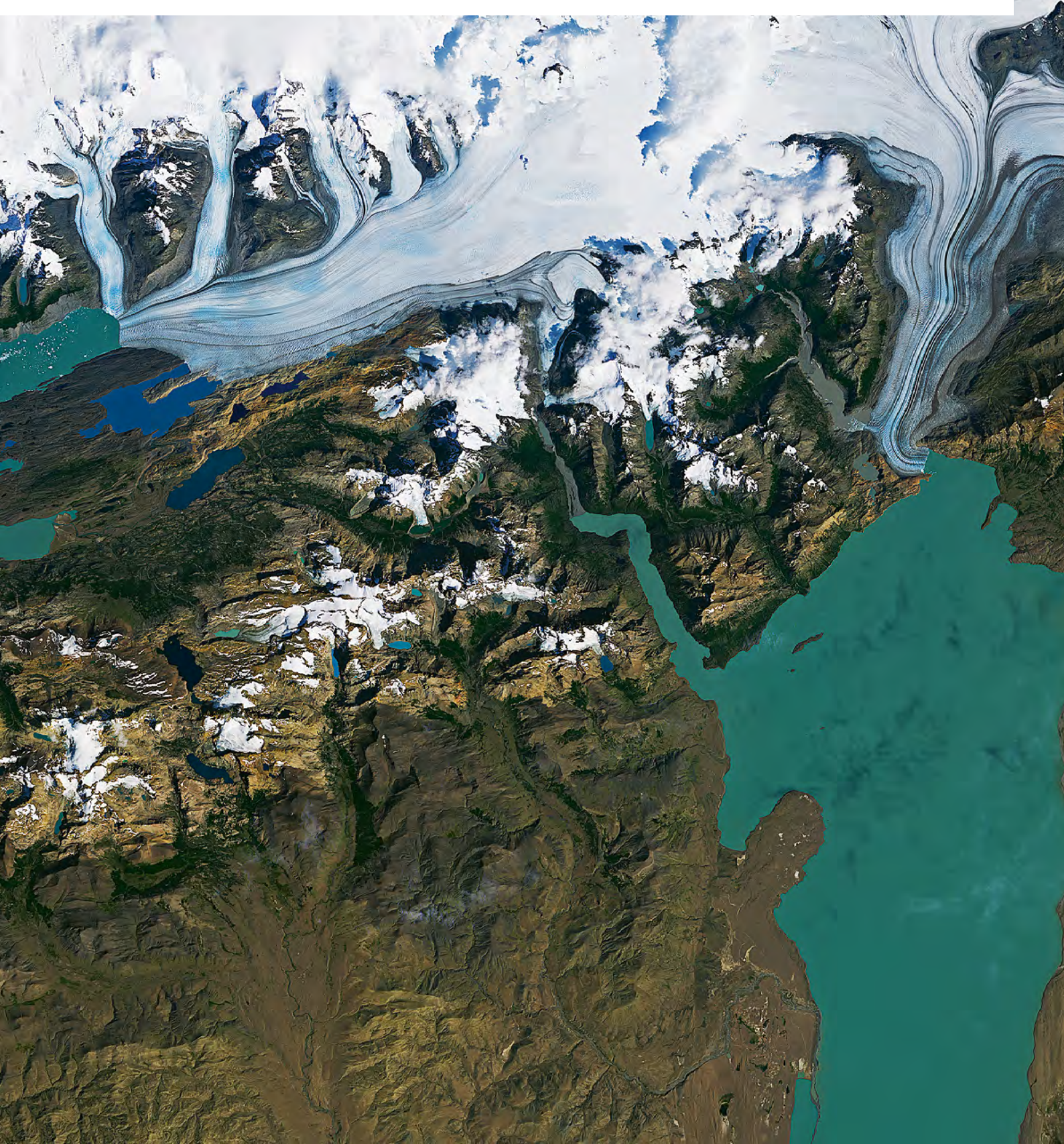




# Emissions Trading Worldwide

## Executive Summary

International Carbon Action Partnership (ICAP)  
Status Report 2017





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Status Report 2017

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# Executive Summary

## Key Messages from the Report

Over the last year, policymakers working with Emissions Trading Systems (ETS) have been steadily consolidating and improving their systems, adapting policy to their political and economic reality. At the same time, emerging systems are taking a learning-by-doing approach to build a new generation of ETS.

After the ratification of the Paris Agreement in September 2016, climate policymakers around the world are now looking to implement domestic policies to reach their NDCs. The essence of the Agreement is that Parties determine their own contributions. Paris is thus not a blueprint for success, but rather a commitment to act and to ratchet up ambition over time. Governments at all levels need tools to drive real and verifiable emissions reductions in their own national contexts. One proven and cost-efficient instrument is putting a price on carbon. The attraction of an ETS is clear: put a limit on your emissions and let market forces find the most cost-effective means of reduction.

However, experience has shown us the challenges of implementation in an imperfect world. Policymakers have pragmatically faced these challenges, working with stakeholders to design, test, implement and improve their instruments. Indeed, with a decade of experience and a track record of implementation in 21 distinct systems, ETS has now successfully graduated from theory to practice. In the process, a body of practical knowledge has been gathered, which is in turn guiding the evolution and reform of these systems.

## EU ETS & Post-2020 reform

The world's oldest ETS is the cornerstone of the European Union's efforts to tackle climate change. Since its inception, it has continued to develop in response to lessons learned and new circumstances. The EU ETS recently concluded technical negotiations on linking its system with Switzerland, and is currently undergoing a systemic review to prepare for the fourth phase of operation. One major issue facing the EU ETS, as well as others, is ensuring the ETS can send the necessary price signal to deliver increasingly ambitious reduction targets. **Cécile Goubet and Anaïs Maillet from the French Ministry of the Environment, Energy and the Sea** explore the potential for introducing a price floor into the EU ETS. They argue that despite Europe's efforts to manage the supply of allowances through 'backloading' and the planned Market Stability Reserve, current prices and price forecasts have not increased. In their view, a price floor at auction would not only lead to additional abatement, but might also mediate the effect of complementary policies, ensure revenues are generated for further climate action, and help to regulate the over-supply of allowances resulting from external shocks.

## In North America, subnationals lead with cap-and-trade

Across the Atlantic, many jurisdictions across North America offer an example as to how sub-nationals can use emissions trading to demonstrate climate change leadership. The Regional Greenhouse Gas Initiative (RGGI) has been driving emissions reductions and clean energy investments in a multi-state collaborative effort since 2009. California also relies on cap-and-trade to ensure its suite of climate policies, from vehicle emissions standards to renewable energy targets, keep the state on track to hit its emissions reduction targets. Linking to the Québec cap-and-trade program has brought mutual benefits to both parties and has created a more cost-efficient, joint carbon market. By auctioning a share of allowances, both jurisdictions have also been able to generate revenues that are used, for example, to fund additional energy and climate programs. In 2016, carbon pricing gained strong momentum in Canada through Prime Minister Justin Trudeau's announcement of a Pan-Canadian Carbon Pricing Framework for all provinces and territories. Indeed, this year also saw the launch of a new cap-and-trade program in Ontario, which is currently planning to link with the Québec-California market in 2018.

## Emerging economies on the rise

Emissions trading is also becoming an important policy instrument in emerging economies, with the next generation of ETS being developed in Asia and Latin America. Here, ETS is being adapted to reduce emissions, limit local pollution and transform energy systems against the background of a growing economy. Mexico has been moving quickly to incorporate carbon pricing as a crucial element of its climate policy. 2013 saw the introduction of a national carbon tax on fuel consumption and a national emissions registry was launched the following year. As **Victor Escalona, Sean Donovan and Saul Pereyra from the Mexican Ministry of Environment and Natural Resources (SEMARNAT)** write, robust and accurate data will be key to any future national ETS and can also facilitate international cooperation. Last year, Mexico also announced a national ETS simulation for major emitters, which is currently underway. More recently, the country has established the goal of implementing an ETS by 2018. Looking to the future, work is focused on two important steps: (i) the development of provisions for offset mechanisms; and (ii) drafting a regulation that outlines specific ETS design elements, including definitions, program scope, the carbon budget, compliance obligation procedures, and allocation provisions.

## China to launch the world's largest ETS

All eyes will be on China this year as it rolls out the world's single largest carbon market. **Qian Guoqiang and Huang Xiaochen from Sinocarbon Innovation & Investment Co. Ltd** analyze the rapid evolution of the Chinese national ETS. For the past three

years, China has been piloting a series of ETSs in major provinces and cities. While the political impetus for these efforts has come from the central government, local authorities were given great flexibility to design the pilot systems in regions with different economic profiles and stages of development. With a ‘learning-by-doing’ approach, China is now channeling these lessons into the design and operation of its national ETS, as well as drawing on the experiences of other systems around the world. Currently on a fast track to implementation, preparatory work for the launch of the is focused on four key elements: (i) establishing a legal basis for the national ETS; (ii) data collection; (iii) allocation; and (iv) building a national registry and trading platform.

### **Growth of ETS in Asia**

Action on carbon pricing in Asia is not limited to China, however, and a regional dialogue on carbon pricing is underway among policymakers in China, Japan and Korea. Already in 2015, the Republic of Korea launched a national ETS covering two thirds of the country’s emissions. As **Il-Young Oh from the Korean Ministry of Strategy and Finance** writes, the young market has matured relatively quickly and seen high levels of compliance in the first year of operation. In the first eighteen months, 13.32 million units were traded and the price has more than doubled from EUR 6.50 in January 2015 to EUR 13.50 by June 2016. Looking ahead to the next phase, Korean policymakers are already considering several design amendments, such as the introduction of auctioning and the use of international offset credits.

Japan’s capital city, Tokyo, is home to the world’s first city-wide ETS, which has been operating since 2010. **Akiko Miura from the Tokyo Metropolitan Government (TMG)** looks back on some of the achievements of the first compliance period. By the end of 2014, the Tokyo cap-and-trade program had successfully driven a 25% reduction in emissions compared to base-year levels. This is the equivalent of approximately 14 million tCO<sub>2</sub> or emissions from 1.3 million households in Tokyo over five years. TMG is also actively sharing its expertise with other jurisdictions in Asia, such as Korea, China and Malaysia to promote the introduction and good management of cap-and-trade programs.

### **International Cooperation & NDCs**

The ratification of the Paris Agreement means the new international climate policy architecture is now on the horizon, with implications for domestic policymakers. Putting emissions trading in the broader framework of international climate efforts, **Nicolas Muller from the UNFCCC** outlines ways in which international market mechanisms can help countries achieve their Nationally Determined Contributions (NDCs). Article 6 provides countries with the option of voluntarily cooperating

on their NDCs. For instance, countries with an ETS can link their systems and account for such transfers under their NDC targets. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development also offers another avenue for cooperation. However, such actions will only be possible if countries’ climate change policies and NDC targets are quantifiable and transparent.

As systems continue to evolve and a new generation of ETS emerges, international dialogue and collaboration are crucial in stimulating mutual understanding and the gradual convergence of diverse systems. In support of this process, ICAP continues to foster the constructive exchange of ETS experience and knowledge, enabling policymakers to benefit from the valuable lessons learned by others, and contributing to the common understanding of emerging ETS best practices.



# ETS Map

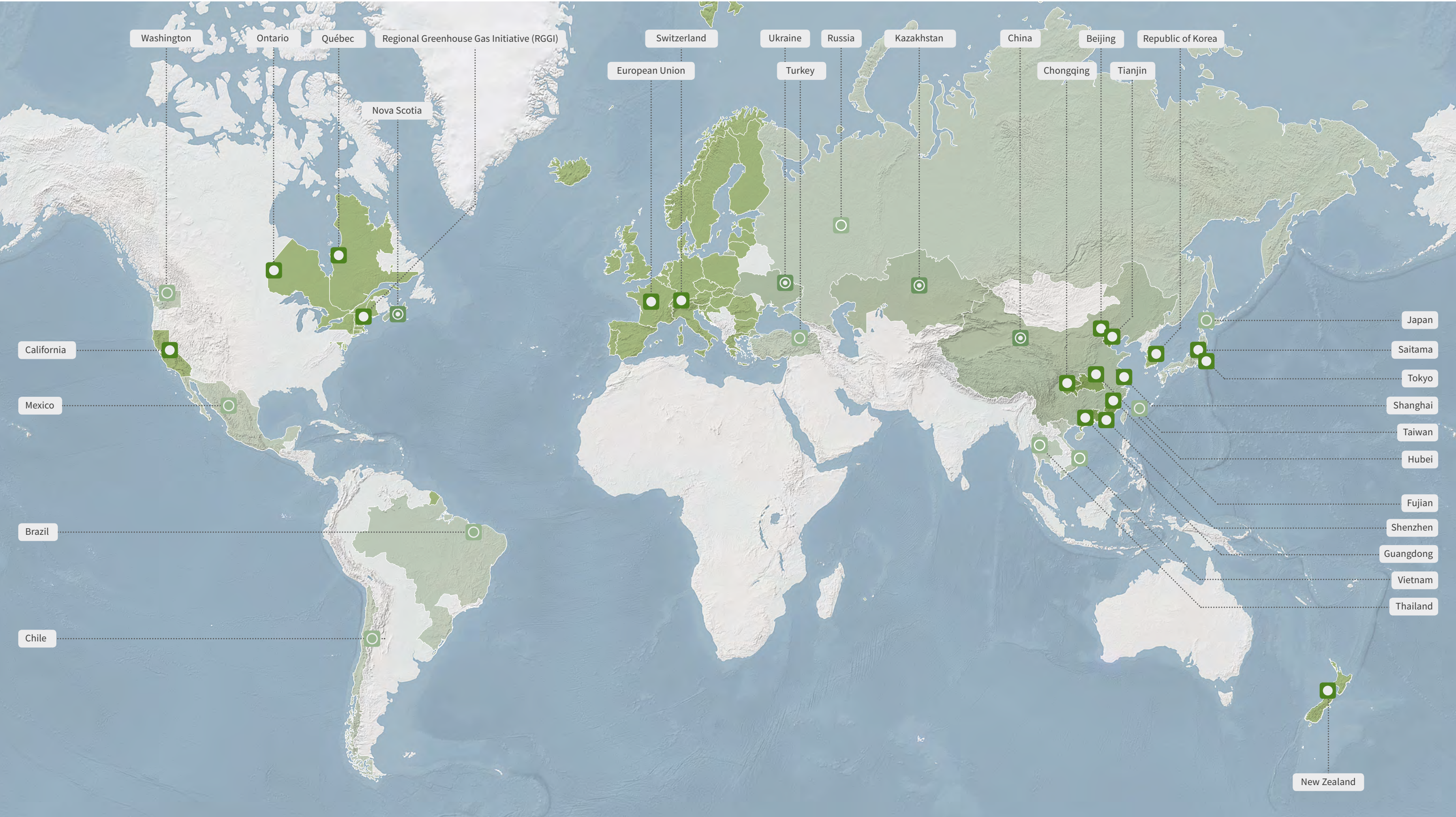
## State of Play of Cap-and-Trade Worldwide

The ICAP ETS map depicts ETS for GHG in force, scheduled or under consideration around the world. 19 ETS are in force to date, including this year's launch of systems in China and Ontario, with Nova Scotia to follow in 2018. Many governments are also considering the role an ETS can play in their climate change policy mix, including Mexico, Brazil, Turkey, Ukraine and Washington State.

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

[www.icapcarbonaction.com](http://www.icapcarbonaction.com)

- ETS in force
- ETS scheduled
- ETS considered

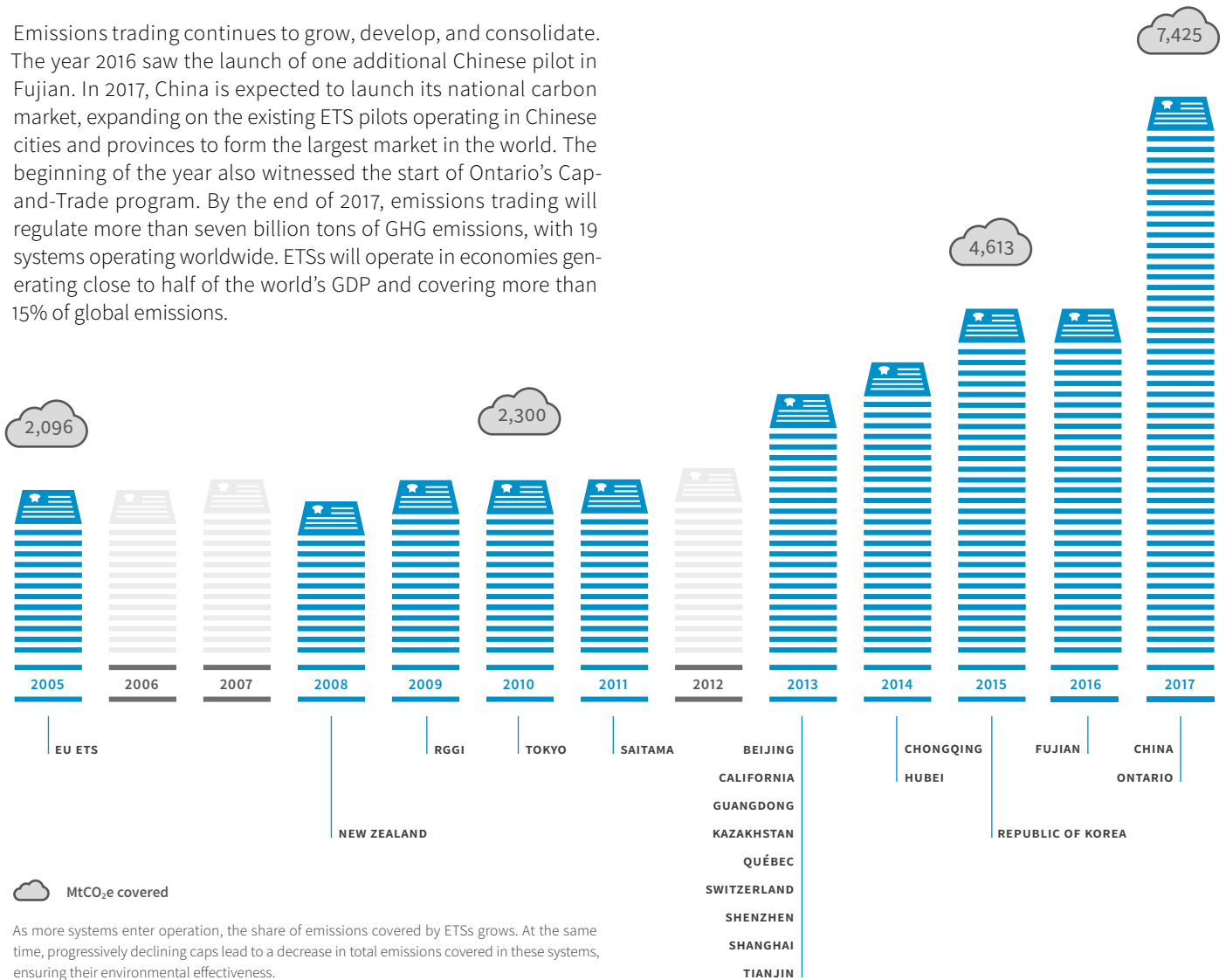




# At a Glance

## Global Trends in Emissions Trading

Emissions trading continues to grow, develop, and consolidate. The year 2016 saw the launch of one additional Chinese pilot in Fujian. In 2017, China is expected to launch its national carbon market, expanding on the existing ETS pilots operating in Chinese cities and provinces to form the largest market in the world. The beginning of the year also witnessed the start of Ontario's Cap-and-Trade program. By the end of 2017, emissions trading will regulate more than seven billion tons of GHG emissions, with 19 systems operating worldwide. ETSs will operate in economies generating close to half of the world's GDP and covering more than 15% of global emissions.



### Putting ETS cap sizes into perspective



1 MtCO<sub>2</sub> is equivalent to



Annual emissions from  
**213,000 passenger cars\***

As the number of systems grow and markets start to mature, opportunities for linking systems also increase. The EU and Switzerland have finalized linking negotiations and the newly launched Ontario program is discussing a future link with the joint program of California and Québec. The rise of China's carbon market also sends an encouraging signal for existing and future ETSs in Asia.

The Paris Agreement, through article 6, also heralds a new era in international climate action by encouraging countries to collaborate by transferring mitigation units through linked carbon markets.

\* calculated using a typical passenger vehicle using 2014 data from the U.S. Environment Protection Agency, Office of Transportation and Air Quality. 🚗 ~ 10,000

# Total auction revenues

USD billion

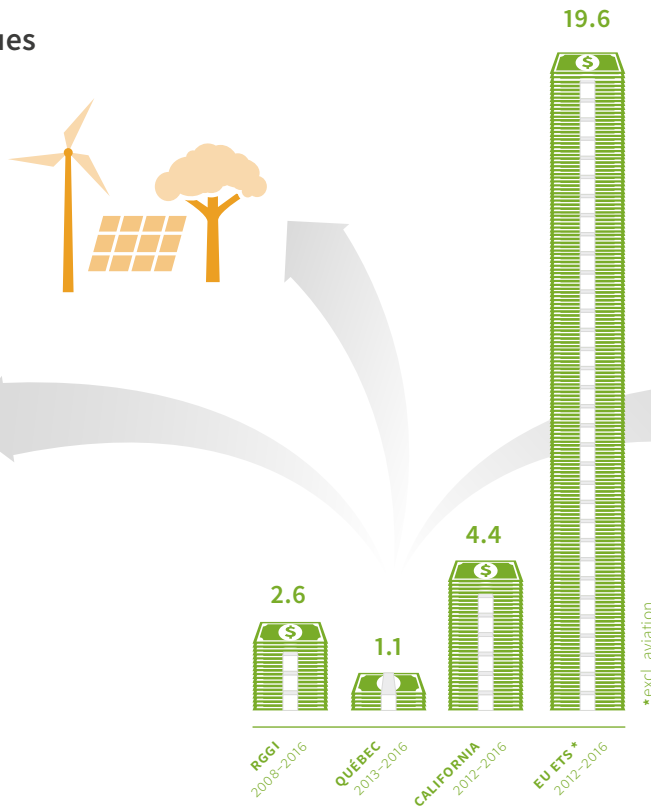
## Fund Climate Action

Governments can invest in adaptation, renewable or other low-carbon technology, energy efficiency, clean transport, waste and forestry.



## Financial assistance to disadvantaged groups

Governments can support low-income households or vulnerable communities to counter rising energy costs and to facilitate the transition to a low-carbon economy.



## Contribution to the public budget

Governments can use ETS revenue to reduce taxes, finance other policy priorities or to reduce the budget deficit.

Auctioning allowances can generate public revenue that can be used in different ways depending on the priorities of the jurisdiction. Systems have, among other things, funded additional climate change programs, generated more renewable energy, and helped

disadvantaged groups. The amount of revenue depends on the size of the jurisdiction, the ETS coverage, the number of auctioned permits and the carbon price. By the end of 2016, systems worldwide have raised close to USD 30 billion.

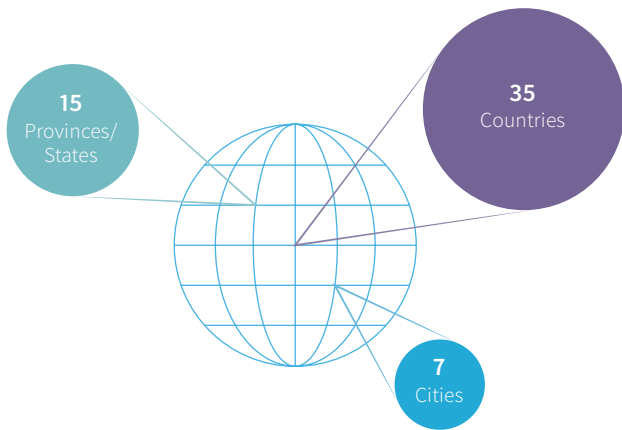
## Sector coverage

Region	Industry	Power	Buildings	Transport	Waste	Aviation	Forestry
<b>ASIA PACIFIC</b>							
Beijing	●	●	●	●			
China	●	●				●	
Chongqing	●	●					
Fujian	●	●				●	
Guangdong	●	●				●	
Hubei	●	●					
New Zealand	●	●	●*	●*	●	●*	●
Republic of Korea	●	●	●	●	●	●	
Saitama	●		●				
Shanghai	●	●	●			●	
Shenzhen	●	●	●	●			
Tianjin	●	●					
Tokyo	●		●				
<b>EUROPE &amp; CENTRAL ASIA</b>							
EU ETS	●	●				●	
Switzerland	●						
<b>NORTH AMERICA</b>							
California	●	●	●*	●*			
Ontario	●	●	●*	●*			
Québec	●	●	●*	●*			
RGGI		●					

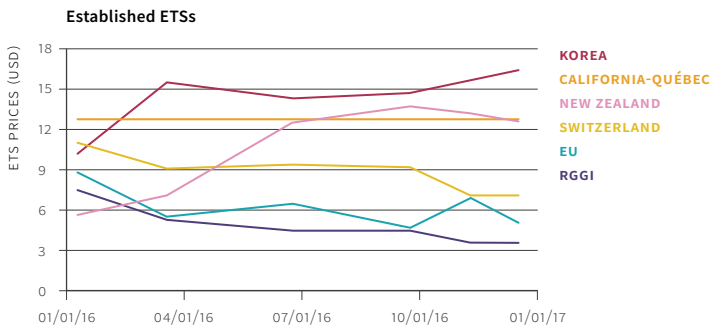
\* Sectors represent upstream coverage

As the graphics on this double page illustrate, an ETS has considerable design flexibility. Although most systems cover the power and industry sector, ETS can be designed to fit a wide range of economic profiles. Prices also differ across systems, from USD 2 to over USD 15. This reflects the different abatement costs, market conditions and design elements of each system.

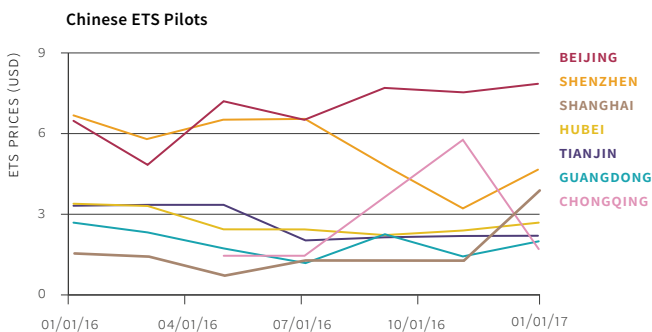
### Different kinds of jurisdictions implement an ETS



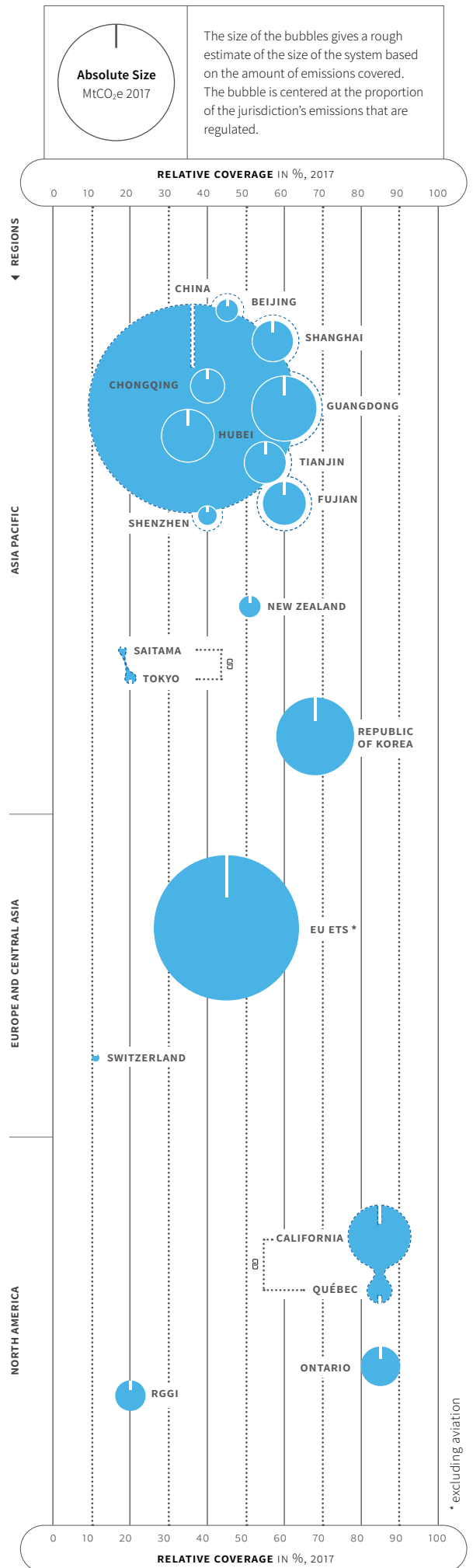
### ETS prices (USD)



Prices for California-Québec, the EU, RGGI and Switzerland are the clearing prices from auction, whereas prices in New Zealand and Korea are the secondary market prices.



Prices in the Chinese pilots represent secondary market prices. For Chongqing, regular trading only started in August, one trade at CNY 10 (USD 1.45) on 17 March 2016.





# About ICAP

## Introducing the International Carbon Action Partnership

Ten years ago, 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 emissions trading system (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

16 courses since 2009 on ETS design and implementation  
Over 403 participants from 44 countries  
214 speakers from 29 countries

#### ICAP Knowledge Products

Quarterly newsletter in six languages  
The interactive ICAP ETS Map  
ICAP/PMR ETS Handbook in six languages  
ICAP annual report "Emissions Trading Worldwide: Status Report"  
A range of publications on ETS

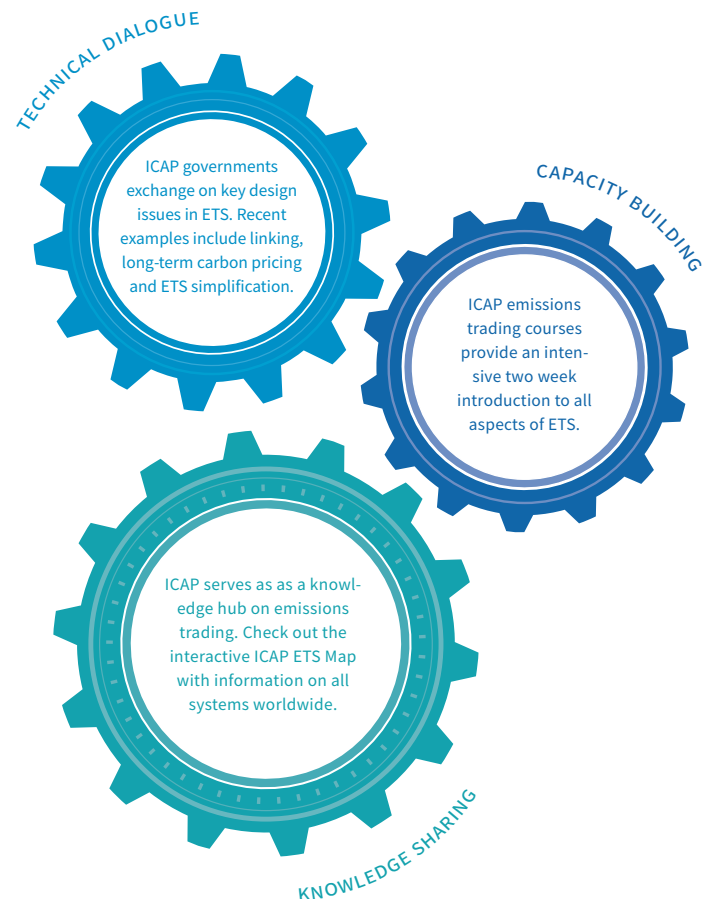
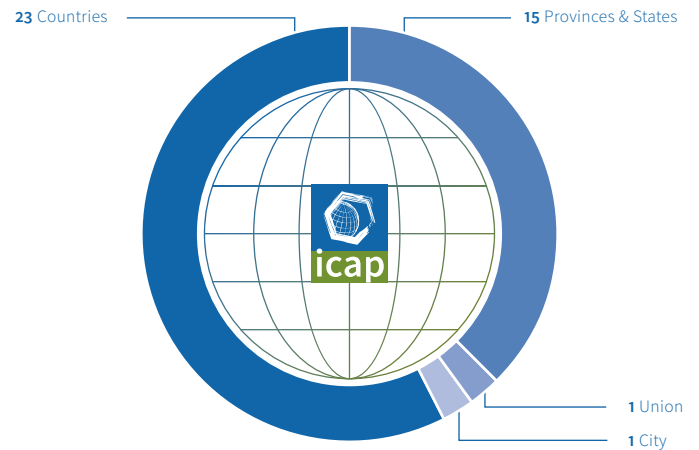
### Members (as of February 2017)

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](http://www.icapcarbonaction.com)

# A Decade of ICAP

## 2007–2017

Since its founding in 2007, ICAP has helped raise awareness on the different roles emissions trading can play in mitigating climate change and transitioning to a new model of sustainable development. It has also played a key role in spreading knowledge and enhancing the capacity of jurisdictions to build a robust ETS. Through the technical dialogue, ICAP continues to facilitate discussion among ETS practitioners on the latest issues in policy design, such as linking and a long-term carbon pricing signal. In 2009, ICAP held the first ETS summer school to offer an introduction to emissions trading for developing and emerging economies. Six years later, the first ETS Masterclass took place in London.

This year marks the fourth edition of the ICAP Status Report, which offers an annual snapshot of the state of emissions trading world-wide. 2017 will also see the release of the ICAP Guide to Linking. This builds on the recently launched ICAP/PMR Emissions Trading Handbook, a ten-step process to guide policymakers on how to design and operate their own ETS. It offers an amalgamation of the latest ETS research and lessons learned from more than a decade of practical experience with emissions trading from different systems around the world. As systems continue to evolve and expand in the future, ICAP remains committed to strengthening and broadening the ETS community.

### ICAP Timeline

2007

29 October 2007  
**Foundation of ICAP**



2008

January 2008  
**First ICAP Meeting**




2009

July–August 2009  
**First ICAP  
Summer School**







December 2012  
**Interactive ICAP  
ETS Map**

2012



September 2014  
**ICAP-IETA High-  
Level Carbon  
Pricing Dialogue  
in New York**

2014



pmr PREPARED FOR  
MARKET READINESS icap International Carbon  
Action Partnership

**EMISSIONS TRADING  
IN PRACTICE:  
A HANDBOOK ON DESIGN  
AND IMPLEMENTATION**

WORLD BANK GROUP

March 2016  
**ICAP-PMR ETS  
Handbook**

2016




2017  
**ICAP Guide on  
Linking**

2017

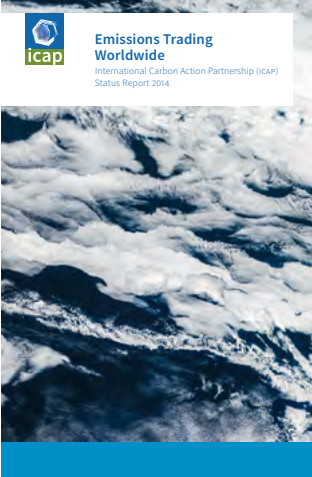
September 2012  
**ICAP 5 Year  
Anniversary  
Evening Reception  
in New York**

ICAP Evening Reception



**2007 – 2012: 5 years of ICAP**

February 2014  
**First ICAP Status  
Report**



**Emissions Trading  
Worldwide**  
International Carbon Action Partnership (ICAP)  
Status Report 2014

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Los Glaciares National Park, Argentina (cover) ©USGS/ESA

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please refer to the full ICAP Status Report 2017.





International Carbon  
Action Partnership