

## Dialogue Facility on ETS Development in Asia ETS Allocation

### Meeting Summary

#### Overview

The Asia Society Policy Institute is convening a series of private dialogue meetings that brings 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, held on June 8–9, 2021, by videoconference, focused on one of the most contentious, challenging, and important aspects of an ETS, namely allocation of allowances. This concerns how to allocate to companies in an acceptable and fair way and how to incentivize and reward investment in greenhouse gas (GHG) emission reduction, while protecting industry’s international competitiveness and preventing carbon leakage. At the same time, allocation should not be too generous, eroding the impetus to abate and potentially leading to windfall profits for companies.

The meeting participants shared experiences, challenges, and solutions in building effective allocation strategies, including the mix of free allocation and auctioning, free allocation methods including benchmark (BM)-based allocation and use of consignment auctions, carbon leakage criteria, and future developments including carbon border adjustment measures. Related topics including price management policy were also covered.

Case studies were presented for well-established ETSs covering allocation experience, improvements, and learning points including the following:

- EU-ETS
- California Cap-and-Trade Program
- Korean ETS

Case studies were also presented for newly implemented ETSs covering allocation details, plans, and challenges, as well as updates on latest developments, including the following:

- China’s National ETS
- Indonesia’s Trial ETS

Experiences to date and insights on design of BM-based allocation were shared from various jurisdictions.

Details on how the experiences and learning points on ETS allocation can be applied in participants’ own work to develop an effective allocation policy were provided.

The meeting agenda is provided in Annex 1.

The participants are leading experts in ETS allocation from the EU, California, China, Korea, Japan, Indonesia, Thailand, Vietnam, and the Philippines.

## Summary

### Interaction between allocation, cap setting, and overall GHG emission reduction targets

#### *ETEs with absolute caps*

The total amount of allowances available for free allocation and auctioning under the EU-ETS, the California Cap-and-Trade Program, and the K-ETS is limited by absolute caps, with a correction factor applied if necessary to ensure that the amount of allocation does not exceed the total amount available.

An absolute cap can therefore ensure that a specific reduction target will be met, with a cap declining to zero supporting achievement of net-zero emission goals.

In these jurisdictions, the ETS caps are directly linked to overall GHG emission reduction targets. For the EU, the cap is based on cost-effective “burden sharing” of the EU reduction target between ETS and non-ETS sectors. For California and Korea, the cap is in line with the historic share of ETS emissions out of total emissions, multiplied by the total emission target.

As the overall GHG emission reduction targets become more stringent to comply with net-zero emission goals, there will be a consequent tightening of the ETS cap and hence a reduction in the amount of allowances available. For the EU, a more ambitious 2030 GHG emission reduction target of at least 55% below 1990 levels has been agreed upon, compared with 40% previously. This results in a proposed increase in GHG emission reductions from ETS sectors from 43% to 61% by 2030 from 2005 levels, corresponding to an increase in the annual linear reduction factor of the EU-ETS cap from 2.2% to 4.2%.<sup>1</sup> In conjunction with this will be a one-off cut of the emissions cap. For California, a periodic review of its climate policies is in progress and will consider how its net-zero goal can be achieved and what policy updates will be necessary. Finally, for Korea, more ambitious 2030 GHG emission reduction targets are expected to be announced later in 2021 to align with its net-zero goal, to be followed by potential revisions to the K-ETS cap.

#### *ETEs with caps linked to output (output-based ETEs)*

China’s National ETS and Indonesia’s Trial ETS have caps that are set by the number of allowances issued, which in turn are based on the output of the covered entities. As such, these are output-based systems with a direct link between actual production output and the amount of free allocation. This makes it easier for industry to accept, although it is less stringent environmentally and acts as a subsidy for output.

It is recognized that China’s National ETS needs to ultimately switch to an absolute cap to have strong mitigation value, which could be an outcome of China’s Carbon Peaking Roadmap, due in late 2021 or early 2022.

It is noted that output-based allocation is possible within an absolute cap, for example, through the use of a reserve to provide additional allowances for new entrants and production increases as in the EU and Korean systems or through the inclusion in allocation calculations of a cap adjustment factor that decreases each year in proportion to the annual decrease in the overall emissions cap.

### Combination of free allocation and auctioning

Auctioning of allowances should be introduced where possible to more completely adopt the polluter pays principle and strengthen the carbon price signal to drive low-carbon action.

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<sup>1</sup> The expectation of this stronger legislation combined with the realization that more expensive abatement measures will be required beyond renewable energy has been driving recent significant increases in the EU-ETS carbon price.

However, for sectors where carbon costs cannot be adequately passed through to product prices, there is a risk of damage to an industry's global competitiveness and of carbon leakage.<sup>2</sup> As such, there are currently limits to the extent to which auctioning is applied, with free allocation used for sectors at risk of carbon leakage. Free allocation is also a way of providing transition assistance to ensure a smooth program start.

The EU and California systems have significant levels of auctioning, and consequently lower levels of free allocation, primarily due to auctioning for the power generation sector, plus the transport fuel sector in California. Both of these jurisdictions have a mechanism to fully pass-through power sector carbon costs to electricity prices and reflect such costs in power station dispatch decisions. In jurisdictions in Asia where such mechanisms are not yet in place, this is a critical issue to resolve to enable quick and significant scale-up of auctioning, strengthen the carbon price signal, and support the decarbonization of the power sector.

A significant benefit of auctioning is the generation of revenue that can be used to help industry innovate and develop effective GHG mitigation technologies. Revenues directed at least partially toward these objectives help with the acceptance of auctioning by ETS entities.

Auctioning should be gradually increased as the need for free allocation decreases and as more ambitious reductions in GHG emissions are required. In the newly introduced ETSs in China and Indonesia, there is no auctioning, except only initially for market liquidity purposes in China's National ETS. In China, auctioning will be introduced gradually, and its share will increase over time. China has already announced plans for a national ETS fund to use such revenues. In Korea, auctioning has been increasing (from 0% to 10% from Phases 1 to 3) and will continue to increase.

### Free allocation methods

#### *Benchmarking*

Benchmarking is the most widely applied method of free allocation in the jurisdictions considered in the meeting. It rewards efficiency and is consistent with the polluter pays principle.

Benchmarks preferentially express emissions intensity per unit of production, following the "one product, one benchmark" principle. Proxies to production (e.g., energy input) are applied as fallback methods when product BMs are not feasible.

The level of the BM value should be determined in a practical way, while seeking to be as ambitious as possible. In Korea, China, and Indonesia, BM values have generally been set at average levels of emissions intensity.<sup>3</sup> This can allow for a smooth transition at an early stage of an ETS and is a relatively easy way of developing BM values. Furthermore, in Korea, it is also consistent with the coexistence of both grandfathering (GF) and BM approaches, as each approach would result in the same total amount of allocations.

While the average level is not ambitious, under a cap-and-trade ETS like K-ETS, the total amount of allowances is kept within the maximum amount allowable under the cap by applying a correction factor where necessary. A similar cross-sectoral correction factor (CSCF) is applied in the EU-ETS.

More ambitious BM values provide greater incentives and rewards for GHG emissions reductions and are expected to be introduced in the next phase of the K-ETS, potentially based on best available techniques (BAT). More ambitious approaches have already been adopted in

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<sup>2</sup> Carbon leakage is transfer of production to world regions with less ambitious climate policies leading to an increase in total emissions.

<sup>3</sup> Korea has an exception for the power sector as described later.

the EU using the average of the 10% best-performing installations and updated data,<sup>4</sup> and in California using 90% of average performance or the most efficient facility in the sector to ensure at least one facility in the sector achieves the BM.<sup>5</sup> The lower allocation amounts resulting from the updated values in the EU have meant that no reductions due to the CSCF have been necessary in the Phase 4 allocations, compared with approximately 20% reductions in Phase 3. This is seen positively by covered entities, as the application of corrections in this way can be seen as unfair to the best-performing entities.

For the power sector, a key challenge in Asian jurisdictions is developing a single combined BM for coal and gas power to incentivize low-carbon power generation. The K-ETS plans to start this in 2024.<sup>6</sup> Currently Korea and China have different BM values for coal and gas power plants.<sup>7</sup> Korea tries to encourage gas power by making the gas BM more generous (higher than average efficiency) and coal BM less generous (lower than the BAT). The coal BM is differentiated in China and Indonesia by size and type of power plant, with further allocation adjustments made in China for coal plants according to cooling method, heating supply volume, and load factor. This differentiation can reduce the financial impact on less efficient plants; however, it also reduces the reward for low-carbon action and investment in GHG emission reduction and can create competitive distortions. For China, a single BM value for coal and gas should be applied eventually.

The amount of time required to develop and adopt BM values varies depending on the specific process that is followed, the availability of data, and the legislative background. It took the EU approximately 2 to 2.5 years for the original Phase 3 BM values and a similar amount of time for the Phase 4 values. Korea took approximately 5 years of studies and consultation with affected sectors for the new BM sectors in Phase 3, including steel and petrochemicals. This time could have been significantly shortened if the ETS legislation specified BM-based allocation<sup>8</sup> and if verified emissions data were already available at the level of the BM product boundaries.

The recommendation is that 3 years of verified data be collected prior to the start of the ETS and to ensure that the monitoring, reporting and verification (MRV) system reflects the boundaries of BM products from the beginning of the ETS. It is also important to adopt a consistent and coordinated approach in the process of consulting with industry sectors and developing the BM-based allocation methodology.

### *Grandfathering*

Among the jurisdictions represented at the meeting, the application of grandfathering was limited to a minority of allowances under the K-ETS.<sup>9</sup> BM is gradually replacing GF, although the process has been time consuming and requires the consent of relevant stakeholders. GF does not reward early investments in GHG mitigation and low-carbon technology and so is not recommended. It is recommended to apply BM-based allocation from the beginning of an ETS and to avoid GF. Mixing BM and GF is problematic as seen in the K-ETS experience.

### *Consignment auctions*

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<sup>4</sup> BM values have been updated for 2021–25 using 2016–17 data and will be updated for 2026–30 using 2021–22 data.

<sup>5</sup> The data for BM values under California's Cap-and-Trade Program have not yet been updated.

<sup>6</sup> A single BM will apply if coal and liquefied natural gas (LNG) power generation competes in the same bidding market. Different BM values will continue if the bidding markets for coal and LNG are separated, although BM levels will be further reduced for coal and further increased for LNG.

<sup>7</sup> Note that Indonesia's Trial ETS does not include gas plants.

<sup>8</sup> The K-ETS legislation does not provide a clear mandate for BM and instead allows both BM and GF methods.

<sup>9</sup> GF was also applied in the early phases of the EU-ETS.

An additional variant of free allocation has been adopted in California with electrical distribution utilities and natural gas suppliers. Allowances are allocated freely to them, but they must be consigned to auction, with the proceeds used for ratepayer benefit.

#### Carbon leakage criteria and factors

In the discussions on carbon leakage (CL), it was commented that there is still no evidence of leakage occurring in the EU, but the threefold increase in carbon price in recent years could change this, and there is genuine concern about future leakage risks. An accumulation of free allocation in the EU system has mitigated against carbon leakage – this is only just beginning to disappear as the amounts of free allocation are gradually reduced.

The EU, Korean, and Californian systems apply similar metrics to determine the level of CL risk for each covered sector. Sectors at higher risk for CL typically get higher levels of free allocation, and sectors at lower risk for CL typically get lower levels of free allocation. These metrics include emissions intensity<sup>10</sup> and trade intensity.<sup>11</sup> The product of these values is compared with a threshold value in the EU and Korean systems to determine CL/non-CL sectors; in California, three levels of CL risk are determined according to different combinations of the two criteria.

#### Carbon border adjustment mechanism

The EU's proposed carbon border adjustment mechanism (CBAM) will put a carbon price on imports of a targeted selection of products beginning in 2026 with the aim of ensuring that ambitious climate action in the EU does not lead to carbon leakage. Under a CBAM, if a covered product or material is imported into the EU from a country where there is no similar carbon pricing, a price for the "embedded emissions" of that good would have to be paid upon import. A gradual phaseout of free allocation will occur in the EU-ETS beginning in 2026 by 10 percentage points each year to reach zero in 2036; that is, industry would move to full auctioning. A credible and equivalent carbon price would be necessary to avoid penalties under the CBAM.

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<sup>10</sup> Emissions intensity is calculated based on GHG emissions/GVA (although in the K-ETS, GHG emissions are multiplied by the carbon price – similar to a previous approach in the EU-ETS).

<sup>11</sup> Trade intensity is calculated based on (exports + imports)/market size.

## Annex 1: Agenda

Day One: June 8, 2021 (Tuesday)		
<b>Session 1: Welcome and introduction</b>		
5 mins	Welcome remarks and introduction	Alistair Ritchie Asia Society Policy Institute
<b>Session 2: EU-ETS</b>		
20 mins	Allocation experience, improvements, and learning points from the EU	Hubert Fallmann Umweltbundesamt, Austria
	Options for a potential carbon border adjustment mechanism	
30 mins	Q&A and discussion	
<b>Session 3: China national ETS</b>		
30 mins	Allocation details, plans, and challenges in China	Wang Yu Tsinghua University, China
	Latest developments and issues following commencement of national ETS	Chen Zhibin SinoCarbon, China
20 mins	Q&A, feedback and comments	
10 mins	Break	
<b>Session 4: Indonesia trial ETS</b>		
15 mins	Allocation details, plans, and challenges in Indonesia	Saleh Abdurahman Ministry of Energy and Mineral Resources, Indonesia
	Latest developments and issues following commencement of trial ETS	
15 mins	Q&A, feedback and comments	
<b>Session 5: International Carbon Action Partnership insights</b>		
15 mins	Reflections and comments on ETS allocation experiences, plus learning points from forthcoming ICAP paper on free allocation design	William Acworth International Carbon Action Partnership, Germany
15 mins	Q&A and discussion	
5 mins	Summary of Day One and expectations for Day Two	Alistair Ritchie Asia Society Policy Institute

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## Day Two: June 9, 2021 (Wednesday)

### Session 6: Welcome and introduction

10 mins	Review of key lessons discussed on Day One and introduction to Day Two	Jackson Ewing Duke University/Asia Society Policy Institute
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### Session 7: California Cap-and-Trade Program

20 mins	Allocation and price control experience, improvements, and learning points from California, including consignment auctions	Mark Sippola California Air Resources Board
30 mins	Q&A and discussion	

### Session 8: Korea ETS

20 mins	Allocation experience, improvements, and learning points from Korea	Seung Jick Yoo Sookmyung Women's University, Korea
10 mins	Break	
20 mins	Developing BM values for power and industrial sectors K-ETS entities' experience of allocation policy	Dong-Hyeok Kwon Eco&Partners, Korea
20 mins	Q&A, feedback and comments	

### Session 9: Application of experience and learning points to Asian jurisdictions

35 mins	How the experiences and learning points on ETS allocation can be applied in participants' own work to develop an effective allocation policy that responds to countries' specific conditions	Speakers from different Asian jurisdictions
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### Session 10: Closing session

15 mins	Summary of challenges and solutions for ETS allocation in Asian jurisdictions Expectations for future meetings	Jackson Ewing Duke University/Asia Society Policy Institute
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