



Emissions Trading Worldwide

Executive Summary

International Carbon Action Partnership (ICAP)
Status Report 2018



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Editorial Team

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Executive Summary

One year since the entry into force of the Paris Agreement, 21 Emissions Trading Systems (ETS) are operating around the globe at different levels of government. With the launch of China's national ETS at the end of last year the share of global emissions covered by an ETS has tripled since 2005 to reach nearly 15% (see the infographic *Tripling the Share* that illustrates these developments over time). Jurisdictions with an ETS in place now account for more than 50% of global GDP and are home to almost a third of the world's population.

The last year has seen major developments, with a new system emerging in China and the linking of Ontario's system with that of California and Québec. There have also been important reviews, reforms and new legislation agreed to in the longer-running carbon markets of California and Québec, the Regional Greenhouse Gas Initiative (RGGI), the European Union Emissions Trading System (EU ETS) and the New Zealand Emissions Trading Scheme (NZ ETS). These reforms address lessons learned from the last decade of operation, introduce new and innovative design features, and emphasize the role of ETS as a key domestic climate policy instrument. Policymakers in these jurisdictions have now agreed to changes that will strengthen their systems in preparation for meeting emissions targets set for the next decade (see the infographic *Getting Ready for the 2020s* for a summary of key reforms across these systems).

A clear path for the California Cap-and-Trade Program

After a hard-won political battle in the Californian legislature, the largest WCI partner extended its Cap-and-Trade Program until 2030, building confidence in an increasingly stringent long-term carbon price signal in the linked WCI carbon market. Outlining the recent legislative changes and regulatory reforms in California, *David Clegern and Mark Sippola from the California Air Resources Board* explain how the cap is set to decline by about 4% annually from 2021–2030, yielding a 40% reduction by 2030 compared to 1990 levels, after reaching 1990 levels by 2020. After 2020, the current Allowance Price Containment Reserve will be replaced with a price ceiling and two interim price containment points. Also, new offset limits have been agreed, whereby the share of offsets allowed for compliance will be reduced from 8% to 4% for 2021–2025, and will remain at 6% thereafter. At least half of the offsets used must have a direct environmental benefit to California. Companion legislation will further support local environmental health outcomes by strengthening monitoring of non-GHG air pollutants and reducing impacts in communities with high exposure.

An updated Model Rule guides the Regional Greenhouse Gas Initiative (RGGI)

The RGGI states recently completed the program's second review, and in August 2017, announced proposed changes to the RGGI Model Rule for post-2020, demonstrating that ambitious bipartisan climate policy is possible in today's United States of America.

The agreement is the result of a two-year review process that included nine public stakeholder meetings and webinars, and considered thousands of public comments and dozens of model runs. *Lois New from the New York State Department of Environmental Conservation and William Space from the Massachusetts Department of Environmental Protection* outline how the changes will result in an 2030 emissions cap 65% below the initial 2009 cap. The agreed cap will decline by 3% annually between 2021 and 2030, yielding a 30% reduction over that period. The changes will also introduce an innovative Emissions Containment Reserve (ECR) in 2021 that will see states permanently withhold up to 10% of the allowances of their base budgets per year to secure additional emission reductions when prices fall below established trigger prices. The ECR trigger price will be USD 6 in 2021, and rise 7% per year, so that the ECR will only be triggered if emission reduction costs are lower than projected. The authors also note the possibility of one or more states joining the RGGI market in the future.

Preparing the European Emissions Trading System (EU ETS) for the 2020s

After more than two years of negotiations, a landmark agreement on the reform of the EU ETS was approved by the European Parliament, with most changes to become effective in 2021. In a discussion of the proposed reforms, *Dirk Weinreich, Helen Monzel, Lisa Katharina Schmid and Angelika Smuda from the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety* explain that the reform package includes a broad set of measures that will strengthen the EU ETS and enable it to resume its place as the main driver of European decarbonization. The agreed reforms aim to strengthen the price signal, protect industry from carbon leakage, and establish solidarity mechanisms for poorer member states. The reforms introduce a more stringent cap decline, whereby the linear reduction factor will increase from 1.74% to 2.2% in 2021 in order to comply with the EU target of reducing emissions from ETS sectors by 43% in 2030 compared to 2005. Free allocation will become better targeted, with updated benchmark values and production factors. Importantly, the design of the Market Stability Reserve (MSR) will be strengthened, with the intake rate doubling from 12% to 24% between 2019 and 2023, allowing the market to return to scarcity near the beginning of the next trading period. Provisions have also been made to permanently cancel allowances from the MSR from 2023, which would limit the size of the reserve to the number of allowances auctioned in the previous year. This could result in approximately two billion allowances being cancelled in 2023. Together, these measures send a strong signal that European policymakers take the goal of long-term decarbonization seriously.

Future-proofing the

New Zealand Emissions Trading Scheme (NZ ETS)

The NZ ETS is a long-running system, based originally on the rules of the Kyoto Protocol and uniquely integrating the forestry sector as both a source of emissions and removals. From 2015-2017, the NZ ETS underwent an in-depth review resulting in decisions to implement reforms, which aim to align the system with New Zealand's targets under the Paris Agreement and to remove potential barriers to future linking. *Eva Murray, Charlotte Berg and Sarah Deblock from the Ministry of the Environment, New Zealand*, discuss the two-stage review process and outline key elements of the planned reforms. Already, the 'one-for-two' provision, a transitional measure that moderated the compliance obligation for covered entities, is being phased out by 2019. Looking ahead, an auctioning mechanism will be introduced, an alternative price ceiling measure is to be developed, and limits will be put on the use of international credits once the NZ ETS reopens to international markets. In order to balance regulatory flexibility and predictability, decisions on supply settings will be taken in a coordinated approach, incorporating auctioning, free allocation and international units. Following a 'five-year rolling period' method, unit supply volumes will be announced five years in advance and updated every year.

Launch of the world's largest carbon market in China

One of the most exciting recent developments in emissions trading worldwide is the launch of the much-anticipated national ETS in China, which was announced in the last days of 2017. With more than three gigatons of CO₂e covered in the power sector, it overtakes the EU ETS as the world's largest carbon market. *Qian Guoqiang and Huang Xiaochen from SinoCarbon Innovation & Investment Co. Ltd.* explain that the launch comes at a significant moment in history when the overall political context in China more than ever favors green development. Continuing the tradition of learning-by-doing, China's national ETS is set to eventually cover eight key sectors, starting with the power sector, then including the chemical, petrochemical, iron and steel, non-ferrous metal, building materials, paper making, and aviation sectors. Adopting a three-phase approach for the development of the system, significant work needs to be completed in 2018, including: (i) a "1 plus 3" legal framework comprising an interim regulation on ETS and three management decrees related to MRV; (ii) building a national registry and trading platform; (iii) further historical data collection; and (iv) the allocation plan for the power sector. Under an ideal scenario, June 2020 could be the first deadline for covered entities to surrender allowances for compliance.

Emerging carbon markets in Chile, Colombia and Mexico

Latin American countries are rapidly advancing their domestic climate policy with a view to deepening carbon market collaboration across the region. In Colombia, Chile and Mexico, carbon taxes have already been implemented and cap-and-trade systems are

being considered or developed. In particular, Mexico is progressing towards an ETS, with a market simulation underway and a mandatory ETS pilot scheduled to start later this year. In an interview for the Status Report, *Sebastian Carranza of the Colombian Ministry of Environment, Nicolás Westenk of PMR Chile, and Victor Escalona of the Mexican Ministry of Environment and Natural Resources* talk about carbon market developments, priorities and collaborations in their countries. All three countries are collaborating in forums such as the Pacific Alliance and the Carbon Pricing in the Americas cooperative framework (CPA). There, technical work is underway to exchange knowledge and explore regionally consistent carbon market design elements, such as MRV systems, which are considered fundamental to any future link.

Ongoing progress in emissions trading worldwide

Progress is also being made in many other systems around the world and the latest developments are outlined in detail in the report (also see the map Emissions Trading Worldwide for an overview of recent key developments). For example, the link between the EU ETS and Switzerland is about to be finalized and set to become operational in 2020, the Korean ETS enters its second phase this year and prepares to introduce auctioning, the Kazakhstan ETS resumes operation with extended coverage and more robust rules, Massachusetts has launched a second ETS in parallel to RGGI, and several other jurisdictions are exploring or moving towards the implementation of an ETS.

While the challenge of climate change grows with every year, so also does the competency and determination of the policy response, and a wide range of actions are taking shape across all levels of government (see the infographic From Local to Supranational for details). As new systems emerge and existing systems evolve, ICAP supports this process by fostering the exchange of ideas and experiences, enabling policymakers to engage in a valuable dialogue with one another and contributing to the common understanding of ETS best practices.

Emissions Trading Worldwide

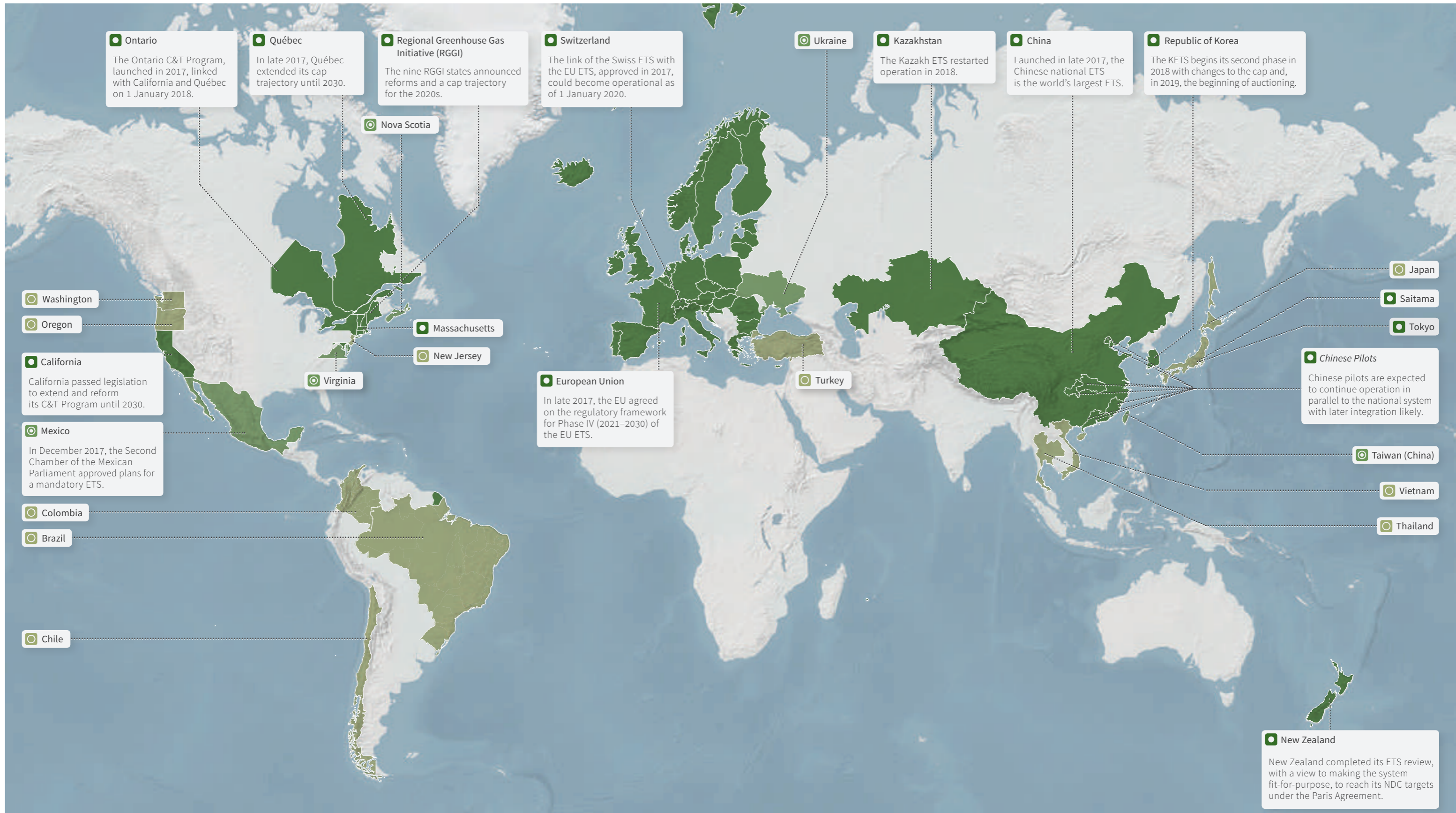
The state of play of cap-and-trade in 2018

The ICAP ETS world map depicts emissions trading systems currently in force, scheduled or under consideration. After China launched its national carbon market in late 2017, there are now 21 systems covering 28 jurisdictions in force. Another five jurisdictions—Mexico, Nova Scotia, Taiwan (China), Ukraine and Virginia—have an ETS officially scheduled. Finally, ten governments at different levels are considering the implementation of an ETS as part of their climate policy strategy, amongst them Colombia, Washington State and Thailand.

A regularly updated, interactive version of the ICAP ETS map with detailed information on all systems is available at:

www.icapcarbonaction.com

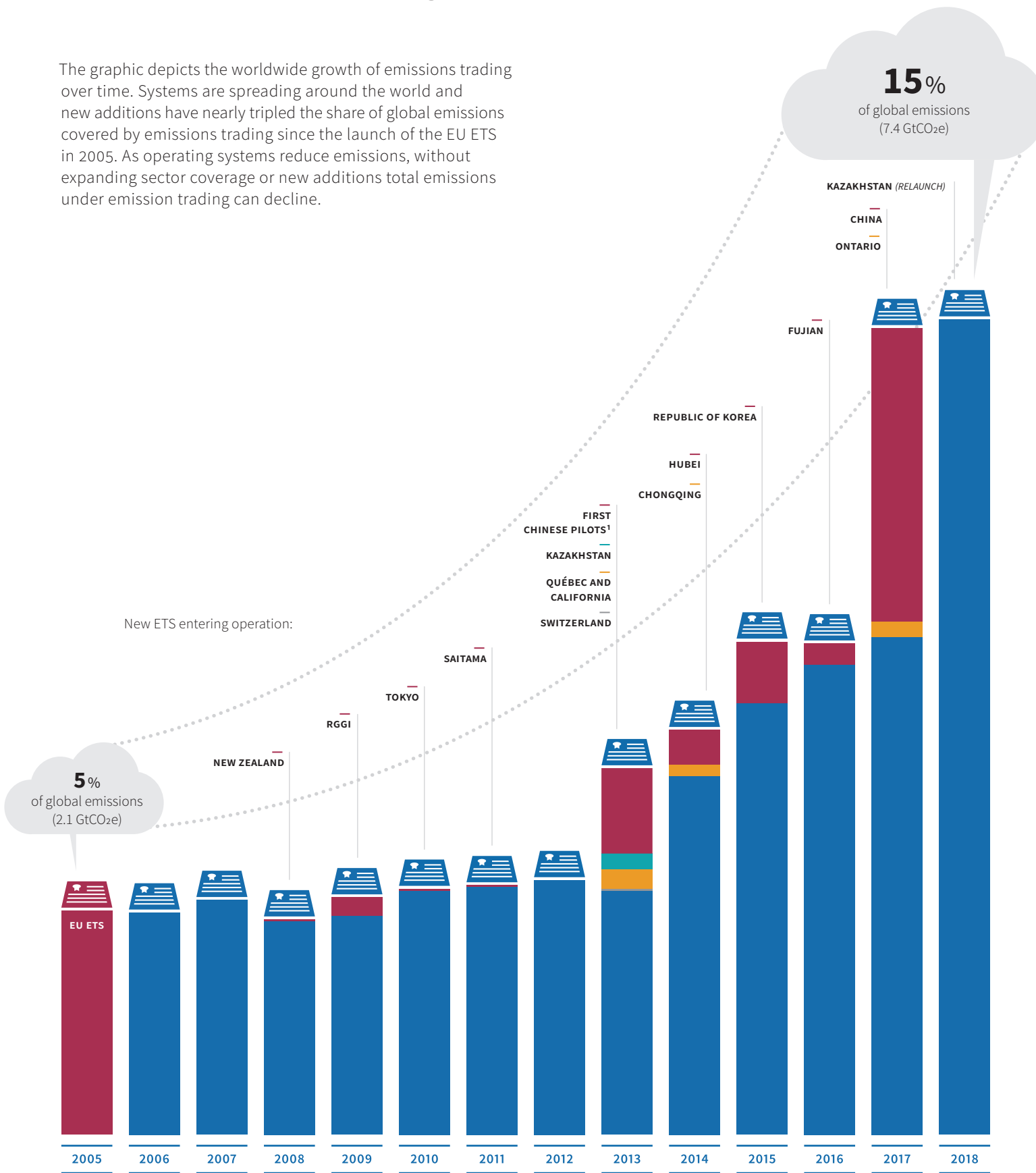
- ETS in force
- ◎ ETS scheduled
- ETS considered



Tripling the Share

Emissions coverage over time

The graphic depicts the worldwide growth of emissions trading over time. Systems are spreading around the world and new additions have nearly tripled the share of global emissions covered by emissions trading since the launch of the EU ETS in 2005. As operating systems reduce emissions, without expanding sector coverage or new additions total emissions under emission trading can decline.



Share of global emissions covered in % as well as absolute amount in GtCO₂e.

¹ First Chinese Pilots include Beijing, Guangdong, Shanghai, Shenzhen, Tianjin.

Systems are indicated in a different colour only when they are first implemented.

Sector Coverage

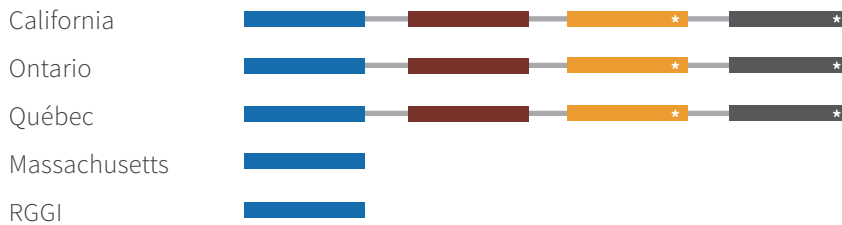
Sectors included in emissions trading across systems



EUROPE



NORTH AMERICA



ASIA & PACIFIC



█ Sectors connected by emissions trading. * Represents upstream coverage.

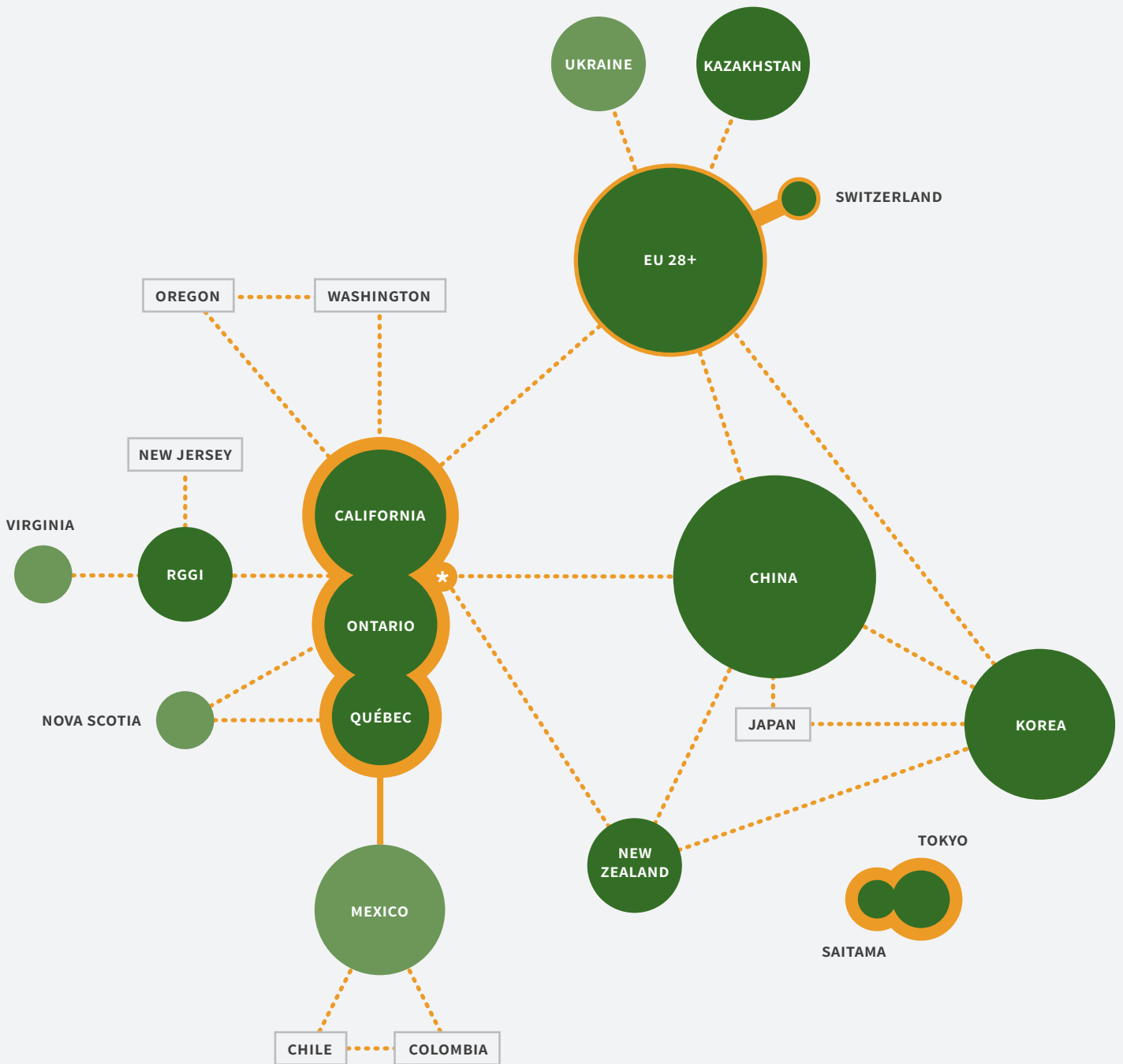
Carbon Market Connections

The state of linking and cooperation in emissions trading in 2018

Various jurisdictions are cooperating on carbon markets. The figure depicts three different levels of cooperation. Proximity and strength of connecting lines indicate the level of cooperation, while bubble sizes roughly correspond to the respective market volumes.

Legend:

- ETS in force
- ETS scheduled
- ETS considered
- Existing Link
- Planned Link
- Memorandum of Understanding (MoU)
- Talks



* In the case of WCI jurisdictions (California, Ontario, Québec), carbon market diplomacy is usually depicted here as connections to the WCI "halo" rather than to individual jurisdictions. This is because any linkage would apply to the entire system and agreements be concluded with all participating jurisdictions. Mexico has individual MoUs with California and Québec and a Joint Declaration with Ontario and Québec together.

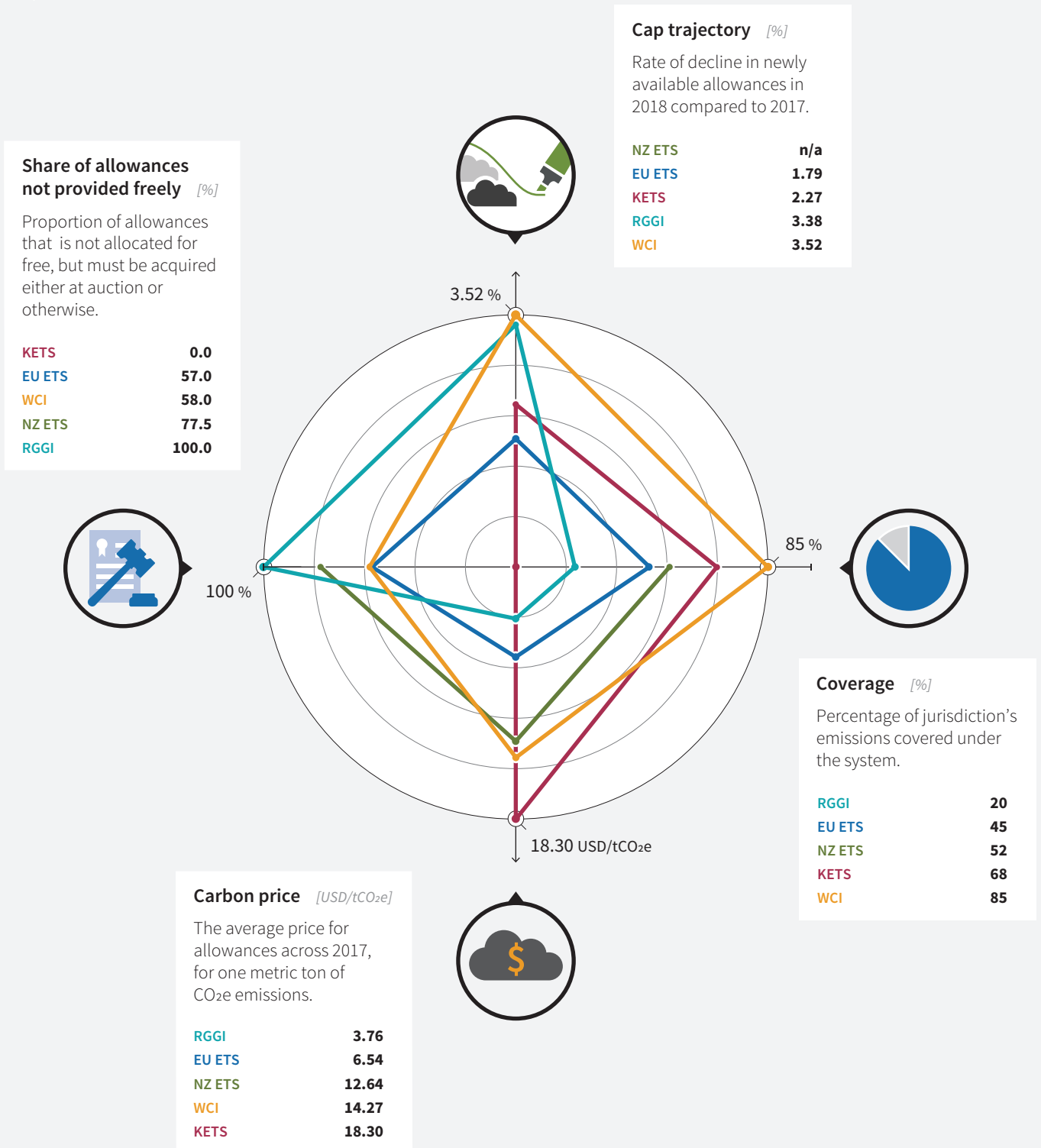
Different Shapes of Cap-and-Trade

A comparative look at key metrics from carbon markets

This graphic depicts five well-established systems according to four key metrics. The price of allowances expresses the carbon price signal while the share of allowances not provided for free further impacts the cost imposed by the instrument. The cap reduction pathway indicates the rate of change guaranteed by the system, whereas the coverage characterizes the share of the economy over which the cap applies.

Systems:

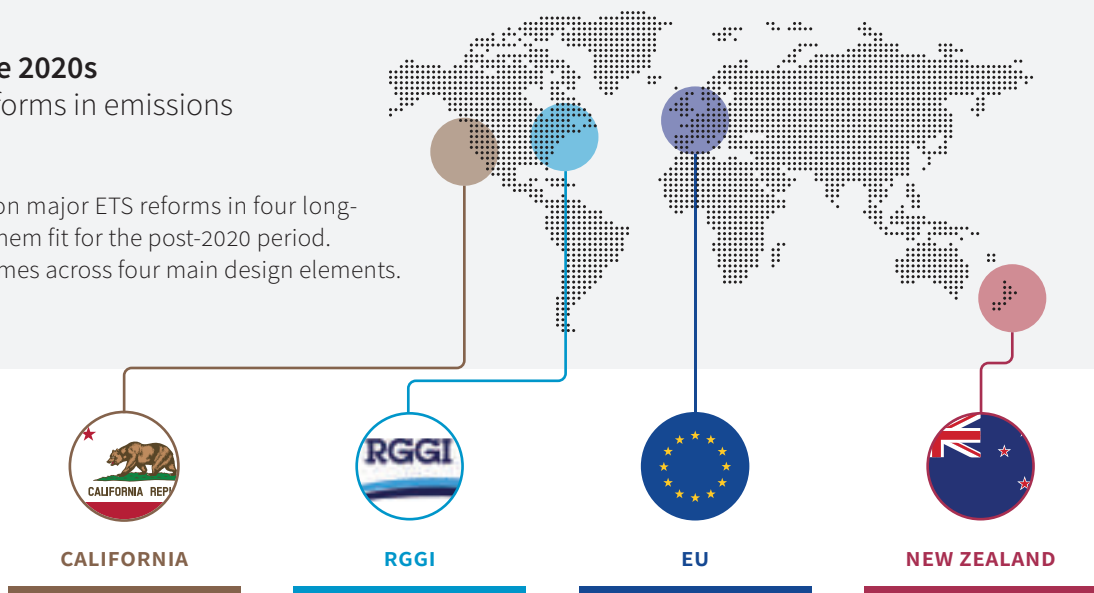
- European Emissions Trading System (EU ETS)
- Korean Emissions Trading System (KETS)
- New Zealand Emissions Trading Scheme (NZ ETS)
- Regional Greenhouse Gas Initiative (RGGI)
- Western Climate Initiative (WCI)



Getting Ready for the 2020s

An overview of key reforms in emissions trading in 2017

2017 has seen agreement on major ETS reforms in four long-running systems to make them fit for the post-2020 period. The table details the outcomes across four main design elements.



CAP TRAJECTORIES

→ Cap trajectories are getting steeper to align with 2030 climate targets.



The cap will **decline by about 4% annually** from 2021–2030, yielding a **40% cap reduction by 2030** compared to 2020 levels.

The cap will **decline by 3% annually between 2021 and 2030**, yielding a **30% cap reduction by 2030** compared to 2020 levels.

The cap will decline by a **linear reduction factor of 2.2%** from 2021–2030, in line with the target of a **43% reduction in ETS-sector emissions** compared to 2005 levels.

Coordinated supply measures to **introduce a cap** on allowances from auctioning, free allocation and international offsets. Unit supply volumes are to be **decided five years in advance**.

ALLOCATION

→ Improvements are being made to better target free allocation.



Free allocation for industry (per unit of output) to **reduce in line with cap**.

Free allocation is to be **better targeted**. **Benchmark values and production factors** will be updated.

An **auctioning mechanism** is to be established by 2020.

MARKET STABILITY

→ Novel instruments to manage price and quantity reflecting learnings from the past.



A **new price ceiling** is to be determined at which allowances can be bought any-time. Revenues are to be reinvested in emissions reductions.

The newly established **Emissions Containment Reserve (ECR)** reduces the cap by permanently removing allowances if carbon prices fall below a set level.

The **Market Stability Reserve (MSR)** will begin operation in 2019 with a 24% intake rate for the first five years. Provisions are made to **permanently cancel allowances** to limit the size of the reserve.

The **one-for-two measure** will be **phased out** by 2019. A **new price ceiling measure** is to be developed.

OFFSETS

→ Putting emphasis on domestic abatement, the trend is to limit the use of offsets and international credits.



The **share of offsets** will be reduced **from 8% to 4%** for 2021–2025, and will **remain at 6%** thereafter. At least half of the offsets used for compliance must have a **direct environmental benefit** to California.

Covered entities will **not have access to international credits** after 2020.

International credit limits will be implemented when the NZ ETS once again opens to international markets.

From Local to Supranational

28 jurisdictions are implementing 21 ETS across scales



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 four observers.

Objectives

- Share best practices and learn from each other's experience of ETSS
- 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 Cap-and-Trade as an effective climate policy response
- Build and strengthen partnerships amongst governments

ICAP Training Courses at a Glance

18 courses since 2009 on ETS design and implementation

Over 437 participants from 44 countries

229 speakers from 31 countries

ICAP Knowledge Products

Quarterly newsletter in six languages

The interactive ICAP ETS Map

ICAP/PMR ETS Handbook in five languages

ICAP annual report "Emissions

Trading Worldwide: Status Report"

Upcoming: ICAP Guide to linking

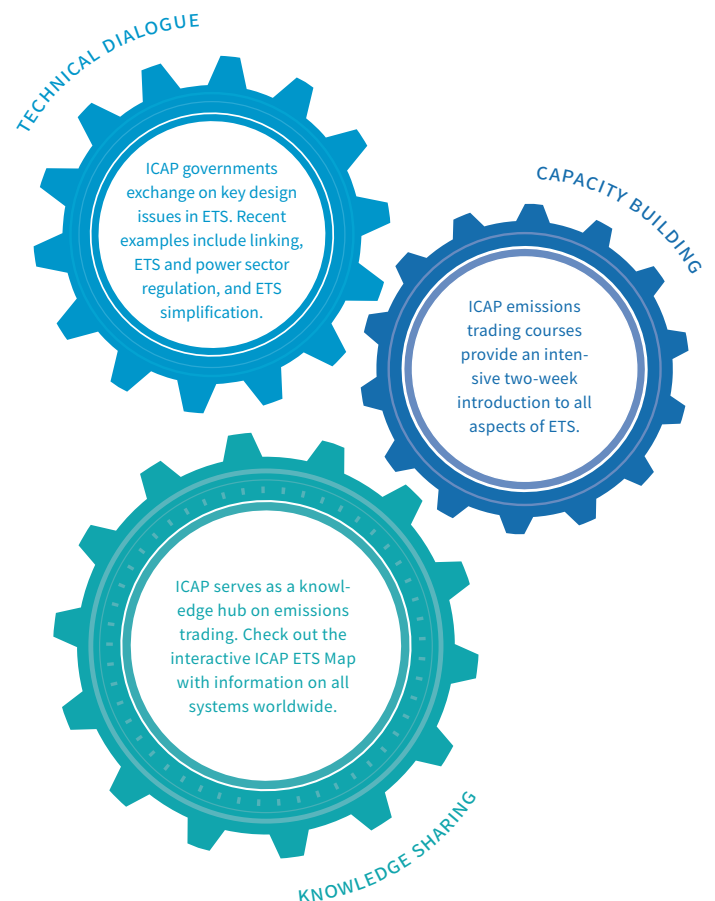
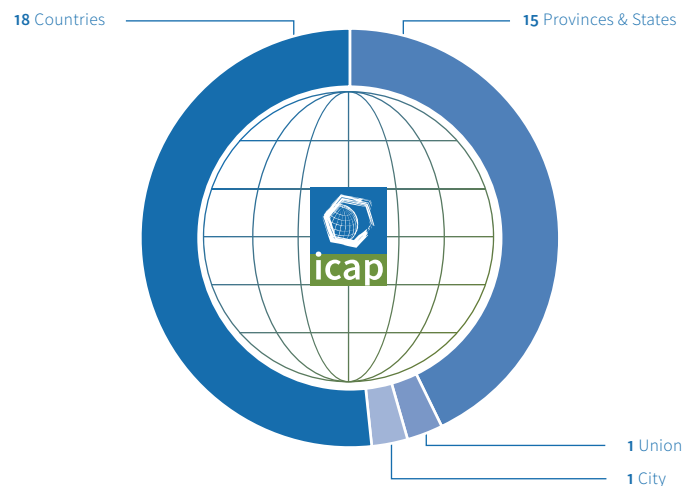
Members (as of February 2018)

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 and Ukraine

One of the strengths of ICAP is its broad and diverse membership



www.icapcarbonaction.com

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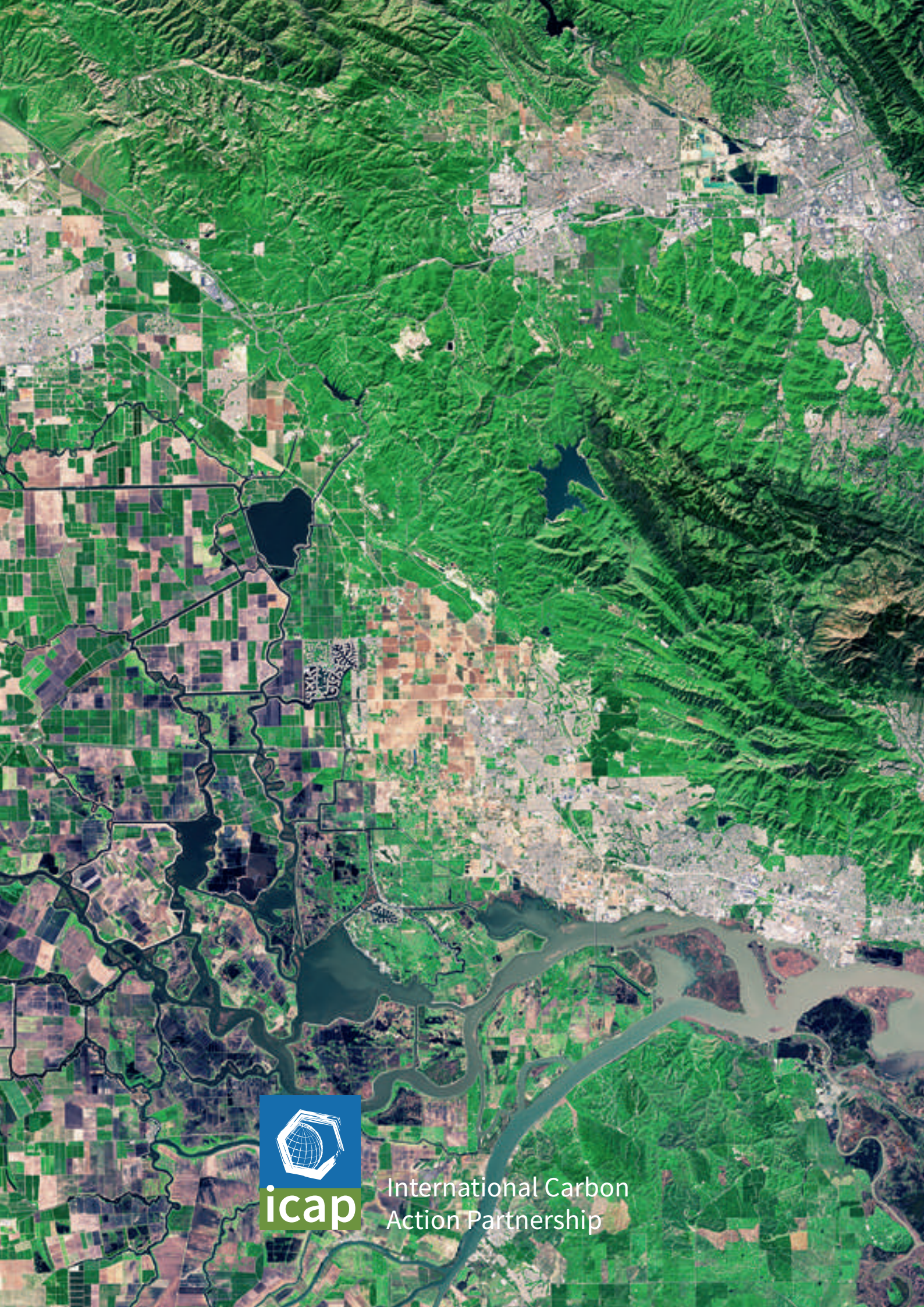
Photos

San Francisco Bay Area, USA, June 2015 (cover)

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