the competent authority before the end of February of the following year.

VERIFICATION: Third-party verification is required for all annual emissions reports. In addition, further validation is carried out by government-assigned experts for ~30% of the reports to further enhance accuracy; this process is also called “fourth-party verification” in China.

FRAMEWORK: The Fujian DRC and the Fujian Statistical Bureau jointly released a guiding document on monitoring and reporting that includes a monitoring plan template, using national measuring and reporting guidelines. In addition, the Fujian DRC and the Fujian Quality and Technical Supervision Bureau jointly released criteria for the administration of third-party verifiers.

PENALTIES AND ENFORCEMENT

REGULATED ENTITIES: Penalties for failing to submit an emission or verification report on time, providing false information, or disturbing the verification process range from CNY 10,000 (USD 1,389) to CNY 30,000 (USD 4,168). Companies failing to surrender enough allowances to match their emissions are fined between one to three times the average market price of the past 12 months per missing allowance, with a maximum limit of CNY 30,000 (USD 4,168). Additionally, twice the amount of the missing allowances can be withdrawn from the account of the company or deducted from the following year’s allocation.

TRADING INSTITUTIONS: Penalties for misconduct, such as not publishing relevant trading information, failing to establish and implement a risk management system or leaking commercial secrets, can range from CNY 10,000 (USD 1,389) to CNY 30,000 (USD 4,168).

4 This is according to the “Interim Measures of the Fujian ETS”. In practice, the provincial government releases executive notices to guide the timeline of the annual compliance cycle.

THIRD-PARTY VERIFIERS: Penalties for misconduct, such as publishing false reports, reporting with errors, leaking commercial secrets, or participating in the market, can range from CNY 10,000 (USD 1,389) to CNY 30,000 (USD 4,168).

In addition, in 2018, the Fujian DRC released guidelines concerning ETS non-compliance information management, providing further details on recording and misbehaviors and corresponding incentives and penalties. Incentives for ETS compliance include priority lending, priority approval for project administration, and reduced frequency of inspections. Punishments for non-compliance include restrictions on approval of new projects, increased frequency of inspections, and a record in the bank credit system.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities and institutional investors (domestic only) that meet the requirements of the emissions trading rules set up by Fujian EEB.

MARKET TYPES:

Primary: While most allowances are allocated for free, the Fujian Haixia Equity Exchange organizes ad hoc auctions for the primary market. So far, only one auction has been held.

Secondary: Spot trading of Fujian Emission Allowances (FJEA), CCERs and FFCERs takes place on the Fujian Haixia Equity Exchange.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

RESERVE

Instrument type: N/A

Functioning: 5% of the sum of the calculated allowance from covered entities is kept as a government reserve for market stabilization. The Fujian EEB can organize irregular auctions according to market demand, no fixed triggers are envisaged.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The exchange limits day-to-day price fluctuations to a 10% move in either direction for listed trading, as well as 30% for block trading. Only transactions within this price range can be successfully completed on the exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Fujian Provincial Ecology and Environment Bureau: Responsible for establishing the Fujian ETS after governmental restructure in 2019.

Fujian Haixia Equity Exchange: Responsible for operating the trading platform.

Fujian Economic and Information Center: Responsible for operating the registry, market management, and MRV administration.

EVALUATION/ETS REVIEW

Research on improving the Fujian ETS has been undertaken every year, funded by the local government.

REGULATORY FRAMEWORK

→ 2020 Amendments to the Interim Measures
→ Fujian Provincial Ecology and Environment Bureau – Allocation Plan for 2022
→ Fujian Provincial Ecology and Environment Bureau – Allocation Plan for 2023 (draft)

GUANGDONG

GUANGDONG PILOT EMISSIONS TRADING SYSTEM

- **Largest Chinese regional market with ongoing scope expansion and highest spot trading volume among pilots**
- **Diverse market participants, including foreign investors**
- **First pilot to introduce auctioning as well as Tan Pu Hui Offset Mechanism for compliance[1]**

ETS DESCRIPTION

The Guangdong ETS was launched in December 2013. With broad sectoral coverage, the Guangdong ETS is the largest of the Chinese ETS pilots in terms of market size and spot trading volume. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

The Guangdong ETS covers emissions from almost 400 entities in the cement, steel, petrochemicals, paper, and domestic aviation sectors. Since its launch, its scope has expanded to include ceramics, textiles, and data centers. The ETS has an absolute cap that is announced annually. Allowances are primarily allocated for free, although ad hoc auctions have been held since 2017. In recent years, the Guangdong ETS has introduced new measures to enhance market liquidity and is one of the regional pioneers for allowance forward trading in China.[2]

The Guangdong ETS was the fourth largest ETS in the world before the power sector was transferred to the Chinese national ETS in 2020. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national ETS.

YEAR IN REVIEW

In January 2024, the Guangdong Ecology and Environment Bureau (EEB) released the 2023 allocation plan, expanding coverage to ceramics production, ports, and data centers. According to the allocation plan, 222 new entities from these three sectors are covered from 2023. The Guangdong ETS also covers airports and textile companies above the threshold, though on a voluntary basis.

In August, the Guangdong EEB released a work notice to freeze the allowance for power, steel, cement sectors, to ensure a smooth transition from Guangdong ETS to the national ETS. These sectors cannot trade allowances before Guangdong EEB releases a transition plan for these allowances in the 2024 allocation plan.

In September, the Guangdong EEB announced that all 391 covered entities fulfilled their compliance obligations in 2023.

1 A local voluntary offset scheme with credits generated via mitigation projects or low-carbon activities.
2 China is still in the exploratory and research stage of carbon futures trading; according to the "Administrative Regulations on Futures Trading" document, futures can only be traded on approved professional futures exchanges. Regional ETS pilots thus cannot introduce futures trading; however, a few have developed their own unique carbon forward trading products.

In force
Under development
Under consideration

SECTORS

INDUSTRY

DOMESTIC AVIATION

CAP

297 $MtCO_2$ (2023)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: 51.37 (USD 7.14)

TOTAL REVENUE

CNY 815.46 million (USD 113.3 million) since the beginning of the program

EMISSIONS & TARGETS OF GUANGDONG

OVERALL GHG EMISSIONS (EXCLUDING LULUCF)

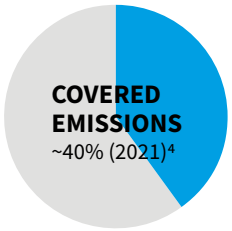
693.5 $MtCO_2$ (2020)[3]

GHG REDUCTION TARGETS

By 2025: 20.5% reduction in CO_2 intensity compared to 2020 levels (in line with central government requirement) ("Guangdong Province 14th Five-Year-Plan for Tacking Climate Change")
By 2030: Peak carbon emissions ("Guangdong Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality")
By 2060: Climate neutrality (Guangdong Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2021



PHASES

PHASE 1: Three years (2013 to 2015)
PHASE 2: Five years (2016 to 2020)
PHASE 3: Ongoing (2021 to present)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system. Guangdong is one of few pilots in China that announces its annual emissions cap. Within the annual cap, the government also keeps a certain amount as a reserve for new entrants and market stability (see 'Market Stability Provisions' section).

PHASE 1:
2013: 388 $MtCO_2$ (including 38 $MtCO_2$ reserves)
2014: 370 $MtCO_2$ (including 38 $MtCO_2$ reserves)
2015: 408 $MtCO_2$ (including 38 $MtCO_2$ reserves)

PHASE 2:
2016: 386 $MtCO_2$ (including 21 $MtCO_2$ reserves)
2017: 422 $MtCO_2$ (including 23 $MtCO_2$ reserves)
2018: 422 $MtCO_2$ (including 23 $MtCO_2$ reserves)
2019: 465 $MtCO_2$ (including 27 $MtCO_2$ reserves)
2020: 465 $MtCO_2$ (including 27 $MtCO_2$ reserves)

PHASE 3:
2021: 265 $MtCO_2$ (including 13 $MtCO_2$ reserves)5
2022: 266 $MtCO_2$ (including 13 $MtCO_2$ reserves)
2023: 297 $MtCO_2$ (including 14 $MtCO_2$ reserves)

SECTORS AND THRESHOLDS

PHASE 1:
Power, iron and steel, cement, and petrochemicals

PHASE 2:
2016: Power, iron and steel, cement, aviation, and petrochemicals
2017 to 2020: As above, plus papermaking

PHASE 3:
2021: Iron and steel, cement, papermaking, aviation, and petrochemicals
2022: As above, plus ceramics, textiles, and data centers
2023: As above, plus ceramics (building and hygiene) and transportation (ports)

INCLUSION THRESHOLDS:
2013 to 2021: 20,000 tCO_2 per year or energy consumption of 10,000 tce per year
2022 onwards: 10,000 tCO_2 per year or energy consumption of 5,000 tce per year

POINT OF REGULATION

Point source (industry, aviation); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES

Companies

NUMBER OF ENTITIES

391 existing entities, 26 new entrants (2023)

3 No data is publicly available for recent years. Data here is provided by local experts.
4 No data is publicly available for more recent years. Data here is estimated by local experts. For 2020, when power generation entities were still covered by Guangdong ETS, the coverage was estimated to be 65%.
5 The drop from 2020 is largely due to the transfer of the power sector into the China national ETS.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

FREE ALLOCATION: Allowances are distributed primarily via free allocation through grandparenting based on historical emissions or emissions intensity, or benchmarking.

Benchmarking: Benchmarking is applied to industrial processes in cement, paper, steel sectors, data centers and aviation.

Grandparenting: Grandparenting on the basis of total historical emissions is applied to some processes in the cement and steel industries, the whole petrochemicals industry and textile industry. Grandparenting on the basis of historical emissions intensity is also applied to some products in the cement industry, captive power plants in the steel industry, special paper and paper product manufacturers, enterprises with pulp manufacturing, other aviation enterprises, ceramic industry (building and hygiene) and ports.

Ex-post adjustments based on real production data of the respective compliance year are also applied for those sectors that use benchmarks and emissions intensity methods.

PHASE 1:
2013 and 2014: 97% free allocation for all sectors
2015: 95% free allocation for the power sector, 97% free allocation for other sectors

PHASE 2:
2016 to 2019: 95% free allocation for the power sector, 97% for other sectors
2020: 95% free allocation for the power sector, 100% for aviation, 97% free allocation for other sectors

PHASE 3:
100% free allocation for aviation, 97% for ceramic, ports, data center and textile,
96% for other sectors, 6% for new entrants (since 2023).

AUCTIONING: Guangdong auctions a small share of allowances. In the first compliance year, entities were required to purchase allowances at auction to be eligible to receive their freely allocated allowances. This requirement was terminated in 2014.

Quarterly auctions were held until 2016; since 2017, they have been held on an ad hoc basis. Auctions are also subject to a reserve price (see 'Market Stability Provisions' section).

The allowance volume available for auction was adjusted from 2 million (until 2018) to 5 million for 2019. The last auction took place in April 2020 for the 2019 compliance year, with a floor price of CNY 25.84 (USD 3.59). Only 400,000 allowances were sold at CNY 28.20 (USD 3.92).

USE OF REVENUES

General budget, including debt reduction

Revenues are attributed to the provincial treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits, namely Chinese Certified Emissions Reductions (CCERs) and Tan Pu Hui Certified Emission Reductions (PHCER) stemming from a local offset program introduced in 2017, is allowed.

QUANTITATIVE LIMITS: The use of offset credits is limited to 10% of covered entities' annual emissions. In addition to the quantitative limit applied to individual entities, Guangdong sets an upper limit on the total volume of offset credits allowed. In 2020, entities could use up to 1.5 million offset credits towards compliance obligations, with priority given to CCERs and PHCERs from projects within Guangdong. In 2021 and 2022, entities could use up to one million offset credits for compliance. For 2023, no quantitative limit was announced.

QUALITATIVE LIMIT: At least 70% of offset credits used by each covered entity must come from within Guangdong province. Pre-CDM credits are not eligible. Offset credits from hydropower and from most fossil fuel projects are also not eligible. Offset credits generated in other Chinese ETS pilot regions are not eligible. To be eligible, projects must relate primarily (i.e., more than 50%) to the reduction of CO_2 or CH_4 emissions.

OFFSET CREDIT AUCTIONS: Guangdong employs auctioning for PHCERs in addition to the existing secondary market trading, with an auction reserve price set by the local exchange and offset project developers. In 2021, six PHCER auctions were held. No auctions were held in 2022. In 2023, four PHCER auctions were held.

LINKS WITH OTHER SYSTEMS

Guangdong plans to explore the feasibility of the construction of a joint or linked carbon market within the Guangdong-Hong Kong-Macao Greater Bay Area. Details of such a plan are not yet available.

Guangdong and Hubei explored linking their pilot markets in 2012 and 2013, but this did not materialize.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: National Chinese ETS
Domestic crediting mechanisms: Tan Pu Hui local offset credits in Guangdong (PHCER)
Domestic crediting mechanism (national): Chinese Certified Emissions Reductions (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities have until June or August of the following year to surrender allowances.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Annual

VERIFICATION: Third-party verification is required. In addition, further verification was initially carried out by government-assigned expert groups in the first three compliance years. Onsite cross re-verification was conducted for entities with questionable verification reports, as well as for randomly selected entities.

A "fourth-party independent evaluation system" has been in place since the 2016 compliance period. "Technical evaluation organizations" selected by the government carry out technical review and evaluation of annual emissions and verification reports and undertake further onsite review and random inspection tasks. These organizations do not undertake regular third-party verification tasks. The government also conducts random checks on emissions reports.

FRAMEWORK: The Guangdong EEB revised reporting and verification guidelines for the compliance entities and third-agency verification sectors in 2022.

OTHER: Industrial enterprises with annual emissions of 5,000 to 10,000 tCO_2 are required to report their emissions. Verification is not required.

PENALTIES AND ENFORCEMENT

ENTITIES: Penalties for failing to submit emissions or verification reports on time range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 7,058). Companies failing to surrender sufficient allowances are deducted twice the number of allowances from the following year's allocation and fined CNY 50,000 (USD 6,947). Other non-financial penalties include negative impacts on access to bank loans and subsidy programs.

TRADING INSTITUTIONS: Penalties for failing to publish transaction information or failing to establish and implement a risk management system range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947).

THIRD-PARTY VERIFIERS: Third-party agencies are fined between CNY 30,000 (USD 4,168) and CNY 50,000 (USD 6,947) for issuing false verification reports, material errors in verification reports, or for unauthorized use or publication of confidential corporate and emissions information.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities; domestic and international institutional investors that meet the requirement of the carbon emission trading rules set by China Emissions Exchange (CEEX).

MARKET TYPES:
Primary: As the first Chinese region to introduce auctioning as a method for allowance allocation, Guangdong held quarterly auctions until 2016. Since 2017, auctions have been held on an ad hoc basis. The CEEX organizes auctions for the primary market.

Secondary: The Guangdong Emission Allowance is the main spot trading product in the secondary market. Bidding transfer was introduced in 2020 to organize auctions for covered entities to enhance market efficiency for the secondary market. CCERs and PHCERs are also traded in the secondary market. All products are traded on the CEEX.

Due to the financial market regulations in China, no standardized forward markets or derivatives are allowed. However, with the April 2021 establishment of the Guangzhou Futures Exchange, Guangdong is seeing new momentum to study and explore the launch of carbon futures and other innovative financial products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

AUCTION RESERVE PRICE

Instrument type: Price-based instrument

Functioning: In 2015, a "policy reserve price" was set as an effective reserve price, which links the auction reserve price with the secondary market price. Each year, 5% of allowances are set aside as government reserves for new entrants and market stability. The specific rules for market stability are provided by the "Trial Measures for ETS".

In 2016, the policy reserve price was set at 100% of the weighted average price for allowances over the previous three months. When auctions resumed in April 2020 for the compliance year 2019, the policy reserve price was set at 90% of the weighted average price for allowances over the previous three months, considering the impact of the COVID-19 pandemic. No auctions have been held since April 2020.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The China Emissions Exchange Guangzhou implements a system of limits on price increases and decreases for trading over the exchange. This is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day) for listed trading, as well as 30% for block trading. Only transactions within this price range can be successfully completed within the Exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Guangdong EEB Province (EEB): Responsible for ETS affairs, including MRV.
China Emissions Exchange Guangzhou (CEEX): Responsible for operating the trading platform.
Guangdong Research Center for Climate Change: Responsible for administrating the registry.

EVALUATION/ETS REVIEW

No public information about the evaluation or review system is available. However, the Guangdong Research Center for Climate Change has published a biannual/annual report on the Guangdong ETS with an overview of its performance from 2013 to 2023.[6] In addition, research on improving MRV and allowance allocation has been undertaken, funded by the local government.

REGULATORY FRAMEWORK

- Guangdong Pilot ETS Implementation Plan (2012)
- Implementation Plan of Guangdong Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality (2023–2030)
- Trial Measures for Carbon Emissions Trading in Guangdong (2014)
- Guangdong EEB – Regulations of PHCER trading management
- Guangdong EEB – Allocation Plan for 2023

6 The latest iteration of this report is available at **https://www.efchina.org/Reports-zh/report-lceg-20220427-zh**.

HUBEI

HUBEI PILOT EMISSIONS TRADING SYSTEM

- **Among the largest Chinese pilots, with diversified participants and an established market stability mechanism**
- **Sets a threshold which applies to all industrial sectors**
- **China Hubei Emission Exchange operates the national ETS registry**

ETS DESCRIPTION

The Hubei Pilot ETS was launched in April 2014. Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation.

Hubei's system covers more than 300 entities in a broad range of industrial sub-sectors. Unlike the other Chinese pilots, Hubei does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all industrial sectors. Allowances have primarily been freely allocated, through both grandparenting and benchmarking, although several ad hoc auctions have been held since 2014.

Hubei has been one of the most active regional markets in China in terms of trading and has the second largest market in terms of spot trading volume, after Guangdong. It is also one of the regional pioneers for allowance forward trading in China. Hubei has also played an important role in the national ETS: in 2017, it was selected to lead the development of the registry for the national ETS, which the China Hubei Emission Exchange has operated since the national ETS began. In 2022, Hubei established the China Carbon Emissions Registration and Clearing Co., Ltd. in Wuhan to manage the registry and clearing system for the national ETS.

The Hubei ETS operates in parallel with the Chinese national carbon market. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national.

YEAR IN REVIEW

In January 2024, the Hubei Provincial Government updated the "Interim Management Rules for Emissions Management and Trading in Hubei Province" following public consultation. These new management rules changed the competent authority from the Hubei Provincial Development and Reform Commission to the Hubei Ecology and Environment Bureau (EEB). It also lowered the threshold of the covered entities and clarified market monitoring rules.

In November, the Hubei EEB released the 2023 allocation plan, which applies similar allocation methods as the 2022 plan.

In force
Under development
Under consideration

SECTORS

INDUSTRY

CAP

179 $MtCO_2$ (2023)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: CNY 40.41 (USD 5.75)

TOTAL REVENUE

CNY 432.75 million (USD 60.13 million) since the beginning of the program

EMISSIONS & TARGETS OF HUBEI

OVERALL GHG EMISSIONS (EXCLUDING LULUCF)

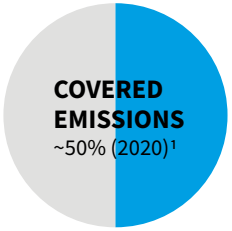
350.5 $MtCO_2$ (2020)

GHG REDUCTION TARGETS

By 2030: Peak carbon emissions ("Hubei Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality")
By 2060: Climate neutrality (Hubei Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2020



PHASES

2014 and ongoing

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.
Inclusive of reserves, the caps for past years were as follows:
2014: 324 $MtCO_2$
2015: 281 $MtCO_2$
2016: 253 $MtCO_2$
2017: 257 $MtCO_2$
2018: 256 $MtCO_2$
2019: 270 $MtCO_2$
2020: 166 $MtCO_2$[2]
2021: 182 $MtCO_2$
2022: 180 $MtCO_2$
2023: 179 $MtCO_2$

SECTORS AND THRESHOLDS

Unlike other Chinese pilots, Hubei does not pre-define which sectors are covered under its ETS; rather, it sets a threshold which applies to all industrial sectors. Sub-sectors with entities above the threshold are then covered.

Those currently covered include heat supply, iron and steel, nonferrous metals, petrochemicals, chemicals, textiles, cement, glass and other building materials, pulp and paper, ceramics, automobile manufacturing, equipment manufacturing, food and beverages, medicine producers, and water supply. Until 2019, power generation was also covered, after which it was integrated into the national ETS.

INCLUSION THRESHOLDS:

Until 2015: Annual energy consumption of more than 60,000 tonnes of coal equivalent (tce) in any year between 2010 and 2011, applying to all energy and industrial sectors.

2016 to 2022: Annual energy consumption of more than 10,000 tce in any of the most recent two years, applying to all energy and industrial sectors.

2023 onwards: Entities with annual emissions of 13,000 tCO_2 or more.

POINT OF REGULATION

Point source (industry); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES

Companies

NUMBER OF ENTITIES

449 entities (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Allowances are distributed for free, using benchmarking or grandparenting. A pre-allocation method is adopted for the annual allowance allocation for sectors using benchmarking or historical intensity methods. Allocation is then adjusted ex-post to reflect the actual production in the respective compliance year.

FREE ALLOCATION:

Benchmarking: Benchmarking is used for the cement sector (except for entities using outsourced clinker) and plate glass.

Grandparenting: Historical emissions intensity is used for heat production and supply, pulp and paper, other glass and building materials, water supply, textile, and automobile and equipment manufacturing. Grandparenting is based on the previous three years' historical emissions for all other sectors.

1 No data is publicly available for recent years. Data here is provided by local experts.
2 This decrease is mainly due to the transfer of the power sector into the national ETS.

Ex-post allocation adjustments are applied, especially for those sectors that use benchmarks and emissions intensity. In this case, entities first receive half of their total allowances based on the previous year's actual emissions or historical emissions baseline; actual production data are then used to update allocation ex-post.

Hubei also uses a "market adjustment factor", which is applied to all covered entities to reduce overall allocation. This is determined based on the previous year's supply-demand balance, while taking the province's overall economic development and the achievement of its climate mitigation targets and strategies into consideration. For the 2023 compliance year, it was set at 0.9706 (as compared to 0.9836 for the previous year).

Hubei uses a capping mechanism for compliance obligations. If the difference between an entity's annual verified emissions and the allocation exceeds either 20% of the allocation or 200,000 tCO_2 (above or below the allocation), the cap will be adjusted accordingly to balance out the surplus or deficit.

AUCTIONING: A small share of the annual cap can be auctioned. The main purpose of auctions is to promote price discovery and provide regulated entities with additional supply to meet their compliance demand. To date, auctions have been held on an ad hoc basis and took place in 2014, 2019, 2020, 2021, 2022, and 2023. Recent years have seen two auctions per year, with the first for covered entities only and the second open to all participants. The reserve price of the auctions is the weighted average spot market price of the previous two years. Allowances have sold at the reserve price or slightly above.

USE OF REVENUES

General budget, including debt reduction

Revenues are attributed to the central treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, but only for allowances that have been traded at least once.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits (CCERs) and green electricity certificates is allowed. The green electricity certificates are the proof of the environmental attributes of China's renewable energy power, which can be commercially transferred between power producers and consumers.

The Hubei EEB allows covered entities in Wuhan city to use Wuhan city credits to encourage the development of a city-level low carbon incentive program.

QUANTITATIVE LIMITS: The use of CCERs is limited to 10% of the annual initial allocation for each entity.

Only covered entities with shortfall can use green electricity certificates and city-level credits to offset their emissions. This use is limited to the shortage and maximum 10% of the annual initial allocation for each entity. Green electricity certificates cannot be banked to offset the emission in the future.

The use of Wuhan city credits is limited to 10% of the annual initial allocation for each entity.

QUALITATIVE LIMITS: Generally, CCERs must be generated within the administrative areas of the province, but outside the covered entities of the Hubei ETS. According to the latest rules on offset credit use, published for 2018 compliance, CCERs must come from rural biogas or forestry projects in the key counties under the national or provincial poverty alleviation plan in areas of the middle reaches of the Yangtze River (within Hubei). CCERs must have been generated between 2013 and 2015, with reductions achieved between these dates.

Green electricity certificates must be certified both by the China Hubei Emission Exchange and the Hubei Electricity Exchange.

LINKS WITH OTHER SYSTEMS

Though Hubei explored linking with the Guangdong ETS pilot in 2012 and 2013, this did not materialize and there are no further plans for linking.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic crediting mechanisms: Tan Pu Hui local offset credits in Hubei
Domestic crediting mechanisms (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year; covered entities have until the last working day of May of the following year to surrender allowances. In practice, in most compliance years the exact date for the covered entities to surrender allowances is set by the government on an annual basis and varies across years.

MRV

MONITORING: Covered entities are required to set up and implement plans to monitor their emissions.

REPORTING: Annual

VERIFICATION: Third-party verification is required. Third-party verifiers may be involved in mutual evaluation of each other's verification reports. In addition, "fourth-party verification" is carried out by government-assigned experts to further enhance accuracy.

FRAMEWORK: The Hubei government has released general rules on monitoring and reporting guiding for all sectors as well as sector-specific guidance for the following 11 sectors: power, glass, aluminum, calcium carbide, pulp and paper, automobile manufacturing, iron and steel, ferroalloys, ammonia, cement, and petroleum processing. Hubei also refers to national guidelines on MRV, especially for the sectors outside these 11.

PENALTIES AND ENFORCEMENT

COVERED ENTITIES: Penalties for failing to submit an emissions or verification report on time range from CNY 20,000 (USD 2,779) to CNY 30,000 (USD 4,168). Furthermore, companies that fail to surrender enough allowances to match their emissions will have that amount deducted from the following year's allocation.

Other non-financial penalties include disqualification from the national or provincial energy-saving program and blacklisting for carbon emission and credit records.

TRADING INSTITUTIONS: Trade participants who manipulate the market face up to CNY 150,000 (USD 20,841) in fines.

THIRD-PARTY VERIFIERS: Penalties for submitting false verification reports range from CNY 10,000 (USD 1,389) to CNY 30,000 (USD 4, 168). Verifiers involved in illegal payments in addition to submitting false verification reports are fined one to three times the value of the payment, up to CNY 150,000 (USD 20,841).

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities; non-compliance entities such as domestic and international institutional investors; individual investors meeting the participation requirements of the relevant local trading exchange.

MARKET TYPES:

Primary: The China Hubei Emission Exchange organizes ad hoc auctions for the primary market. Since 2019, Hubei has held two separate rounds of auctions targeting different types of entities.

Secondary: Spot products include Hubei Emission Allowances (HBEAs) and CCERs. The HBEA spot forward product was introduced in 2016 but has not been traded since May 2017. The China Hubei Emission Exchange manages trading of all products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

ALLOWANCE RELEASE AND REPURCHASE

Instrument type: Price-based instrument

Functioning: In case of market fluctuations, severe supply-demand imbalances, or liquidity issues, the Hubei EEB – in consultation with an advisory committee consisting of government institutions and other stakeholders – can buy or sell allowances in order to stabilize the market. Specifically, the Hubei EEB takes action if the allowance closing price reaches a low or high point of the daily negotiation range six times during a 20-day period.

5% of the total cap is kept as a government reserve for market stabilization. The Hubei EEB can organize irregular auctions according to market demand, no fixed triggers are envisaged

EXCHANGE

Instrument type: Price-based instrument

Functioning: The exchange limits day-to-day price fluctuations to a 10% move in either direction for listed trading, as well as 30% for block trading. Only transactions within this price range can be successfully completed on the exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Hubei Ecology and Environment Bureau (EEB): Responsible for establishing and overseeing the Hubei ETS after governmental restructure in 2019.

China Hubei Emission Exchange: Responsible for operating the trading platform and registry.

EVALUATION/ETS REVIEW

No information is publicly available regarding the evaluation or review system. However, research on improving the Hubei ETS has been undertaken every year, funded by the local government.

REGULATORY FRAMEWORK

- → Hubei Pilot ETS Implementation Plan (2013)
- → Interim Management rules of Emission Management and Trading (2024)
- → Hubei Province Implementation Opinions on Implementing the New Development Concept and Promoting Carbon Neutrality (2022)
- → Allocation Plan for 2023 (including list of covered entities)

INDIA

CARBON CREDIT TRADING SCHEME (CCTS)

- Government adopted regulations to establish a domestic carbon market
- Intensity-based baseline-and-credit system covering energy-intensive industrial sectors and a voluntary offset mechanism planned
- First compliance period should start in 2025

ETS DESCRIPTION

The government of India introduced an amendment to the "Energy Conservation Act, 2001", providing a legal basis for the establishment of a Carbon Credit Trading Scheme (CCTS) and issuance of carbon credit certificates (CCCs). The amendment bill, incorporating these provisions, was passed in the Lower House (Lok Sabha) in August 2022, adopted, and subsequently passed in the Upper House (Rajya Sabha) in December 2022. The amendment bill provides the legal basis to establish an Indian carbon market (ICM) and grants the power to issue CCCs for the reduction of emissions.

Following passage of the amendment, the government began work on the institutional and regulatory framework for the CCTS. The draft notification was published for stakeholder consultation in March 2023. Based on received comments, the notification was revised and officially issued in June 2023. This notification established an institutional framework, including the National Steering Committee for the Indian Carbon Market (NSCICM), tasked with overseeing the ICM framework. Additionally, roles and responsibilities of the administrator, technical committee, and other stakeholders were defined. CCCs (denominated in 1 tCO_2e) will be issued or surrendered based on performance against emission intensity targets for covered entities.

In July 2024, the government adopted detailed regulations for the compliance mechanism under the CCTS. It will take the form of an intensity-based baseline-and-credit system, initially covering entities from nine energy-intensive industrial sectors (see 'Sectors and Thresholds' section).

Covered entities will receive an emissions intensity target covering a six-year trajectory period, notified by the Ministry of Environment, Forest and Climate Change (MoEFCC) and denominated in tCO_2e per unit of product. New targets will be announced every three years, to enable longer-term planning for covered entities. If a covered entity overachieves its emissions intensity target, it can earn CCCs based on the difference between the achieved and the targeted emissions intensity. Entities that fail to achieve their targets will have to surrender/purchase a corresponding number of CCCs to ensure compliance; this will be achieved by facilitating trading among the covered entities on a registry/trading platform.

Applying a "gate-to-gate" approach to cover the emissions along the entire value chain, the scope of the CCTS will include both direct emissions from fuel combustion and industrial processes, and indirect emissions from electricity and heat consumption (Scope 1 and 2). In addition, some Scope 3 emissions will also be considered (import and export of intermediary products). It will initially cover CO_2, and perfluorocarbons (PFCs).

The CCTS will be based on the existing Perform, Achieve and Trade (PAT) scheme – a mandatory energy efficiency scheme covering more than 1,000 entities from 13 energy-intensive sectors – that will be gradually transitioned into a compliance carbon market. The compliance mechanism will utilize existing MRV guidelines and administrative infrastructure.

In force

Under development

Under consideration

SECTORS

INDUSTRY

GREENHOUSE GASES

CO_2, PFCs

ALLOCATION

Free Allocation: Output-based Benchmarking

A gradual transition from the current PAT scheme to the CCTS will begin in 2025, with the first nine industrial sectors being transitioned to the CCTS from FY2026. The baseline emissions level for these nine sectors will be determined using 2023-2024 emissions data, which will be used to determine obligated entities' targets under the CCTS.

The compliance mechanism will be complemented by a voluntary domestic crediting mechanism that will allow non-covered entities to register eligible projects for GHG emission reduction, removal, or avoidance for the issuance of CCCs. This component of the CCTS aims to incentivize emission reductions in sectors outside of the compliance market and to increase market liquidity, encompassing a comprehensive approach for GHG reduction.

The compliance mechanism will be jointly managed by the Ministry of Power, the MoEFCC, and the Bureau of Energy Efficiency (BEE), acting as administrator of the scheme.

EMISSIONS & TARGETS OF INDIA

GHG EMISSIONS (including indirect CO_2, excluding LULUCF), **2019**
(in $MtCO_2e$, share of total in %)

Energy	2,374.3	76%
Industrial processes	263.5	8%
Agriculture	421.0	14%
Waste	73.2	2%
Total	**3,132**	

Energy industries	1,331.9	43%
Manufacturing industries and construction	404.6	13%
Transport	314.8	10%
Commercial, institutional, and residential	266.9	9%
Other energy	56.1	2%

GHG REDUCTION TARGETS

By 2030: Reduce emissions intensity to 45% below 2005 levels (updated NDC)
By 2070: Net Zero (updated NDC)

ETS COVERAGE & PHASES

CAP OR TOTAL EMISSIONS LIMIT

The total emissions limit under the Indian CCTS is the sum of the bottom-up output-based emissions limits for all individual covered entities. However, the bottom-up emissions limits do not represent an absolute cap.

SECTORS AND THRESHOLDS

PHASE 1 (from FY2026):
Initially, the compliance mechanism under the CCTS will cover entities from nine industrial sectors that were previously regulated under the PAT scheme: aluminium, chlor-alkali processes, cement, fertilizer, iron and steel, pulp and paper, petrochemicals, petroleum refining, and textiles.

INCLUSION THRESHOLDS: Entities currently covered under the PAT scheme will be transitioned to the CCTS, using the same inclusion thresholds (varying by sector).

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Installations/facilities

NUMBER OF ENTITIES

~800 entities (from FY2026)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

Within the CCTS, the government will establish sector-specific GHG emissions intensity trajectories. Developed by the BEE in consultation with a technical committee, these trajectories will outline necessary sectoral reductions to meet India's NDC targets. They consider factors such as available technology, energy efficiency, and decarbonization potential, and will be regularly reviewed and updated.

Each covered entity will receive GHG emissions intensity targets based on its sub-sector's trajectory and relative emissions performance. These targets will be set for three-year periods, with annual compliance targets. The technical committee will evaluate entities' GHG emissions, including direct, process, and indirect emissions, to establish baselines and future targets.

The government will notify covered entities with a mandatory emissions intensity target (baseline), defined as tCO_2e per unit of output, for each year of the specified compliance period. Entities that overachieve their GHG emissions intensity target will be eligible for the issuance of CCCs, and entities that fall short of their target will be required to purchase and surrender an equivalent number of certificates to compensate for the shortfall.

The BEE will issue the CCCs, which will be traded through the country's power exchanges. Covered entities will be required to register on a national registry, while non-covered entities may do so if they wish to participate in trading. Initially, the CCTS will not allow over-the-counter trading; all trading will take place under the supervision of the exchange.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Unlimited banking of CCCs is allowed. Banked CCCs can be either sold within the ICM or used to meet future compliance obligations.

Borrowing is not allowed.

LINKS WITH OTHER SYSTEMS

The Indian CCTS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Domestic crediting mechanism: India crediting mechanism (upcoming)[1]

COMPLIANCE

COMPLIANCE MECHANISM

Entities that fail to achieve their annual emissions targets will have to surrender a corresponding number of CCCs to cover the excess emissions and ensure compliance.

The annual emissions target for the first entities covered under the CCTS will be determined using 2023 to 2024 emissions data as baseline. New emissions intensity targets will be announced every three years, to enable longer-term planning for covered entities.

COMPLIANCE PERIOD

One year

MRV

MONITORING: Covered entities must monitor emissions by either continuously measuring at the source or tracking aggregate fuel/material quantities delivered, consumed, and adjusted for stock changes. Activity data is calculated based on fuel/material received, used, and stock variations during the compliance year, expressed in mass (tonnes) or volume (kilolitres, cubic metres). If direct stock measurement is impractical, estimates from historical data or financial records may be used.

For emission calculations, entities must determine the net calorific value (NCV) of fuels. Solid fuel NCV is measured using Indian standards, gaseous fuel using Indian or ASTM standards, and liquid fuel can use supplier values certified by accredited labs. If NCV data is unavailable, IPCC standard conversion factors are applied. All testing must comply with relevant laboratory standards.

REPORTING: The covered entity must submit a verified GHG emissions report and proforma to the BEE and State Designated Agency within four months after the compliance year ends. The annual report should include:

- registration and contact details;
- reporting year and monitoring plan information;
- changes in operations during the reporting period;
- details on the production process, raw material consumption, and emissions sources;
- emissions data, including CO_2 and other GHGs in tCO_2e, with calculation methodologies; and
- details of sampling plans, data control, biomass use, and implemented GHG reduction measures.

VERIFICATION: The report must be verified by an accredited carbon verification agency to ensure compliance with GHG emissions intensity targets set by the MoEFCC.

FRAMEWORK: The regulatory framework for the compliance mechanism under the CCTS is defined in the "Detailed Procedure for Compliance Mechanism under CCTS", published by the BEE in October 2024.

PENALTIES AND ENFORCEMENT

Penalties apply if covered entities fail to meet their compliance obligations.

1 The domestic crediting mechanism is expected to be implemented in 2025.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities

MARKET TYPES:

Primary: Allowances will initially not be auctioned.

Secondary: CCCs will be traded through the country's power exchanges, with the Central Electricity Regulatory Commission (CERC) acting as the regulator for trading activities.

LEGAL STATUS OF ALLOWANCES: CCCs will not be considered financial instruments in the initial stage of CCTS.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Environment, Forest and Climate Change (MoEFCC): Responsible for national climate strategy. Formally designates facilities as covered entities under the CCTS and notifies GHG emission targets under the "Environment Protection Act (1986)".

Ministry of Power (MoP): Responsible for national energy policy and the national carbon market. Recommends GHG emission targets to the MoEFCC for notification.

Bureau of Energy Efficiency (BEE): Responsible for the administration and implementation of the CCTS. Its responsibilities include identifying relevant sectors and their potential for GHG reduction, developing emissions trajectories and targets for covered entities under the compliance mechanism, issuing CCCs, and developing the necessary IT infrastructure for the operation of the Indian carbon market.

Grid Controller of India (GCI): Registry operator for the CCTS.

Central Electricity Regulatory Commission (CERC): Regulator for trading activities under the CCTS. It provides market oversight and takes necessary corrective action to prevent fraud.

National Steering Committee for the Indian Carbon Market (NSCICM): Advisory committee that oversees the governance and functioning of the Indian carbon market. The NSCICM includes representatives from relevant ministries, state governments, and industry experts.

REGULATORY FRAMEWORK

- → Carbon Credit Trading Scheme, 2023
- → Energy Conservation (Amendment) Bill (2022)
- → Energy Conservation Act (2001)
- → The Environment Protection Act (1986)
- → Detailed Procedure for Compliance Mechanism under CCTS (2024)

INDONESIA

ECONOMIC VALUE OF CARBON (NILAI EKONOMI KARBON) TRADING SCHEME

- **Intensity-based ETS covering the power subsector introduced in 2023**
- **Built on the successful pilot of a similar scheme in 2021**
- **Hybrid "cap-tax-and-trade" system planned to start in 2025**

ETS DESCRIPTION

Indonesia's Economic Value of Carbon, or *Nilai Ekonomi Karbon* (NEK), Trading Scheme is a mandatory, intensity-based ETS for the power sector that was launched in early 2023. In its first phase spanning from 2023 to 2024, it exclusively targeted coal-fired power plants connected to the *Perusahaan Listrik Negara* (PLN) grid with a capacity of 25 MW or greater. In 2023, the ETS covered 99 coal-fired power plants, estimated to represent around 37% of the national power generation capacity or around 67.6% of the national coal-fired power plant capacity. In 2024, 47 additional coal-fired power plants were covered under the ETS, bringing the total number of covered installations in the scheme to 146.

The Indonesian government has established intensity targets, known as "Technical Emissions Ceiling Approvals", or *Persetujuan Teknis Batas Atas Emisi* (PTBAE). These targets determine the number of allowances that installations receive for each MWh of electricity generated. Covered entities must surrender allowances for all their covered emissions, with allocation based on PTBAE, emission intensity, and emission average. Additionally, entities have the option to purchase allowances via auctions.

The majority of the plants covered by the ETS are operated by the state-owned electricity company PLN. The government anticipates a reduction of approximately 25.73 $MtCO_2e$ through the ETS in its first year.

Eventually, the Indonesia ETS is expected to function as a hybrid "cap-tax-and-trade" system, operating concurrently with a carbon tax. Facilities failing to meet their obligations under the ETS will be subject to this tax, the rate of which will be aligned with the domestic carbon market's price.

The Indonesian Carbon Exchange (IDXCarbon) was officially launched in September 2023, under the supervision of the Financial Services Authority of Indonesia (*Otoritas Jasa Keuangan*, OJK).

YEAR IN REVIEW

In 2024, the scope of the ETS was expanded to cover installations with a capacity of 25 MW or more, adding another 47 coal-fired power plants to the scheme. According to current plans, captive coal-fired power plants (CFPPs) that are not connected to the electricity grid and gas power plants (gas fired power plants, gas engine power plants and combined cycled power plants) will join the ETS in its second phase, from 2025.

In force
Under development
Under consideration

SECTORS

POWER

CAP

~256.8 $MtCO_2e$ in 2024

GREENHOUSE GASES

CO_2, CH_4 and N_2O

OFFSET CREDITS

Domestic

ALLOCATION

Free Allocation: Output-based Benchmarking

AVERAGE 2024 PRICES

Average price: IDR 12,000 (USD 0.76), representing the carbon price from emission trading, specifically purchasing PTBAE-PU carbon units through over-the-counter transactions.

Average secondary market price: IDR 58,800 (USD 3.66), indicative of the carbon price from transactions involving Sertifikat Pengurangan Emisi (SPE, Indonesia Certificate of Emission Reduction) in IDXCarbon for offset credits.

EMISSIONS & TARGETS OF INDONESIA

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	738.8	69%
Industrial processes	57.4	5%
Agriculture	135.6	13%
Waste	138.9	13%
Total	**1,070.5**	

Energy industries	315.6	29%
Manufacturing industries and construction	206.5	19%
Transport	158.3	15%
Commercial, institutional, and residential	31.1	3%
Other energy	27.2	3%

GHG REDUCTION TARGETS

By 2030: 31.9% below BAU including LULUCF (unconditional, enhanced NDC); up to 43.2% below BAU including LULUCF (conditional on international support, enhanced NDC)
By 2060: Climate neutrality ("Long-Term Strategy for Low Carbon and Climate Resilience", July 2021)

ETS COVERAGE & PHASES

COVERED EMISSIONS

As of now, there is no available data on verified emissions for the first period of the ETS, as the verification process has only recently commenced.

PHASES

PHASE 1: Two years (2023 and 2024)
PHASE 2: Three years (2025 to 2027)
PHASE 3: Three years (2028 to 2030)

Note: These phases apply exclusively to the power sector

CAP OR TOTAL EMISSIONS LIMIT

The total emissions limit under the Indonesian ETS is the sum of the bottom-up output-based emissions limits for all individual covered entities.

The Ministry of Energy and Mineral Resources (MEMR) establishes the PTBAE, or the emissions limit, for the power sector. This is based on: (i) actual emissions, which must be below the emissions reduction target set for the sector, and (ii) the carbon trading roadmap for the power sector.

PHASE 1:
The ETS was applicable only to coal-fired power plants connected to PLN's grid. The total emissions limit was approximately 256.8 $MtCO_2e$.

The emissions limit for the power subsector for Phase 1 was as follows:
- non-mine mouth coal-fired power plants with a capacity of ≥25 MW to <100 MW: 1.297 tCO_2e/MWh
- mine mouth coal-fired power plants with a capacity of ≥100 MW: 1.089 tCO_2e/MWh
- non-mine mouth coal-fired power plants with a capacity of 100 MW to ≤400 MW: 1.011 tCO_2e/MWh
- non-mine mouth coal-fired power plants with a capacity of >400 MW: 0.911 tCO_2e/MWh

PHASE 2 and **PHASE 3:**
The emissions limits for the second and third phases have not yet been determined, but they are expected to be more stringent than in the first.

SECTORS AND THRESHOLDS

PHASE 1: Coverage was limited to coal-fired power generators connected to PLN's grid only. Details on thresholds are provided below.

PHASE 2: The government plans to expand the scheme to include coal-fired power plants with capacity above 25 MW and not connected to PLN's grid (captive CFPPs), gas-fired power plants, gas engine power plants and combined cycled power plants connected to PLN's grid.

PHASE 3: The expansion will encompass all fossil fuel power plants, including diesel power plants with a capacity of 2 MW or greater and coal-fired power plants with capacity below 25 MW regardless of their connection to PLN's grid.

INCLUSION THRESHOLDS: In 2024, coal-fired power generation facilities with installed capacity exceeding 25 MW are included. Smaller coal and fossil fuel plants will be incorporated at a later point (see above).

The Ministry of Environment (MoE) has indicated that the government plans to implement emission caps for four additional sectors in the future: forestry, industrial processes and product use, agriculture, and waste management.

POINT OF REGULATION
Point source

TYPE OF ENTITIES
Installations/facilities

NUMBER OF ENTITIES
In 2023: 42 entities covering 99 installations
In 2024: 63 entities covering 146 installation

Note: The number of entities and installations is expected to continue increasing as new installations commence operations and additional categories are included, in line with the roadmap's expansions.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
In Indonesia, allowances are referred to as *Persetujuan Teknis Batas Atas Emisi Pelaku Usaha* (PTBAE-PU).

PHASE ONE:
Auctioning: In the Indonesian ETS, auctioning is conducted through a system managed by IDXCarbon, where bid and offer instructions are matched based on a time and price priority scheme (refer to the 'Market Design' section).
- Auction share: 0% (2024)
- Auction volume: None

To date, no auction has taken place. Details regarding auction shares and related requirements or provisions are yet to be determined.

Benchmarking: MEMR sets intensity targets based on cap/PTBAE, installations' average emissions of the previous year, and installations' average emissions intensity of the previous year. These targets dictate the number of PTBAE-PU allowances allocated for every MWh of electricity generated. If the necessary data is unavailable, allocation is based on comparison with similar plants of equivalent installed capacity. In the first year, allowances will be given 100% for free. For the second year or the following year, installations will receive either 75% or up to 85% of their allowances for free. The deduction percentage depends on the installation's compliance with the ETS.

Covered entities that receive allowances must participate in trading. If they do not, they receive a written warning and free allocation for the next compliance period is reduced to 75%.

USE OF REVENUES
Not defined.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Banking is allowed within phases, though PTBAE-PUs are valid for a maximum of two years from the end of the previous compliance period. Banking is not allowed across phases.

Borrowing is not allowed.

OFFSET CREDITS
The use of domestic offset credits – known as carbon reduction units, or *Sertifikat Pengurangan Emisi Gas Rumah Kaca* (SPE-GRK) – is allowed. Credits equivalent to SPE-GRKs may also be used.

QUALITATIVE LIMITS: Offset credits must stem from mitigation activities from:
1. New and renewable energy power plants;
2. Transportation, construction, and industry including energy efficiency activities; or
3. Other activities in the energy sector.

They must also be issued on the national registry.

QUANTATIVE LIMITS: None

In 2023, 6,260 tCO_2 in offset credits were retired, all from the Geothermal Lahendong project.

LINKS WITH OTHER SYSTEMS
The NEK Trading Scheme is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION
Carbon tax: The carbon tax is expected to be launched in 2025
Domestic crediting mechanism: Indonesia Emissions Reduction Certification

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (allowance or offset credit) per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

The compliance period for the Indonesian ETS is one year, with trading occurring from 1 January to 20 April of the following year. Surplus allowances at the end of the trading period may be traded in the following period, provided it is within the same phase.

MRV

MONITORING: An MRV system is currently in operation in the industrial sector and the power generation sub-sector. Pilot MRV programs are also being conducted in the cement and fertilizer sectors.

REPORTING: Reports are submitted to the MEMR through the Directorate General of Electricity via an online platform, the APPLE-Gatrik. These reports must be submitted by the end of January for the preceding year. Installations must report emissions of CO_2, CH_4, and N_2O, expressed in units of CO_2e.

VERIFICATION: Emissions must be verified by a third-party verifier that is accredited by the *Komite Akreditasi Nasional* (KAN), Indonesia's national accreditation body. This verification should be completed by the end of March, following the January reporting deadline. Verifiers are required to adhere to the guidelines for GHG emission verification in the power subsector.

PENALTIES AND ENFORCEMENT

The plan was to concurrently implement carbon trading and a carbon tax, with the latter serving as a penalty mechanism. However, as discussions on carbon tax regulations continue and its implementation is postponed, an alternative enforcement approach was introduced:

1. Should verified emissions exceed the allocated PTBAE-PU by the end of the period, allocations will be given according to the results of carbon trading transactions in the previous carbon trading period up to a maximum of 85% and the PTBAE-PU will be reduced by up to 15%.
2. Entities which fail to report their GHG emissions or participate in carbon trading by the end of the period will see a 25% reduction in their PTBAE-PU.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION:

Compliance entities, specifically those holding an "Electricity Supply Business License for Public Purpose" or "Electricity Supply Business License for Own-Use," are eligible to engage in carbon trading.

MARKET TYPES

Primary: In the primary market, allowances and offset credits are traded through a mechanism that may be activated upon request by the relevant ministry. This platform facilitates offset selling, with a potential reserve price set as low as IDR 1 (less than USD 0.01), and bids commencing from this figure or higher. As of January 2025, there have been no auctions conducted under this system, and specific details about auction shares, along with associated requirements and provisions, remain to be defined.

Secondary: Operated by IDXCarbon, launched at the Indonesia Stock Exchange (IDX) in September 2023 and licensed by the Financial Services Authority (OJK), the secondary market encompasses:

- Regular Market or 'Continuous Auction': Matching of bids and offers based on time and price priority, with minimum prices set at IDR 200 (USD 0.01) and governed by fraction price rules and an 'auto rejection' rule.
- Negotiated Market: Facilitates the settlement of pre-agreed trades through the exchange, requiring details of counterpart, carbon units, price, and volume.
- Marketplace: Enables project developers to list their projects and set prices.

IDXCarbon is integrated with the national registry, *Sistem Registri Nasional Pengendalian Perubahan Iklim* (SRN PPI), managed by MoE, ensuring the seamless transfer of carbon credits and preventing double counting.

LEGAL STATUS OF ALLOWANCES: PTBAE-PUs and SPE-GRKs are classified as securities, allowing their transfer and trade in the capital market.

MARKET STABILITY PROVISIONS

EVALUATION BY MEMR

Instrument type: Quantity-based instrument

Functioning: The MEMR evaluates on a regular basis the implementation of the ETS. If the evaluation reveals a shortage of allowances, the Minister and Director General may conduct additional auctions of PTBAE-PUs.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Coordinating Ministry for Economic Affairs (CMEA): Chair and Vice Chair of the National Steering Committee for Carbon Pricing Implementation; coordinates ministries/agencies in developing the national carbon pricing framework.

Ministry of Environment (MoE): National focal point for UNFCCC; leads NDC development and implementation, including national mitigation and adaptation and implementation of carbon pricing (including providing authorization for national and international emission trading, and overseeing offsetting; oversees MRV; operates the national registry, SRN PPI).

Ministry of Energy and Mineral Resources (MEMR): Coordinates ETS implementation in the power subsector, including oversight of an integrated MRV system with the SRN; responsible for preparing and implementing the 2021 voluntary pilot carbon market.

Ministry of Industry: Coordinates implementation of CPIs on the Industrial Processes and Product Use sector, including an emissions reporting system to be integrated with the SRN.

Ministry of Finance: Leads the development and implementation of the carbon tax.

Indonesian Environment Fund: Handles climate funding; manages ETS revenues, including any international carbon credit trading.

Financial Services Authority (OJK): Oversees IDXCarbon, which is hosted on the Indonesia Stock Exchange.

EVALUATION/ETS REVIEW

The Minister of Energy and Mineral Resources, through the Directorate General of Electricity, evaluates the Indonesian ETS every six months. Results of this evaluation may lead to adjustments in the policy.

REGULATORY FRAMEWORK

- → Regulation 46/2017 on Environmental Economic Instruments
- → Law 7/2021 Concerning Harmonization of Tax Regulations
- → Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Pricing to Achieve the Nationally Determined Contribution Target and Control over Greenhouse Gas Emissions in the National Development - Climate Change Laws of the World
- → MoEF Regulation 21/2022 on Guidelines for Carbon Economic Value Implementation
- → MEMR Regulation 16/2022 on Guidelines for Carbon Economic Value Implementation for the Power Generation Sub-sector
- → OJK Regulation 14/2023 concerning Carbon Trading Through the Carbon Exchange

JAPAN

- Voluntary GX-ETS launched in April 2023, operational since October 2023
- Ten-year decarbonization roadmap includes GX-ETS transitioning to a mandatory ETS from FY2026
- Auctioning planned from FY2033

ETS DESCRIPTION

Japan combines several carbon pricing instruments to help meet net zero emissions by 2050: an existing carbon tax, a voluntary ETS (GX-ETS) that will evolve into a mandatory ETS from 2026, and a carbon levy (GX-Surcharge) to be introduced from 2028. Plans for this are outlined in the Basic Plan for the "Green Transformation (GX) Policy", Japan's ten-year decarbonization strategy.

The GX-ETS started as a voluntary baseline-and-credit system during its first phase 2024 to 2025. More than 700 companies, accounting for more than 50% of national emissions, participate. Under the GX-ETS, J-Credits (see below) are traded on the Tokyo Stock Exchange.

The GX-ETS is expected to transition to a mandatory ETS from FY2026 after its first compliance deadline. Upper and lower price limits are planned to be introduced. From FY2033, auctioning will be introduced for high-emitting entities in the power sector. A study group was established to clarify legal and regulatory aspects of the GX-ETS, including free allocation, auctioning, and cap setting.

Separately, a carbon levy (GX-Surcharge) will be introduced from FY2028 on fossil fuel importers and domestic fossil fuel extractors.

Japan is actively participating in international carbon markets. Its Joint Crediting Mechanism (JCM) is a bilateral scheme to incentivize decarbonizing technologies and mitigation actions in 28 partner countries. JCM credits will also be eligible for use in the GX-ETS. Separately, over 100 countries and organizations have joined Japan's global capacity-building initiative, the Article 6 Implementation Partnership

In force

Under development

Under consideration

GREENHOUSE GASES

CO_2

OFFSET CREDITS

JCM credits and J-Credits will be allowed, details are under development.

EMISSIONS & TARGETS OF JAPAN

GHG EMISSIONS (INCLUDING INDIRECT CO_2 AND EXCLUDING LULUCF), 2022

(in $MtCO_2e$, share of total in %)

Energy	989.2	87%
Industrial processes	93.4	8%
Agriculture	33.5	3%
Waste	17.5	2%
Others (indirect CO_2)	1.8	>1%
Total	**1,135.5**	

Energy industries	435.1	44%
Manufacturing industries and construction	234.6	24%
Transport	185.0	19%
Commercial, institutional, and residential	27.6	3%
Other energy	0	0%

GHG REDUCTION TARGETS

By FY2030: 46% reduction from FY2013 GHG levels including LULUCF credits; and continue efforts to cut emissions by 50% (NDC)

By 2050: Net zero GHG emissions (updated NDC)

ETS COVERAGE & PHASES

PHASES

PHASE 1: Two years (2024 to 2025) (voluntary phase)

PHASE 2: Seven years (2026 to 2033)

POINT OF REGULATION

Point source

TYPE OF ENTITIES

Companies

NUMBER OF ENTITIES

More than 700 entities

FLEXIBILITY & LINKING

LINKS WITH OTHER SYSTEMS

The GX-ETS will not be linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

- Carbon tax: Tax for Climate Change Mitigation on fossil fuels since 2012
- Carbon tax: GX-Surcharge will be introduced in FY2028 to fuel importers and domestic extractors
- Sub-national ETSs: in Tokyo and Saitama
- Domestic and international crediting mechanism: J-Credits and JCM

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of the Environment: Supports the implementation of J-Credits and JCM; tasked with developing carbon pricing in Japan jointly with the Ministry of Economy, Trade, and Industry.

Ministry of Economy, Trade, and Industry: Supports the implementation of J-Credits; responsible for the GX League; tasked with developing carbon pricing in Japan jointly with the Ministry of Environment.

Central Environment Council: Advisory body to the Japanese Cabinet.

GX Acceleration Agency: Established to carry out operations related to the ETS and the GX-Surcharge system.

REGULATORY FRAMEWORK

→ GX Basic Plan

→ GX Promotion Act

MALAYSIA

- **Consultation for Climate Change Bill released in 2024 includes legal basis for a domestic ETS**
- **Voluntary carbon market trading platform launched in 2022, creating infrastructure for domestic ETS**

ETS DESCRIPTION

The Malaysian Ministry of Environment and Water (KASA) published the "National Guidance on International Voluntary Market Mechanisms" in 2021, which indicated its intent to participate in international voluntary carbon markets (VCM) and to establish a domestic ETS in the future. The Malaysian Cabinet endorsed KASA's policy document and decided to introduce a carbon trading platform by starting with a VCM exchange and potentially a domestic ETS at a later stage. Bursa Carbon Exchange (BCX), the world's first Shariah-compliant VCM platform, was launched in December 2022 and trading commenced in March 2023.

Malaysia's ETS plans are also fueled by the country's NDC commitments and net zero aspirations. It will also help to prepare industry players for international trade related instruments, such as the EU's carbon border adjustment mechanism (CBAM), and support Malaysia's low-carbon transition in the industrial sector.

Since 2021, the Malaysian government has been engaging with state governments and the corporate sector to align relevant policies and regulation. As part of this process, the Malaysian government, in close cooperation with the World Bank, is conducting a feasibility study on carbon pricing instruments under the Malaysia Partnership for Market Implementation (MY PMI) program. The initial part of the study is looking into the implementation of carbon pricing instruments such as a carbon tax and an ETS in Malaysia, and is covering several key aspects such as policy and market design frameworks, national registry development, and alignment with international standards. As of January 2025, work on the initial part of the study was still ongoing. The next part of the study is expected to start in 2025 and will focus on ETS design and infrastructure development.

At the sub-national level, in November 2023 the state of Sarawak passed a climate bill that includes provisions to introduce mandatory emissions thresholds for certain industrial emitters.

Similar provisions are contained in a consultation paper for a "National Climate Change Bill", published by the Ministry of Natural Resources and Environmental Sustainability (NRES) in October 2024. It mentions "the establishment of a Domestic Emissions Trading Scheme (ETS) which entails an emission threshold at the facility level that enables facilities to manage and trade their greenhouse gas emissions allowances, ensuring compliance with the set emission threshold, while promoting economic flexibility and incentivizing emission reductions". If approved, it would provide the legal basis for the introduction of a domestic ETS in Malaysia. The draft bill is expected to be introduced to the Malaysian parliament in 2025.

EMISSIONS & TARGETS OF MALAYSIA

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2021**
(in $MtCO_2e$, share of total in %)

Energy	259.7	79%
Industrial processes	37	11%
Agriculture	8.6	3%
Waste	23.7	7%
Total	**329.0**	

Energy industries	149.3	45%
Manufacturing industries and construction	33.7	10%
Transport	49.6	15%
Commercial, institutional, and residential	4	1%
Other energy	23.1	7%

GHG REDUCTION TARGETS

By 2030: 45% reduction of economy-wide carbon intensity compared to 2005 levels (unconditional, updated NDC)
By 2050: Net-zero (The 12th Malaysian Plan 2021–2025)

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Natural Resources and Environmental Sustainability (NRES): Responsible for overseeing the implementation of national climate policy, including the national carbon market mechanisms.
Ministry of Finance: Jointly responsible with NRES and Bursa Malaysia for the voluntary carbon credit exchange.
Bursa Malaysia: National stock exchange, operates Bursa Carbon Exchange (BCX).

REGULATORY FRAMEWORK

→ National Guidance on Voluntary Carbon Market Mechanisms (2021)
→ Consultation paper for a "National Climate Change Bill" (2024)

NEW ZEALAND

NEW ZEALAND EMISSIONS TRADING SCHEME

- **Broad ETS sectoral coverage, including forestry**
- **Cap trajectory aligned with national net-zero targets**
- **Agricultural emissions no longer face reporting requirements under the ETS, nor are there plans to price agricultural emissions through the ETS**

ETS DESCRIPTION

The New Zealand Emissions Trading Scheme (NZ ETS) was launched in 2008 and is a central climate change mitigation policy for the country. It covers roughly half of New Zealand's GHG emissions. The "Climate Change Response Act 2002" sets the legislative framework for the NZ ETS and incorporates all of New Zealand's key climate legislation under one Act.

The cap is set in a top-down process to align with New Zealand's 2050 net zero targets and associated emissions budgets. Covered entities must surrender allowances for all their reported emissions.

The NZ ETS has broad sectoral coverage, including forestry, stationary energy, industrial processing, liquid fossil fuels, waste, and synthetic GHGs. Allocation is based primarily on auctioning, which began in March 2021. Free allocation is granted only for emissions-intensive, trade-exposed (EITE) activities and is based on output- and intensity-based benchmarks. Uniquely to the NZ ETS, the forestry sector has both surrender obligations and the opportunity to earn units for emissions removals. The agricultural sector used to face processor level reporting obligations with the future possibility of facing compliance obligations under the NZ ETS, but this is no longer the case.

YEAR IN REVIEW

From 2011 until November 2024, companies carrying out certain agricultural activities had an obligation to report their emissions to the NZ ETS at the processor level. The He Waka Eke Noa partnership between the government and the agricultural sector had been established to deliver a pricing mechanism outside of the NZ ETS for the sector, with a 'backstop' measure to price agricultural emissions through the NZ ETS at the processor level in 2025, followed by pricing at the farm-level in 2027.

This legislation was repealed in 2024, removing agriculture activities from the NZ ETS. A new Pastoral Sector Group will replace the He Waka Eke Noa partnership. The government plans to price agricultural emissions (through a mechanism other than the NZ ETS) by no later than 2030.

In June 2024, the government commissioned an independent ministerial advisory panel of experts to review the latest science about biogenic methane and provide an up-to-date evidence base about methane's warming impact. This report was delivered in December 2024 and ministers will consider the findings alongside the Climate Change Commission's advice on New Zealand's 2050 targets in 2025.

1 This is the overall limit on the number of New Zealand Units (NZUs) that may be released to the market from auctioning, industrial allocation, and the Cost Containment Reserve, as well as from any international units (not currently allowed). There is no limit on NZUs generated from removal activities.
2 International offsets were allowed until June 2015.

In force
Under development
Under consideration

SECTORS

- MINING AND EXTRACTIVES
- POWER
- INDUSTRY
- BUILDINGS
- TRANSPORT
- AVIATION
- MARITIME
- WASTE
- FORESTRY FUEL USE
- FORESTRY

CAP

19.1 $MtCO_2e$ (2025)[1]

GREENHOUSE GASES

CO_2, CH_4, N_2O, SF_6, HFCs, PFCs

OFFSET CREDITS

Offset credits are not allowed[2]

ALLOCATION

Free Allocation: Benchmarking
Auctioning
Allowances granted for forestry and other removal activities

AVERAGE 2024 PRICES

Average auction price: NZD 64 (USD 38.75)
Average secondary market price: NZD 59.31 (USD 35.91)

TOTAL REVENUE

NZD 5.6 billion (USD 3.7 billion) since beginning of program
NZD 480.9 million (USD 291.2 million) in 2024

Unit supply settings, as well as auction reserve price settings for 2025 to 2029, were updated in September. The cap (which limits the number of units from auctioning, industrial allocation, and the cost containment reserve - CCR) was reduced from 27.9 million in 2024 to 19.1 million in 2025. The 2025 auction reserve price floor is NZD 68 (USD 41.17), and the first CCR trigger price is NZD 193 (USD 116.86).

Four auctions were undertaken in 2024, with 14.1 million units for sale, as well as another 7.7 million units available from the CCR. Two of the auctions cleared, with 3 million units sold in March 2024 and 4 million in December 2024, all at the floor price of NZD 64 (USD 38.75). In line with the NZ ETS auctioning regulations, any units that were unsold after the last auction of 2024 are not available for sale at any subsequent auction.

In December 2024, the government updated baselines for activities eligible for industrial allocation, to better reflect the actual emissions intensity of those activities. The regulations containing the new baselines came into force as of January 2025 and will impact the final allocations firms receive for 2024. The updates bring the industrial allocation system more in line with its purpose.

EMISSIONS & TARGETS OF NEW ZEALAND

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2022**
(in $MtCO_2e$, share of total in %)

Energy	28.7	37%
Industrial processes	4.5	6%
Agriculture	41.7	53%
Waste	3.5	4%
Total	**78.4**	

Energy industries	3.1	4%
Manufacturing industries and construction	6.1	8%
Transport	13.7	17%
Commercial, institutional, and residential	3.2	4%
Other energy	2.6	3%

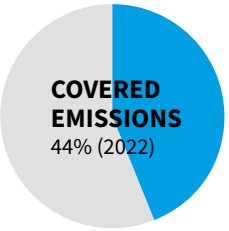
GHG REDUCTION TARGETS

By 2030: 50% reduction of net emissions below gross 2005 levels (NDC); 10% reduction of biogenic methane emissions below 2017 levels (Climate Change Response Act 2002, through an amendment in 2019)
By 2050: Reduce net emissions of all GHGs (except biogenic methane) to zero; reduce biogenic methane emissions to 24-47% below 2017 levels (Climate Change Response Act 2002, through an amendment in 2019)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

ETS emissions: 34.2 $MtCO_2e$



CAP OR TOTAL EMISSIONS LIMIT

The NZ ETS cap limits the number of New Zealand Units (NZUs) that may be released to the market from auctioning, industrial allocation, and from the CCR, as well as from any international units (not currently allowed). There is no limit on NZUs generated from removal activities. The NZ ETS cap thus limits the volume of net emissions that are emitted by ETS regulated entities, without imposing a limit on gross emissions within the ETS.

In 2025, the cap is 19.1 $MtCO_2e$.

The Climate Change Response Act 2002 requires the government to set a cap on emissions covered by the NZ ETS, based on the five-yearly emissions budgets and announced over a rolling five-year period with annual updates.

The government updated regulations for unit supply settings in September 2024, setting the annual cap for the years 2025 to 2029. In setting supply limits, the government also considers the stockpile of banked allowances already in circulation and projected unit supply from removal activities.

NZUs generated from removal activities are forecast to be 13.8 million units in 2025, mainly generated in the forestry sector.

The NZ ETS was originally designed to operate without a specific domestic cap, as this accommodated carbon sequestration from forestry activities and a full link to the international Kyoto Protocol carbon markets. Allowance supply was restricted to NZUs in 2015. No decisions have been made on potential future access to and use of international units.

SECTORS AND THRESHOLDS

SECTORS: Sectors were gradually phased in between 2008 and 2013.

- Forestry (mandatory: deforesting pre-1990 forest land; voluntary: post-1989 forest land)
- Stationary energy
- Industrial processing
- Liquid fossil fuels
- Waste (except for small and remote landfills)
- Synthetic GHGs; synthetic GHGs not covered by the NZ ETS are subject to an equivalent levy

From 2011 until November 2024, companies carrying out certain agricultural activities had an obligation to report their emissions to the NZ ETS at the processor level. The He Waka Eke Noa partnership between the government and the agricultural sector had been established to deliver a pricing mechanism outside of the NZ ETS for the sector, with a 'backstop' measure to price agricultural emissions through the NZ ETS at the processor level in 2025, followed by pricing at the farm-level in 2027.

This legislation was repealed in 2024, removing agriculture activities from the NZ ETS. A new Pastoral Sector Group will replace the He Waka Eke Noa partnership. The government plans to price agricultural emissions (through a mechanism other than the NZ ETS) by no later than 2030.

TYPES OF FUEL COVERED: petrol, diesel, aviation gasoline, jet kerosene, light fuel oil, heavy fuel oil. Emissions from fuel used for international aviation and marine transport are exempt.

INCLUSION THRESHOLDS: Thresholds for participation are typically low.[3]

- Forestry (mandatory: deforesting pre-1990 forest land; voluntary: post-1989 forest land)
- Stationary energy (various thresholds)
- Industrial processing (various thresholds)
- Liquid fossil fuels (various thresholds)
- Waste (except for small and remote landfills)
- Synthetic GHGs (various thresholds); synthetic GHGs not covered by the NZ ETS are subject to an equivalent levy

POINT OF REGULATION

Upstream (power, aviation, buildings, forestry, transport, forestry fuel use); point source (industry, waste).

For all fossil fuels, the point of obligation is generally upstream. Some large businesses that purchase fossil fuels directly from mandatory NZ ETS participants can choose to opt into the NZ ETS rather than have the costs passed down from their suppliers.

TYPE OF ENTITIES

Companies

NUMBER OF ENTITIES

4,617 entities were registered as participants in the NZ ETS as of the end of December 2024, of which:

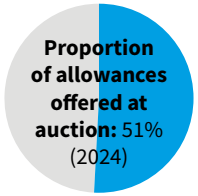
- 165 entities have mandatory reporting and surrender obligations for 176 activities*
- 4,452 entities have voluntary (opt-in) reporting and surrender obligations for 4,650 activities*, 4,427 entities are registered as forestry.

*Some entities have obligations under multiple activities.

Note that some organizations have both mandatory and voluntary reporting and surrender obligations.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



14.1 million units were made available at auction in 2024, and seven million were sold.

FREE ALLOCATION:

Leakage protection/Industrial free allocation: Free allocation is provided, based on output and intensity-based benchmarks, for 26 eligible industrial activities. Activities are deemed eligible if both EITE criteria are met. Highly emissions-intensive activities (over 1,600 tCO_2e per NZD 1 million [USD 605,494] of revenue) receive 90% free allocation. Moderately emissions-intensive activities (over 800 tCO_2e per NZD 1 million [USD 605,494] of revenue) receive 60% free allocation. An activity is deemed to be trade-exposed if there is transoceanic trade in the good produced.

In 2023, 5.7 million NZUs were allocated for industrial EITE activities.

In December 2024, the government updated the baselines for activities eligible for industrial allocation, to better reflect the actual emissions intensity of those activities. The regulations containing the new baselines came into force from January 2025 and will impact the final allocations firms receive for 2024. The updates bring the industrial allocation system more in line with its purpose.

3 Detailed threshold information can be found in Schedule 3 of the Climate Change Response Act 2002 and in the Climate Change (General Exemptions) Order 2009.

Industrial free allocation is being phased down. A minimum annual phase-down rate of 0.01% across all industrial activities applies from 2021 to 2030. That rate will increase to 0.02% for the years 2031 to 2040, and to 0.03% for 2041 to 2050. The minimum phase-down rate could be adjusted for activities that are considered at lower risk of carbon leakage alongside other criteria as set in legislation.

AUCTIONING:
Auctioning was introduced in 2021. The volume of NZUs made available for auctioning is set on an annual basis, five years in advance (see 'Cap' section). The annual quantity is split between the quarterly auctions. In 2024, 14.1 million allowances were made available for auctioning, plus an additional 7.7 million allowances in the CCR. Seven million NZUs were sold in 2024.

Auctions follow a sealed-bid, single-round format. The clearing price is set at the lowest successful bid and NZUs are sold to all successful bidders at this price, providing it is not below the confidential reserve price (see 'Market Stability Provisions' section). Otherwise, the auction fails and all allowances on offer are rolled forward to the next auction within the same calendar year. Any units that remain unsold after the last auction of the year are not available for sale at any subsequent auction.

ALLOWANCES GRANTED FOR REMOVALS:
Post-1989 forestry sector and other removal activities: NZUs are granted to participants that voluntarily register in the scheme for removal activities.

Forestry removal activities: Participants are entitled to receive one NZU per tCO_2 removed for registered post-1989 forest land. If the forest is harvested4 or deforested, units must be surrendered to account for the emissions. If the participant chooses to deregister from the scheme, NZUs equivalent to the number received must be returned. 20 million NZUs were issued for forest removal activities in 2023.

Other removal activities: 2.1 million allowances were granted in 2023 for other removal activities, such as producing a product with embedded GHGs.

USE OF REVENUES

General budget, including debt reduction

FLEXIBILITY & LINKING

BANKING AND BORROWING
Banking is allowed. NZUs do not expire.
Borrowing is not allowed.

OFFSET CREDITS
The use of offset credits is not allowed.

Units from Kyoto Protocol flexibility mechanisms were eligible for use in the system with no restrictions until June 2015 but have since been ineligible. Access to high-integrity international carbon markets may be part of New Zealand's strategy to meet its 2030 target. The government can decide to allow international units as part of the annual unit supply-setting process. However, only units from government-approved sources and those meeting environmental integrity standards would be eligible and subject to quantitative limits.

LINKS WITH OTHER SYSTEMS
The NZ ETS is not linked with any other system.

Until June 2015, the NZ ETS was indirectly linked to other systems (e.g., the EU ETS) via the international Kyoto Protocol flexible mechanisms. Since then, the NZ ETS has been an exclusively domestic system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION
Carbon tax: Synthetic GHG levy

COMPLIANCE

COMPLIANCE MECHANISM
Covered entities must surrender one compliance unit per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD
For most sectors, the NZ ETS has annual surrender obligations. For post-1989 forestry participants, annual reporting of emissions and removals is optional, with five-year mandatory reporting periods. As a result, unit allocations and surrenders for these participants occur in the year they choose to report their emissions.

4 Under the new "averaging" method for post-1989 forests, allowances are granted only up to the long-term average carbon stock, but therefore do not need to be surrendered at harvest.

MRV

REPORTING: Most sectors are required to report annually; the deadline is the end of March to submit an Annual Emissions Return (emissions report).

VERIFICATION: MRV follows a system of self-reporting supplemented by a program of official government audits. Each year, a sample of NZ ETS participants are selected for compliance review. Third-party verification is not typically required for emissions reports. However, participants must seek third-party verification if they apply for the use of a unique emissions factor, as opposed to using the default factors supplied by the government.

An entity that fails to submit an emissions report by the due date must pay a fine equal to the number of units involved, multiplied by the current unit price and a "culpability factor".

PENALTIES AND ENFORCEMENT

An entity that fails to surrender or repay emissions units when required must surrender the units and pay a cash penalty of three times the current market price for each unit that was not surrendered by the due date. Entities can be fined up to NZD 24,000 (USD 14,531.86) on conviction for failure to collect emissions data or other required information, calculate emissions and/or removals, keep records, register as a participant, submit an Annual Emissions Return when required, or notify the administering agency or provide information when required to do so.

Entities can also be fined up to NZD 50,000 (USD 30,274.70) on conviction for knowingly altering, falsifying, or providing incomplete or misleading information about any obligations under the scheme, including in the Annual Emissions Return report. This penalty and/or imprisonment of up to five years also applies to entities that deliberately lie about obligations under the NZ ETS to gain financial benefit or avoid financial loss.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Any individual or organization can own and trade NZUs, if they hold an account with the NZ ETS Registry.

MARKET TYPES:

Primary: Auctions are operated jointly by NZX (New Zealand Exchange) and the European Energy Exchange (EEX) and are held four times a year. Any NZ ETS Register Account Holder can participate in the auctions.

Secondary: Most NZUs are traded on the secondary market. Trades can take place directly between companies (OTC) or via a trading platform. Trades can be on a spot basis or through forward contract.

LEGAL STATUS OF ALLOWANCES: Allowances are not financial products in New Zealand law and, as a result, there is currently no single integrated market governance framework that would manage risks of misconduct in the NZ ETS. The government has work underway on options to improve market governance.

MARKET STABILITY PROVISIONS

COST CONTAINMENT RESERVE (CCR)

Instrument type: Price-based instrument

Functioning: If a predetermined trigger price is reached at auction, a specified number of allowances from the CCR are additionally released for sale. The CCR follows a two-tier system, with a specific number of allowances available for auction at each trigger. The government updates the CCR trigger prices each year, together with other auction supply settings (see 'Cap' section).

At the start of 2025, the first CCR trigger price is NZD 193 (USD 116.86), with a total of 2.6 million units available. The second trigger price is NZD 242 (USD 146.53), with 4.5 million units available. These triggers will rise annually to reach NZD 235 (USD 142.29) and NZD 294 (USD 178.01) respectively in 2029.

In 2024, the volume of the CCR was set at a total of 7.7 million allowances for both triggers. The trigger price was not reached during 2024, so none of these were released to market. Currently, the volume of the reserve is set at 7.1 million in 2025, dropping annually to 4.7 million in 2029.

PRICE FLOOR

Instrument type: Price-based instrument

Functioning: With the start of auctioning, the government introduced a price floor operating through a reserve price or minimum accepted bid at auction.

In addition to the hard auction reserve price floor, the government introduced a confidential reserve price. This is set by referencing prices from the secondary market and uses a confidential methodology to determine a reserve price below which units cannot be sold. If it is set higher than the hard auction reserve price, then it becomes the new reserve price floor for that auction.

The hard auction reserve price floor is NZD 68 (USD 41.17) in 2025, rising annually to NZD 82 (USD 49.65) in 2029.

.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry for the Environment: Responsible for establishing the regulatory framework of the NZ ETS.
Environmental Protection Authority: Responsible for the NZ ETS registry and compliance.
Ministry for Primary Industries: Responsible for the forestry sector under the NZ ETS.
Climate Change Commission: Independent body providing official annual advice on NZ ETS settings.

EVALUATION/ETS REVIEW

The Climate Change Response Act 2002 includes provisions for reviews of the operation and effectiveness of the NZ ETS. These reviews were originally required every five years, but the timing is now discretionary. The first review took place in 2011–2012, and the second review took place from 2015 to 2017. A third review of the NZ ETS was opened in early 2023. Following the 2023 General Election, this was closed by the new government.

REGULATORY FRAMEWORK

→ **Climate Change Response Act 2002 – Part 4 New Zealand greenhouse gas emissions trading scheme**[5]

5 To keep New Zealand's key climate change legislation under one act, the Climate Change Response Act incorporates both the "Climate Change Response (Emissions Trading Reform) Amendment Act 2020", and the "Climate Change Response (Zero Carbon) Amendment Act 2019". The "Zero Carbon Act" details domestic targets to 2050, establishes the Climate Change Commission, and mandates a process of setting and meeting five-year national emission budgets.

PHILIPPINES

- **Bill proposing the introduction of an ETS was approved by the House of Representatives on 2nd Reading on 4 February 2025**
- **The Bill awaits passage on 3rd Reading by the House of Representatives in June 2025**
- **If adopted, the Bill would establish an ETS covering the energy, transport, industry, AFOLU, and waste sectors**

ETS DESCRIPTION

In February 2025, the House of Representatives approved on 2nd reading the "Act Promoting Investments in Low Carbon Economy, Establishing for this Purpose a Carbon Emission Pricing Framework and Implementation Mechanism to Achieve Low Carbon and Climate-resilient Economic Development" (House Bill No. 11375). The Bill consolidates House Bill No.7705 and House Bill No. 10633, two carbon pricing Bills introduced in the summer of 2024.

House Bill No. 11375 provides for a carbon pricing framework and implementation mechanism aimed at achieving national climate targets. The Bill mandates large emitters from the energy, transportation, industry, agriculture, forestry and waste sectors to develop decarbonization plans. The Climate Change Commission (CCC) would consolidate sectoral decarbonization pathways and determine annual allowance allocation plans for individual covered entities. Covered entities with emissions exceeding the annual allocation of emissions allowances, would have the following alternatives to cover the shortfall:

(1) purchasing carbon allowances from other covered entities;
(2) purchasing carbon credits from internationally recognised offset projects, including forestry, renewable energy, carbon capture and storage and methane reduction activities
(3) contributing funds towards emissions reductions within their value chain, towards government-led climate initiatives, or towards decarbonization businesses, either independently or through pooled resources. The amount of funds to be allocated will be equivalent to the carbon price established by the CCC for each $MtCO_2e$ above the allowed limit

House Bill No. 11375 will be transmitted to the Philippine Senate after its passage on 3rd Reading in the House of Representatives by June 2025.

In parallel, the Department of Finance has convened a technical working group to evaluate the feasibility of implementing carbon pricing instruments in the country, supporting the legislative efforts to establish a comprehensive emissions reduction framework.

EMISSIONS & TARGETS OF PHILIPPINES

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **2020**
(in $MtCO_2e$, share of total in %)

Energy	129.3	56%
Industrial processes	16.8	7%
Agriculture	54.1	23%
Waste	30.1	13%
Total	**230.3**	

Energy industries	74.5	32%
Manufacturing industries and construction	11.1	5%
Transport	29.4	13%
Other energy	14.3	6%

GHG REDUCTION TARGETS

By 2030: Conditional pledge to keep 2030 emissions 75% below BAU levels (excluding LULUCF sectors) (NDC)

OTHER INFORMATION

INSTITUTIONS INVOLVED

Department of Environment and Natural Resources: Manages environmental and climate policies and is responsible for the ETS design and administration.
Department of Finance: Responsible for the government's fiscal policy
NDC Steering Committee: Formed by sectoral agencies, it is responsible for the development, implementation, monitoring, and evaluation of the NDC
Climate Change Commission: Policy-making body of the government tasked to coordinate, monitor and evaluate government programs and ensure mainstreaming of climate change in developing plans

REGULATORY FRAMEWORK

→ House Bill No. 11375 (19th Congress, 2025)

REPUBLIC OF KOREA

KOREA EMISSIONS TRADING SYSTEM

- East Asia's first national ETS
- Currently undergoing a major reform process

ETS DESCRIPTION

The Korea Emissions Trading System (K-ETS) launched in 2015 as East Asia's first nationwide, mandatory ETS. It covered 79% of Korea's GHG emissions in 2022. The K-ETS aims to help the country in its objective to become carbon neutral by 2050, a target embedded in the 2021 "Carbon Neutral Framework Act".

The K-ETS covers 816 of the country's largest emitters in the power, industrial, buildings, waste, transport, domestic aviation and maritime sectors. Covered entities must surrender allowances for all their covered emissions, and allocation is done via auctions or free distribution. At least 10% of allowances in eligible sectors must be auctioned. Free allocation is provided for EITE sectors based on production cost and trade intensity benchmarks. Since 2021, domestic financial intermediaries and other third parties have been able to participate in exchange.

The K-ETS was established by the "Framework Act on Low Carbon, Green Growth" (2010). It was preceded by a mandatory Target Management System (TMS), launched in 2012, following a two-year pilot phase. The TMS facilitated the collection of verified emissions data and training in the MRV process and still applies to smaller entities not covered by the K-ETS.

YEAR IN REVIEW

In 2024, new rules to increase liquidity in the K-ETS, focusing on facilitating market participation and banking, entered into force:

1. Restrictions on the carryover of unused allowances were relaxed to five times the net sales (total allowances sold minus total allowances bought) and the conversion period of offset credits prolonged from two to five years.
2. The government encourages the launch of carbon price-linked financial products and will introduce futures markets by 2025.
3. Consignment trading was introduced to the market. The K-ETS opened up to additional financial institutions.
4. Auction volume is adjusted annually if necessary. Since 2024, the monthly auctioned volume depends on the previous month's auction results: a) if the bid ratio is less than 100%, the next month's auction volume will be determined by the current month's winning quantity; or, b) if the bid ratio is 100% or more, the next month's auction volume will be determined by the current month's auctioned volume or higher, whichever the government decides

In September 2024, the Ministry of Environment announced additional measures to increase liquidity in the market, which entered into effect in February 2025:

1. Opening up the ETS to a wider group of financial institutions
2. Laying the foundations for individuals to participate in the market
3. Revisions of some criteria for market stabilization measures
4. Tightening of the regulations for cancelling emission allowances by raising the threshold for allowance cancellation from 50% to 15% of the allocation

In force
Under development
Under consideration

SECTORS

POWER
AVIATION
INDUSTRY
MARITIME
BUILDINGS
WASTE
TRANSPORT

CAP

567.1 $MtCO_2e$ (2024)

GREENHOUSE GASES

CO_2, CH_4, N_2O, HFCs, PFCs, SF_6

OFFSET CREDITS

Domestic and international offset credits are allowed with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Fixed Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average auction price: KRW 10,355 (USD 7.60)
Average secondary market price: KRW 9,238 (USD 6.78)

TOTAL REVENUE

KRW 1.4 trillion (USD 1 billion) since beginning of program
KRW 185.9 billion (USD 136.4 million) in 2024

In December 2024, the government adopted its fourth "Basic Plan for the Emissions Trading System" covering the ten-year period between 2026 and 2035. It addresses the fourth and fifth allocation period (2026 to 2030 and 2031 to 2035). The Basic Plan aims to better align the ETS with the country's Carbon Neutral Framework Act and updated NDC. The Basic Plan includes the following measures:

1. Auctioning will significantly be increased in the electricity and other high-emitting sectors and incentives for decarbonization enhanced.
2. Allocation based on benchmarking will be increased to 75% of covered entities (up from 60%). (The fourth allowance allocation plan will be published in 2025.)
3. A Market Stabilization Mechanism will be introduced to automatically adjust supply of and demand for allowances.
4. Banking rules will be relaxed.
5. Expansion of auction participation to non-compliance actors such as market makers and third parties
6. Revenues will be used for companies' emission reduction activities.
7. Companies will be grouped in electricity and non-electricity sectors instead of the current six groups.
8. Carbon Contracts for Difference will be introduced to incentivize innovation.

EMISSIONS & TARGETS OF THE REPUBLIC OF KOREA

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), 2022

(in $MtCO_2e$, share of total in %)

Energy	551.9	76.2%
Industrial processes	131.3	18.1%
Agriculture	23.0	3.2%
Waste	18.2	2.5%
Total	**724.3**	

Energy industries	257.5	46.7%
Manufacturing industries and construction	141	25.6%
Transport	98.5	17.9%
Commercial, institutional, and residential	48.4	8.8%
Other energy	3	0.5%
Fugitive emissions	3.4	0.6%

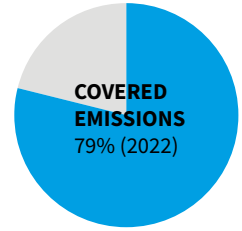
GHG REDUCTION TARGETS

By 2030: At least a 35% reduction below 2018 emissions (Carbon Neutral Framework Act); 40% reduction below 2018 levels (updated NDC)
By 2050: Carbon neutrality (Carbon Neutral Framework Act)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Certified ETS emissions: 572.0 $MtCO_2e$



PHASES

PHASE 1: Three years (2015 to 2017)
PHASE 2: Three years (2018 to 2020)
PHASE 3: Five years (2021 to 2025)

CAP OR TOTAL EMISSIONS LIMIT

A cap limits the total emissions allowed in the system.

PHASE 1: The cap was 1,689.2 $MtCO_2e$, including a reserve of 89.4 $MtCO_2e$ for early action and new entrants. 84.5% of the reserve was used within the phase. 14.3 million allowances were set aside in a reserve for market stabilization (see 'Market Stability Provisions' section), bringing the total number of allowances in Phase 1 to 1,704.2 million.

Annual Caps in Phase 1:
2015: 540.1 $MtCO_2e$
2016: 560.7 $MtCO_2e$
2017: 585.5 $MtCO_2e$

PHASE 2: The cap was 1,777 $MtCO_2e$, including 134 million for new entrants and other purposes. 14 million allowances were set aside for market stabilization and 5 million for the market makers (see 'Market Design' section) bringing the total amount of allowances to 1,796.1 million in Phase 2.

Annual Caps in Phase 2:
2018: 593.5 $MtCO_2e$
2019: 563.2 $MtCO_2e$
2020: 562.5 $MtCO_2e$

The higher caps in Phase 2 reflected the expansion of the sectoral scope of the K-ETS (see 'Sectors and Thresholds' section).

PHASE 3: The cap is 3,048.3 $MtCO_2e$. This corresponds to an average annual cap of 610 $MtCO_2e$, including reserves. Annual caps appear higher in Phase 3 due to the expansion in scope but reflect a 4.7% decrease in emissions compared to the 2017 to 2019 baseline. In addition, 14 million allowances are set aside for market stability purposes and 20 million for market makers, bringing the total amount of allowances in Phase 3 to 3,082.3 million.

Annual Caps in Phase 3 (excluding reserves):
2021: 589.3 $MtCO_2e$
2022: 589.3 $MtCO_2e$
2023: 589.3 $MtCO_2e$
2024: 567.1 $MtCO_2e$
2025: 567.1 $MtCO_2e$

SECTORS AND THRESHOLDS

PHASE 1: 23 sub-sectors from the following five sectors: heat and power, industry, buildings, waste, and transportation (domestic aviation).

PHASE 2: According to the Phase 2 Allocation Plan, the public and waste sectors were disaggregated such that the K-ETS covered the following six sectors: heat and power, industry, buildings, transportation, waste, and the public sector. These were divided into 62 sub-sectors.

PHASE 3: Coverage within the transport sector was widened to include freight, rail, passenger, and maritime shipping. Construction industries have also been brought into the system's scope. This increased the number of sub-sectors to 69.

INCLUSION THRESHOLDS: Companies emitting more than 125,000 tCO_2 per year, and facilities with emissions in excess of 25,000 tCO_2 per year.

The scheme covers both direct emissions and indirect emissions from electricity consumption. The same inclusion thresholds apply.

POINT OF REGULATION

Point source (power, industry, buildings, transport, domestic aviation, waste, public/other); downstream (buildings)

TYPE OF ENTITIES

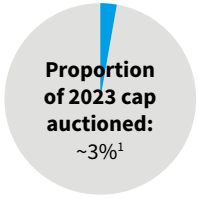
Installations/facilities, companies, financial institutions (market makers, see 'Market Design' below), third-party institutions, e.g. financial firms and brokers

NUMBER OF ENTITIES

816 entities (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION



PHASE 1:
Free Allocation: 100% of total allowance supply. Most sectors received free allowances based on the average GHG emissions of the base years (2011 to 2013). Three sub-sectors (grey clinker, oil refining, and aviation) were allocated free allowances following benchmarks based on previous activity data from the base years.

PHASE 2:
Free Allocation: 97% of allocation to entities in sub-sectors subject to auctioning; 100% for EITE sectors. Toward the end of Phase 2, the share of sector-specific benchmarking reached 50% of total primary allocation and was expanded to a total of seven sub-sectors: grey clinker, oil refining, domestic aviation, with the addition of waste, industrial parks, electricity generation, and district heating/cooling.

EITE sectors received 100% of their allowances for free if they met one of the following three criteria:[2]
- Additional production cost of >5% and trade intensity of >10%; or
- Additional production cost of >30%; or
- Trade Intensity of >30%.[3]

Auctioning: Regular auctions began in 2019. Participation in auctions is subject to some limitations. Only companies that do not receive all their allowances for free are eligible to bid, with a list of eligible bidders published by the Ministry of Environment. Bidders can purchase 15-30% of the allowances on offer. The auctions are subject to a minimum price.
- Auction share: 3% of allocation to entities in 26 eligible sub-sectors, including entities from the electricity, domestic aviation, wooden products, and metal foundry sectors.
- Auction volume: 7.95 million allowances (2019) and 9.3 million (2020).

1 Based on the overall annual allocation. The requirement that at least 10% of allowances must be auctioned only applies to the aggregation of the sub-sectors that are subject to auctioning.
2 Additional Production Cost: (annual average GHG emissions during base year x average market price of allowances during base year)/annual average value-added production during base year
3 Trade Intensity is calculated relative to the base year: (annual average exports + annual average imports)/(annual average sales + annual average imports)

PHASE 3:

Free Allocation: Less than 90% of free allocation to entities in sub-sectors that are subject to auctioning; 100% for EITE sectors. The share of sector-specific benchmarking is to reach 60% and has been expanded to a total of 12 sub-sectors: grey clinker, oil refining, domestic aviation, waste, industrial parks, electricity generation, and district heating/cooling, with the addition of steel, petrochemicals, buildings, paper, and wood processing. EITE sectors receive 100% free allocation if they meet the following criteria:
Production cost x Trade Intensity ≥ 0.2%

Allocation is calculated using the following formulas:

- Benchmark allocation: Benchmark value (tCO_2e/t) x historical activity level (t) x correction factor x carbon leakage factor
- Grandparenting allocation: Average GHG emissions of base year x correction factor x carbon leakage factor

The carbon leakage factor is 1.0 for sectors exposed to significant risk; for non-EITE sectors, it is 0.9.

A tightening of benchmarks to align the K-ETS with long-term climate targets is under discussion.

Auctioning: Bidders can purchase a maximum of 15% of the allowances on offer. The government is expected to increase the share of auctioned allowances in the coming years.

Auction share: At least 10% of allocation to entities in sub-sectors subject to auctioning. Entities from 41 sub-sectors, excluding EITE sectors, can participate in auctions.

Auction supply: 23.51 million allowances (KAU2021), 18.24 million allowances (KAU2022), and 16.16 million allowances (KAU2023) which represents ~3% of the 589.3 $MtCO_2e$ 2023 cap (excluding reserves).

USE OF REVENUES


Climate mitigation


Low-carbon innovation


Assistance for individuals, households, and businesses

Revenues from auctioning go into the Climate Response Fund, which supports emissions mitigation infrastructure, low-carbon innovation, and technology development for small- and mid-sized companies covered by the K-ETS.

CLIMATE RESPONSE FUND EXPENDITURES

Revenue Use Purpose	2022 in USD	2023 in USD	2024 in USD
GHG reduction	697 million	724.1 million	718.02 million
Creating low-carbon ecosystem	472.31 million	467.05 million	444.96 million
Just transition	134.78 million	149.55 million	144.77 million
Building carbon neutral foundation	423.35 million	460.56 million	350.91 million
Other	77.4 million	23.71 million	96.59 million
Total	**1804.87 million**	**1824.91 million**	**1755.25 million**

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed with restrictions across and within phases.
Borrowing is allowed within a single trading phase.

PHASE 1: Borrowing was limited to 20% of an entity's obligation.

PHASE 2: From Phase 2 to Phase 3, banking was initially limited to the higher of two limits: the net annual number of allowances sold by the entity in Phase 2; or company- and facility-specific limits of 250,000 Korean Allowance Units (KAUs) and 5,000 KAUs, respectively. Borrowing was limited to 15% of an entity's obligation in 2018.

Rules on banking and borrowing were adjusted in 2019. The borrowing limit was set by each entity's past borrowing activity, according to the following formula: Compliance obligation of the entity x [Borrowing limit of previous year – ("borrowing ratio" in previous year x 50%)]/entity's emission volume.

The banking limit for the transition between Phase 2 and Phase 3 has been calculated as follows:

- For allowances from the 2018 vintage (KAU18), entities can bank either three times the net sales (total allowances sold minus total allowances bought) or 75,000 allowances for companies emitting >125,000 tCO_2e or 15,000 allowances for companies emitting >25,000 tCO_2e — whichever is higher;
- For KAU19s, the amounts above are reduced by one-third, i.e., two times the net selling amount or 50,000 for large entities (10,000 for smaller entities) allowances, whichever is higher;
- For KAU20s, the amount represents a two-third reduction compared to the KAU18 rule.

PHASE 3: In the first trading year, entities could borrow up to 15% of their compliance obligation. From the second to fourth trading years, the same borrowing formula as for 2019 applies.

Banking in Phase 3:

- In the first and second compliance years (2021 and 2022), entities could bank up to double their net number of KAUs and Korean Credit Units (KCUs) sold on the secondary market (excluding swaps and auctions).
- In the third and fourth compliance years (2023 and 2024), entities' banking limits are equal to their net number of allowances (total allowances sold minus total allowances bought) and offset credits sold.

Phase 3 allowances and offset credits can only be carried over to the first compliance year of Phase 4 (2026 to 2030). The banking limit in the fifth compliance year (2025) also follows the "three times of net sales" rule.

OFFSET CREDITS

Domestic offset credits, i.e. Korean Offset Credits (KOCs), were allowed in Phase 1. KOCs and international credits (subject to qualitative criteria) have been allowed since Phase 2. Both domestic and international credits must be converted to KCUs to be used for compliance.

PHASE 1:

Qualitative limit: The use only of domestic offset credits from external reduction activities implemented by non-ETS entities — and that met international standards — was allowed. Domestic CDM credits (CERs) and KOCs were allowed. Eligible activities included those eligible under the CDM plus carbon capture and storage, and had to have been implemented after mid-April 2010.

Quantitative limit: Up to 10% of each entity's compliance obligation.

PHASE 2:

Qualitative Limit: The use of CERs generated from June 2016 from international CDM projects developed by Korean companies was allowed if:

- at least 20% of the ownership rights, operating rights, or the voting stocks were owned by a Korean company; or
- a Korean company supplied low-carbon technology worth at least 20% of the total project cost.

Quantitative limit: Up to 10% of each entity's compliance obligation (of which up to 5% can be international offset credits).

PHASE 3:

Qualitative limit: The use of offset credits is allowed according to the same qualitative criteria outlined for Phase 2. However, limitations apply to the issuance and conversion of credits:

- GHG reduction projects (according to reduction period coverage) to KOC conversion: 1) April 2010 to December 2020: within two years (2021 to 2022); 2) January 2021 onwards: within two years (2022 to 2023).
- KOC to KCU conversion: within five years of KOC issuance.

Quantitative limit: Up to 5% of each entity's compliance obligation, regardless of type.
As of December 2023, there were 292 registered methodologies (211 for CDM and 81 for domestic offset credits). The government aims to use 37.5 million international credits to fulfill its 2030 NDC.

For the 2022 compliance period, 7.6 million KOCs, 6.96 million of which were from domestic projects and the remaining 0.65 million from overseas projects, were converted into KCU22s, all of which were used for surrender of emission permits (65 entities).

LINKS WITH OTHER SYSTEMS

The K-ETS is not linked with any other system.

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit (allowance or offset credit) per tCO_2e emitted.

COMPLIANCE PERIOD

One year. Entities must surrender allowances for the previous year by the end of August.

MRV

REPORTING: Annual reporting of emissions from the previous year must be submitted by the end of March.

VERIFICATION: Emissions must be verified by a third-party verifier.

FRAMEWORK: Emission reports are reviewed and certified by the Certification Committee of the Ministry of Environment by the end of May. Liable entities are required to revise and resubmit emission reports which are found to be incorrect.

PENALTIES AND ENFORCEMENT

The penalty shall not exceed either three times the average market price of allowances of the given compliance year or KRW 100,000 (USD 73.39) per tonne.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities. Limited participation for non-compliance entities. Initially limited to compliance entities, the "market maker" system was introduced in Phase 2 to improve market liquidity. Market makers are third-party participants in the K-ETS who can draw on a separate government-held reserve of allowances set aside at the time of original allocation, to increase liquidity in the market through daily allowance trade. Three new financial firms were appointed in 2021, in addition to the two market makers that had been appointed in 2019. In December 2022, the government announced a further two market makers who began operating from 2023. Eight market makers were appointed later in 2023.

From Phase 3, as per the 2012 "Emissions Trading Act" and the Presidential Decree, non-compliance entities in the form of other non-market maker domestic financial intermediaries can participate in the secondary market and trade allowances on the Korea Exchange (KRX). In line with this, 20 financial intermediaries were approved for participation in the carbon market from 2021 (the total as of December 2023 is 21 financial intermediaries). Though they initially could only hold up to 200,000 allowances each, to avoid excessive market share, this number was increased to 500,000 in December 2022, and again to one million in 2023.

MARKET TYPES:

Primary: Monthly auctions have been held since 2019. Sectors that receive 100% free allocation are not allowed to participate in auctions. Auctions take place via the KRX.

Secondary: The K-ETS has traditionally had a high share of over-the-counter transactions. Additionally, the KRX manages the platform where the spot secondary market transactions take place. Allowances, KCUs and KOCs are traded on the exchange for different vintage years. Consignment trading is set to be introduced in 2024.

LEGAL STATUS OF ALLOWANCES: The legal status of KAUs is not explicitly referenced in the 2012 Emissions Trading Act or the Presidential Decree. However, KAUs are not regulated under financial market law. For the purpose of preventing market price manipulation, unfair trade and to regulate exchange of information, Article 22, paragraph 3 of the Act specifies that certain provisions of "Capital Market and Financial Investment Business Act" apply.

MARKET STABILITY PROVISIONS

KOREAN MARKET STABILITY RESERVE (K-MSR)

Instrument type: Price-based instrument

Functioning: An Allocation Committee is in place to implement market stabilization measures if:

- the market allowance price of six consecutive months is at least three times higher than the average price of the two previous years;
- the market allowance price of the last month is at least double the average price of the two previous years and the average trading volume of the last month is at least twice the volume of the same month of the two previous years;
- the average market allowance price of a given month is lower than 60% of the average price of the two previous years; or
- it is difficult to trade allowances due to an imbalance of supply or demand.

Stabilization measures include:

- additional auctioning of up to 25% of allowances from the market stabilization reserve, which contains 14.3 million allowances;
- the establishment of a limit to the number of allowances entities can hold: minimum (70%) or maximum (150%) of the allowances of the compliance year;
- an increase or decrease of the borrowing limit;
- an increase or decrease of the offset limit; and
- the temporary establishment of a price ceiling or price floor.

In 2018, the Allocation Committee put up for auction an additional 5.5 million allowances from the stability reserve to ease the market in the lead-up to the 2017 compliance deadline; 4.7 million of these were sold. No more such sales have occurred since.

In 2021, the Allocation Committee set a price floor of KRW 12,900 (USD 9.47) per tonne in April and KRW 9,450 (USD 6.93) per tonne in June.

In 2023, the government set two temporary price floors. The measure's trigger price remained at an average of KRW 12,088 (USD 8.87), calculated as 60% of the average price from the preceding two years. The first price floor of KRW 7,020 (USD 5.15) was established in July and the last price floor of KRW 7,750 (USD 5.69) was set in November and lifted in early December (when prices were maintained at KRW 8,520 (UDS 6.25) for five consecutive days).
In 2023, the government set two temporary price floors. The measure's trigger price remained at an average of KRW 12,088 (USD 9.26), calculated as 60% of the average price from the preceding two years. The first price floor of KRW 7,020 (USD 5.38) was established in July and the last price floor of KRW 7,750 (USD 5.94) was set in November and lifted in early December (when prices were maintained at KRW 8,520 (UDS 6.53) for five consecutive days).

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Environment: Holds overall responsibility for the K-ETS.
Ministry of Economy and Finance: Established the Allocation Committee; briefly held overall responsibility for the K-ETS between June 2016 and January 2018.
Korea Exchange (KRX): Trading and auctioning platform.
Greenhouse Gas Inventory and Research Center (GIR): Responsible for the registry and technical implementation.
International Carbon Reduction Council: Ministry-level body that promotes GHG reduction projects.

EVALUATION/ETS REVIEW

The GIR regularly releases summary (evaluation) reports that include key emissions statistics, market performance indicators, and survey results from covered entities.

REGULATORY FRAMEWORK

- → Carbon Neutral Framework Act
- → Act on the Allocation and Trading of Greenhouse Gas Emissions Allowances
- → Enforcement Decree of the Act on the Allocation and Trading of Greenhouse Gas Emissions Allowances
- → First Basic Plan for the ETS (2015-2024)
- → Second Basic Plan for the ETS (2017-2026)
- → Third Basic Plan of the ETS (2021-2030)
- → Fourth Basic Plan for the ETS (2026-2035)
- → First Allocation Plan
- → Second Allocation Plan
- → Third Allocation Plan

SAITAMA

SAITAMA TARGET SETTING EMISSIONS TRADING SYSTEM

- **COVERS LARGE BUILDINGS AND FACTORIES**
- **LINKED TO TOKYO CAP-AND-TRADE PROGRAM SINCE 2011 LAUNCH**

ETS DESCRIPTION

Saitama Prefecture's ETS was launched in April 2011. It covers around 17% of the prefecture's 2021 emissions.

Saitama's system covers about 600 entities in the industrial and commercial buildings sectors. The cap is aggregated bottom-up from annual facility-level emissions limits ('baselines'). Covered entities must surrender compliance units for emissions that exceed the installation's annual emissions limit (baseline), and the annual emissions limit is based on absolute historical emissions and a compliance factor. The baselines are calculated using base-year emissions and a compliance factor, which is set for each period based on regulations established by the Governor of Saitama and expert consultation. The baseline also depends on factors such as expected energy efficiency gains and the extent to which they consume energy supplied by other facilities.

The ETS was instituted as part of the "Saitama Prefecture Global Warming Strategy Promotion Ordinance", with the aim of eventually establishing a common system with other prefectures in the metropolitan area. Saitama's ETS is linked to Tokyo's cap-and-trade program, with credits mutually exchangeable between the two.

YEAR IN REVIEW

In June, the Prefectural Government announced that in FY2022, the Saitama ETS achieved a 40% reduction in emissions below base-year levels (see 'Allowance Allocation' section for base-year calculation). Saitama's system has completed the final year of its third compliance period (FY2020 to FY2024), which required facilities to reduce emissions to 20% or 22% below base-year emissions, depending on their assigned category.

It was also announced that in FY2022 452 of the 571 covered facilities (79%) achieved their targets in the second compliance period.

In the fourth compliance period (FY2025 to FY2029), three major updates will apply for the Saitama ETS. First, the compliance factor will rise to 50% for office buildings and 48% for factories.

Second, off-site renewable energy, including self-consignment and PPA, will count as zero emissions to boost the use of renewables, and certificates derived from renewable energy can be deducted from energy-related CO_2 emissions. In addition, actual emission factors, instead of fixed emission factors, will be used to calculate emissions from electricity, heat, and city gas supplied by retailers, based on contracts at the facilities.

Third, a new system for excess emission reductions will limit credits to those achieved through energy efficiency or renewable energy; credits will no longer be awarded for certification improvements or emission factor adjustments. These updates take effect in April 2025.

In force
Under development
Under consideration

SECTORS

INDUSTRY

BUILDINGS

COVERAGE

6.3 $MtCO_2$ (2022)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and prefectural), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Fixed Benchmarking

AVERAGE 2024 PRICES

Average price (second compliance period, 2015 to 2019): JPY 144 (USD 0.95)

EMISSIONS & TARGETS OF SAITAMA

GHG EMISSIONS (EXCL. LULUCF), FY 2021

(in $MtCO_2e$, share of total in %)

Energy	32.1	83%
Industrial processes	2.3	6%
Waste	1.0	3%
Other	3.4	8%
Total	**38.8**	

Manufacturing industries and construction	7.6	24%
Transport	8.2	26%
Commercial and residential	16.3	50%

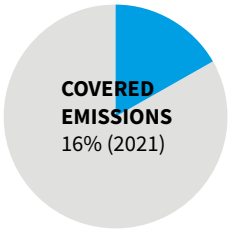
GHG REDUCTION TARGETS

By 2030: 46% reduction from FY2013 levels ("Saitama Prefecture Global Warming Countermeasures Action Plan Second Phase")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2021

Verified ETS emissions: 6.3 $MtCO_2$



PHASES

PHASE 1: 1 April 2011 to 30 September 2016
PHASE 2: 1 April 2015 to 31 January 2022
PHASE 3: 1 April 2020 to 30 September 2026
PHASE 4: 1 April 2025 to 30 September 2031

The Saitama ETS has both phases and compliance periods (see 'Compliance' section). A phase is defined as the compliance period plus an additional 18-month adjustment period, during which facilities may continue to trade credits in order to reach their targets for the corresponding compliance period.

By exception, an additional four months to the usual 18-month adjustment period applied for the second phase due to impacts of the COVID-19 pandemic.

CAP OR TOTAL EMISSIONS LIMIT

The total emissions limit under the scheme is the sum of the bottom-up installation-level baselines for all individual covered entities. These baselines are calculated using base-year emissions and a compliance factor (see 'Allowance Allocation' section).

The bottom-up emissions limit for the first compliance period was 33.3 $MtCO_2$. For the second compliance period, it was 52.4 $MtCO_2$. The figure for the third compliance period is not known yet.

SECTORS AND THRESHOLDS

SECTORS: Consumption of fuels, heat, and electricity in commercial and industrial buildings.

INCLUSION THRESHOLDS: Facilities that consume the energy equivalent of at least 1,500kL of crude oil for three consecutive years.

POINT OF REGULATION

Downstream (industry, buildings)

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

571 facilities (FY2022):

- Offices/commercial buildings: 171
- Factories: 400

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

All allowances in the Saitama ETS are allocated for free.

Under the Saitama ETS, each facility has its own cap, which serves as the "baseline" from which it must achieve its reduction target. Baselines for facilities are set according to the following formula: Base-year emissions x (1-compliance factor) x compliance period (five years). The compliance factor for each period is based on regulations established by the Governor of Saitama Prefecture.

Base-year emissions are the average emissions of any three consecutive years between FY2002 and FY2007, as chosen by each entity.

Baselines for new entrants are based on past emissions (average annual emissions for three consecutive fiscal years of the four fiscal years immediately preceding the compliance period) or on emissions intensity standards provided by the government.

At the beginning of each new compliance period, with the exception of those reserved for new entrants, all allowances (in Saitama also known as "credits") are allocated for free to covered entities for the full period. Facilities with emissions below their baseline at the end of the compliance period may keep or trade their excess allowances; those that exceed their baseline must purchase and surrender credits from elsewhere to meet their compliance obligation.

COMPLIANCE FACTOR:
First compliance period: 8% or 6% reduction below base-year emissions.
Second compliance period: 15% or 13% reduction below base-year emissions.
Third compliance period: 22% or 20% reduction below base-year emissions.
Fourth compliance period: 50% or 48% reduction below base-year emissions.

The higher compliance factor applies to commercial buildings, as well as to district heating and cooling (DHC) plants. The lower compliance factor applies to other facilities, such as commercial buildings, that use DHC for more than 20% of the entire energy consumption, and factories.

In the fourth compliance period, for large facilities owned by small and medium-sized enterprises, the compliance factor is reduced to three-quarters of the 50% or 48%, depending on the categories described in the previous paragraph. Similarly, in medical facilities where electricity is vital to preserve life and health, the compliance factor is two percentage points lower.

EMISSIONS REDUCTION METHODS:
- **Renewable energy:** When covered facilities generate electricity from renewable sources for their own use, they can deduct this from the total energy usage to be reported.
- **Low-carbon electricity:** In order to evaluate energy efficiency efforts of the covered facilities, CO_2 emissions factors of electricity suppliers are fixed during each compliance period. When covered facilities procure electricity from suppliers with lower emissions factors, from the third compliance period, they can deduct the difference between these emission factors from their reported emissions accordingly, to reflect this lower emissions factor of energy purchased.

Facilities demonstrating outstanding performance in reducing emissions, as well as in the introduction, use, and management of energy efficient equipment, are certified as top-level facilities that receive lower compliance factors according to their rate of progress, for a period of five years. The certification standards represent the best available energy efficiency measures, covering more than 200 different energy-saving measures.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, but only between two consecutive compliance periods.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE LIMITS: Five types of offset credits are allowed to complement the emissions reduction credits issued to facilities covered by the Saitama ETS when their emissions fall below their baseline:
- Small and mid-size facility credits: Emissions reductions from non-covered small and medium-sized facilities in the Saitama Prefecture.
- Outside Saitama credits: Emission reductions achieved from large facilities outside of the Saitama Prefecture. Large facilities are those with an energy consumption of 1,500kL of crude oil equivalent or more in a base year, and with base-year emissions of 150,000 tonnes or less.
- Renewable energy credits: Renewable energy credits generated under the Saitama ETS encompass the following types: Environmental Value Equivalent, Renewable Energy Certificates, and New Energy Electricity, generated under the "Renewable Portfolio Standard Law". Credits from solar (heat, electricity), wind, geothermal, or hydro (under 1,000 kW) electricity production for use under the Saitama ETS were converted to 1.5 times the value of regular credits until the end of the second compliance period. From the third compliance period, they are converted on a one-to-one basis. Credits from biomass (biomass rate of 95% or more, black liquor is excluded) are also converted with a factor of one.
- Tokyo credits (via link): These encompass (1) Excess credits: Emissions reductions from facilities with base-year emissions of 150,000 tonnes or less; and (2) Small and mid-size facility credits issued by Tokyo Metropolitan Government.
- Forest absorption credits: Credits from forests inside the Saitama Prefecture are counted at 1.5 times the value of regular credits. Others are converted with a factor of one.

QUANTITATIVE LIMITS: Quantitative limits apply only for outside Saitama credits: these are issued only for the reduction amount that exceeds the compliance factor. These credits can be used for compliance for up to one-third of offices' reduction obligations. Factories can use up to 50%.

All offset credits must be verified by a verification agency.

1,009 tCO_2e of offset credits were issued over FY2020 to FY2023.

LINKS WITH OTHER SYSTEMS

Since its launch in 2011, the Saitama ETS has been linked with the Tokyo Cap-and-Trade Program. Tokyo and Saitama credits are fungible in the two jurisdictions. About 60 credit transfers have taken place so far between them.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Japan national carbon tax

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one compliance unit per tCO_2 that exceeds the facility's annual emissions limit (baseline).

COMPLIANCE PERIOD

Four or five years.

COMPLIANCE PERIOD 1: FY2011 to FY2014
COMPLIANCE PERIOD 2: FY2015 to FY2019
COMPLIANCE PERIOD 3: FY2020 to FY2024
COMPLIANCE PERIOD 4: FY2025 to FY2029

Covered facilities must submit a global warming countermeasures plan report and implementation status report by the end of July of the first year of the compliance period. Every year thereafter, operators must submit a new global warming countermeasure plan and emissions report by the end of July.

Compliance units must be surrendered by the end of the 18-month adjustment period, i.e., by the end of September of the second fiscal year after the end of the compliance period (see 'Phases' section above).

MRV

MONITORING AND REPORTING: Annual emissions reporting, including emission reduction plans. Seven GHGs must be monitored and reported: CO_2, CH_4, N_2O, PFCs, HFCs, SF_6, and NF_3.

VERIFICATION: These reports require third-party verification by the end of the adjustment period.

FRAMEWORK: These are based on "Saitama Monitoring/Reporting Guidelines" and "Saitama Verification Guidelines".

PENALTIES AND ENFORCEMENT

Every year, global warming countermeasures plans and implementation status reports for all covered facilities are published on Saitama Prefecture's website. If a facility does not achieve its reduction target, its name is made public, and the insufficient reduction amount is added to its target for the following compliance period.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities, i.e., those above the inclusion threshold (see 'Sectors and Thresholds' section). Entities can earn credits only after achieving emission reductions, and only emitting facilities can participate in trading.

MARKET TYPES:
Primary: All allowances are allocated for free.

Secondary: Covered facilities trade over the counter. Businesses wishing to buy or sell credits can go through a private intermediary to find a buyer and negotiate the price.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Saitama Prefectural Government: Oversees the Target Setting Emissions Trading System in Saitama.

EVALUATION/ETS REVIEW

Official status and evaluation reports are published on an annual basis.

REGULATORY FRAMEWORK

→ Saitama Prefecture Global Warming Strategy Promotion Ordinance
→ Regulation on Saitama Prefecture Global Warming Strategy Promotion Ordinance

SHANGHAI

SHANGHAI PILOT EMISSIONS TRADING SYSTEM

- From 2024, scope broadened to include road transport and data center emissions
- Active offset credit trading market, pioneered allowance spot forward trading
- Shanghai Environmental and Energy Exchange (SEEE) operates the national ETS exchange

ETS DESCRIPTION

The Shanghai Pilot ETS was launched in November 2013 and was the second Chinese region to start its pilot system.

The system covers nearly 380 entities, expanding from 2024 to include road transport and emissions from data centers operation. In 2016, Shanghai further expanded its ETS coverage by adding maritime shipping and more industrial sectors and lowering the participation threshold to 10,000 tCO_2 per year.

Covered entities must surrender allowances for all their covered emissions, and allocation is based on auctions or free allocation. Ad hoc auctions were held between 2014 and 2019, after which there have been two auctions held per year. In 2023, entities in road transport with emissions over 10,000 tCO_2 and data centers with over 20,000 tCO_2 per year were included in the ETS scope.

The Shanghai ETS is the only pilot that has achieved a 100% compliance rate since its launch. It is also one of the most active pilots in terms of offset credit trading. Shanghai has been a center for carbon finance innovations in China, including repurchases, carbon funds, carbon trusts, CCER pledge loans, green bonds, and carbon margin trading. Since July 2021, the Shanghai Environmental and Energy Exchange (SEEE) has operated a trading platform for the national ETS.

The Shanghai ETS operates in parallel with the China national ETS. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national ETS.

YEAR IN REVIEW

In February 2024, the 2023 allowance allocation plan was released. According to it, 23 data centers have been added with compliance obligation starting from compliance year 2023. Also 17 logistics companies in the road transport sector have been added, but with MRV obligations only.

In May, July and September, the Shanghai EEB auctioned 2,239,829 allowances for a total of CNY 171.619 million (USD 23.84 million).

In force
Under development
Under consideration

SECTORS

- POWER*
- TRANSPORT
- INDUSTRY
- DOMESTIC AVIATION
- BUILDINGS
- MARITIME

CAP

105 $MtCO_2$ (2023)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limit

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2023 PRICES

Average auction price: CNY 77.87 (USD 10.82)
Average secondary market price: CNY 75.45 (USD 10.48)

TOTAL REVENUE

CNY 628.01 million (USD 87.25 million) since the beginning of the program
CNY 171.62 million (USD 23.84 million) in 2024

* The power sector integrated into the China national ETS in 2021, covering emissions from 2019 to 2020. However, the national ETS only covers coal- and gas-fired generators; oil-fired generators remain covered by the Shanghai ETS.

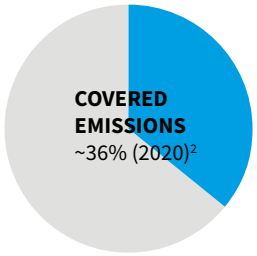
EMISSIONS & TARGETS OF SHANGHAI

OVERALL GHG EMISSIONS (EXCLUDING LULUCF), **2020**
243.99 $MtCO_2e$[1]

GHG REDUCTION TARGETS
By 2025: Peak total and per capita CO_2 emissions ("Shanghai Urban Master Plan 2017 to 2035" and "14th Five-Year Plan")
By 2035: Reduce CO_2 emissions by ~5% as compared to peak levels (Shanghai Urban Master Plan 2017 to 2035)
By 2060: Climate neutrality ("Shanghai Carbon Peaking Implementation Plan")

ETS SIZE & PHASES

COVERED EMISSIONS 2020



PHASES
PHASE ONE: 2013-2015, also known as the "trial phase"
PHASE TWO: 2016-present

CAP OR TOTAL EMISSIONS LIMIT
A cap limits the total emissions allowed in the system.
Inclusive of reserves, the caps for past years were set as follows:

PHASE 1:
~150 $MtCO_2$ per year

PHASE 2:
2016: 155 $MtCO_2$
2017: 156 $MtCO_2$
2018: 158 $MtCO_2$
2019: 158 $MtCO_2$
2020[3]: 105 $MtCO_2$
2021: 109 $MtCO_2$
2022: 100 $MtCO_2$
2023: 105 $MtCO_2$

SECTORS AND THRESHOLDS
PHASE 1: Airports, domestic aviation, chemical fibers, chemicals, commercial, power and heat, water suppliers, hotels, financial, iron and steel, petrochemicals, ports, non-ferrous metals, building materials, paper, railways, rubber, and textiles.

Inclusion thresholds:
- Power and industry: Emissions of at least 20,000 tCO_2 per year
- Other sectors: Emissions of at least 10,000 tCO_2 per year

PHASE 2: Previous sectors plus shipping, electronic materials, pharmaceuticals, automotive manufacturing, and food manufacturing. Power plants were transferred to the China national ETS from 2019, but some special captive power plants and heat generation entities remain covered by the Shanghai carbon market. Data centers and road transport have been covered since 2022, with the latter only having MRV obligations.

Inclusion thresholds:
- Industry: either emissions of at least 20,000 tCO_2 per year or energy consumption of 10,000 tonnes of coal equivalent (tce) per year.
- Aviation: either emissions of at least 20,000 tCO_2 per year or energy consumption of 10,000 tce per year.
- Maritime: either emissions of at least 100,000 tCO_2 per year or energy consumption of 50,000 tce per year.
- Road transport: either emissions of at least 10,000 tCO_2 per year or energy consumption of 5,000 tce per year.
- Data center: emissions of at least 20,000 tCO_2 per year.
- Buildings (including port and airport): either emissions of at least 10,000t CO_2 per year or energy consumption of 5,000 tce per year.

POINT OF REGULATION
Point source (e.g., industry, road transport, aviation); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES
Companies

NUMBER OF ENTITIES
378 entities (2023)

1 Due to the lack of publicly available data, the data reported here is estimated by local expert based on public sources.
2 No data is publicly available for recent years. Data here is provided by local experts.
3 This drop from 2019 is primarily due to the transfer of large parts of the power sector into the China national ETS.

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

In Phase 1, covered entities received allowances for the whole period at once. In Phase 2, allowances are allocated on an annual basis. In addition, allocation methods have been progressively improved, including increased use of benchmarks.

FREE ALLOCATION:

Benchmarking: Free allocation based on sector-specific benchmarks is used for electricity and heat producers, the electricity grid, and data centers.

Grandparenting: Grandparenting based on historical emissions intensity is used for some industrial sectors, aviation, ports, shipping, and water suppliers, generally based on the previous three years' data.

Grandparenting based on historical emissions is used for airports, buildings, the commercial, and some industrial sectors with complex products or a considerable change in emissions boundaries, generally based on the previous three years' data.

Ex-post allocation adjustments, e.g., based on production data, are applied for those with historical intensity or benchmarking allocations.

Covered entities that demonstrate strong efforts in reducing both air pollution and carbon emissions and are not subject to environmental penalties or violations during 2023 and 2024, will receive an additional 0.3 to 0.5% allowances.

Covered entities that achieve a reduction in carbon emissions intensity or total carbon emissions in 2023 compared to 2022 and are graded A for air pollution control, will receive an additional 0.5% of their 2023 allocation (maximum 2,000 allowances per company). Those that achieve emission reductions and are graded B for air pollution control, will receive an additional 0.3% of their 2023 allocation.

AUCTIONING: A small share of the annual cap may be auctioned. The main purpose of auctions is to provide entities with additional supply to meet their compliance demand. One auction was held in each of the following years: 2014, 2016, 2018, and 2019. Since then, two auctions have been held each year, until 2023.

In 2024, three auctions were held in May, July and October. In the May sale, the floor price was set at the weighted average price of all trading days between November 2023 and April 2024, CNY 72.15 (USD 10.02). The auction offered 1 million allowances, all of which were sold at CNY 75.06 (USD 10.43) apiece, 4% above the price floor.

In July, the floor price was set at the weighted average price of all trading days between January and June 2024. The auction offered 1 million allowances, all which were sold at CNY 75.07 (USD 10.43) apiece.

In October, 2.8 million allowances were offered in the auction, with the floor price of CNY 89.60 (USD 12.45). Only 8.57% of the allowances were sold, at the floor price.

USE OF REVENUES

General budget, including debt reduction

Revenues are attributed to the provincial treasury.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed, with some restrictions for banking across trading periods. For banked allowances from the first trading period, only one-third per year could be used by compliance entities between 2016 and 2018. Allowances are bankable for institutional investors without such an annual maximum limit.

Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits – CCERs and provincial offset SHCERs – is allowed.

QUANTITATIVE LIMITS:

Phase 1: The use of CCER credits was limited to 5% of verified emissions.

Phase 2: From 2016 to 2018, the use of CCERs was limited to 1% of the annual allocation. For the compliance years 2019 and 2020, the use of CCERs was limited to 3% of verified emissions. In 2019, only 2% was allowed for offset credits generated outside the Yangtze River Delta region, and 1% must have stemmed from within the region.

This limitation was raised to 5% in 2022 for both CCERs and SHCERs.

QUALITATIVE LIMITS:

Phase 1: Offset credits for reductions before January 2013 could not be used for compliance.
Phase 2: Same restriction as in Phase 1. Additionally, credits from hydro projects are not allowed.

Since 2023, eligible green power purchased through the green power trading platform of Beijing Electricity Trading Center in the form of inter-provincial transactions, is considered zero emissions.

In 2023, 10,299 tCO_2e of offset credits were surrendered, of which 88.5% were SHCERs.

LINKS WITH OTHER SYSTEMS

Although the SEEE operates the trading systems for both the national ETS and the Shanghai regional pilot, the two markets are separate. The Shanghai ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: National Chinese ETS
Domestic offsetting mechanisms: Shanghai Carbon Emission Reduction (SHCER)
Domestic crediting mechanisms (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities must surrender allowances by June of the following year.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING: Annual, to the Shanghai EEB before the end of March.

VERIFICATION: Third-party verification is required. The Shanghai EEB commissions an independent third party to carry out verification. In addition, "fourth-party verification" is carried out by government-assigned experts. The government also assesses verifiers' performance through a performance evaluation mechanism.

FRAMEWORK: The Shanghai government has released general rules for monitoring and reporting, as well as sector-specific guidelines for the following sectors: iron and steel, power and heat, chemicals, nonferrous metals, non-metallic mineral products, textiles and paper, aviation, shipping, large buildings (hotels, commercial, and financial), and transport (e.g., ports).
Third-party verification rules have been strengthened in recent years. In December 2020, the Shanghai EEB amended the interim measures for managing third-party verifiers. In October 2021, it released a new policy on the supervision and assessment of verifiers.

PENALTIES AND ENFORCEMENT

COVERED ENTITIES: Penalties for failing to submit an emission or verification report on time or for providing fraudulent information range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947).

Between CNY 50,000 (USD 6,947) and CNY 100,000 (USD 13,894) can be imposed for non-compliance, in addition to the obligation to surrender the missing number of allowances. Further sanctions may also be imposed, such as entry into the credit record of the company, being added to a publicly available online list, loss of access to funds for energy conservation and emissions reduction measures.

THIRD-PARTY VERIFIERS: Third-party verifiers are penalized with a fine of between CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947) for issuing false verification reports, material errors in verification reports, and for unauthorized use or publication of confidential corporate or emissions information.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities; non-compliance entities (domestic institutional investors that meet the requirement of the carbon emission trading rules set up by the SEEE).

MARKET TYPES:
Primary: No set percentage of allowances are allocated via auctioning, though the Shanghai ETS regulations state that auctioning is to be introduced gradually. Ad hoc auctions have been held since 2014 to provide compliance entities with additional supply. In addition, further auctions have also been held since 2020 where institutional investors have also been allowed to participate.

Secondary: Products include Shanghai Emission Allowances (SHEA), Shanghai Emission Allowance Forwards, and CCERs. SHEAs and CCERs are spot products. Shanghai Emission Allowance Forward (SHEAF) is the standardized spot forward product.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

RESERVE

Instrument type: N/A

Functioning: A small share of the annual cap can be kept in a reserve for auctioning before the end of the annual compliance cycle as a market stability measure (see 'Allowance Allocation' section). The Shanghai EEB can organize irregular auctions according to market demand, no fixed triggers are envisaged.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The Shanghai Environment and Energy Exchange implements a system of limits on price increases and decreases for trading over the exchange. For listed trading (trading volume less than 100,000 tCO_2), this is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day). For block trading (with minimum trading volume of 100,000 tCO_2), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Shanghai Ecology and Environment Bureau (EEB): Acts as the competent authority setting the rules and overseeing the system.

Shanghai Environment and Energy Exchange: Responsible for operating the trading platform.

Shanghai Information Center: Responsible for overseeing and operating the registry.

EVALUATION/ETS REVIEW

No information is publicly available about the evaluation or review system. However, the local carbon exchange has published annual reports on the Shanghai ETS with an overview of its performance from 2013 to 2020. Research on improving the ETS is undertaken every year, funded by the local government.

REGULATORY FRAMEWORK

→ Shanghai Pilot ETS Implementation Plan
→ Measures for Management of Emissions Trading in Shanghai
→ Shanghai EEB- Allocation Plan for 2019 (including list of covered entities)
→ Shanghai EEB- Allocation Plan for 2020 (including list of covered entities)
→ Shanghai EEB- Allocation Plan for 2021 (including list of covered entities)
→ Shanghai EEB- Allocation Plan for 2022 (including list of covered entities)
→ Shanghai EEB- Allocation Plan for 2023 (including list of covered entities)

SHENZHEN

SHENZHEN PILOT EMISSIONS TRADING SYSTEM

- One of three Chinese pilots with ETS bill passed by regional congress
- Active trading market with diverse participants, including foreign investors
- Pioneered sectoral expansion and cross-regional trading

ETS DESCRIPTION

The Shenzhen Pilot ETS began in June 2013 and was the first of the Chinese pilots to start. As a city within Guangdong province with its own separate ETS, Shenzhen is the only Chinese pilot operating at the sub-provincial level. Covered entities must surrender allowances for all their covered emissions, and allocation is based predominantly on free allocation.

The Shenzhen ETS covers emissions from over 650 entities in the industry, buildings, and transport sectors. Except for two auctions held in 2014 and 2022, allowances have been allocated freely using both benchmarking and grandparenting. In addition to the national offset program (CCER), the Shenzhen ETS also accepts units from local offset programs, including the Tan Pu Hui system.

Shenzhen's market has the highest liquidity in China, despite its relatively small size. In contrast to most pilot systems in China, which are regulated by sub-national government orders from the executive body of the government, Shenzhen's is regulated by a dedicated ETS bill passed by its municipal legislator, the Shenzhen People's Congress. According to the "Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality", the Shenzhen ETS will apply an absolute cap from 2027.

The Shenzhen ETS currently operates in parallel with the Chinese national ETS. As the national ETS expands to new sectors, covered entities in these sectors will be integrated into the national carbon market.

YEAR IN REVIEW

In March 2024, the Shenzhen Environment and Ecology Bureau (EEB) updated its coverage list for compliance year 2023, removing 65 companies from the list of covered entities and adding 118 companies to the list. While one company moved out of Shenzhen, the others were removed as their emissions were below the inclusion threshold for three consecutive years. The Shenzhen ETS now covers 737 entities.

In August, the EEB published the allocation plan for 2024, which expanded coverage to data centers and solid waste, and broadened the service industry inclusion by adding accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, government agencies and public institutions. Also from 2024, green power purchased in the power market, in addition to CCERs and local offset credits, can be used to fulfil the shortfall in compliance obligation.

In force
Under development
Under consideration

SECTORS

INDUSTRY
BUILDINGS
TRANSPORT
WASTE

CAP

33.5 $MtCO_2$ (2024)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: CNY 47.78 (USD 6.64)

TOTAL REVENUE

~CNY 27.9 million (USD 3.9 million) since the beginning of the program

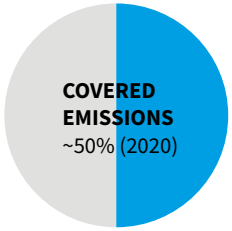
EMISSIONS & TARGETS OF SHENZHEN

OVERALL GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), **(2020)**
45.42 $MtCO_2e$[1]

GHG REDUCTION TARGETS
By 2030: Peak carbon emissions ("Outline of the 14th Five-Year Plan and 2035 Vision")
By 2035: Decouple GHG emissions from economic and social development (Shenzhen's "14th Five-Year Plan for Climate Change")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2020
~50%



PHASES
Ongoing

CAP OR TOTAL EMISSIONS LIMIT
A cap limits the total emissions allowed in the system.

2015 to 2019: ~31$MtCO_2$ (excluding buildings)
2020: 22 $MtCO_2$
2021: 25 $MtCO_2$
2022: 26 $MtCO_2$
2023: 28 $MtCO_2$
2024: 33.5 $MtCO_2$

In addition, the government sets aside reserves for new entrants (2%) and market stability measures (2%).

SECTORS AND THRESHOLDS
Water, gas, heat, manufacturing, electronic equipment, waste management, ports, subways, public buses, and other non-transport sectors. Electricity production was covered until 2019, after which it transitioned to the China national ETS. Data centers, solid waste, accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, and government agencies and public institutions are newly covered in 2024.

INCLUSION THRESHOLDS: Annual emissions over 3,000 tCO_2 per year for enterprises; entities confirmed by local EEB.

POINT OF REGULATION
Point source (industry); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES
Companies

NUMBER OF ENTITIES
737 entities (2023)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
Allowances are largely distributed for free, and allocation is adjusted ex-post based on output data.

FREE ALLOCATION:
Benchmarking: Applied to the water, power grid, and gas sectors based on sectoral historical emissions intensity.

Grandparenting: Applied to waste management facilities, ports, subways, public buses, and some specific chemical production based on a product-based historical emissions intensity method. A GDP-based historical emissions intensity method is applied to manufacturers. For public buildings such as accommodation and catering, wholesale and retail, warehousing and postal services, software and information services, and government agencies and public institutions, and universities, grandparenting based on historical emissions is applied.

AUCTIONING: The 2022 "Provisional Regulation of the Shenzhen Emission Trading Pilot Scheme" states that allowances can be sold at auction or at a fixed price. At least 3% of allowances should be auctioned. So far, two auctions have been held, in June 2014 and August 2022.

1 No data is publicly available for recent years; the data here is estimated by local experts.

For the 2022 auction, the floor price was set at CNY 29.64 (USD 4.12) per tonne. More than 0.5 $MtCO_2$ of allowances were auctioned, at an average price of CNY 43.49 (USD 6.04) per tonne, with a total revenue of CNY 25.3 million (USD 3.5 million).

For the 2014 auction, the floor price was set at CNY 35.43 (USD 4.92) per tonne. 0.8 $MtCO_2$ of allowances were sold, with a total revenue of CNY 2.65 million (USD 0.37 million). The purpose of this auction was to increase market supply and price stability.

USE OF REVENUES


Climate mitigation


General budget, including debt reduction

According to the 2014 Shenzhen ETS regulation, auctioning revenues are attributed to the city treasury. However, the 2022 revision states that the city will enhance the transparency of revenue use and establish a new Carbon Emissions Trading Fund to support the ETS and other GHG reduction programs.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUANTITATIVE LIMIT: The use of offset credits is limited to 20% of the shortfall in compliance obligation.

QUALITATIVE LIMIT: Domestic project-based carbon offset credits (CCERs), Tan Pu Hui local offset credits, and other offset credits authorized by the local government are allowed. Credits from hydropower projects are not eligible, and additional geographical restrictions apply to the use of certain CCERs and local offset programs.

Starting from 2024, green power purchased and consumed through electricity market can also be used to offset emissions, with a limit on its use equal to the size of the shortage.

LINKS WITH OTHER SYSTEMS

The Shenzhen Pilot ETS is not linked with any other system. The Guangdong-Hong Kong-Macao Greater Bay Area (to which Shenzhen belongs) plans to explore the feasibility of a joint or linked carbon market. According to Shenzhen's local green finance legislation, financial institutions will in the future be encouraged to participate in cross-border trading in this market.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic crediting mechanisms: Tan Pu Hui local offset credits in Shenzhen (STTCER)
Domestic crediting mechanisms (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities have until the end of August of the following year to surrender allowances.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING FREQUENCY: Annual reporting of CO_2 emissions to the ETS competent authority by the end of March of the following year, using tiered emissions factors depending on different emission sources. Covered industrial entities must also annually submit a statistical indicator report covering their production data to the municipality's statistics department by the end of March of the following year. Entities should surrender allowances or offset credits by the end of August.

VERIFICATION: Third-party verification of the annual emissions report is required (deadline for submission is the end of March of the following year). The competent authority may assign this to a specialized agency.

FRAMEWORK: Shenzhen has released two documents:
- a general guiding document in the form of regional standards on monitoring and reporting; and
- a guiding document on monitoring and reporting for the buildings sector.

PENALTIES AND ENFORCEMENT

REGULATED ENTITIES: Penalties for failing to submit an emission or verification report on time or for providing fraudulent information range from CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947).

Covered entities providing false information can be fined CNY 50,000 (USD 6,947) to CNY 100,000 (USD 13,894).

Penalties for disturbing the market order can rise to CNY 100,000 (USD 13,894). Covered entities failing to surrender sufficient allowances to match their emissions are fined three times the average market price of the preceding six months. The missing allowances can be withdrawn from the company's account or deducted from the next year's allocation.

CNY 50,000 (USD 6,947) to CNY 100,000 (USD 13,894) may be imposed if a third-party agency falsifies reports.

Other non-financial penalties include public reporting, reporting to relevant credit information of public banks, disqualification from financial subsidies (for five years), and a record entered in the State-Owned Enterprise performance assessment system.

THIRD-PARTY VERIFIERS: Third-party verifiers shall be penalized with a fine of between CNY 10,000 (USD 1,389) to CNY 50,000 (USD 6,947) for issuing false verification reports, material errors in verification reports, and for unauthorized use or publication of confidential corporate or emissions information.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance entities; non-compliance entities (institutional investors); individuals (both domestic and international), subject to meeting the requirements of the carbon emission trading rules set by the China Emissions Exchange (Shenzhen).

MARKET TYPES:

Primary: Shenzhen so far has very limited experience with auctioning: two auctions have been held, in 2014 and 2022. Only compliance entities and member institutions authorized by the China Emissions Exchange (Shenzhen) may participate.

Secondary: CCERs, Shenzhen Allowances (SZAs) and local Tan Pu Hui offset credits are the main spot trading products in the secondary market. The China Emissions Exchange (Shenzhen) is the trading platform for all products.

Due to financial market regulations in China, no forward markets or derivatives are allowed. However, with the regional green finance legislation that entered into force in March 2021, Shenzhen sees new momentum to explore the development of innovative carbon financial products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered financial instruments.

MARKET STABILITY PROVISIONS

INTERVENTION

Instrument type: Price-based instrument

Functioning: In case of significant price rise or low liquidity, the Shenzhen EEB can auction extra allowances from the reserve at a fixed price; 2% of the total cap is kept as a government reserve for market stabilization. Such allowances can be used only for compliance and cannot be traded. The situation of a significant price rise in allowance prices refers to when the closing price of allowances on a given day exceeds the highest daily closing price in the national or pilot carbon market over the preceding 12 months. Additionally, this situation occurs when the average allowance price over six months reaches or exceeds three times the average allowance price over the past 24 months, or when the average allowance price over a week reaches or exceeds three times the lowest weekly average price over the preceding 24 weeks.

The situation of excessively low quantities of allowances in circulation occurs when, following the completion of the previous year's compliance work, there are fewer allowances in circulation than 20% of the total annual quantity of allowances for the current year.

EXCHANGE

Instrument type: Price-based instrument

Functioning: The China Emissions Exchange (Shenzhen) implements a system of limits on price increases and decreases for trading over the exchange. For listed trading (with maximum trading volume of 30,000 tCO_2), this is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day). For block trading (with minimum trading volume of 10,000 tCO_2), this is 30% above or below the reference price. Only transactions within this price range can be successfully completed on the exchange.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ecology Environment Bureau of Shenzhen Municipality (EEB): Responsible for ETS affairs, including the registry and MRV.

China Emissions Exchange (Shenzhen): Responsible for operating the trading platform.

EVALUATION/ETS REVIEW

No formal evaluation has been conducted. Research on improving the Shenzhen ETS is undertaken every year, funded by the Shenzhen government.

REGULATORY FRAMEWORK

- → Carbon Emissions Management Regulations of Shenzhen Special Economic Zone (the local ETS bill) (2012)
- → Measures for Management of Emissions Trading in Shenzhen (2022)
- → Implementation Plan of Shenzhen Emissions Trading to Support Peaking Carbon Emissions and Achieving Carbon Neutrality.
- → Shenzhen EEB—Notice on Carrying out ETS Work for Compliance Year 2019 (with list of covered entities)
- → Shenzhen EEB—Regulations on Tan Pu Hui Management
- → Shenzhen EEB—Allocation Plan for Vintage 2021
- → Shenzhen EEB—Allocation Plan for Vintage 2022 and 2023
- → Shenzhen EEB—Allocation Plan for Vintage 2024

TAIWAN, CHINA

In force

Under development

Under consideration

- "Climate Change Response Act" calls for a carbon fee before the ETS
- Mandatory GHG reporting program and domestic offset program in place
- Covered entities to start paying a carbon fee in 2026, based on 2025 emissions

ETS DESCRIPTION

Taiwan, China, enacted the "Climate Change Response Act" (the Act) in 2023, which legislates reaching an economy-wide net-zero GHG emission target by 2050. The Act amends the 2015 "GHG Reduction and Management Act", which stipulates that the Taiwanese Environmental Protection Administration (TEPA) will implement a domestic cap-and-trade scheme.

Mandatory emissions reporting for entities with annual emissions above 25,000 tCO_2e from certain sectors has been in place since 2014. The "2018 Regulations Governing GHG Offset Program Management" allows enterprises to acquire carbon offset credits.

In August 2023, Taiwan upgraded the TEPA to a Ministry of Environment (MOE), which in turn established a new Climate Change Administration (CCA) to lead – in consultation with other relevant central competent authorities – on climate policy design and implementation, including the carbon fee and ETS.

The Act requires the government to develop the carbon fee and ETS regulations. In August 2024, the MOE published three carbon fee regulations, aiming to reduce 37 million tCO_2e by 2030. The fee of TWD 300 (USD 9.34) per tCO_2e will be levied on power and manufacturing industries that emit more than 25,000 tCO_2e per year. Covered entities subject to the carbon fee will be required to calculate and pay their carbon fees based on their total 2025 GHG emissions by May 2026. Preferential fees will be available for covered entities upon meeting certain criteria, including application for self-determined emission reduction plans.

Under carbon fee regulations the use of emission reduction credits from domestic voluntary reduction projects and offset projects is allowed for compliance purposes, up to a limit of 10% of the entity's total chargeable emissions. Facilities in sectors at a low risk of carbon leakage are also permitted to use international reduction credits for up to 5% of their covered emissions. The MOE is to approve the standards for recognizable international offset credits.

In October 2024, the Minister of Environment announced that Taiwan will transfer from the carbon fee to an ETS within four years. In January 2025, the Vice Prime Minister further declared that the government is aiming to accelerate the transition to an ETS, which could be implemented as early as 2026.

EMISSIONS & TARGETS OF TAIWAN, CHINA

GHG EMISSIONS (EXCL. LULUCF), 2021

(in $MtCO_2e$, share of total in %)

Energy	259.8	91%
Industrial processes	20.2	7%
Agriculture	3.2	1%
Waste	2.7	1%
Total	**286.0**	

Energy industries	182.2	64%
Manufacturing industries and construction	32.4	11%
Transport	35.5	12%
Commercial, institutional, and residential	8.0	3%
Other energy	1.7	1%

GHG REDUCTION TARGETS

By 2025: 10% below 2005 GHG levels (“Executive Yuan”)
By 2030: Around 28% reduction in GHGs from 2005 levels (MOE)
By 2050: Net-zero emissions (Climate Change Response Act)

FLEXIBILITY & LINKING

OFFSET CREDITS

The Climate Change Response Act stipulates that early domestic action and offset credits will be allowed to meet carbon fee and ETS obligations. The MOE, in consultation with relevant central competent authorities, will also recognize international offset credits with the standards and cap to be decided later.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Environment: Responsible for establishing regulations for the carbon fee and ETS.
Ministry of Economic Affairs: Central authority to be consulted by TEPA for regulations on ETS, in particular for allocation, leakage and international credits.
Financial Supervisory Commission: Responsible for setting up a carbon exchange, and to be consulted by TEPA for regulations on trading of credits.

REGULATORY FRAMEWORK

- → Climate Change Response Act (2023)
- → Regulations Governing GHG Certification and Verification Institutions (2023)
- → Measures on GHG voluntary emission reduction project management (2023)
- → Measures on GHG emission increase offset management (2023)
- → Regulations Governing the Collection of Carbon Fees (2024)
- → Designated Greenhouse Gas Reduction Goals for Entities Subject to Carbon Fees (2024)
- → Regulations for Administration of Self-Determined Reduction Plans (2024)

THAILAND

- Legislative process for “Climate Change Act” adoption begins in 2025, enforcement expected in 2027
- Proposals include ETS, carbon tax, carbon border adjustment, carbon credits and climate fund
- Allocation plans to be updated every three to five years with progressive reductions

DESCRIPTION

Thailand has been considering economic instruments to incentivize GHG emissions reductions for several years. The 2018 “National Reform Plan” mandated the Thai government to begin developing and implementing such instruments, laying the groundwork for the country’s first Climate Change Act. The final draft of the Act is expected to be submitted for cabinet and parliamentary approval in 2025, with enforcement anticipated in 2027. Proposed economic instruments include an ETS, a carbon tax on products, carbon border adjustment on imported products (relevant to the ETS), and a regulated market for carbon credits.

Under the current draft act, the National Committee on Climate Change (NCCC) will develop the “Climate Change Master Plan”, serving as the national framework for climate change mitigation and adaptation. The draft also gives primary supervisory authority to the Department of Climate Change and Environment (DCCE).

The draft act establishes annual MRV of GHG emissions and removals for covered entities. Ministerial regulations will define the activities and gases subject to reporting obligations. The DCCE will manage the GHG reporting system, which will include an electronic platform to standardize reporting criteria and methodologies. This system will underpin the four carbon pricing instruments outlined in the draft act.

The Thailand Greenhouse Gas Management Organization (TGO) will establish industry-specific GHG ceilings and reduction targets aligned with Thailand’s NDC. The proposed ETS will function within this ceiling framework, managed by the DCCEE under the Subcommittee on Supervision of the Trading System (Subcommittee). According to the draft act, covered entities must surrender sufficient allowances annually to meet their compliance obligations under the cap.

The DCCE will develop and periodically update allocation plans every three to five years, incorporating a mechanism for the progressive reduction of allowances in the system. The allocation plans will define the following for each allocation period:

- the scope of covered activities and gases;
- annual caps;
- the maximum number of carbon credits allowed for compliance; and
- allocation methods, including the share of allowances to be auctioned for each sector.

The Subcommittee will revise and approve allocation plans, specifying allowances allocated to each covered entity for each period. The Subcommittee will also issue regulations governing the ETS, including:

- rules for holding and trading allowances;
- limits on banked allowances; and
- eligibility criteria for carbon credits used for compliance.

The DCCE will establish a registry for covered entities and allowances. It will also establish or authorize an operator for a GHG emissions allowance trading center, as regulated by the Subcommittee.

Between February and March 2024, the DCCE conducted a public hearing on the draft act, gathering input from over 1,500 participants. Following revisions based on this feedback, the draft underwent the review by the DCCE Subcommittee and public hearing again in November 2024. The finalized draft is scheduled for cabinet and parliamentary submission by 2025, with the Act expected to take effect in 2027.

The DCCE will develop subsidiary laws to implement the mechanisms established by the Climate Change Act, such as the ETS, regulations for carbon credit markets and the GHG reporting and verification system.

The TGO initiated the Thailand Voluntary Emissions Trading Scheme (Thailand V-ETS) in 2013 to test MRV systems, cap-setting, allocation procedures, and trading infrastructure for 12 GHG-intensive sectors, allowing entities to use domestic offset credits for partial compliance. Since 2021, TGO has collaborated with the Eastern Economic Corridor Office to pilot an ETS in the Eastern Economic Corridor, focusing on stakeholder engagement, capacity building, and technical support for T-VER project development.

EMISSIONS & TARGETS OF THAILAND

GHG EMISSIONS (EXCL. LULUCF), **2022**

(in $MtCO_2e$, share of total in %)

Energy	254.3	66%
Industrial processes	40.5	11%
Agriculture	68.9	18%
Waste	22.2	6%
Total	**385.9**	

Energy industries	92.2	24%
Manufacturing industries and construction	62.6	16%
Transport	77	20%
Commercial, institutional, and residential	14	3.6%
Other energy	8.5	2.2%

GHG REDUCTION TARGETS

By 2030: Unconditional 30% reduction compared to BAU; 40% reduction compared to BAU conditional on adequate and enhanced support (Updated NDC, 2022)
By 2050: Climate neutrality (Updated NDC, 2022)
By 2065: Net-zero GHG emissions (Updated NDC, 2022)

OTHER INFORMATION

INSTITUTIONS INVOLVED

Thailand Greenhouse Gas Management Organization (Public Organization): Autonomous public agency responsible for developing, implementing, and managing Thailand's climate change mitigation programs and projects.
Department of Climate Change and Environment (DCCE): Central government agency in charge of supervising Thailand's missions and operations related to climate change, while also coordinating with public and private agencies on climate change issues.
National Climate Change Policy Committee: Proposed interministerial committee in charge of the national mitigation and adaptation policy.
Subcommittee on Supervision of the Trading System: Interministerial committee with supervising and normative mandates for the ETS implementation.

REGULATORY FRAMEWORK

→ Thailand's Long-Term Low Greenhouse Gas Emission Development Strategy (November 2022)
→ Draft Climate Change Act (March 2024)
→ Report on public hearing of the draft Climate Change Act (May 2024)

TIANJIN

TIANJIN PILOT EMISSIONS TRADING SYSTEM

- **Operates in parallel with the China national ETS**
- **Further sectoral expansion to maritime, domestic aviation and data centers is under consultation**

ETS DESCRIPTION

Tianjin launched its pilot ETS in December 2013. The Tianjin Pilot ETS covers emissions from 159 entities in iron and steel, petrochemicals, chemicals, oil and gas exploration, papermaking, airport, building materials, food and beverages, non-ferrous metals, machinery and equipment manufacturing, mining, agricultural and food processing, pharmaceutical manufacturing, and electronic equipment manufacturing sectors. Covered entities must surrender allowances for emissions that exceed its annual emissions limit, which is based on their historical emissions or historical emissions intensity.

Allowances are primarily allocated through grandparenting, based on either base year total emissions or emissions intensity. Auctions are also held, with the main purpose of providing covered entities with additional supply to meet their compliance demand. Two auctions have taken place thus far, in 2020 and 2021.

With the ETS extended until the end of June 2025, several measures were introduced in 2020 to strengthen compliance: companies that fail to surrender enough allowances will have double the amount of the shortfall deducted from the next year's allocation, and third-party verifiers found to not comply with regulations will be banned for three years.

Following the "Interim Regulations on the Administration of Carbon Emission Trading" coming into effect in May 2024, entities in the following eight industries that emit more than 26,000 tCO_2/year are to be gradually transferred from the Tianjin ETS to the national ETS: power, petrochemicals, chemicals, building materials, iron and steel, non-ferrous metals, paper-making and domestic aviation. The Tianjin ETS operates in parallel with the China national ETS, and entities under the power sector have been integrated into the national ETS from 2019.

YEAR IN REVIEW

In June 2024, the Tianjin Pilot ETS completed the compliance process for 2023, with a reported 100% compliance rate for the ninth consecutive year.

In August, Tianjin launched a public consultation on "Tianjin Work Plan for Expanding the Scope of the Coverage of the Local Carbon Emissions Trading Market," where the government proposed including maritime, domestic aviation and data centers into the current ETS scope. The public consultation ended in early September 2024, and final decisions are to be announced. The proposed scope expansion is anticipated to apply to 150 entities, covering an additional 300 $MtCO_2$ of emissions annually.

In September, the Tianjin Ecology and Environment Bureau (EEB) published the 2024 allocation plan. A total of 159 entities were covered in 2024, ten more than the previous year.

In force
Under development
Under consideration

SECTORS

MINING AND EXTRACTIVES

INDUSTRY

CAP

74 $MtCO_2$ (2023)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and provincial), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting
Free Allocation: Output-based Benchmarking
Auctioning

AVERAGE 2024 PRICES

Average secondary market price: CNY 23.66 (USD 3.29)

TOTAL REVENUE

CNY 148.18 million (USD 20.59 million) since the beginning of the program in 2013

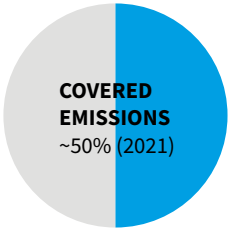
EMISSIONS & TARGETS OF TIANJIN

OVERALL GHG EMISSIONS (EXCLUDING LULUCF), **2021**
183.14 $MtCO_2$[1]

GHG REDUCTION TARGETS
By 2030: Reduction of carbon intensity by 65% compared to 2005; peak carbon emissions ("Tianjin Carbon Peak Implementation Plan")

ETS COVERAGE & PHASES

COVERED EMISSIONS 2021



PHASES
Ongoing (2014 to present)

CAP OR TOTAL EMISSIONS LIMIT
A cap limits the total emissions allowed in the system.
For recent years, the cap was as follows:
2021: 75 $MtCO_2$
2022: 75 $MtCO_2$
2023: 74 $MtCO_2$

SECTORS AND THRESHOLDS
Iron and steel, petrochemicals, chemicals, oil and gas exploration, airport, building materials, non-ferrous metals, medical and pharmaceutical manufacturing, machinery and equipment manufacturing, agri-food processing, food and beverage, salt-mining, rubber and plastic products.

Electricity production was covered until 2019, after which it transitioned to the China national ETS.

In 2021, Tianjin expanded its ETS to entities above the inclusion threshold from all industrial sectors (without pre-selection of specific sectors).

INCLUSION THRESHOLDS: 20,000 tCO_2/year, considering both direct and indirect emissions.

POINT OF REGULATION
Point source (industry); downstream (indirect emissions from electricity and heat consumption).

TYPE OF ENTITIES
Companies

NUMBER OF ENTITIES
159 entities (2024)

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION
FREE ALLOCATION:
Grandparenting: Allowances are allocated through historical emissions for all sectors other than the building materials sector. For 2024, allocation was determined using emissions from 2023 as a base year. For the building materials sectors, an emissions intensity method is used.

From the 2024 compliance year, an emission reduction factor for iron and steel, chemical, petrochemical, building materials, non-ferrous, medical and pharmaceutical manufacturing sectors was set at 0.96. The remaining sectors[2] have an emission reduction factor of 0.98 instead.

Benchmarking: Benchmarking applies to new entrants and for entities expanding their capacity.

AUCTIONING: A small share of the annual cap can be auctioned. Participation is voluntary and the purpose of auctions is mainly to provide compliance entities with additional supply to meet their compliance demand. To date, auctions have been held on an ad hoc basis.

USE OF REVENUES
Climate mitigation

General budget, including debt reduction

Revenues are attributed to the city treasury. Revenues are mostly used to support work related to the control of GHG emissions.

FLEXIBILITY & LINKING

BANKING AND BORROWING
Banking is allowed.
Borrowing is not allowed.

1 There is no publicly available data, the data reported here is estimated by local experts.
2 Oil and gas exploration, airports, machinery and equipment manufacturing, agri-food processing, food and beverage, salt-mining, rubber and plastic products.

OFFSET CREDITS

The use domestic project-based China Certified Emission Reductions (CCERs) and Tianjin regional forestry offset credits is allowed. Non-fossil power bought through market-based methods may be used to offset part of their annual compliance obligation. Details are to be issued.

QUANTITATIVE LIMIT: The use of CCER credits is limited to 10% of the annual compliance obligation.

QUALITATIVE LIMIT: Credits must stem from CO_2 reduction projects, excluding hydroelectric power plants. The emissions reductions must have occurred after 2013.

LINKS WITH OTHER SYSTEMS

The Tianjin Pilot ETS is not linked with any other system.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

ETS: Chinese national ETS
Domestic offsetting mechanisms: Tianjin regional forestry offset credits
Domestic offsetting mechanisms (national): China Certified Emissions Reduction (CCER)

COMPLIANCE

COMPLIANCE MECHANISM

Covered entities must surrender one allowance per tCO_2e emitted for all their covered emissions.

COMPLIANCE PERIOD

One calendar year. Covered entities have until the end of June of the following year to surrender allowances.

MRV

MONITORING: Covered entities are required to set up monitor plans and monitor their emission based on these plans.

REPORTING FREQUENCY: Annual

VERIFICATION: Third-party verification is required. Covered entities cannot use the same verifiers for three consecutive years.

FRAMEWORK: The Tianjin Development and Reform Commission has released a guiding document on monitoring and reporting. The document includes sector-specific guidance for the covered sectors, which EEB – as the competent authority since 2019 – is continuing to improve.

PENALTIES AND ENFORCEMENT

REGULATED ENTITIES: The "Tianjin Carbon Peaking and Neutrality Promotion Regulations", which took effect in November 2021, introduced financial penalties for failing to submit emission reports as required, ranging from CNY 20,000 (USD 2779) to CNY 200,000 (USD 27,787). Companies that fail to comply are subject to fines of between five and ten times the average market transaction price for the volume of allowances not surrendered.

In addition, according to the "Interim Measure for Management of Emissions Trading in Tianjin", published in July 2020, companies failing to surrender enough allowances to match their emissions face a deduction of double the amount of the gap in the next year's allocation. This rule is valid until June 2025.

THIRD PARTY VERIFIERS: Third-party verifiers found not to comply with regulations (e.g., in the case of false verification reports) are banned from providing verification services for three years.

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Covered entities, institutional investors (domestic and international) and individuals (domestic and international) that meet the requirements of the carbon emission trading rules set up by Tianjin Climate Exchange.

MARKET TYPES:

Primary: Most allowances are freely allocated. The Tianjin Climate Exchange organizes ad hoc auctions for the primary market. Between 2019 and 2021, it held five auctions. No auctions have been held since.

Secondary: Products include spot Tianjin carbon emission allowances and spot CCERs. The Tianjin Climate Exchange manages the trading of all products.

LEGAL STATUS OF ALLOWANCES: Allowances are not considered as financial instruments. Invoices are issued as intangible assets.

MARKET STABILITY PROVISIONS

RESERVE

Instrument type: Price-based instrument
Functioning: In the case of market fluctuations, the Tianjin EEB can buy or sell allowances (for a fixed price or through auctioning) to stabilize the market. 5% of the total cap is kept as a government reserve for market stabilization. The Tianjin EEB can organize auctions according to market demand, no fixed triggers are required.

EXCHANGE

Instrument type: Price-based instrument

Functioning: Tianjin Climate Exchange implements a system of limits on price increases and decreases for trading over the exchange. It is 10% above or below the reference price (the weighted average price of all transactions on the previous trading day).

OTHER INFORMATION

INSTITUTIONS INVOLVED

Tianjin Ecology and Environment Bureau: Responsible for establishing the Tianjin ETS after a governmental restructure in 2019.

Tianjin Climate Exchange: Responsible for operating the trading platform and registry system.

EVALUATION/ETS REVIEW

Research on improving the Tianjin ETS has been undertaken by supporting institutes such as the Tianjin Climate Exchange.

REGULATORY FRAMEWORK

→ Tianjin Pilot ETS Implementation Plan (2013)
→ Interim Measure for Management of Emissions Trading in Tianjin (2020)
→ Tianjin Carbon Peaking and Neutrality Promotion Regulations (2021)
→ Allocation Plan for 2024 (2024)

TOKYO

TOKYO CAP-AND-TRADE PROGRAM

- First city-wide ETS in the world
- Covers commercial and industrial buildings
- Starting its fourth compliance period, where facilities must reduce emissions to 50% (buildings) or 48% (industry) below base-year emissions

ETS DESCRIPTION

The Cap-and-Trade Program of the Tokyo Metropolitan Government (TMG) was launched in April 2010 and is Japan's first mandatory ETS. It covers around 20% of the metropolitan area's emissions.

The Tokyo ETS covers CO_2 emissions from large buildings, factories, heat suppliers, and other facilities that consume large quantities of fossil fuels. Covered facilities must surrender compliance units for emissions that exceed the installation's baseline, and the baseline is based on absolute historical emissions and a compliance factor. Compliance factors are determined based on the type of facility and factors such as expected energy efficiency gains and the extent to which they consume energy supplied by other facilities.

Tokyo's ETS is linked to the Saitama Prefecture ETS, with credits mutually exchangeable between the two jurisdictions.

YEAR IN REVIEW

The Cap-and-Trade Program of the Tokyo Metropolitan Government's (TMG) third compliance period, spanning from FY2020 to FY2024, ends in March 2025 and the fourth starting from April 2025. The program continues to cover ~1,200 facilities that annually use 1,500 kL or more of energy equivalent to crude oil, and all allowances are freely allocated. In 2022, total emissions of covered facilities dropped by 32% compared to the base year.

Following a public consultation that concluded in 2023, Tokyo announced three major updates for the fourth compliance period (FY2025 to FY2029). First, the compliance factor will rise to 50% for office buildings and 48% for factories.

Second, to boost the use of renewable energy, off-site renewable energy, including self-consignment and PPA, will count as zero emissions, and certificates derived from renewable energy can be deducted from energy-related CO_2 emissions. In addition, actual emission factors, instead of fixed emission factors, will be used to calculate emissions from electricity, heat, and city gas supplied by retailers, based on contracts at the facilities.

Third, a new system for excess emission reductions will limit credits to those achieved through energy efficiency or renewable energy; credits will no longer be awarded for certification improvements or emission factor adjustments. These updates take effect in April 2025, with guidelines released in September 2024.

In March 2024, the TMG published the results for the third fiscal year of the third compliance period (FY2022), showing that emissions from covered facilities totaled 11.2 $MtCO_2$. This is a 32% reduction below base-year emissions.

In force

Under development

Under consideration

SECTORS

INDUSTRY

BUILDINGS

COVERAGE

12.2 $MtCO_2$ (2024)

GREENHOUSE GASES

CO_2

OFFSET CREDITS

Domestic (national and prefectural), with quantitative limits

ALLOCATION

Free Allocation: Grandparenting

Free Allocation: Fixed Benchmarking

AVERAGE 2024 PRICES

Average price: ~JPY 600 (USD 3.96)

EMISSIONS & TARGETS OF TOKYO

GHG EMISSIONS (EXCL. LULUCF), 2022

(in $MtCO_2e$, share of total in %)

Transport	8.7	17%
Manufacturing	3.9	8%
Business	21.5	41%
Residential	16.0	31%
Waste	1.8	3%
Total	**51.9**	

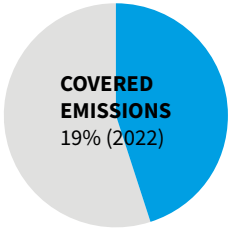
GHG REDUCTION TARGETS

By 2030: 50% reduction from 2000 GHG levels ("Tokyo Environmental Master Plan")
By 2050: Net zero CO_2 emissions (Tokyo Environmental Master Plan)

ETS COVERAGE & PHASES

COVERED EMISSIONS 2022

Verified ETS emissions: 11.2 $MtCO_2$



PHASES

PHASE 1: 1 April 2010 to 30 September 2016
PHASE 2: 1 April 2015 to 31 January 2022
PHASE 3: 1 April 2020 to 30 September 2026
PHASE 4: 1 April 2025 to 30 September 2031

The Tokyo ETS has phases as well as compliance periods (see 'Compliance' section). A phase is defined as the compliance period plus an additional 18-month adjustment period, during which time facilities may continue to trade credits in order to reach their targets for the corresponding compliance period.

CAP

The total emission limit under the Tokyo Cap-and-Trade program is the sum of the bottom-up installation-level emissions limits for all individual covered facilities.
The total emissions limit for the fourth compliance period under the Tokyo ETS is a 50% reduction on average over the five years compared to the base-year emissions which are the average emissions of any three consecutive years between FY2002 and FY2007 (see 'Allowance Allocation' section).

SECTORS AND THRESHOLDS

Consumption of fuels, heat, and electricity in commercial and industrial buildings. Building owners are subject to surrender obligations, and all tenants are required to cooperate in owners' reduction measures. Large tenants (those with a floor space above 5,000 m2 or electricity usage per year over six million kWh) are also required to prepare and submit their own emission reduction report.

INCLUSION THRESHOLDS: Facilities that consume energy equivalent to at least 1,500 kL of crude oil per year.

POINT OF REGULATION

Downstream (industry, buildings)

TYPE OF ENTITIES

Facilities

NUMBER OF ENTITIES

~1,200 facilities:
- Office/commercial buildings: ~1000
- Factories: ~200

ALLOWANCE ALLOCATION & REVENUE

ALLOWANCE ALLOCATION

All allowances in the Tokyo Cap-and-Trade Program are allocated for free.

Under the Tokyo ETS, each facility has its own cap, which serves as the "baseline" from which it must achieve its reduction target. Baselines for facilities are set according to the following formula: Base-year emissions x (1 - compliance factor) x compliance period (five years). The compliance factor for each period is determined based on regulations established by the Governor of Tokyo. Prior to the start of each new compliance period, TMG holds expert meetings to garner those experts' opinions to aid in determining the compliance factors.

1 The overall emissions figure for Tokyo is higher than the total of the emissions by sector because the former includes all GHGs, whereas the emissions by sector only measures CO_2 emissions.

For facilities that have been designated as compliance facilities since the launch of the ETS, base year-emissions are based on average emissions of any three consecutive years between FY2002 and FY2007.

Base-year emissions for new entrants are calculated using either historical emissions (average annual emissions for three consecutive fiscal years of the four fiscal years immediately preceding the compliance period) or an emission intensity standard provided by the government (based on emissions from FY2005 to FY2007).

At the beginning of each new compliance period, all allowances are allocated for free to covered facilities for the full five years. Facilities with emissions below their baseline can receive excess emission reductions for the reductions beyond the obligation amount. Those facilities that exceed their baseline must purchase and surrender credits from elsewhere to meet their compliance obligation. Credits may also be issued using renewable energy (see 'Offset Credits' section).

COMPLIANCE FACTOR:
First period (FY2010 to FY2014): 8% or 6% reduction below base-year emissions.
Second period (FY2015 to FY2019): 17% or 15% reduction below base-year emissions.
Third period (FY2020 to FY2024): 27% or 25% reduction below base-year emissions.
Fourth period (FY2025 to FY2029): 50% or 48% reduction below base-year emissions.

The lower compliance factor applies to factories and office buildings that use district heating and cooling for more than 20% of their energy consumption.

In the third compliance period, in medical facilities where electricity is vital to preserve life and health, the compliance factor is two percentage points lower than whichever category would otherwise apply.

The compliance factor will be reduced by three percentage points for facilities with an electrification rate of less than 20% in the fourth compliance period alone.

Facilities demonstrating outstanding performance in emissions reductions, as well as in the introduction, use, and management of energy efficient equipment, are certified as top-level facilities with the limit on the issuance of excess emission reductions removed.

The reduction of the compliance factor for certified top-level facilities, which had been in place until the third compliance period, is eliminated in principle except in certain cases in order to recognize establishments that are proactive in reducing emissions.

QUALIFYING FOR ADDITIONAL EMISSIONS REDUCTIONS THROUGH USE OF RENEWABLE ELECTRICITY: In order to evaluate the energy efficiency efforts of the covered facilities, CO_2 emission factors of the supply side (electricity and others) are fixed during each compliance period. If covered facilities procure electricity from TMG-certified suppliers with lower emission factors (0.37 tCO_2/1,000 kWh or less), they can deduct the difference between these emission factors from their reported emissions accordingly, to reflect this lower emission factor of purchased electricity. If covered facilities generate electricity from renewable sources for their own use, they can deduct this amount of electricity from the total energy usage of the facility to be reported.

In the fourth compliance period, off-site renewable energy, including self-consignment and PPA, will count as zero emissions, and certificates derived from renewable energy can be deducted from energy-related CO_2 emissions. In addition, actual emission factors, instead of fixed emission factors, will be used to calculate emissions from electricity, heat, and city gas supplied by retailers, based on contracts at the facilities to evaluate the use of renewable energy at the covered facilities.

FLEXIBILITY & LINKING

BANKING AND BORROWING

Banking is allowed only between consecutive compliance periods.
Borrowing is not allowed.

OFFSET CREDITS

The use of offset credits is allowed.

QUALITATIVE LIMITS: Four types of offset credits are permitted, based on certification criteria, to complement emissions reduction credits issued to facilities covered by the Tokyo ETS whose emissions fall below their baseline:

- Small and mid-size facility credits: Emissions reductions from non-covered small and medium-sized facilities in Tokyo.
- Outside Tokyo credits: Emissions reductions achieved from large facilities outside of the Tokyo area. Large facilities are those with an energy consumption equivalent to at least 1,500 kL of crude oil in a base year and with base-year emissions of 150,000 tCO_2 or less.
- Renewable energy credits: Renewable energy credits generated under the Tokyo ETS encompass the following types: Environmental Value Equivalent, Renewable Energy Certificates, and New Energy Electricity, generated under the Renewable Portfolio Standard Law. Credits from solar (heat, electricity), wind, geothermal, or hydro (under 1,000 kW) electricity production for use under the Tokyo ETS are converted on a one-to-one basis, as are credits from biomass (biomass rate of 95% or more, black liquor excluded).
- Saitama credits (via link): These encompass (1) Excess emission reductions: Emissions reductions from facilities in Saitama with base-year emissions of 150,000 tonnes or less and (2) Saitama's small and mid-size facility credits: Emissions reductions from non-covered small and medium-sized facilities issued by Saitama Prefecture. For small and medium-sized credits, the link is suspended during the fourth compliance period.

QUANTITATIVE LIMITS: Quantitative limits apply only for Outside Tokyo credits: these are issued only for the reduction amount that exceeds the compliance factor. These credits can be used for compliance for up to one-third of facilities' reduction obligations.

All offset credits must be verified by a verification agency.

65,187 tCO_2e of offset credits were issued in FY2023, and 7,657 tCO_2e were surrendered for compliance in FY2023. Out of those, 4,312 tCO_2e were renewable energy credits and 3,345 tCO_2e were Saitama credits.

LINKS WITH OTHER SYSTEMS

Tokyo linked its program with the Saitama Prefecture ETS in April 2011. Tokyo and Saitama credits are officially eligible for trade between the two jurisdictions. About 60 credit transfers have taken place so far between Saitama and Tokyo.

OTHER CARBON PRICING INSTRUMENTS IN THE JURISDICTION

Carbon tax: Japan national carbon tax

COMPLIANCE

COMPLIANCE MECHANISM

Covered facilities must surrender one compliance unit per tCO_2 that exceeds the facility's emissions limit (baseline).

COMPLIANCE PERIOD

Five years.

Facilities must submit a "GHG Emissions Reduction Plan" and an implementation status report by the end of November every year.

Compliance units to meet each facility's targets must be surrendered by the end of the 18-month adjustment period, after the end of the compliance period (see 'Phases' section above).

FIRST COMPLIANCE PERIOD: FY2010 to FY2014
SECOND COMPLIANCE PERIOD: FY2015 to FY2019
THIRD COMPLIANCE PERIOD: FY2020 to FY2024
FOURTH COMPLIANCE PERIOD: FY2025 to FY2029

MRV

MONITORING AND REPORTING: Annual emissions reporting, including emission reduction plans. Seven GHGs must be monitored and reported: CO_2, CH_4, N_2O, PFCs, HFCs, SF_6, and NF_3. Large tenants are required to submit their own emissions reduction plans to TMG in collaboration with building owners.

As of April 2025, actual emission factors, instead of fixed emission factors, are to be used to calculate emissions from electricity, heat, and city gas supplied by retailers, based on contracts at the facilities. This should incentivize the use of renewable energy.

VERIFICATION: Annual emissions reports require third-party verification.

FRAMEWORK: These are based on the "TMG Monitoring/Reporting Guidelines" and the "TMG Verification Guidelines".

PENALTIES AND ENFORCEMENT

In the case of non-compliance, the following measures may be taken:

FIRST STAGE: The governor orders the facility to reduce emissions by the amount of the reduction shortfall multiplied by 1.3.

SECOND STAGE: Any facility that fails to carry out the order will be publicly named and subject to penalties (up to JPY 500,000 [USD 3,303]) and surcharges (1.3 times the shortfall).

MARKET REGULATION

MARKET DESIGN

MARKET PARTICIPATION: Compliance facilities, i.e., those above the inclusion threshold (see 'Sectors and Thresholds' section); non-compliance facilities (trading account holders). TMG allows only "reduction credits" and not "emission credits," i.e., one can earn credits only after achieving emission reductions. Basically, only compliance facilities and legal entities with an office in Japan may open trading accounts.

MARKET TYPES:
Primary: All allowances are allocated for free.

Secondary: Covered facilities and other facilities which hold trading accounts trade credits over the counter. Businesses wishing to buy or sell credits can also go through a private intermediary to find a buyer and negotiate the price.

LEGAL STATUS OF ALLOWANCES: Allowances are not financial instruments under the Tokyo ETS.

MARKET STABILITY PROVISIONS

In general, covered facilities and other market participants (trading account holders) trade over the counter, and the TMG does not control carbon prices.

OTHER INFORMATION

INSTITUTIONS INVOLVED

Tokyo Metropolitan Government: Oversees the Tokyo Cap-and-Trade Program, via the Bureau of Environment

EVALUATION/ETS REVIEW

For every new compliance period, the TMG establishes a committee of experts to discuss and determine compliance factors and other important issues for the next compliance period. The TMG held seven committee meetings from September 2022 to August 2023 and ran a public consultation in June 2023.

REGULATORY FRAMEWORK

- → Tokyo Metropolitan Environmental Security Ordinance and Regulation for the Enforcement of the Tokyo Metropolitan Environmental Security Ordinance
- → Revised Tokyo Cap-and-Trade Program for the fourth compliance period
- → Outline documents and detailed documents for large facilities
- → Tokyo Environmental Master Plan

VIETNAM

- Legal mandate to establish ETS and crediting mechanism
- Pilot ETS for high-emitting sectors expected by 2025; ETS to be fully operational by 2029
- Ministry of Natural Resources and Environment will issue enabling regulations throughout 2025

ETS DESCRIPTION

In November 2021, Vietnam's government issued its revised "Law on Environmental Protection". This establishes a mandate for the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Finance to design a national crediting mechanism (NCM) and a domestic ETS. The framework legislation empowers MONRE to set the ETS cap and determine the method of allowance allocation. It also allows for the inclusion of domestic and international offset credits in the ETS.

In July 2022, Vietnam issued an official decision to approve a National Strategy for Addressing Climate Change through 2050, "Decision 896/QD-TTg", in which the country commits to achieving net-zero GHG emissions by 2050, with a mid-term target of 43.5% below BAU levels by 2030. This follows "Decree 06/2022/ND-CP", which provides regulations under the Law on Environmental Protection and outlines a roadmap for the implementation of the NCM and the ETS. The decree requires facilities with annual GHG emissions above 3,000 tCO_2e to submit a biennial inventory report of their emissions from 2025 onwards (i.e., in 2025, facilities must submit an inventory report covering emissions from 2024). The accompanying "Decision 01/2022/QD-TTg" lists the sectors and facilities with emissions inventory obligations.

In January 2025, Vietnam's Prime Minister approved Decision 232/QD-TTg, which establishes the framework for developing the ETS and carbon credit market. MONRE is responsible for regulatory development, governance, and the national registry, while the Hanoi Stock Exchange (HNX) will operate the carbon exchange. The Decision mandates the development of regulation for sectoral decarbonization plans, allocation mechanisms, and integration of Certified Carbon Credits (CCCs) from domestic and international sources, including the Clean Development Mechanism, the Joint Crediting Mechanism, and the Article 6.4 mechanism of the Paris Agreement.

A pilot phase is set to begin in June 2025. In preparation, MONRE will issue regulations on GHG emission limits, allocation methodologies, carbon credit recognition, and trading rules, alongside developing the needed infrastructure and capacity-building activities. During the pilot phase (2025–2028), emissions allowances will be allocated for free to high-emitting sectors, with CCCs permitted for compliance within defined thresholds. The market will become fully operational in 2029, potentially expanding sectoral coverage, implementing auctioning mechanisms, and refining regulatory frameworks to enhance market efficiency and long-term functionality.

EMISSIONS & TARGETS OF VIETNAM

GHG EMISSIONS (INCLUDING INDIRECT CO_2, EXCLUDING LULUCF), 2016

(in $MtCO_2e$, share of total in %)

Energy	205.8	58%
Industrial processes	46.1	13%
Agriculture, forestry and other land use[1]	83.6	23%
Waste	20.7	6%
Total	**356.2**	

Energy industries	91.0	26%
Manufacturing industries and construction	38.2	11%
Transport	35.8	10%
Other energy	40.7	11%

GHG REDUCTION TARGETS

By 2030: 43.5% reduction compared to BAU levels (National Strategy for Addressing Climate Change through 2050 [Decision No. 896/QD-TTg])

By 2050: Net-zero domestic GHG emissions (National Strategy for Addressing Climate Change through 2050 [Decision No. 896/QD-TTg])

OTHER INFORMATION

INSTITUTIONS INVOLVED

Ministry of Natural Resources and Environment: Responsible for rulemaking for the carbon credit and ETS markets; organizing the pilot and official operation of the carbon trading floor; allowance allocation, exchange, and surrender; monitoring and supervision of the carbon market; and administering the national GHG inventory.

Ministry of Finance: Responsible for developing and establishing a carbon trading exchange floor and promulgating a financial management mechanism for the operation of the carbon market.

REGULATORY FRAMEWORK

- → Law No. 72/2020/QH14 on Environmental Protection, 133-139'20/OG
- → Decision No. 896/QD-TTg dated July 26, 2022
- → Decision 01/2022/QD-TTg
- → Decree 06/2022/ND-CP
- → Decision 232/QD-TTg

1 Vietnam uses the sectors defined in the latest IPCC guidelines (2006 IPCC Guidelines for National Greenhouse Gas Inventories) for its inventory, in which the agricultural and the LULUCF sectors are integrated into "Agriculture, Forestry and Other Land Use." In an effort to make the display of overall GHG emissions comparable with other jurisdictions, the figure shown here excludes the category "3B Land," but includes the categories "3A Livestock" and "3C Aggregate sources and non-CO_2 emissions sources on land."

04 ABOUT ICAP

ABOUT THE INTERNATIONAL CARBON ACTION PARTNERSHIP

Founded in 2007, the International Carbon Action Partnership (ICAP) brings together policymakers from all levels of government that are operating an emissions trading system (ETS) or are taking steps to introduce one. ICAP provides a unique platform for governments to share their practical experiences and the latest knowledge on ETS. The ICAP membership currently counts 34 members and 9 observers.

ICAP'S OBJECTIVES

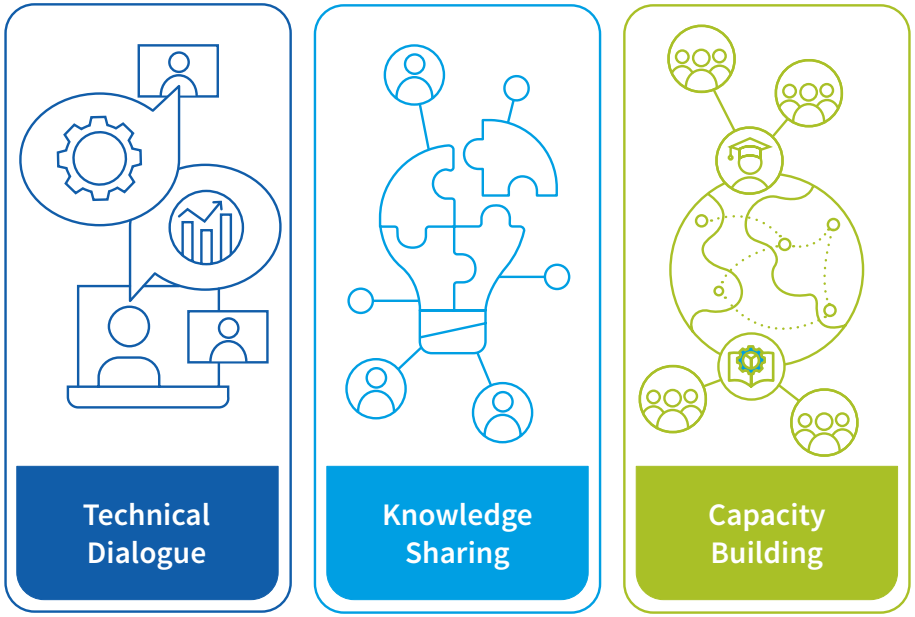
- Highlight the key role of emissions trading as an effective tool to address climate change.
- Facilitate the development, implementation, and refinement of ETSs around the world.
- Build and strengthen partnerships among governments to share best practices and lessons learned.

MEMBERS (AS OF APRIL 2025)

Arizona, Australia, Austria, British Columbia, California, Denmark, the European Commission, France, Germany, Greece, Ireland, Italy, Maine, Manitoba, Maryland, Massachusetts, the Netherlands, New Jersey, New Mexico, New York, New Zealand, Norway, Ontario, Oregon, Portugal, Québec, Scotland, Spain, Sweden, Switzerland, the Tokyo Metropolitan Government, Vermont, the United Kingdom, and the State of Washington.

OBSERVERS

Canada, Chile, Colorado, Japan, Kazakhstan, the Republic of Korea, Mexico, Singapore, and Ukraine.



THREE PILLARS OF ICAP'S WORK

Technical Dialogue: ICAP provides a unique platform for its Members, Observers and experts to exchange on ETS design and operation. Within this workstream, ICAP establishes working groups, publishes papers, and organizes webinars and public events on pertinent ETS topics. Past and ongoing topics include ETS linking, the use of offsets across ETSs, Carbon Capture and Storage, Article 6, carbon leakage, and free allocation.

Knowledge Sharing: ICAP acts as a central repository of information on emissions trading for those who want to learn more about emissions trading and access information about the latest ETS developments worldwide. ICAP organizes conferences and public workshops on specific ETS design topics, participates in various events to promote emissions trading, and publishes useful tools and knowledge products on the **ICAP website**, e.g., the **Allowance Price Explorer**, the **ETS map**, the **ICAP Briefs** on ETS basics, and the annual **ICAP Status Report** on the latest developments of ETSs around the world.

Capacity Building: ICAP builds capacity on the design, implementation, and operation of ETSs around the world by offering **training courses and workshops** to policymakers and other stakeholders on all aspects of emissions trading. The ICAP alumni network, comprising over 1,000 practitioners from over 70 countries, stays connected, works together, and exchanges knowledge during international climate events or alumni events that ICAP organizes on a regular basis.

NOTES ON METHODS AND SOURCES

GENERAL NOTES

1. The report draws on a range of sources, including official ETS information and statements from governments and public authorities, data submitted to the UNFCCC, or where available, other official reporting, and information provided by ICAP members and observers, or in-country/local experts from our network. Information on emitting sectors is based on jurisdiction-specific data sources; therefore, categories are not necessarily consistent across jurisdictions.

2. Data in the report represents the current situation as of February 2025. For the China national ETS, the information is current as of May 2025.

3. Where 2025 data is not yet available, we use the most recent available data. The covered emissions graph in the factsheets shows the latest year for which both verified emissions data and inventory data are available. In cases where the oldest covered emissions data are more recent than the latest aggregate emissions data, we use the oldest covered emissions data and the latest aggregate emissions data to estimate the coverage.

4. For the purpose of this report, emissions trading systems (ETS) include both systems that set an absolute limit on GHG emissions for regulated entities ("cap-and-trade" systems), as well as systems that set an intensity-based limit on GHG emissions for regulated entities. Systems that regulate other gases (e.g., other air pollutants) or trade other units (e.g., energy-efficiency certificates), other market-based instruments (e.g., carbon taxes) and voluntary programs do not fall under the scope of this report. Until the 2023 version, previous editions of the report only encompassed mandatory cap-and-trade systems. Where relevant, figures and graphs have been updated to include information on intensity-based systems.

5. The report uses metric tonnes throughout the report, unless otherwise indicated.

6. Emissions coverage as reported in the factsheets refers to the verified emissions of entities under the ETS in a jurisdiction as a proportion of that jurisdiction's inventory emissions. When this value is not available, an equivalent value provided by the jurisdiction or by local experts, or the cap of the system, is used.

7. Average allowance prices correspond to the following:

    a. For systems with a primary market for allowances, they are the weighted average of either settlement prices at auctions that took place during the year or, in some cases, of allowances with that year's vintage, which may have been auctioned before the calendar year.
    b. For systems without a primary market of allowances, they are the arithmetic mean of settlement prices over the year, as recorded by the exchange.
    c. For a limited number of systems, they are the values provided directly by the jurisdiction or by local experts.

8. All monetary values in national currency units are converted to USD using the annual average exchange rates provided by the international financial statistics of the IMF. For monetary values that are fixed over multiple years, the value reported in USD uses the most recent year's exchange rates.

9. Overall GHG emissions, the sum of the emissions categories, and the corresponding percentages reported in the factsheets may not add up exactly, due to rounding.

10. For national jurisdictions, the data in the "GHG emissions excl. LULUCF" section of the factsheets are drawn from the latest Biennial Transparency Report submissions to the UNFCCC. For sub-national jurisdictions, domestic inventory data are used unless stated otherwise. Wherever possible, emissions are presented in line with standard IPCC sectoral categorization: "Energy", "Industrial Processes and Product Use", "Agriculture", and "Waste". Neither data from LULUCF nor "Memo items" is included unless stated otherwise. For jurisdictions that use the "Agriculture, Forestry and Land Use Change" (AFOLU) IPCC sector in their inventories, emissions data excludes emissions and removals from categories "3B Land" and "3D Products of collected wood" but includes the categories "3A Livestock" and "3C Aggregate sources and non-CO_2 emissions sources on land". Emissions from "Energy" are further disaggregated as follows:

    a. For jurisdictions where this information is available:

        i. "Energy industries": CRT Code 1.A.1 "Energy industries".
        ii. "Manufacturing industries and construction": CRT Code 1.A.2 "Manufacturing industries and construction".
        iii. "Transport": CRT Code 1.A.3 "Transport".
        iv. "Commercial, institutional and residential": CRT Codes 1.A.4.a "Commercial/institutional" and 1.A.4.b "Residential".
        v. "Other energy": All other CRT codes in the "Energy" IPCC sector.

    b. For other jurisdictions, emissions are presented consistent with their inventory-specific categories.

11. The following criteria are used to determine the three ETS status categories:

    a. In force: ETS is in force with implementation established in the relevant regulation or legislation.
    b. Under development: A mandate for ETS is established and ETS rules are currently being drafted.
    c. Under consideration: ETS is being considered as a potential mitigation instrument, the government or other relevant authorities have publicly sent signals towards the development of an ETS.

NOTES ON INFOGRAPHICS

For the infographics "From Supranational to Local", "Emissions Trading Worldwide" and "Sector Coverage", we draw on data contained in the factsheets, the online version of the ICAP ETS Map (**https://icapcarbonaction.com/en/ets-map**), as well as news articles from the ICAP Secretariat. For infographics involving quantitative data, the following sources and methods were used:

FROM SUPRANATIONAL TO LOCAL

1. Jurisdictions' shares of global GDP and world population are calculated based on the latest annual data available before the Status Report's editorial cut-off date at the end of January 2025. They typically cover 2023 or 2022 data. The total population of jurisdictions with an ETS in force and the total GDP of their respective economies are calculated as a share of world population and global GDP. The share of global GHG emissions covered by an ETS in force is calculated using the process described in note 5 under "Global Expansion of ETS" below. In cases where the 2024 cap data were not available, estimates based on most recent data were used. Specific sources and figures are available upon request from **info@icapcarbonaction.com**.

OFFSET USE IN ETS WORLDWIDE

1. Offsets represent emissions reductions and emissions removals resulting from projects undertaken outside the scope of an ETS. "Domestic offsets" are generated from projects within the geographical boundaries of the ETS jurisdiction or in a linked ETS, while "international offsets" originate from projects outside of them.

2. The share of a compliance entity's obligations that can be met using offsets for the latest year is derived from the factsheets, where available. Additional jurisdiction-specific details on offset use can be found in the relevant factsheet.

3. The potential size of compliance demand for offsets in a jurisdiction is estimated by multiplying the total GHG emissions covered by the jurisdiction's ETS by the maximum allowable share of compliance obligations that can be met using offsets. In systems where entities must surrender compliance units for only a part of their covered emissions (i.e. Alberta TIER, Australia Safeguard Mechanism) potential demand is calculated by multiplying the maximum allowable share with the most recent reported value of the total compliance obligations in the system. In British Colombia OBPS, no such reported value was available by February 2025. In Shenzhen Pilot ETS, offset use is restricted to 20% of the difference between a regulated entity's verified emissions and the free allocations it receives. Due to data limitations it is not possible to estimate the potential size of compliance demand in this pilot.

4. In the case of the Canada Federal OBPS, the value presented is an estimate based on the territorial coverage of the system as of 2025. The potential size of compliance demand will be overestimated for Canada Federal OBPS if one uses 2021 data because the system included Ontario and Saskatchewan at the time. The 1.40 $MtCO_2e$ figure in the graphic is therefore prorated.

GLOBAL EXPANSION OF ETS

1. Whenever available, we use the official and most recent cap data. When those data are unavailable or when systems operate without a cap, the values or estimates of covered emissions in the regulated sectors are used instead.

2. The EU ETS cap in 2021 was revised down to reflect the UK leaving the system. It includes emissions covered under the aviation sector cap of the EU ETS. For more details, see the EU ETS factsheet.

3. The China National ETS started operating in 2021. In 2021, regulated entities had to surrender allowances pertaining to their 2019–2020 emissions. The infographic reflects the start date of the Chinese National ETS in 2021, while also indicating the retroactive coverage of the system in 2019 and 2020. When official data were not available, the emissions coverage or caps for the China National ETS and Chinese Pilots were estimated values provided by domestic or international ETS experts.

4. As the Massachusetts' system covers the same emissions as those covered by RGGI in Massachusetts, the Massachusetts system is excluded from the infographic to avoid double counting.

5. Global emissions data refer to GHG emissions in CO_2e excluding LULUCF and are obtained from EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database (a collaboration between the European Commission,

Joint Research Centre (JRC), the International Energy Agency (IEA)), and comprising IEA-EDGAR CO_2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version EDGAR_2024_GHG (2024) European Commission. EDGAR website (**https://edgar.jrc.ec.europa.eu/report_2024?vis=co2tot**). The report assumes that emissions in 2024 and 2025 remain at the same levels as emissions in 2023. Percentages of global emissions covered are rounded to the nearest full percentage.

SECTOR COVERAGE

1. For the purposes of this infographic, the following sector definitions are used:

SECTOR	DEFINITIONS
Mining and extractions	Emissions from mines, rigs, and fuel processing, which includes emissions from fuel used for energy in these facilities as well as fugitive emissions.
Power	Emissions from the combustion of fossil fuels for electricity generation, as well as large-scale centralized heat production.
Industry	Emissions from industrial activity, typically covering both energy emissions (e.g., from burning fossil fuels in furnaces), as well as process emissions (e.g., in the case of cement production).
Domestic Aviation	Emissions from fossil fuel combustion for flights arriving and departing within the jurisdiction ('domestic') which are not regulated by the International Civil Aviation Organization (ICAO).
Transport	Emissions from fossil fuel combustion for transport with the exception of aviation (domestic and international), maritime transport and off-road transport. Coverage usually is upstream with fuel distributors facing compliance obligations.
Maritime	Emissions from fossil fuel combustion for maritime transport, usually referring to voyages starting and ending within the jurisdiction. Systems may include (a portion of) emissions of voyages starting or ending outside of the jurisdiction.
Buildings	Emissions originating from buildings. With upstream coverage, distributors of heating fuels face compliance obligations and all consumers are exposed to the carbon price. With downstream coverage, emissions of large buildings are regulated. In this case, emissions originating from other sectors (e.g., power production) may also be attributed to buildings.
Forestry	Emissions and removals resulting from forest land use, including forest management/harvest, deforestation and re/afforestation activities.
Waste	Emissions from waste disposal and management (e.g., methane from anaerobic decomposition in landfills).
Agriculture and/or forestry fuel use	Emissions resulting from fuels burned for energy in the agriculture and/or forestry sectors.

2. The agriculture sector is also a major source of biological emissions. Currently, some offset programs (e.g., California) allow for offset projects in the sector.

3. In most cases, emissions coverage of the different systems corresponds to the value that is reported in the relevant factsheets. In the case of the Chinese pilots, the coverage was calculated by adding the most recent reported caps of all the pilots and dividing that number by the sum of the most recent reported emissions in the pilots. Note that sector coverage differs across Chinese pilots as indicated in the relevant slice of the infographic. A limited number of heat plants which are below the inclusion threshold in the China National ETS continue to be covered under Chinese pilots where applicable.

4. In the case of RGGI, emissions coverage is the result of comparing the emissions covered by the ETS with the aggregate emissions in RGGI states. Aggregate emissions data for the RGGI states are taken from the "consolidated data for all states" by the Environmental Protection Agency (EPA 2024. URL: **https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals**). While each state publishes official inventory data and the values published by the EPA should not be viewed as official state data, the EPA estimates are presented here to ensure the methodological consistency of data collection and aggregation for inventory categories across RGGI states, as well as to ensure a common reporting year in the data. There may be differences between the EPA estimates and the official state inventories.

DIFFERENT DIMENSIONS OF ETS

1. **Coverage:** The figure indicates the percentage of the jurisdiction's total GHG emissions that is covered by the ETS. The data are taken from the factsheets and refer to the latest emissions coverage figures available for each system. Additional jurisdiction-specific information on coverage figures can be found in the relevant factsheet.

2. **Allowance price:** The figure provides the average USD price over 2024 per tonne of CO_2e. Where available, the weighted average of settlement prices at auctions that took place during the year or the weighted average of settlement prices of auctions of that vintage year are used. Where necessary, local currency prices were converted

using the annual average exchange rate as published in the IMF Financial Statistics. For additional information on sources of allowance prices and exchange rates see https://icapcarbonaction.com/en/documentation-allowance-price-explorer.

3. **Auction share:** This figure indicates the share of the cap's allowances that is not allocated for free but must be acquired at an auction for the latest year where information is available. For most systems, and depending on availability of information, this value is obtained by dividing the allowances that have been offered for auction of a given vintage year by the cap of that year. Otherwise, this value is obtained from the corresponding factsheet. The consignment auctions in California and Québec are not included in calculating the auction share. Additional jurisdiction-specific information on auction share figures can be found in the relevant factsheet.

4. **Offset use:** This figure provides the share of a compliance entity's obligations which can be met using offsets for the latest year where information is available. Additional jurisdiction-specific information on offset use figures can be found in the relevant factsheet.

ALLOWANCE PRICES AND REVENUES

1. An allowance is an instrument that permit the holder to emit one tonne of CO_2e in the jurisdiction(s) that accept(s) it for compliance. However, allowances from different systems cannot be treated as a single commodity because of differences in system design. Allowance prices are not directly comparable across systems.

2. Except for the Canada Carbon Pollution Price Schedule and the Alberta SGER/CCIR/TIER, the upper right panel of the infographic displays the daily allowance prices in 2024, while the upper left panel presents the monthly average allowance prices between January 2014 and December 2024 using data from the ICAP Allowance Price Explorer. Prices in the upper right panel are the daily observations in the systems with secondary market data, as well as the clearing prices in the systems with primary market data on the day of the auction/sale. In the upper left panel, daily observations are averaged over the calendar month. For additional information on sources of allowance prices and exchange rates see https://icapcarbonaction.com/en/documentation-allowance-price-explorer.

3. The data for the UK, Québec, California, RGGI, and Washington are from the primary market. For these systems, the observations from two successive auctions are connected linearly. The data for the remaining systems, except Germany, the Canada Carbon Pollution Price Schedule and the Alberta SGER/CCIR/TIER are secondary market prices. They reflect settlement prices and do not capture intra-day trade variation. German ETS allowances are sold at a fixed price in the initial years of the system. The fixed price increases annually until 2026 when trading begins in earnest. As with the Canada Carbon Pollution Price Schedule and the Alberta SGER/CCIR/TIER, variation in the series reflect the changes in the local currency-USD exchange rate.

4. RGGI allowance prices are in short tonnes and have been converted to metric tonnes for the purposes of this infographic.

5. Where allowances have a limited vintage, the time series data compiles these vintages in a way that reflects the compliance cycle.

6. The price range for the Chinese Pilot ETSs was determined as follows: 1) We computed the monthly average prices in USD; 2) For a given month, we determined the minimum and maximum prices across Chinese Pilots; 3) We applied a six-month moving average to smooth out the variability in maximum and minimum prices; 4) We shaded the region between the smooth series.

7. Auction revenues for the 24 systems (including seven Chinese pilots reported as a group) that are depicted or reported were calculated using data from the European Commission; ICE and UK Department for Business, Energy & Industrial Strategy; SinoCarbon Innovation and Investment; German Environment Agency; Swiss Emissions Registry; California Air Resources Board; Québec Ministry of Sustainable Development, Environment, and Fight Against Climate Change; Nova Scotia Environment; Regional Greenhouse Gas Initiative; New Zealand Ministry for the Environment; Massachusetts Department of Environmental Protection; the website of the Korea Exchange (KRX); the state of Washington's Department of Ecology; the Austrian Federal Ministry of Finance; Environment and Climate Change Canada; Department of Environment and Climate Change of Newfoundland and Labrador; Ministry of Environment of Saskatchewan; Alberta Environment and Protected Areas; as well as from the factsheets of Montenegro, the New Brunswick OBPS, and Ontario EPS (links available upon request, info@icapcarbonaction.com).

8. Auction revenue for the EU ETS includes revenue from the domestic aviation sector.

9. For the California and Québec cap-and-trade systems, the proceeds from consignment auctions are excluded.

10. For the Québec cap-and-trade system, joint auctions involve currency conversion for part of the proceeds. The rate and transaction fees on the date of conversion can affect the amount deposited to the Green Fund. As a result, the product of the number of permits sold and the settlement price may slightly differ from the actual amount deposited.

11. The Massachusetts quarterly reports are published by Potomac Economics, which is the official market monitor for the Massachusetts Department of Environmental Protection.

12. All allowance price data are in USD and are converted using the average exchange rate for the corresponding month as reported by the IMF. Revenue data are in USD and are converted using the average exchange rate for the corresponding year as reported by the IMF.

PRICES OF COVERED EMISSIONS

1. The infographic only shows ETSs in force where there is available information on the two dimensions that are shown, as of February 2025.

2. Data on average allowance prices and on the cap/coverage are taken from the respective factsheet.

3. For the average allowance prices, the values are the same as those of the infographic "Different Dimensions of ETS".

4. For the systems without an absolute cap, the infographic shows an estimate of the absolute emissions coverage of the system.

LIST OF ACRONYMS

ACCUs	Australian Carbon Credit Units
AFOLU	Agriculture, Forestry and Other Land Use
APCD	Air Pollution Control Division
APCR	Allowance Price Containment Reserve
API	Allowance Price Index
ARP	Auction Reserve Price
BAU	Business-as-Usual
BEA	Beijing Carbon Emission Allowances
BEIS	Department for Business, Energy and Industrial Strategy
BMF	Austrian Federal Ministry of Finance
BMWK	German Federal Ministry for Economic Affairs and Climate Action
BPDLH	Badan Pengelola Dana Lingkungan Hidup (the Indonesian Environment Fund)
C&T	Cap-and-Trade
CAD	Canadian Dollar
CARB	California Air Resources Board
CATS	Credit and Tracking System
CBAM	Carbon Border Adjustment Mechanism
CCA	Climate Change Administration (in Taiwan, China)
CCA	Climate Commitment Act (in Washington)
CCA	Climate Change Authority (in Australia)
CCA	Climate Commitment Act
CCCs	Carbon Credit Certificates
CCER	Chinese Certified Emission Reduction
CCI	Community Climate Investments
CCM	Cost Containment Mechanism
CCR	Cost Containment Reserve
CCS	Carbon Capture and Storage
CCTS	Carbon Credit Trading Scheme
CCU	Carbon Capture and Utilization
CDM	Clean Development Mechanism
CEA	China Emission Allowances
CEEX	China Emissions Exchange
CEP	Clean Energy Plan
CER	Clean Energy Regulator
CERF	Climate Emergency Response Fund
CFC	Chlorofluorocarbon
CH_4	Methane
CHF	Swiss Franc
CIF	CleanBC Industry Fund
CIIP	CleanBC Industrial Incentive Program
CITSS	Compliance Instrument Tracking System Service
CLEF	Carbon Leakage Exposure Factor
CNCA	Certification and Accreditation Administration
CNY	Chinese Yuan Renminbi
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
COATS	CO_2 Allowance Tracking System
COCOSCE	Mexico Consultative Committee
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
COVID-19	2019 Novel Coronavirus
CPI	Consumer Price Index / Carbon Pricing Instrument
CPP	Climate Protection Program
CPS	Carbon Price Support
CQCER	Chongqing Certified Emissions Reduction
CRF	Common Reporting Format
CRVE	Verified Emissions Reduction or Removal Certificates
DACS	Direct Air Capture and Storage
DCCE	Department of Climate Change and Environment
DEBS	Direct Environmental Benefits for the State
DEC	Department of Environmental Conservation
DEHSt	German Emissions Trading Authority
DENR	Department of Environment and Natural Resources
DEP	Department of Environmental Protection
DEQ	Department of Environmental Quality
DHC	District Heating and Cooling
DNP	Department of National Planning
DOB	Department of Buildings
DoCC	Directorate of Climate Change
DRC	Development and Reform Commission
DTI	Department of Trade and Industry
EBRS	Energy Bill Relief Scheme
EBSS	Energy Bills Support Scheme
ECR	Emissions Containment Reserve
EEA	European Economic Area
EEB	Ecology and Environment Bureau
EEC	Eastern Economic Corridor
EEX	European Energy Exchange
EIB	European Investment Bank
EII	Energy-Intensive Industries
EITE	Emission-Intensive and Trade-Exposed
EMC	Environmental Management Commission
ENVI	Committee on the Environment, Public Health and Food Safety
EPA	Environmental Protection Agency
EPE	Empresa de Pesquisa Energética (Energy Research Corporation)
EPS	Emissions Performance Standards
EQB	Environmental Quality Board
EQC	Environmental Quality Commission
ESMA	European Securities and Markets Authority
ESR	European Effort Sharing Regulation

ETD	Energy Taxation Directive
ETS	Emissions Trading System / Emissions Trading Scheme
EU ETS	European Union Emissions Trading System
EUR	Euro
FCER	Forest Certified Emission Reductions
FECC	Québec's Electrification and Climate Change Fund
FFCER	Fujian Forestry Certified Emission Reduction
FJEA	Spot trading of Fujian Emission Allowances
FOEN	Federal Office for the Environment
FTI	Federation of Thai Industries
FY	Fiscal Year
GBP	British Pound Sterling
GDEA	Guangdong Emission Allowance
GDP	Gross Domestic Product
GEI	Gases de Efecto Invernadero
GEMM	Greenhouse Gas Emissions and Energy Management for Manufacturing
GGPPA	Greenhouse Gas Pollution Pricing Act
GGR	Greenhouse Gas Removals
GHG	Greenhouse Gas
GIR	Greenhouse Gas Inventory and Research Center of Korea
Gt	Gigatonne
GX-ETS	Green Transformation Emission Trading System
HB	House Bill
HBEA	Hubei Emission Allowance
HCFC	Hydrochlorofluorocarbons
HFC-23	Fluoroform
HFCs	Hydrofluorocarbons
HGWP gases	High Global Warming Potential Gases
ICAO	International Civil Aviation Organization
ICAP	International Carbon Action Partnership
ICE	Intercontinental Exchange
IEA	International Energy Agency
IKI	German government's International Climate Initiative
IMF	International Monetary Fund
IPA	Instrument for Pre-Accession Assistance
IPCC	Intergovernmental Panel on Climate Change
IT	Information technology
ITMOs	Internationally Transferred Mitigation Outcomes
JCM	Joint Crediting Mechanism
JI	Joint Implementation
JPY	Japanese Yen
KASA	Kementerian Alam Sekitar Dan Air (Malaysian Ministry of Environment and Water)
KAU	Korean Allowance Unit
KAZ ETS	Kazakhstan Emissions Trading Scheme
KCU	Korean Credit Unit
K-ETS	Korea Emissions Trading Scheme
kg	Kilogram
kL	Kiloliter
KMUs	Korean Allowance Units
KOC	Korean Offset Credit
KRW	South Korean Won
KRX	Korea Exchange
KTF	Climate and Transformation Fund
kWh	Kilowatt hour
KZT	Kazakhstani Tenge
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LULUCF	Land Use, Land-Use Change and Forestry
m^2	Square Meter
m^3	Cubic Meter
MassDEP	Massachusetts Department of Environmental Protection
MCCC	Maryland Commission on Climate Change
MEE	Ministry of Ecology and Environment
MEMR	Ministry of Energy and Mineral Resources
METI	Ministry of Economy, Trade and Industry
Minambiente	Ministry of Environment and Sustainable Development
MoCC	Ministry of Climate Change
MoE	Ministry of Environment
MoEF	Ministry of Economy and Finance
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MONRE	Ministry of Natural Resources and Environment
MOS	Mayor Office of Sustainability
MOU	Memorandum Of Understanding
MRV	Monitoring, Reporting and Verification
MSR	Market Stability Reserve
$MtCO_2$	Million Tonnes of Carbon Dioxide
$MtCO_2e$	Million Tonnes of Carbon Dioxide equivalent
MTP	Medium-Term Program
MW	Megawatt
MXN	Mexican Peso
MY PMI	Malaysia Partnership for Market Implementation
N_2O	Nitrous Oxide
NASA	Kementerian Alam Sekitar Dan Air (Malaysian Ministry of Environment and Water)
NCCC	National Council for Climate Change
NCEC	National Committee on Establishment of Carbon Markets
NCM	National Crediting Mechanism
NCSC	National Center for Climate Change Strategy and International Cooperation
NCUC	North Carolina Utilities Commission
NDC	Nationally Determined Contribution
NDRC	National Development Reform Commission
NEHG	Nationales Emissionszertifikatehandelsgesetz (National Emissions Trading Act)
NER	New Entrants' Reserve
NETs	Negative Emissions Technologies
NF_3	Nitrogen Trifluoride
NGER	National Greenhouse and Energy Reporting
NKP	Nilai Ekonomi Karbon (Economic Value of Carbon)
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NRECC	Ministry of Natural Resources, Environment, and Climate Change
NYC	New York City

NYCI	New York's Cap-and-Invest Program
NYSERDA	New York State Energy Research and Development Authority
NZ ETS	New Zealand Emissions Trading Scheme
NZD	New Zealand Dollar
NZU	New Zealand Unit
NZX	New Zealand Exchange
OBPS	Output-Based Pricing System
OECD	Organization for Economic Co-operation and Development
OJK	Otoritas Jasa Keuangan (Financial Services Authority of Indonesia)
ONEP	Office for Natural Resources and Policy
OTC	Over-the-Counter
PAT	Perform, Achieve and Trade
PCER	Green Transport Certified Emission Reductions
PDR	People's Democratic Republic
PFC	Perfluorocarbon
PGE	Plan for a Green Economy
PHCER	Pu Hui Certified Emission Reductions
PL	Projecto de Lei
PLN	Perusahaan Listrik Negara (State Electricity Company)
PMI	Partnership for Market Implementation
PMR	Partnership for Market Readiness
PNCTE	Programa Nacional de Cupos Transables de Emisión de Gases de Efecto Invernadero (National Program of Greenhouse Gas Tradable Emission Quotas)
PNMC	Política Nacional sobre Mudança do Clima
PSS	Performance Standards System
PTBAE	Penetujuan Teknis Batas Atas Emisi (Technical Emissions Ceiling Approvals)
PV	Photovoltaic
REC	Renewable Energy Credits
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RENAMI	Registro Nacional de Acciones de Mitigación
RENE	Registro Nacional de Emisiones (Mexico National Emissions Register)
Renare	Registro nacional de reducción de emisiones de GEI (National Emission Reductions Registry)
RGGI	Regional Greenhouse Gas Initiative
RGGI COATS	RGGI CO_2 Allowance Tracking System
SAM	Supply Adjustment Mechanism
SBCE	Brazilian Greenhouse Gas Emissions Trading System
SCF	Social Climate Fund
SEC	Securities and Exchange Commission
SEEE	Shanghai Environmental and Energy Exchange
SEMARNAT	Secretaría del Medio Ambiente y Recursos Naturales (Ministry of Environment and Natural Resources of Mexico)
SF_6	Sulfur Hexafluoride
SHCER	Shanghai Carbon Emission Reductions
SHEA	Shanghai Emission Allowance
SHEAF	Shanghai Emission Allowance Forward
SHIFT	Support for High-efficiency Installations for Facilities with Targets
SISCLIMA	Colombia National Climate Change System
SMCs	Safeguard Mechanism Credits
SO_2	Sulfur Dioxide
SPE	Sertifikat Pengurangan Emisi (Indonesia Certificate of Emission Reduction)
SRN	Indonesia National Registry System
SZA	Shenzhen Allowances
tce	Tonne of Coal Equivalent
TCI	Transportation and Climate Initiative
TCI-P	Transportation and Climate Initiative Program
tCO_2	Tonne of Carbon Dioxide
tCO_2e	Tonne of Carbon Dioxide Equivalent
TCQ	Taiwan Carbon Solution Exchange
TEBA	Trade-Exposed Baseline-Adjusted
TEPA	Taiwanese Environmental Protection Administration
TGO	Thailand Greenhouse Gas Management Organization
TIER	Technology Innovation and Emissions Reductions Regulation
TMG	Tokyo Metropolitan Government
TMS	Target Management System
TNAC	Total Number of Allowances in Circulation
T-VER	Thailand Voluntary Emission Reduction
T-VETS	Thailand Voluntary Emissions Trading Scheme
UBA	German Environment Agency
UK ETS	UK Emissions Trading Scheme
UKA	UK Allowance
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
US EPA	US Environmental Protection Agency
USD	US Dollar
VCM	Voluntary Carbon Markets
WCI	Western Climate Initiative

All queries on rights and permissions should be addressed to:

International Carbon Action Partnership (ICAP)
Köthener Strasse 2
10963 Berlin, Germany

info@icapcarbonaction.com

www.icapcarbonaction.com

IMPRINT

Publication date
April 2025
Last updated in June 2025

Design
Simpelplus
www.simpelplus.de

Photos
Cover: Image by CHUTTERSNAP on unsplash

Disclaimer
This report was prepared by the ICAP Secretariat. The findings and opinions expressed in this report are the sole responsibility of the authors. They do not necessarily reflect the views of ICAP or its members.

The data used in this report reflects the global state of play at the time of writing in February 2025. An update reflecting new developments in the China national ETS was included in June 2025. Although the information contained in the report was assembled with the utmost care, updated and/or additional information may have been released by the time of printing. The ICAP Secretariat cannot be held liable for the timeliness, correctness, or completeness of the information provided. For any corrections, additions, or other comments on the content of this report, including relevant citations, please contact the ICAP Secretariat at info@icapcarbonaction.com.

Attribution: Please cite the work as follows: ICAP (2025). Emissions Trading Worldwide: Status Report 2025. Berlin: International Carbon Action Partnership.