Dialogue Facility on ETS Development in Asia
Roadmap for Developing an Effective ETS to Achieve National GHG Emission Reduction Targets

Meeting report

Overview

The Asia Society Policy Institute convened a series of private dialogue meetings that brought together experts in emissions trading system (ETS) development from select Asian jurisdictions. This initiative seeks to support the successful design and implementation of national ETSs in Asia, while building foundations for future market connectivity at Asian and international levels.

This meeting was held in a two-day videoconference on 26 and 27 April 2022. It focused on the roadmap and action plan for development of an effective ETS that could facilitate Asian countries to meet their national GHG emission reduction targets.

Emissions trading systems are recognized as crucial pillars for achieving deep and cost-effective reductions in GHG emissions this decade, in line with the pathway to net-zero GHG emissions, and there is increasing momentum and progress towards their introduction in Asia. Their development path will vary by country but will typically include expansions in sectoral coverage, shifts from voluntary to mandatory systems, and adoption of more ambitious reduction targets. Significant experience in introducing and implementing ETSs has already been gained in China, Korea, the EU and North America, providing a valuable source of lessons. These lessons will need to be learned quickly as there is now limited time to achieve the necessary reductions by 2030 in line with the pathway to net-zero.

A roadmap and associated action plan for developing an effective ETS within a relatively short timeframe is therefore essential. Understanding the guidelines and procedures to establish and operate an ETS is also important, including key issues, obstacles, barriers, risks and counter-measures, and solutions, as well as the associated resource requirements and costs. Above all, a fundamental requirement is the ability of an ETS to make a significant contribution towards achieving national GHG emission reduction targets for 2030 and beyond. This meeting examined the experiences, challenges, and solutions related to all of these topics, including learnings from Chinese and Korean systems, as well as international systems such as the EU ETS and the California Cap-and-Trade Program. The latest status of ETS development in Asia was then shared, with contributions from a number of Asian representatives.

The meeting agenda is provided in Annex 1 and the list of participants is included in Annex 2. The participants included policymakers, supporting officials and experts directly involved in the development and implementation of ETSs in Asia.

The presentations are available at https://asiasociety.box.com/s/zuqm6xlefberxw17ci17jym9psdclqme (Password: aspidm2022).

Summary

This meeting examined ETS development roadmaps, outlining the key tasks and challenges in ETS establishment, identifying the time frames and multiple design variables, and highlighting international and Asian best practices which provide valuable experience and insights for ETS development in Asia. The latest status and action plans for emerging carbon pricing initiatives in Asia were also shared. A summary of key points is given below.

Key Elements in Preparation for an ETS

Stakeholder engagement

Robust and transparent stakeholder engagement is crucial for ETS development. As an ETS will increase industry's compliance and financial burdens, gaining their support might be challenging. Suggestions for engaging stakeholders included: clearly informing them that ambitious climate action is needed now in order to have a competitive economy in the future; providing a safe and confidential conversation space with key market players; and having a transparent process for exchanging and handling of opinions.

The California Cap-and-Trade Program is a successful example of stakeholder engagement. The program encountered strong opposition early on from large energy companies who were concerned about potential negative economic impacts. By communicating the facts of the program and the features that would address stakeholders' concerns, the policymakers eventually earned their support. From 2008 to 2011, 40 stakeholder workshops were held to solicit opinions on the program's establishment; private meetings with stakeholders to address specific concerns and make recommendations were also held; and written responses to each comment were required under the formal rulemaking process which helped provide transparency and clarity.

The EU's Carbon Border Adjustment Mechanism (CBAM) has recently changed some industry opinions towards an ETS given that carbon costs under an ETS can be subtracted from financial obligations of the CBAM for covered goods exported to the EU. In Taiwan, for example, industries that had previously opposed the ETS have reversed their positions due to the EU's CBAM.

Legal system development

The legal framework is the foundation of successful ETS. It is important to have a strong legal base at a high legal level such as an ETS law or framework law. For example, China's absence of a State Council level legal base for its National ETS has negatively influenced ETS implementation because enterprises that falsify data or fail to fulfill compliance obligations cannot be strictly punished.

On the other hand, some implementing provisions should be at lower levels of the legal hierarchy where amendments can be more easily made. The development of the ETS normally follows a 'learning by doing' path, and adjustments are unavoidable as a result of not just correcting some errors, but also natural progression to the next phase or adaptation to new international and national targets.

In California, the regular revision of the system is written into its climate law, California Global Warming Solutions Act of 2006 (AB 32), which requires California to update its approach (Scoping Plan) to achieving the emission reduction goal at least once every five years, including any necessary changes to the Cap-and-Trade Program. This practice helps to ensure that all initiatives are on track to meet the state target over time.

Technical support

ETS impact assessment is required at the initial design stage, as well as during periodic design reviews, to inform policy decision-making by assessing the impacts of different policy design options.

Key technical fundamentals for ETS development include monitoring, reporting and verification (MRV), allocation (benchmarking) and cap-setting. Establishing the MRV system is one of core technical tasks which is also necessary to support benchmark development, cap-setting and sectoral scope expansion.

There is a consensus across countries that having a solid MRV system ready before the start of an ETS, with collection at least two years of verified emissions data before the launch of the system, is essential. In Korea, the Target Management System (TMS) was initiated before the introduction of the K-ETS to achieve this purpose, including providing an electronic reporting system. This facilitated the smooth and fast establishment of the K-ETS. The quality control of emissions data is crucial, requiring third party verifiers who have undergone intensive training, and supported by strict regulations governing the quality of verification.

China is currently revising its MRV guidelines, including improving the reliability of coal carbon content tests as well as the cost-effectiveness of calculations, such as setting default values for parameters that have little impact on results but yet can require significant effort to determine. China's lessons show that information disclosure related to emissions data is important and that 'social supervision' can help improve the quality of data.

Institutional set-up

How the ETS will be managed and how roles and responsibilities will be distributed should be addressed, covering all elements of the system.

It is common practice for one government ministry to be in charge of policymaking and political oversight and one or more government agencies to be in charge of implementation. Building on existing systems and potentially outsourcing some institutional functions can be effective ways of establishing an ETS. For example, in China, emission data reporting shares the same system with National Pollutant Discharge Permits and in California, there is a third-party market monitor to ensure fair and competitive auctions.

Korea has an effective institutional set-up with key institutions supporting the Ministry of Environment (MoE) which has overall management responsibility.[1] These include (a) the Greenhouse Gas Inventory & Research Center (GIR), specifically set up to support K-ETS implementation including cap-setting, IT systems, and policy research and modelling; (b) Korea Environment Corporation (K-ECO) which examines the allocation applications, monitoring plans and emissions reports; (c) the National Institute of Environmental Research (NIER) which oversees the verification system including undertaking accreditation of verification bodies; and (d) the Korea Exchange (KRX) which operates the systems for trading and auctioning of allowances.

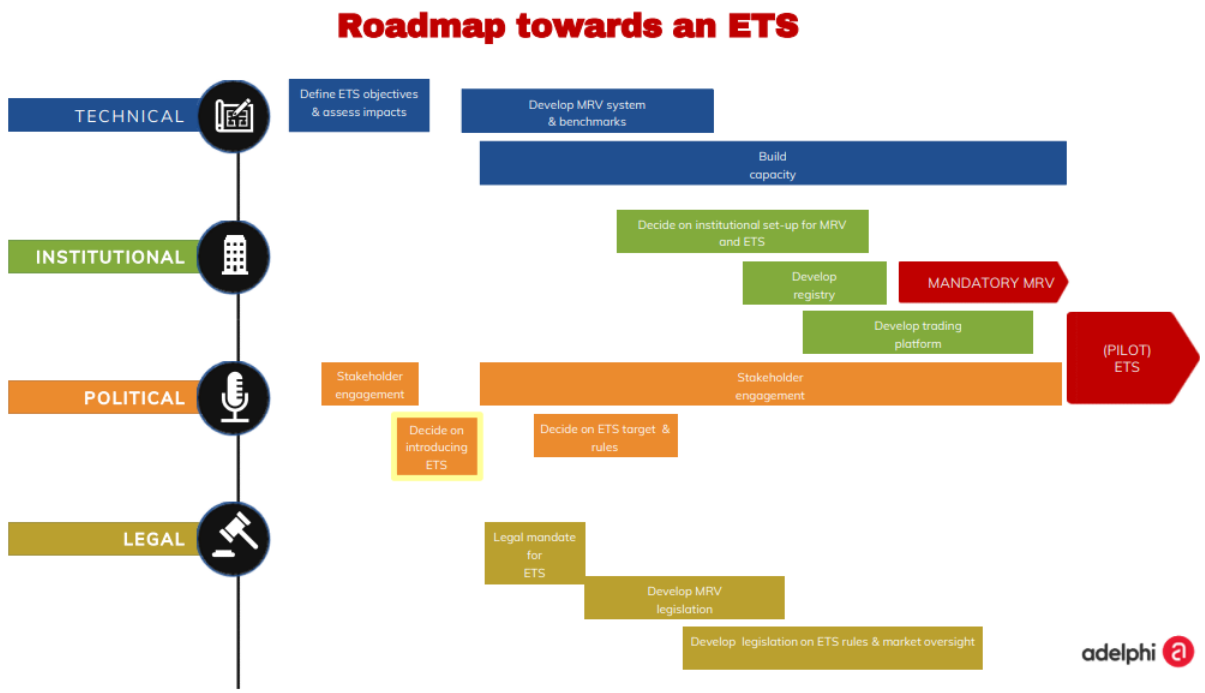
<u>Starting the ETS: Roadmap</u>

The Roadmap

Putting all the elements into a timeline produces a roadmap towards an ETS. The roadmap usually begins with defining the ETS' objectives, assessing its impacts and stakeholder engagement. Then as the decisions are made on the introduction and the basic features of the ETS, the legal mandate should be developed and confirmed. The key design elements will then

[1] Establishing the plans and legislative framework, reviewing allocations, certifying emissions, etc.

be translated into legislation and followed with capacity building. After that, the related institutions and systems should be established before the launch of the ETS.



(Source: Adelphi)

Strategies to start up

Starting the ETS with a pilot phase is a popular strategy for easing into the ETS, notably in China which has used its eight sub-national pilot ETSs to provide experience and learning to support the development of the national system. For the EU ETS, the pilot phase (Phase 1) represented a complete version of the ETS with all the key elements and functionality of the intended system, but representing an initial phase to test the system design. A clean break was provided between the first and second phases to reduce the risk of problems being carried through. In Korea, the abovementioned TMS acted as a pilot phase. Some systems start on a voluntary basis or without enforcement before moving into a mandatory ETS. As a minimum, however, it is recommended to enforce compliance in a pilot phase.

Above all, however, the purpose of any pilot phase should be clear. As ETSs are becoming more widely implemented across many countries it is no longer necessary to test that the concept works.

Another strategy that facilitates smooth implementation is phasing in design elements (e.g. auctioning and carbon market liquidity measures) and sectoral coverage over time. A suggested starting point for sectoral scope is to ensure the coverage provides a sufficient market size and number of entities from the start, including sectors with solid MRV data and large emissions such as power and energy-intensive industry.

Finally, countries should not be afraid to start the carbon market and make mistakes. Through the evaluation, review and revision processes, systems will become increasing effective and efficient in time, as demonstrated through the experiences of ETSs that are now mature.

How long does it take to establish an ETS?

The time it takes to set up an ETS varies greatly. From first discussions on ETS policy design in the European Commission to the launch of the first phase of EU ETS in 2005, it took five to seven years in the EU. Within this timescale it took two to three years to negotiate the ETS directive followed by approximately two years to develop the Phase 1 implementing provisions. California took approximately seven years, starting with the legal basis, followed by engagement firstly with the Western Climate Initiative (WCI) and then with Californian stakeholders, then followed by one to two years for rulemaking, before approval of regulations and launch. In Korea, the process took approximately five years starting with the legal basis (Framework Act on Low Carbon Green Growth) and then the ETS Act, followed by two years for development of the Phase 1 design including allocation plan. In parallel, the Target Management System commenced three years before the ETS to establish the MRV and other systems, and help successful introduction of the ETS. The successful introduction of the K-ETS also relied on strong political will, intensive stakeholder engagement, and solid cooperation among government departments.

The startup times in New Zealand and Ontario were shorter. New Zealand borrowed from the proposed policy design in Australia and it took less than two years from the decision to have an ETS to its launch. Similarly, following the blueprint of California and Quebec, the Ontario ETS was established in just two years.

Moving into Full Implementation

Governance

The governance of an ETS in its operational phase mainly covers oversight of MRV, compliance, the carbon market, and disclosure of data.[2]

A key learning point from the California Cap-and-Trade program is the need for clear communication throughout governance activities. Policies help to ensure that communication is consistent and clear. User-friendly forms are available for individuals and corporations to meet program requirements and compliance duties. Measures are also in place to ensure timely and uniform dissemination of program and market data while also safeguarding confidential data.

Personnel and operation cost

In Korea, the implementation of the K-ETS requires 60 to 70 personnel across the key institutions of MoE (overall management), GIR (registry system operation and ETS-related research) and KECO (operational work support), plus approximately 210 outsourced personnel. The combined budget for implementation in 2022 across these organizations was approximately $8 million.

The California Air Resources Board (CARB) has two branches that support the Cap-and-Trade program. The Cap-and-Trade Program branch has 30 to 40 personnel responsible for participant registration, market monitoring, auctions, tracking system management, allowance allocation, and offset credit project approval. A separate branch with 10 to 20 personnel covers GHG reporting and verification. The program is also supported by a non-profit joint market and auction administrator as well as a third-party market monitor.

[2] on emissions, market activity, revenue use, etc.

Align with national targets

It is essential to align the ETS cap with the jurisdiction's overall GHG emission target to ensure the ETS plays a significant role in achieving such targets. The examples of how to do this in Korea and California involve multiplying the percentage of emissions covered by ETS entities out of the total emissions in the jurisdiction by the national/state-wide emission target to determine the ETS cap. Both of these ETSs cover the majority (70~80%) of their jurisdiction's emissions.

It is also crucial to update the caps when the overarching targets are revised, for example in line with updated NDCs. The systems in EU, Korea, and California were all in the process of making such revisions at the time of this event.

Integration with the policy mix

Integrating policies to achieve a jurisdiction's overall mitigation goal should seek to avoid negative interactions (especially by avoiding the imposition of mandatory command and control type measures on top of an ETS) and play to the complementary strengths of the respective policies (including the different roles and purposes of ETS and renewable portfolio standards). The impact of other policies on GHG emission reductions will need to be considered in determining the ETS cap to avoid a cap that is insufficiently ambitious.

Some broader policies can impede the efficiency of an ETS and limit its potential to drive low cost mitigation measures, in particular power market policies may restrict the ability to reflect carbon costs in power station dispatch decisions and pass-through such costs to retail electricity prices. In such cases, measures should be taken to reform the power market policies, similar to the experience in Korea. This will require effective cross-ministerial cooperation.

<u>The Emerging Carbon Pricing Initiatives in Asia</u>

Emission trading worldwide

Emissions trading is increasingly becoming a key policy instrument for reaching net-zero goals cost-effectively. 25 systems were in force globally as of the start of 2022; seven additional systems were under development and 15 more systems were under consideration. ETSs cover 37% of emissions captured by legally mandated net-zero targets and 17% of those under development/discussion.

Globally, 2021 was a year of consolidation and reform for the existing ETS systems. Carbon prices and revenues reached all-time highs as a result of increased ambition in emission reduction targets. Global auctioning revenues increased by more than 50% from $103 billion to $161 billion; and revenues are being reinvested to support climate action or industry and consumers.

In the Asia Pacific region, almost every country is either operating or taking steps to implement or consider the implementation of carbon pricing, especially ETS. The following section details country updates on ETS development through 2023, including those occurring after this dialogue meeting.

Indonesia

Indonesia launched its national ETS for coal-fired power plants in February 2023, following the revision of the NDC target to an unconditional 31.9% reduction by 2030 relative to Business as Usual (BAU) scenario and a conditional 43.2% reduction by 2030 subject to availability of international support for finance, technology transfer and development and capacity building. Indonesia aims to cap CO_2 emissions from the power sector to 290 million tons per year by 2030. The newly launched ETS is a critical tool for assisting Indonesia in meeting these targets.

The first phase is planned to cover two years until the end of 2024, and the second and third phases, which will last three years each, will begin in 2025 and 2028, respectively. The ETS will be expanded in the second and third phases to include oil and gas-fired power plants, coal-fired power plants that are not connected to the PLN's grid, as well as other industrial sectors.

The ETS is a mandatory intensity-based ETS, similar to China's national ETS, and will eventually evolve into a hybrid "cap-tax-and-trade" system, with facilities that fail to meet their obligations under the system subject to the tax. The carbon tax has now been postponed until 2025.

Indonesia has been working on a domestic ETS since it passed the "Government Regulation on Environmental Economic Instruments" in 2017, which mandates the implementation of an ETS by 2024. In 2018, guidelines for MRV in the power sector were released. The Presidential Regulation No. 98 of October 2021 extends the 2017 regulation and lays the groundwork for the upcoming ETS. An implementing regulation (No. 21) on the Procedures for the Implementation of Carbon Economic Value was released in October 2022, providing further arrangements including the procedure to conduct carbon trading activities, the implementation of a national carbon registry, verification procedures and regulations for carbon trading.

Potential challenges are that the carbon price may not be able to be passed on to electricity end users without policy changes due to government regulation of electricity prices and household electricity price subsidies; achieving consensus across government departments on the design and implementation of the carbon pricing instrument will require effective coordination that is expected to be difficult; and issues related to the use of a carbon tax in addition to an ETS, and gaining access to international financial support.

Thailand

A domestic carbon market in Thailand was called for in the 12th National Economic and Social Development Plan (2017-2021). Since 2013, ETS development has taken place as part of a voluntary ETS, and a carbon credit platform was launched by the Federation of Thailand Industries in September 2022. In 2022, the Ministry of Natural Resources and Environment drafted a Climate Change Act as the legislative basis for national climate change pledges, and it is set for approval in 2023.

Fundamentally, it is not yet clear whether an ETS will feature in the Climate Change Act. Other challenges will include how to manage the overlaps and conflicts with existing policies, establishing suitable laws and regulations on mandatory MRV and market oversight, and stakeholder engagement and capacity building on technical issues.

Japan

In Spring 2023 Japan launched its emissions trading system (GX-ETS), following establishment of the GX League[3] by the Ministry of Economy, Trade, and Industry in 2022, and former Prime Minister Suga’s declaration for Japan to be carbon neutral by 2050. The GX-ETS is part of Japan’s GX plan, a core policy in achieving Japan's carbon neutral target that outlines regulatory, financing, and technology development priorities for greening industries. The first (voluntary) phase of GX-ETS will last until 2026, involving a baseline-and-crediting design. Companies who beat their targets will be eligible to earn credits. From 2026, the system will transition to a more traditional mandatory ETS.

[3] A multi-industry platform where government, academia, and finance collaborate to take on the challenge of GX (Green Transformation), to discuss the transformation of the entire economic and social system, and to take the lead in the creation of new markets in order to achieve decarbonization.

A key challenge in the first (voluntary) phase will be how to achieve a reasonable price signal. As firms are not required to purchase credits from others if they do not meet their targets, combining some other approaches to promote price signals may be necessary but challenging.

Taiwan

The GHG Reduction and Management Act of 2015 signaled Taiwan Environmental Protection Administration's intention to implement an ETS. An amendment to the Act (renamed the Climate Change Response Act) was approved by Cabinet in 2022, including a carbon tax with preferential rates granted to enterprises working to reduce their carbon emissions. In 2023, the amended Act passed a third reading, laying the legal groundwork for the EPA to impose a carbon tax on 287 large emitters, which account for nearly 80% of Taiwan's total emissions, as early as 2024.

There have been two main reasons why Taiwan has not yet gone ahead with an ETS. First, the government is concerned that the market is too small. Second, an ETS has not been supported by industry, although their opinions have become noticeably more positive since the development of the EU's CBAM. As a result, industries have proposed that a carbon market be implemented alongside the carbon fee. If so, consideration would need to be given to approaches for transition between these two. Taiwan already has significant building blocks in place for an ETS in addition to the overall legislative framework, including the MRV system, detailed regulations, offset scheme, and pilot trading platform.

Malaysia

Malaysia is also considering implementing a carbon pricing policy – an ETS and/or a carbon tax. With its NDC updated and 2050 net-zero emission target established, Malaysia is in the early stages of drafting a National Climate Change Act, exploring regulations that enable an ETS, and developing an MRV system. In 2021 the Ministry of Environment and Water's (KASA) proposal on developing a domestic ETS was approved. The ETS would be developed in phases with the early phase involving the implementation of a voluntary carbon market before transitioning to a mandatory ETS. In 2022 the Malaysian stock exchange (Bursa Malaysia) launched a voluntary carbon market platform, which was jointly developed by KASA and Ministry of Finance.

Annex 1: Agenda

Day One: 26 April 2022 (Tuesday)		
Session 1: Welcome and introduction		
5 mins	Welcome remarks and introduction	Alistair Ritchie, Director of Asia-Pacific Sustainability, Asia Society Policy Institute
Session 2: International experience of ETS development		
20 mins	Roadmap for developing an effective ETS	Constanze Haug, Executive Board Member and Co-Leader of Carbon Pricing Programme, Adelphi, Germany
20 mins	Q&A and discussion	
Session 3: China's National ETS		
20 mins	Development of China's National ETS	Qian Guoqiang, Deputy General Manager, SinoCarbon, China
20 mins	Q&A and discussion	
10 mins	Break	
Session 4: Korea's ETS		
20 mins	Recent status and changes of Korean ETS	Hyung-Wook Choi, Director, GHG Inventory Management, Greenhouse Gas Inventory & Research Center, Korea
20 mins	Roadmap for ETS: Korean experiences and lessons	Seung Jick Yoo, Professor, Sookmyung Women's University, Korea
20 mins	Q&A and discussion	
Session 5: Latest developments in ETS around the world		
10 mins	Emissions Trading Worldwide: ICAP Status Report 2022	Stefano De Clara, Head of Secretariat, International Carbon Action Partnership
10 mins	Q&A and discussion	
5 mins	Summary of Day One and expectations for Day Two	Alistair Ritchie, Asia Society Policy Institute

Day Two: 27 April 2022 (Wednesday)		
Session 6: Welcome and introduction		
10 mins	Review of key lessons discussed on Day One and introduction to Day Two	Alistair Ritchie, Director of Asia-Pacific Sustainability, Asia Society Policy Institute
Session 7: California's Cap-and-Trade Program		
20 mins	Program development and communications of California's Cap-and-Trade Program	Mark Sippola, Supervisor, Program Development, Cap-and-Trade Program, California Air Resources Board
20 mins	Q&A and discussion	
Session 8: Roadmaps and action plans for developing effective ETSs in Asia		
8a) Indonesia		
10 mins	Status of ETS development in Indonesia, future actions and key issues and challenges	Qatro Romandhi, Coordinator for Energy Conservation Planning, Ministry of Energy and Mineral Resources, Indonesia
20 mins	Q&A and discussion	
10 mins	Break	
8b) Thailand		
20 mins	Status of ETS development in Thailand, future actions and key issues and challenges	Pathom Chaiyapruksaton, Project Manager, Thailand GHG Management Organisation
20 mins	Q&A and discussion	
8c) Further Q&A and discussion		
40 mins	Thoughts and questions from other jurisdictions, further Q&A and discussion	Speakers from different Asian jurisdictions
Session 9: Closing session		
10 mins	Summary of best practice, challenges and solutions Future meetings	Alistair Ritchie, Asia Society Policy Institute