



International Carbon
Action Partnership

EMISSIONS TRADING WORLDWIDE

Executive Summary

Status Report 2019

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International Carbon Action Partnership (ICAP) Status Report 2019

EDITORIAL TEAM

Marissa Santikarn, Stephanie La Hoz Theuer, Alexander Eden, Kai Kellner, Johannes Ackva, Constanze Haug, Lina Li, Martina Kehrer, Daria Ivleva, William Acworth.

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EXECUTIVE SUMMARY

The urgency of rapid and ambitious climate action was made clear in last year's IPCC Special Report on 1.5°C. The IPCC also stressed that strong carbon price signals, coupled with further policy instruments, can support ambitious and cost-effective emissions reductions. As jurisdictions look to implement domestic climate policies, carbon markets are emerging and evolving to fill a central role in the transition to a low-carbon economy. Worldwide, emissions trading systems have become an important part of the policy response, with 20 systems now operating across four continents.

REFORMS BEGIN TO TAKE EFFECT

This edition of the International Carbon Action Partnership's (ICAP) Emissions Trading Worldwide Status Report looks back on the major developments in emissions trading over the past year. For many established systems, 2018 was a year of implementing reforms in preparation for the post-2020 era. As these changes start to kick in, we have seen significant price effects, which can now be tracked with the newly launched ICAP Allowance Price Explorer.

The key determinant of the mitigation impact of an ETS is the cap and how it declines over time. Several major systems are now implementing ambitious caps out to 2030 that not only give businesses predictable planning horizons, but also line up with their economy-wide climate targets. At the same time, a balance must be struck between tightening the cap and protecting sectors genuinely at risk of carbon leakage. In this area, real progress is being made in designing provisions that can protect the competitiveness of covered industries while still driving low-carbon investment. A diverse range of market stability instruments are also coming into play to better guard markets against unforeseen developments.

The ICAP Status Report 2019 features articles from policymakers around the world that provide personal insights into the many innovative approaches to ETS design currently being implemented. As explained by Kim Jung-Hwan of the Ministry of Environment in the Republic of Korea, a market stability reserve is one of several design features that have helped to create an increasingly robust carbon market in the country. In an interview with Rajinder Sahota and Jean-Yves Benoit, readers can also get a behind-the-scenes look at the successful collaboration between California and Québec, the jurisdictions in the linked carbon market of the Western Climate Initiative.

A NEW GENERATION OF EMISSIONS TRADING

The experiences gained from established systems are also making it easier for new carbon markets to emerge. Indeed, significant progress is being made in the development of a new generation of ETS, most notably in the major economies of China and Mexico, both of which are working hard to lay the foundation for national carbon markets covering the power and industrial sectors. In this year's report, Victor Escalona of Mexico's Ministry of Environment and Natural Resources (SEMARNAT) discusses the development of Mexico's pilot ETS regulation over the last year, reflecting on a constructive private sector engagement and lessons from international experience. With insights from China, Qian Guoqiang, Chen Zhibin, and Lai Han of SinoCarbon examine the dynamic development of the Chinese national ETS and the role of the pilot programs in the learning-by-doing process.

As one of the key fora for ETS policymakers worldwide to compare notes and share lessons learned, ICAP looks forward to continuing stimulating discussions in an ever-expanding circle of peers—pioneering and fine-tuning carbon markets as a key tool on the path towards deep decarbonization.

Year in Review

EUROPE AND CENTRAL ASIA

EUROPEAN UNION: EU ETS phase 4 reforms approved in February 2018, including a steeper pace of emissions cuts. The Market Stability Reserve, a mechanism to reduce the surplus of allowances in the carbon market and to improve the EU ETS's resilience to future shocks, started operating in 2019.

SWITZERLAND: Took steps to enable linking with the EU ETS, which could start operating as early as 2020.

KAZAKHSTAN: Restarted national ETS operation in 2018 after two-year suspension.

NORTH AMERICA

CALIFORNIA-QUÉBEC: California approved post-2020 reforms that are scheduled to come into force by April 2019. Ontario's cap-and-trade program, to which California and Québec had been linked since January 2018, was terminated six months later. The California-Québec program fulfils Québec's responsibilities under the 'Pan-Canadian Framework on Clean Growth and Climate Change'.

REGIONAL GREENHOUSE GAS INITIATIVE: The majority of RGGI participating states have adopted the 2017 Model Rule, including a tightened cap and a new Emissions Containment Reserve. Virginia and New Jersey are in the process of (re-)joining RGGI by 2020.

MASSACHUSETTS: Started operating an ETS in 2018 covering the power sector. It complements RGGI to help ensure the state achieves its mandatory mitigation targets. Auctioning (25% allowances) started in 2019.

NOVA SCOTIA: Started operating an ETS in 2019 in compliance with the 'Pan-Canadian Framework on Clean Growth and Climate Change'.

OREGON: Bill proposed in 2019 to establish cap-and-trade program that would start in 2021. The program is closely modeled on the Californian program.

THE TRANSPORTATION CLIMATE INITIATIVE: A regional collaboration of 13 jurisdictions on the US East Coast, currently developing a new mechanism to foster low-carbon transportation through carbon pricing and investment.

LATIN AMERICA AND THE CARIBBEAN

MEXICO: A final draft of the ETS pilot regulation should be published during the first half of 2019. It is expected to cover direct CO₂ emissions from energy and industry (45% of national emissions).

COLOMBIA: Adopted a law for climate change management in 2018 including provisions for a trading program that could provide for the establishment of a national ETS.

ASIA PACIFIC

CHINA: Launched its national ETS politically in 2017 and is currently in the first phase of national ETS implementation: the infrastructure completion phase. In 2018, responsibility for climate policy shifted from the National Development and Reform Commission to a new Ministry of Ecology and Environment. Simulation trading in the power sector is expected to start later this year.

CHINESE PILOTS: Continuing to operate with increasing levels of trading activity while preparations for the rollout of the China national ETS continue.

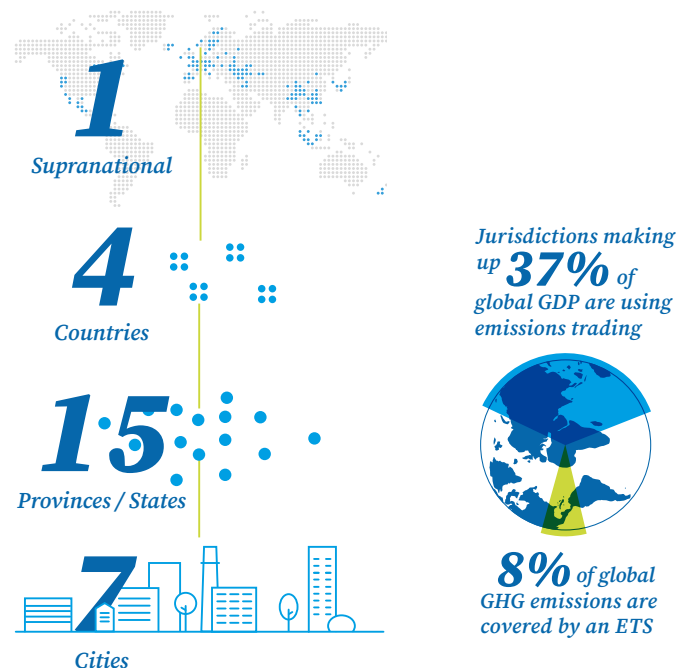
REPUBLIC OF KOREA: Implemented a number of changes to the national ETS in its second phase, including the expansion of benchmarking, introduction of auctioning, and allowing for the restricted use of international offset credits, as well as new banking rules.

NEW ZEALAND: Decisions taken to introduce new measures including an auctioning mechanism, a cost containment reserve to replace the Fixed Price Option, limits on international units (if and when NZ ETS reopens to international markets), and a coordinated decision process for setting unit supply over a rolling five-year period with annual updates.

TOKYO AND SAITAMA: These pioneering city-level systems, linked since 2011, continue to drive emissions reductions in large buildings and factories.

From Local to Supranational

27 jurisdictions are implementing 20 ETSs across scales




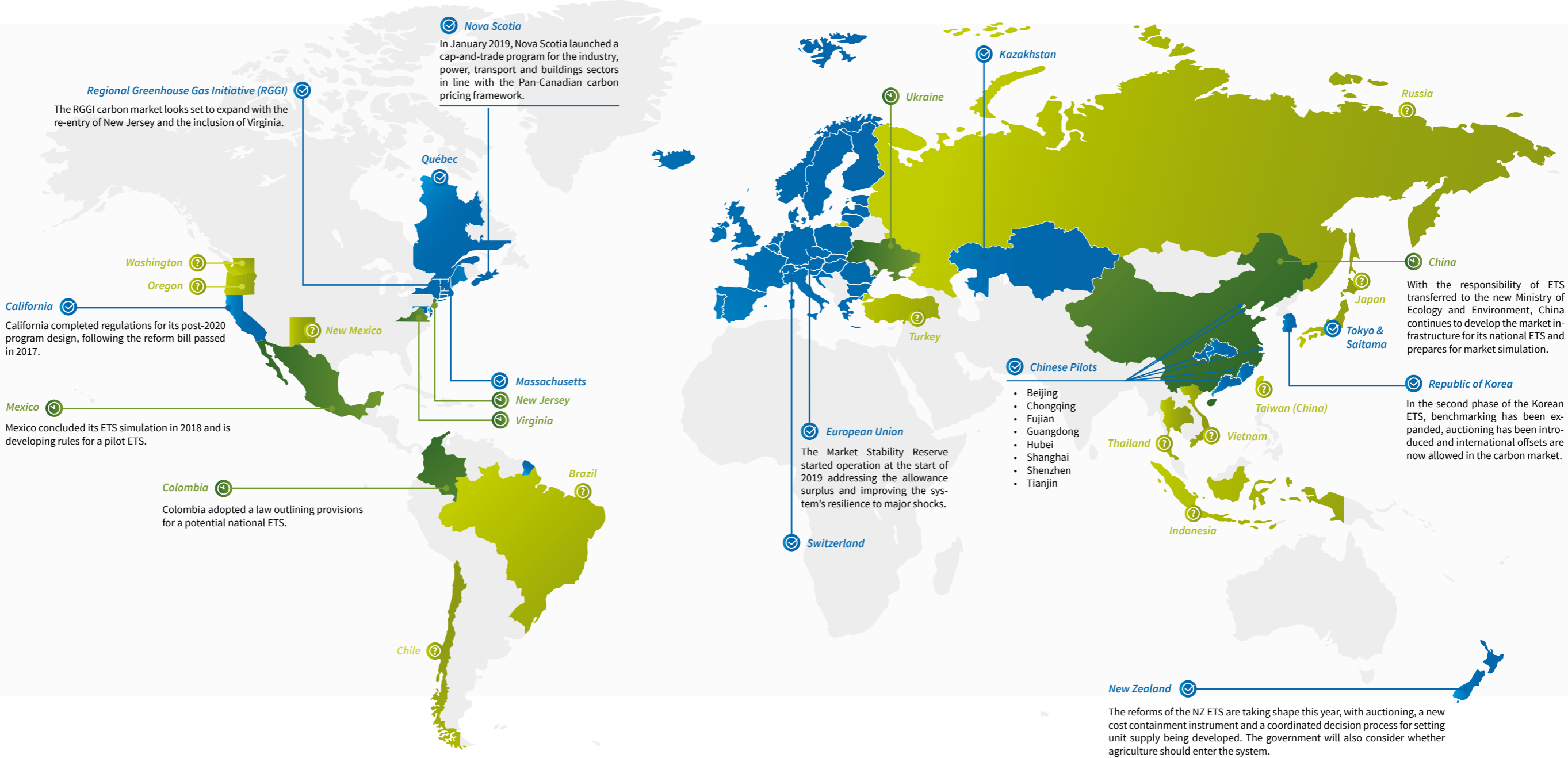
EMISSIONS TRADING WORLDWIDE

The state of play of cap-and-trade in 2019

The ICAP ETS world map depicts emissions trading systems currently in force, scheduled or under consideration. There are now 20 systems covering 27 jurisdictions with an ETS in force. Another six jurisdictions are putting in place their systems that could be operating in the next few years, including China and Mexico. 12 jurisdictions are also considering the role an ETS can play in their climate change policy mix, including Chile, Thailand and Vietnam.

A regularly updated, interactive version of the ICAP ETS map with detailed information on all systems is available at: www.icapcarbonaction.com/ets-map

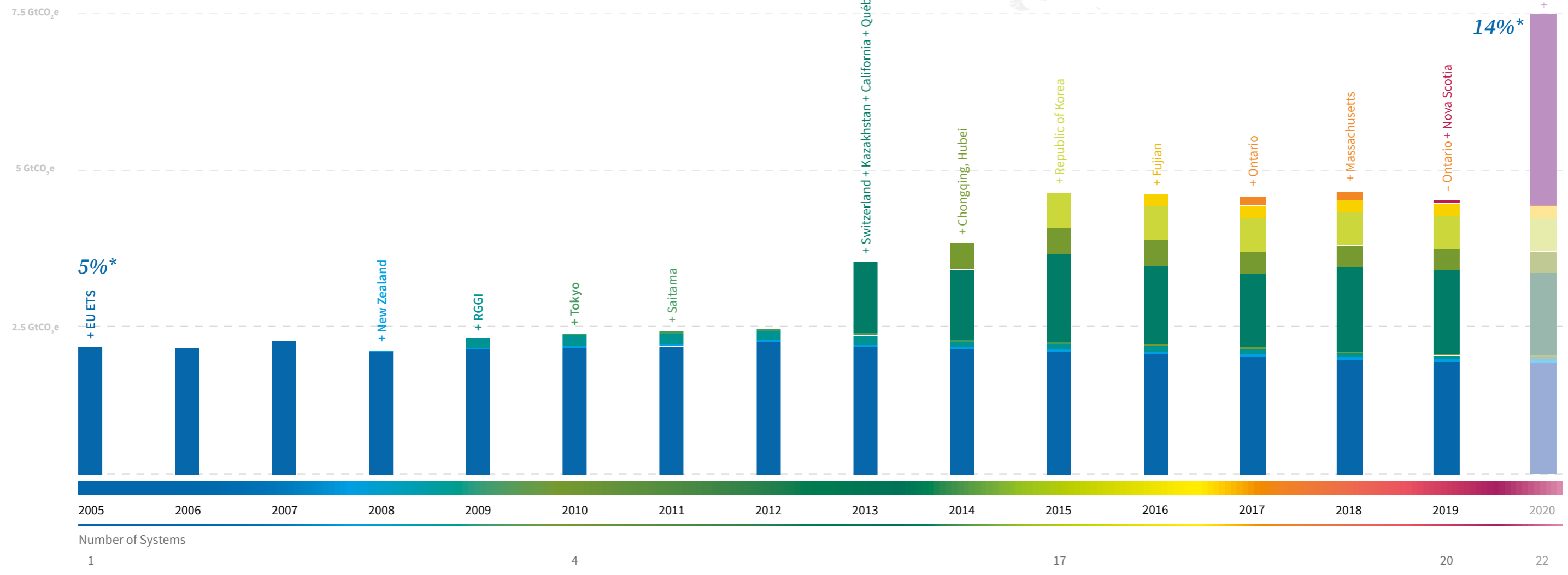
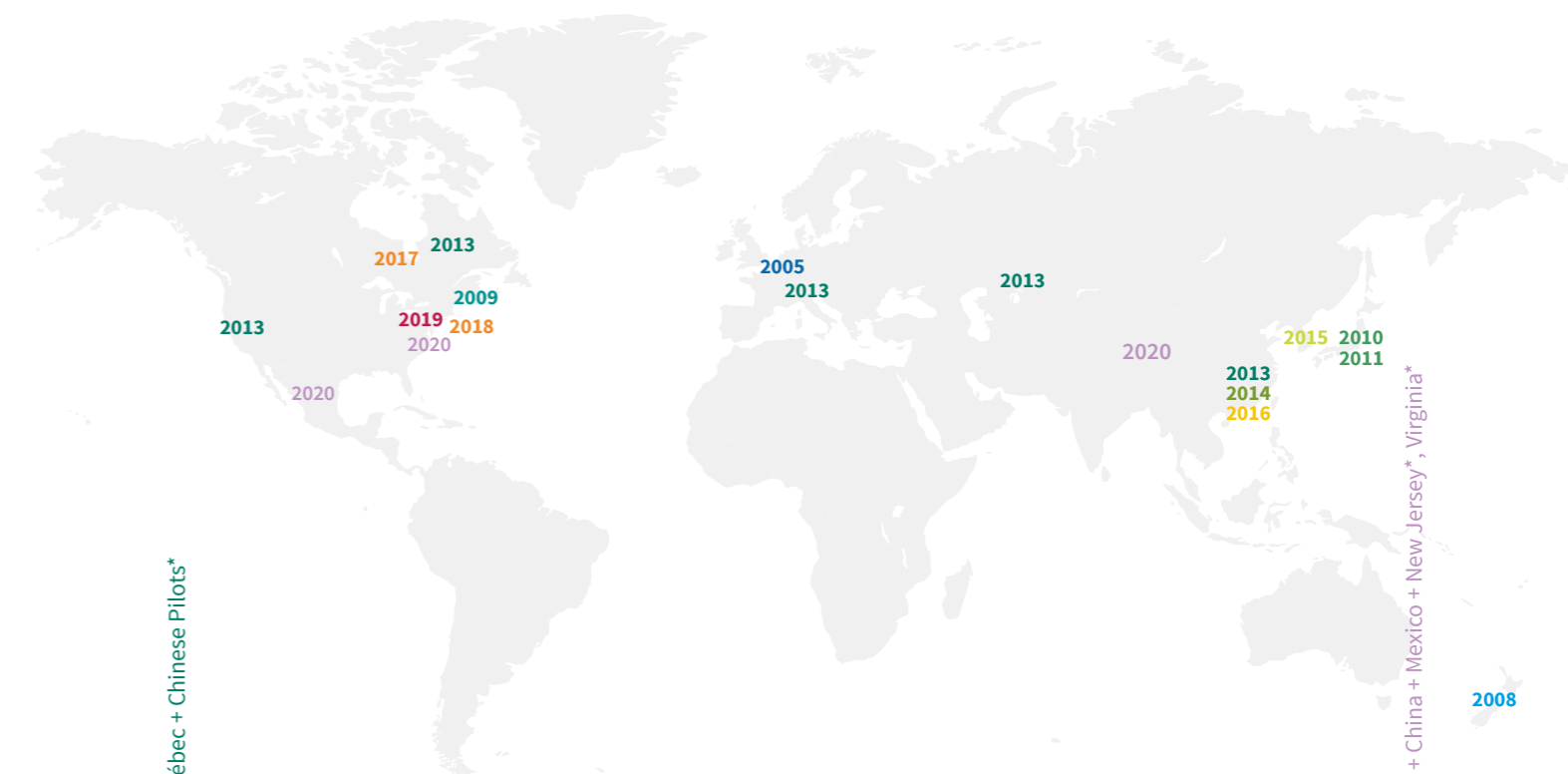
-  ETS in force
-  ETS scheduled
-  ETS considered



GLOBAL EXPANSION OF EMISSIONS TRADING

GHG emissions under ETSs

The graphic depicts the worldwide growth of emissions trading over time. Systems are spreading around the world and new additions have more than doubled the share of global emissions covered by emissions trading since the launch of the EU ETS in 2005. With more systems expected in the next few years, we estimate the number of global emissions under emissions trading to increase by almost 70% in 2020 compared to 2019. Changes over time are driven by the addition of new sectors and systems, as well as by the counteracting trend of declining caps in many systems.



*of global GHG emissions

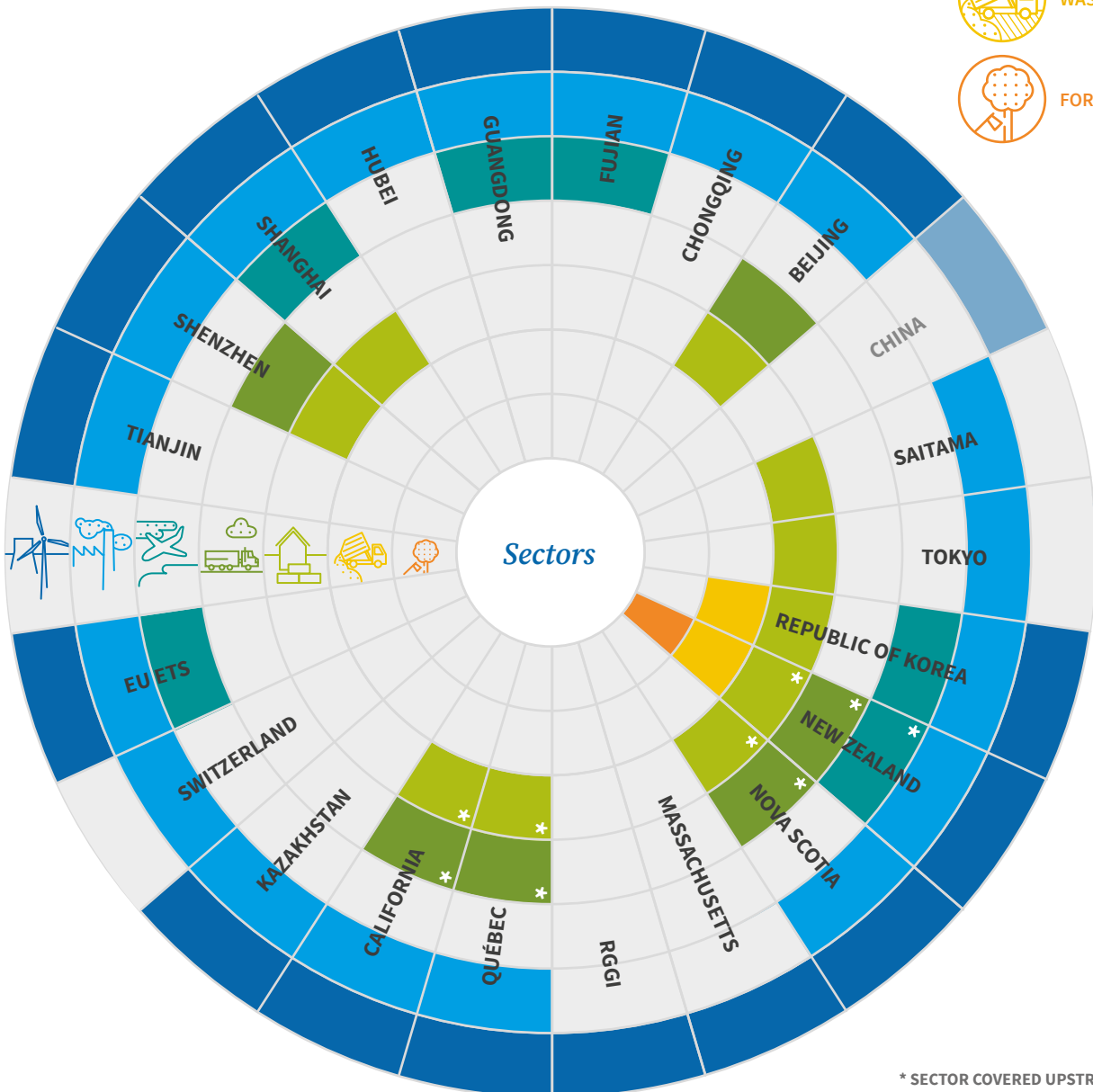
* Beijing, Guangdong, Shanghai, Shenzhen, Tianjin

*Virginia and New Jersey aim to join RGGI by 2020

SECTOR COVERAGE

Sectors included in emissions trading across systems

The graphic shows sectors (types of economic activity) included in emissions trading across all systems in force, as well as the point at which those emissions are regulated. Only sectors covered by at least one ETS are included.^{1,2}



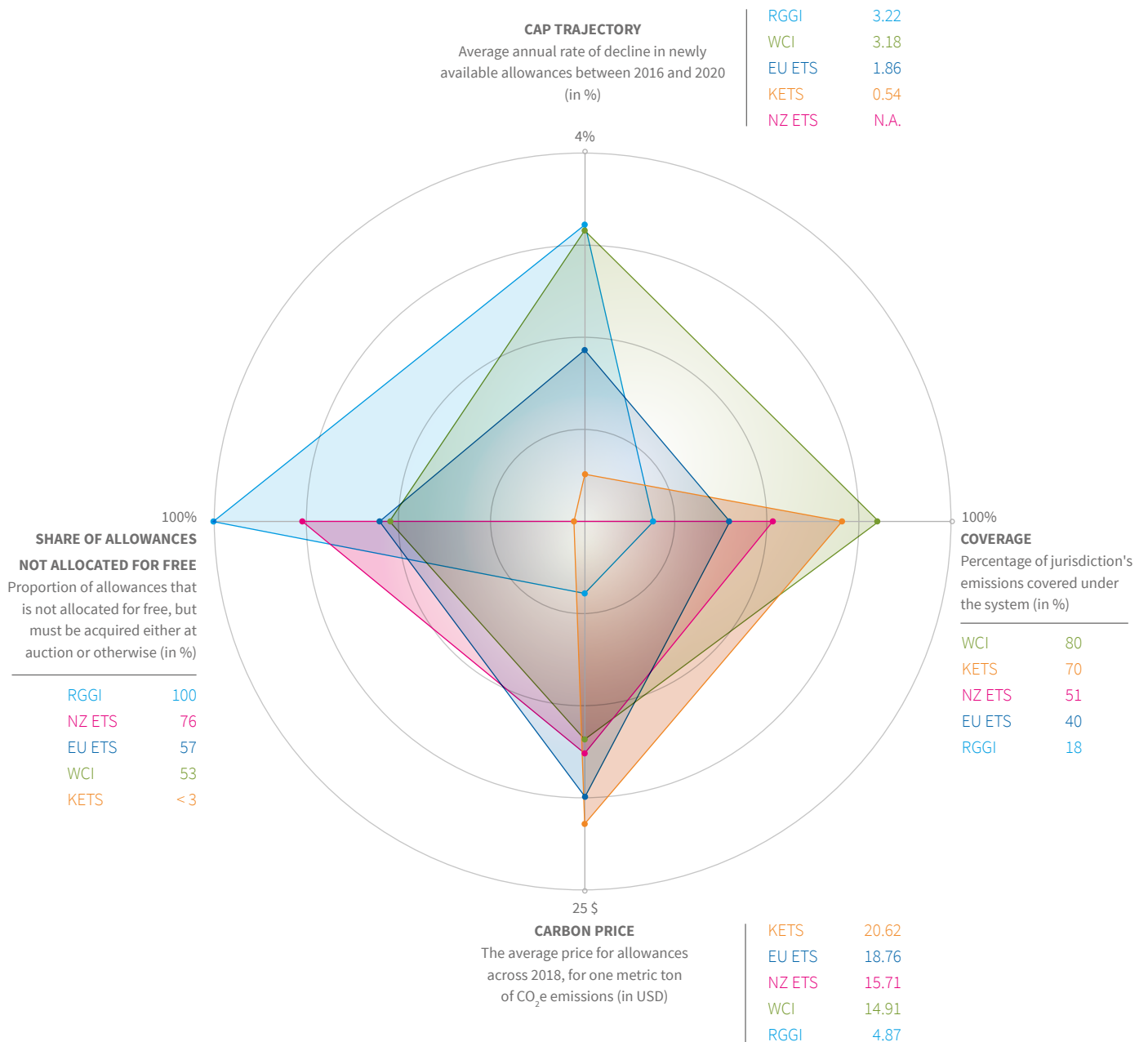
1 – Sectors are marked as covered by a system when at least some of this sector’s emissions face explicit compliance obligations. Not all of the sector’s facilities or GHG emissions must be regulated; in fact, this is rarely the case due to limits like inclusion thresholds. In addition, not all sub-sectors, gasses, or processes of a given sector may be covered. The respective factsheets provide more information on system coverage.
 2 – Detailed definitions of each sector are provided in the disclaimer.

DIFFERENT SHAPES OF CAP-AND-TRADE

A comparative look at key metrics from carbon markets

- EU ETS European Emissions Trading System
- KETS Korean Emissions Trading System
- NZ ETS New Zealand Emissions Trading Scheme
- RGGI Regional Greenhouse Gas Initiative
- WCI Western Climate Initiative

This graphic shows five well-established systems along four key metrics. The cap reduction pathway indicates the average yearly decline between 2016 and 2020 in the number of allowances. The coverage shows the share of the jurisdiction's economy that falls under the ETS. The carbon price is the average allowance price per metric ton of CO₂ across 2018 in each of the systems. The share of allowances designates allowances that are not allocated for free, e.g. those that must be acquired in auctions.



AUCTIONING REVENUE

— 20,000

Funds raised by emissions trading systems

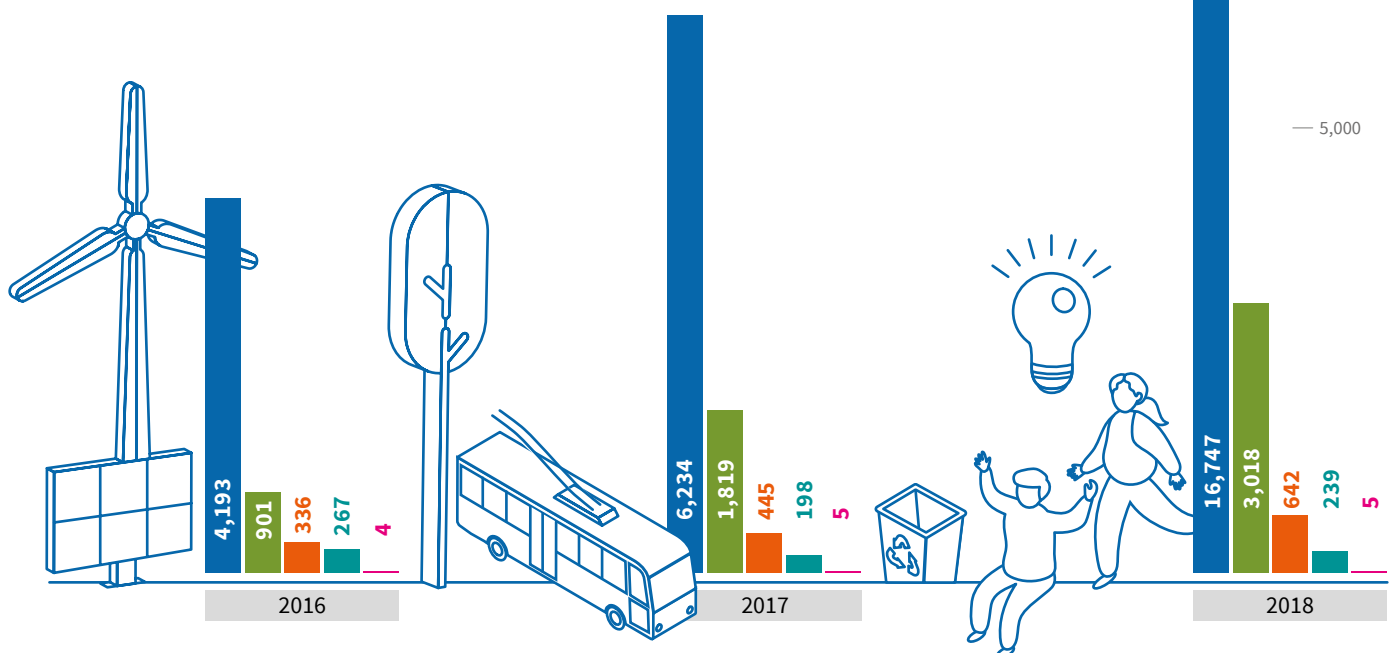
Auctioning allowances can generate public revenue that can be used in different ways depending on the priorities of the jurisdiction. Jurisdictions have tended to use auctioning revenue to fund additional climate programs, including energy efficiency and renewable energy programs. Auctioning revenue has also helped disadvantaged and low-income groups. The amount of revenue generated depends on many

factors, including the size of the jurisdiction, the ETS coverage, the number of auctioned allowances and the carbon price. By the end of 2018, systems worldwide have raised over USD 57 billion, with revenue spent on different purposes such as renewable energy, innovation, compensation for disadvantaged groups, and the general budget.

By the end of 2018, systems raised \$57.3 billion a total of in auction revenue.

- EU
- CALIFORNIA
- QUÉBEC
- RGGI
- SWITZERLAND

All values in million USD

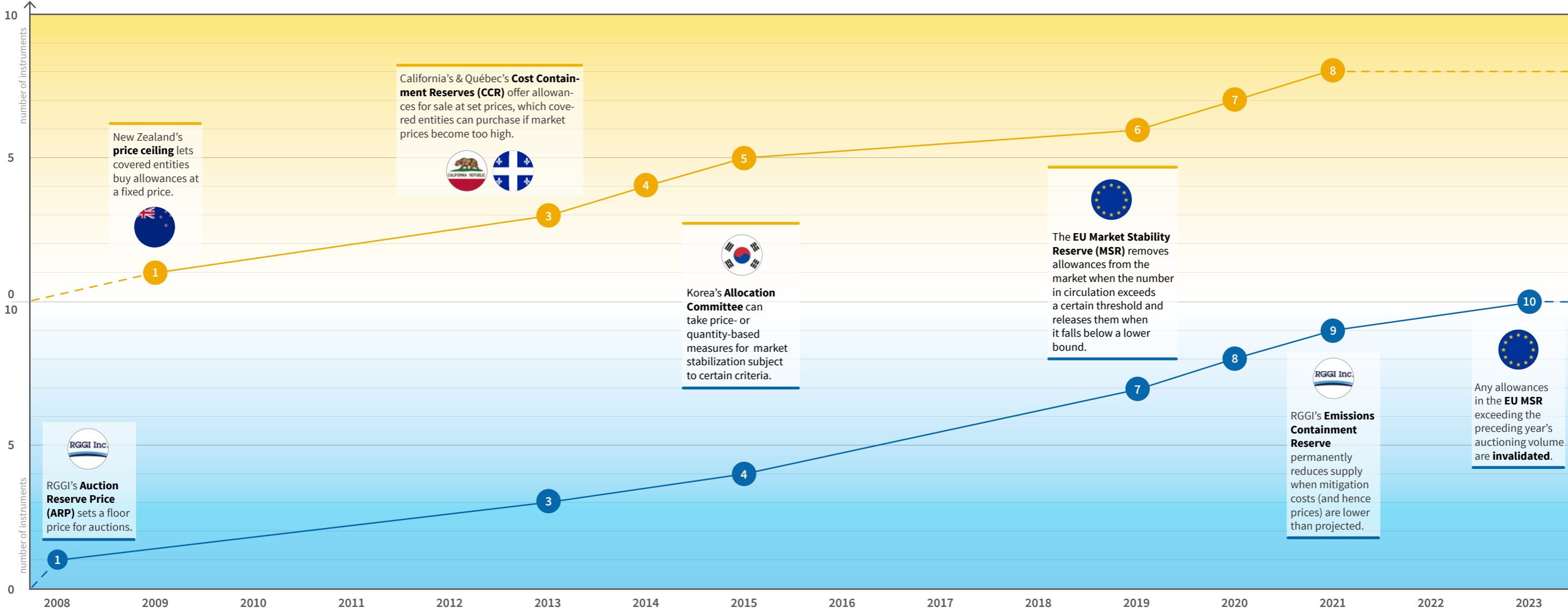


GROWING STABILITY

The spread and diversification of market stability instruments

This graphic shows the different types of market stability instruments operating in emissions trading systems around the world. These come into play when allowance prices or the number of allowances in circulation go below or above a certain level.

MARKET STABILIZATION AT THE UPPER BOUND:
Measures that ensure that the costs of the program remain manageable by intervening in case of high prices or scarcity of allowances.



MARKET STABILIZATION AT THE LOWER BOUND:
Measures that seek to ensure the environmental integrity and stringency of the ETS by intervening in case of low prices or a surplus of allowances.

California & Québec ARPs
 RGGI CCR
 RGGI ARP
 Chinese Pilots experiment with market stability provisions
 Massachusetts & Korea ARPs
 Nova Scotia CCR + ARP
 California price ceiling

ABOUT ICAP

Introducing the International Carbon Action Partnership

In 2007, ICAP was founded as an international government forum to bring together policymakers from all levels of government that have or are interested in introducing an ETS. It provides a unique platform for governments to discuss the latest research and practical experiences with emissions trading. Since its formation, ICAP has established itself as an ETS knowledge hub and its membership has grown to include 31 members and five observers.

OBJECTIVES

- Share best practices and learn from each other's experience of ETS
- Help policymakers recognize ETS design compatibility issues and opportunities for the establishment of an ETS at an early stage
- Facilitate the future linking of trading programs
- Highlight the key role of emissions trading as an effective climate policy response
- Build and strengthen partnerships among governments

MEMBERS (AS OF MARCH 2019)

Arizona, Australia, British Columbia, California, Denmark, the European Commission, France, Germany, Greece, Ireland, Italy, Maine, Manitoba, Maryland, Massachusetts, Netherlands, New Jersey, New Mexico, New York, New Zealand, Norway, Ontario, Oregon, Portugal, Québec, Spain, Switzerland, the Tokyo Metropolitan Government, Vermont, the United Kingdom and the state of Washington.

OBSERVERS

Japan, Kazakhstan, the Republic of Korea, Mexico and Ukraine



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