

POLICY BRIEF

ETS Alignment: a price collar proposal for carbon market integration

Highlights:

- The global carbon market landscape is fragmented and increasingly complex. The conclusions reached at COP26 in Glasgow on the Article 6 rulebook are expected to achieve further mitigation using market mechanisms, facilitate the coordination of international efforts and increase carbon market integration.
- Three sets of conditions are necessary for smoothing the linking of emissions trading systems (ETSs). Before negotiations, mutual trust is crucial to respond to unexpected developments in partners' economic, social and political circumstances. During the linking negotiations, a degree of alignment of core design features of ETSs is necessary to harmonise the systems. After the completion of negotiations, built-in reviews and broad-based consultations, as well as mechanisms for revision, dispute resolution and potential future delinking, are fundamental to ensure that linking works over time.
- The degree of alignment necessary for linking is a critical issue. Some ETS features (e.g., the price control mechanisms) require compatibility, whereas other key design elements (e.g., the stringency of the cap) may not require strict compatibility if they lead to comparable outcomes. Other ETS design features (e.g., the allocation phases and compliance periods) would benefit from coordination but do not need to be aligned.
- When ETSs are linked, the efficiency gains from allowance trade are enhanced compared to autarky (pre-link levels), as domestic and foreign



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Authors

Simone Borghesi, EUI; Baran Doda, adelphi; Jacopo Cammeo, University of Siena; Albert Ferrari, EUI; Marian Mraz, EUI; Stefano F. Verde, University of Siena;

allowance prices fully or partially (in case of linking with quotas) converge to an intermediate level. The price risk of linking could be constrained by enforcing a price collar (i.e., a price floor and a price ceiling) for the linked system.

- The price collar could be specified by the intersection between the two respective intervals representing acceptable post-link allowance prices. Options for enforcing the price ceiling include releasing allowances from a joint cost-containment reserve. To enforce the floor, allowances can be allocated in auctions with a reserve price equal to the floor. Alternatively, a ‘top-up’ carbon tax could be applied to allowances that are auctioned at a price below the floor.
- The price collar could help jurisdictions to mitigate systemic shocks that may affect allowance prices like recession, unanticipated growth, technological leaps that lower the abatement cost of emissions, as well as changes in companion climate policies. Reducing price risk and uncertainty would be beneficial for regulators, regulated entities and investors. However, reaching an agreement on the parameters and rules of a price collar in the linked system can be difficult. Early and open dialogue between the ETSs is strongly recommended to overcome these challenges.

1. Introduction

Carbon pricing is becoming an increasingly popular policy instrument increasing the cost efficiency of the countries’ mitigation actions. The recently concluded negotiations on Article 6 of the Paris Agreement reinforced this tendency by enhancing the space available for international cooperation among countries to meet their ever more ambitious emission reduction targets. Still, many carbon markets are in their infancy, capacity-building programs are sorely needed, and infrastructure must be built to facilitate emission trading.

A patchwork of mandatory emissions trading systems (ETSs) and carbon taxes, covering more than a quarter of global greenhouse gas (GHG) emissions, are now operational in juris-

dictions including the EU Member States, Switzerland, China, South Korea, Japan, and New Zealand as well as in several US states and Canadian provinces. Many more carbon pricing instruments, particularly in emerging countries, are in the preparation or pilot phase (World Bank, 2022). Getting the ETS design right is essential to ensure that jurisdictions will be able to exploit the efficiency gains from their further integration.¹

This policy brief summarises the options of the report “ETS alignment: possible reforms for carbon market integration” (Doda et al., 2022), developed in the context of the LIFE DICET project² and presented during the third Carbon Market Policy Dialogue (CMPD) on 7 July 2022. The CMPD involves the participation of the regulators of six major ETSs, namely those of the EU, California, China, Québec, New Zealand and Switzerland, and a number of international stakeholders, including policymakers, researchers, as well as representatives of industry and civil society.

Against this backdrop, the LIFE DICET project has sought to better understand the reasons behind the apparent scarcity of links and help policymakers enhance international cooperation for the development and possible integration of carbon markets. The purpose of the report summarised here is to inform the Carbon Market Policy Dialogue (CMPD)³ of this project. Previously, four reports investigated the implications of different ambition levels (Verde et al., 2020), price control mechanisms (Galdi et al., 2020), leakage prevention measures (Verde et al., 2021), and offset provisions (Galdi et al., 2022), for linking ETSs. The fifth and final report (Doda et al., 2022) synthesises the earlier findings, identifies specific ETS design elements requiring specific degrees of alignment/harmonisation and discusses how this can be achieved in linking negotiations. Moreover, with a view to finding ways to facilitate the establishment of direct linkages between ETSs, a proposal regarding the management of allowance prices in the form of a “price collar for the linked system” is presented.

1 For discussions also see e.g., Bodansky et al. (2016), Mehling et al. (2018a, 2018b), Doda et al. (2019), Edmonds et al. (2021).

2 FSR Climate is managing an EU-funded project titled LIFE DICET (Deepening International Cooperation for Emissions Trading) which supports European Union and Member States policymakers in deepening international cooperation for the development and possible integration of carbon markets. Access the project outputs under: www.lifedicetproject.eu.eu

3 <https://lifedicetproject.eu.eu/carbon-market-policy-dialogue/>

1.1 State of play and outlook for carbon markets

There were 25 mandatory ETSs operating around the world, with another 22 ETSs under development or consideration at the beginning of 2022. ETSs exist at the municipal level (e.g., such as Beijing, Shenzhen, and Tokyo), at the province or state levels (e.g., California, Guangdong, Quebec), or at the national level (e.g., China, Switzerland, the United Kingdom), and ultimately at the supranational level (e.g., EU incl. Iceland, Liechtenstein, and Norway). Altogether, the operating ETSs cover approximately 17% of global GHG emissions. Along with compliance markets, voluntary carbon markets are gaining prominence, particularly after the conclusion of the negotiations on Article 6 of the Paris Agreement. These markets supplying offsets generated by many national and international crediting mechanisms are now in an early development stage when the technical aspects are being agreed upon and operationalised⁴ (Fearneough et al., 2020; Fattouh and Maino, 2022; World Bank, 2022). However, there are still rather few practical experiences linking the existing ETSs, such as between California and Quebec, Tokyo and Saitama, or the EU and Switzerland (ICAP, 2022).

The current pace and direction of the carbon market developments could lead to increase complexity in their coordination and possible integration. Besides direct links between two independent ETSs, indirect links may also arise in several settings. For example, two independent ETSs may be indirectly linked when maintaining bilateral links to the third ETS. The type of the link, the structure of the linking agreement and developments in individual jurisdictions together determine the evolution of allowance prices in the linked ETSs. In turn, the expected allowance price level and volatility are important factors determining the desirability of linking for policymakers in different jurisdictions.

In our analysis, we limit ourselves to compliance markets and refrain from considering the role of the voluntary carbon market demand, which is relevant for the determination of the prices of emission reduction credits. The allowance price volatility and existing differences in regional

carbon prices are considered the main driving factors of further carbon market integration.

1.2 Conditions for successful linking of the ETSs⁵

- **Conditions to be met before linking negotiations start include mutual trust between regulators.** Trust also includes political will and technical capacity to respond to unforeseen shocks without undermining the agreed principles of cooperation. A mutual understanding is also required on the expected distribution of the net benefits resulting from linking as well as on the partners' climate policy ambition.⁶ At least some overlap between the ranges of acceptable carbon prices is indispensable.
- **Conditions to be met during the linking negotiations refer to the alignment of core design elements of the ETSs.** We differentiate between design elements that require strict alignment, design elements leading to comparable outcomes that only need to be compatible and design features that would benefit from coordination and mutual understanding. Negotiations on linking the ETSs should start by clarifying the objectives each jurisdiction wishes to achieve by linking, building trust by focusing on elements that are easy to harmonise and gradually moving on to more contentious features which may be more difficult to align.
- **Conditions to be met after the successful completion of linking negotiations ensure that linking remains beneficial and fit for purpose over time.** Built-in reviews, consultations, mechanisms for revision and dispute resolution are crucial to identifying emerging issues and responding to them rapidly and effectively. Partners should also have a shared understanding regarding the process for adding other ETSs to the linked system. Conversely, suppose the built-in review, revision, and dispute resolution mechanisms are not sufficient to dissuade a partner from terminating the linking agreement. In that case, each partner should have confidence in a robust delinking protocol that will protect the interests of all parties.

⁴ The technical aspects refer to the assurance of environmental integrity, infrastructure for monitoring, reporting and verification etc.

⁵ Additional information on the conditions for successful linking can be found in Grubb (2009), Tuerk et al (2009), Flaschland et al (2009) and Burtraw et al (2013), ICAP (2018), Gulbrandsen et al (2019), and Evens and Wu (2021).

⁶ Report 1 of LIFE DICET project (Verde et al., 2020) emphasizes three dimensions of ambition in an ETS: coverage, stringency and determinacy.

2. Reforms and revisions to align ETSs

ETSs might be required to adopt complex reforms to narrow down the differences in their designs unless they start with an agreed-upon model from the outset. For example, the ETSs in the US RGGI states were designed on the basis of a Memorandum of Understanding (MoU) and the Model Rule, which ensure the compatibility of their key features.⁷ On the contrary, the ETSs, such as EU ETS and the (now defunct) Australian Carbon Pricing Mechanism (CPM), were designed as independent systems targeting domestic abatement without a basis for mutual linkage. Any design differences notwithstanding, the EU and Australia were still able to negotiate a bilateral agreement to link EU ETS and CPM (Evans and Wu, 2021).

A clear and joint understanding of the degree of alignment between the ETSs prior to linking is essential to ensure the robustness of the linked system, overall environmental ambition, and issues related to fairness, competitiveness, and leakage and to limit any possible undesirable side effects, including automatic propagation. Some ETS design elements, therefore, **require compatibility**. For other key design features, **comparable outcomes are acceptable**, and finally, some design elements would **benefit from coordination and mutual understanding** for improved operation of the linked system.⁸ For simplicity, in our analysis, we focus mainly on linking ETSs without restrictions.⁹

2.1 Design features requiring compatibility

ETS design elements that have a bearing on system robustness and ambition require compatibility across different ETSs. Failing to ensure compatibility with these elements could result in a malfunctioning linked system. The most central design element of any ETS is the cap on emissions, its form, and its evolution over time.

Most of the ETSs currently in operation opted for an absolute cap on CO₂ only or greenhouse gases more broadly. An increasing number of jurisdictions (specifically in Asia) are experimenting with intensity-based (relative) caps.¹⁰ In this case, the number of allowances is determined based on the level of activity at the regulated-entity level or using a more aggregate measure like the GDP. Intensity-based caps, similarly to the ETSs with voluntary opt-in and opt-out provisions, increase the uncertainty of the cap and typically require full compatibility for linking.¹¹

The type and quantity of offsets traded and Monitoring, Reporting and Verification (MRV) standards determine the ambition and robustness of the linked system. For any offset credit used for compliance in a given ETS, an allowance is freed up for use in one of the ETSs, including in those that do not accept offsets. Such designs might incentivise potential partners to adopt a less stringent cap. Hence, the rules safeguarding additionality through an acceptable common approach and minimum MRV standards are essential.¹²

Alignment of temporal flexibility options is vital. In practice, banking of allowances is typically permitted, while borrowing is generally not allowed or severely restricted to small quantities and short time periods. If regulated entities in one ETS are allowed to borrow from future compliance periods, they can sell these allowances to regulated entities elsewhere. This might cause concern to the regulators in the systems with restricted borrowing. Moreover, any concerns regarding the creditworthiness of the borrowers in the system with borrowing might put in doubt the declared ambition and robustness of the entire linked system.

Many existing ETSs deploy price control mechanisms (PCMs) to protect against excessive volatility of allowance prices.¹³ As a result of linking, the effectiveness of an individual ETS's interventions might be diluted or even cause perverse interactions between PCMs. For example, an

7 For further details, see [State Statutes and Regulations](#); [the MoU and Model Rule](#); and [the path for new states to join RGGI](#) on the RGGI website.

8 For details see Burtraw et al (2013), Borghesi et al. (2016), ICAP (2018), ICAP and PMR (2021).

9 Restricted linking is a potential and general response to many of the issues discussed below, albeit at the cost of reduced benefits from linking. Indeed, autarky can be interpreted as an extreme form of restricted linking. We focus on linking without restrictions to illustrate the main arguments for alignment and refer the reader to Schneider et al. (2017), Quemin and de Perthuis (2019), and Borghesi and Zhu (2020) for additional discussion of restricted linking.

10 Note, that it is technically possible to link ETSs with absolute and intensity-based caps, but due to the resulting uncertainty regarding the cap, it might prove to be too big a barrier to overcome in negotiations.

11 See section 3.2 of Report 1 (Verde et al., 2020) for additional details and references.

12 See section 3.2 of Report 4 (Galdi et al., 2022) for additional details and references.

13 See ICAP (2020) which explores different market stability mechanisms (MSMs) used in ETSs around the world.

auction reserve price in one small system is less effective if there are enough allowances available for sale at a lower price in the linked and broader secondary market. A hard price ceiling might undermine ambition and be opposed by the jurisdictions that opted for a quantity-based PCM. Generally, the PCM itself can represent a stumbling block in linking negotiations. It might also be difficult to reconcile the differences between rule-based and discretionary PCMs. A close alignment of PCMs is crucial for the successful negotiation of the linking agreement and the operation of the linked system.¹⁴

2.2 Design features requiring comparable outcomes

Comparable outcomes of some of the design elements are acceptable, assuming an agreement is in place governing any revisions. For cap stringency, it is sufficient that linking partners are comfortable with the level of each other's climate ambition. Therefore, linking negotiations should aim to arrive at a comparable set of cap stringencies to facilitate linking, noting that wide gaps in the level of ambition across partners are likely to be detrimental to linking. Robust MRV systems are essential for the operation of the ETS, even though particularities of MRV rules and regulations differ across jurisdictions. Strict enforcement and transparent rules regarding delays in surrendering allowance supported with penalties sufficient to deter non-compliances are essential. Aligning the non-compliance penalties might also play a role in minimising any incentives for strategic moves toward jurisdictions with lower penalties.

Transparent, timely and secure access to the relevant information from the registries is necessary. A framework must be in place to prevent any attempts of fraud and manipulation. Contemporary allowance markets exhibit characteristics of commodity markets and markets for financial instruments, both of which are conducted largely through organised and regulated exchanges. In addition to covered installations, market participants can include brokers, private citizens, NGOs as well as financial institutions trading not only allowances but also a variety of derivatives. This requires a coherent regulatory framework in the partner systems.

2.3 Design features that would benefit from coordination and mutual understanding

The scope, allocation methods, phases, and compliance periods of the ETSs do not require a full alignment to negotiate a link with any other ETS. However, close coordination can be beneficial. Differences in the scope of coverage between the partner ETSs are not detrimental to the functioning of the linked system and may even enhance the cost-saving opportunities. However, it is important to ensure that the differences in coverage of activities/gases, point of regulation and thresholds for inclusion in the ETS do not give rise to competitiveness, leakage, or fairness concerns.

Differences in allowance allocation methods (e.g., such as free allocation based on historical emissions or benchmarking, or auctioning) have implications for the distribution of rents between the government and regulated installations. For instance, free allocation of allowances without the use of benchmarks might increase the risk of windfall profits. Alignment of the allocation methods might increase the political acceptability of the ETS but is not strictly necessary.¹⁵

Auctioning of allowances may also change the distribution of revenues across jurisdictions, which may be politically sensitive. However, joint or separate auctions can be held without significant implications for the link, provided that there is coordination between linking jurisdictions. The synchronisation of trading phases and compliance periods is not a necessary condition, and there may be arguments for not aligning along these dimensions. On the one hand, a closer alignment of phases among partners can reduce uncertainty, coordinate reviews and consultations, and help with communication of upcoming revisions. Similarly, closer alignment of compliance periods might reduce systemic administration costs. On the other hand, asynchronous compliance periods might improve market liquidity by generating different peaks in allowance demand.

¹⁴ See e.g., the existing links between California and Quebec as well as the US States participating in RGGI.

¹⁵ See Report 3 on carbon leakage prevention (Verde et al., 2021) for additional details and references.

Table 1: Different degrees of alignment for ETS design features

Features requiring Compatibility	Features requiring comparable outcomes	Features that would benefit from coordination and mutual understanding
<ul style="list-style-type: none"> · Mandatory versus voluntary participation · Type of the cap (absolute versus intensity-based) · PCMs · Banking and borrowing · Use of offsets · Linking with new and additional partners 	<ul style="list-style-type: none"> · Stringency of the cap · Financial market regulation · Enforcement stringency · Robustness of MRV registry operation 	<ul style="list-style-type: none"> · Scope of coverage · Point of obligation · Compliance period · Allocation methods · Trading & compliance phases

3. Linking with a price collar - a proposal

The linkage between ETSs will affect the allowance prices through trade. There are two impact channels through which the prices will change after linking. First is the ‘*price impact of linking*’ (i.e., the immediate impact of the trading activity on the domestic allowance price as market participants in the linked system buy and sell compliance units which become available due to linking). Second is the ‘*price risk of linking*’ (i.e., the impact of an external shock or policy change in any of the linked ETSs on the domestic allowance price).

A price collar can be introduced to limit the *price risk of linking* and facilitate the formation of new linkages. Doing so requires that the boundaries and associated operational rules of a price collar would become central elements of the linking agreement. To see why, it is helpful to consider

first the price impact of linking, which depends on a) the relative price levels and the sizes of the potential partnering ETSs, and b) the type of linkage that is being contemplated. We then turn to explaining how this relates to the specification of the price collar.

3.1 The price impact of linking under different types of linking and the acceptable range

Two comparative static analyses are illustrated under scenarios of full linking (Figure 1) and linking with quotas (Figure 2). In this simple setup, the allowance price in jurisdiction Y, which has the ETS with higher autarky price, will decrease. Conversely, the allowance price in jurisdiction X will increase. In the case of full linking, the efficiency gains from trade are maximised as allowance prices converge fully. As a result, the abatement of 20 units will shift from jurisdiction Y to jurisdiction X, leaving the total abatement unchanged. The gains from trade correspond to the sum of the blue and orange shaded areas in Figure 1.

Restricted linking refers to the existence of various limitations to allowance trading between the two ETSs, including border taxes on emission allowance transfers, exchange rates, discount rates, and quotas on allowance transfers¹⁶ (e.g., Lazarus et al., 2015, Schneider et al., 2017, Quemin and de Perthuis, 2019, Borghesi and Zhu, 2020). A quota transfer limit¹⁷ is the most practical and currently the most plausible alternative to full linking. If there is such a quota on the number of allowances that can be traded between jurisdictions, the efficiency gains will be reduced because prices do not converge fully. For example, in Figure 2, the quota of 8 units on the number of allowances jurisdiction Y can buy results in a smaller shaded area representing the gains from trade in linking with quotas. The hatched area represents scarcity rents, which are captured by respective jurisdictions depending on whether the quota is applicable to X’s imports or Y’s exports.¹⁸

16 Expressed as a percentage of an ETS’ total number of allowances.

17 Just as many existing ETSs impose a quota on emission offsets that can be used by regulated entities for compliance purposes, similar quotas could be imposed on the volume of allowances imported/exported from/to other linked ETSs.

18 As explained in Schneider et al. (2017), the distribution of the gains from trade depends on how the transfer quota is implemented. If it is a quota on imports of the higher-price jurisdiction, the price for transfers would likely settle at the allowance price in the lower-price jurisdiction (i.e., X). As a result, the higher-price jurisdiction would capture the scarcity rent. If it is a quota on exports of the lower-price jurisdiction, the price for transfers would likely settle at the allowance price in the higher-price jurisdiction (i.e., Y). As a result, the lower-price jurisdiction would capture the scarcity rent.

Figure 1: Autarky vs Full linking: gains from trade and price impacts.

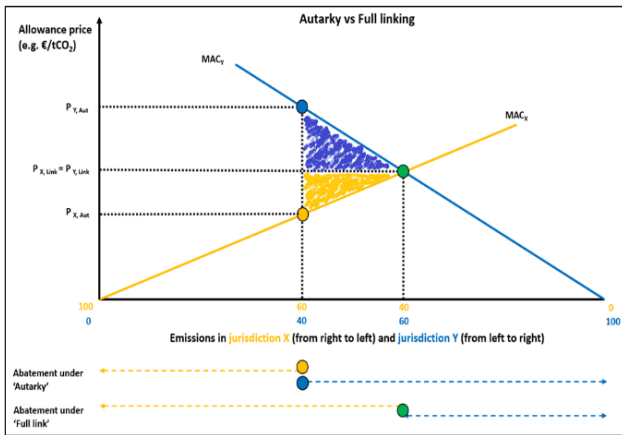
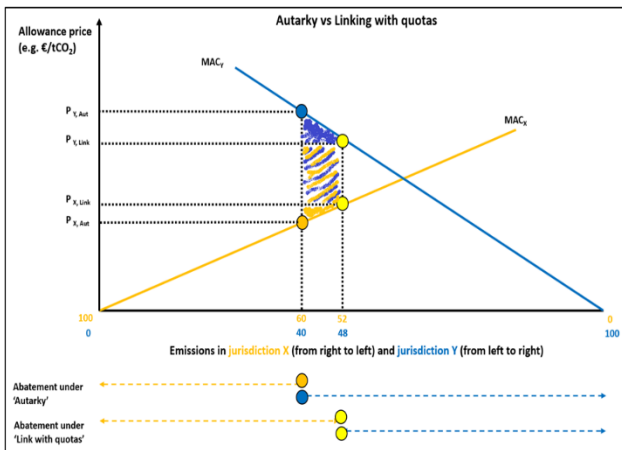


Figure 2: Autarky vs Linking-with-quotas: gains from trade and price impacts.



Depending on the conditions of supply (largely determined by the size of business-as-usual emissions and the caps in the two jurisdictions) and of demand (represented by the different slopes of the marginal abatement costs curves), price changes caused by linking can be markedly asymmetric (Flachsland et al., 2009; Doda and Taschini, 2017).

To evaluate whether the jurisdictions decide to pursue linkage or not, one should compare the resulting expected allowance price against the price interval that is acceptable for the ETS regulator in each jurisdiction. If it is in this interval for all jurisdictions, then linking may be viable. The width of the acceptable price interval depends on many different factors, including anticipated general equilibrium effects of the new equilibrium carbon prices as much as the policymaker's preferences about a greater or diminished role of carbon pricing in the domestic policy mix.

3.2 Full linking with a price collar: why and how

Under linking, external shocks may affect the domestic allowance price level. These shocks may include economic recessions, strong unanticipated growth, and technological leaps lowering abatement costs, but also changes in government policies that may affect the regulated emissions. The implied price risk of linking, acting as a disincentive for the establishment of new linkages, can be mitigated by a price collar in the linking agreement.

A feasible price collar can be identified by the intersection between the respective intervals representing the acceptable post-link allowance prices. The wider the collar, the smaller the chances that the floor or the ceiling would be activated, as illustrated in Figures 3 and 4. An advantage of the price collar proposal is that as long as the collar bounds are not activated, full linking with a price collar is equivalent to full linking.

The resulting equilibrium prices and total emissions differ from the case of full linking when either the floor or the ceiling is activated. With the floor activated, regulated installations in both jurisdictions undertake extra abatement, the sum of which corresponds to the distance between the yellow markers in Figure 3. As a result of the extra abatement, an equal number of allowances is 'freed'. These allowances could either be cancelled or stored in a cost containment reserve and used when the price ceiling is triggered. In this case, the regulated installations in both jurisdictions undertake less abatement than would be implied under full linking. The overall increase in emissions under the linked system with a price collar corresponds to the distance between the yellow markers in Figure 4.

Figure 3: Linking with a price collar, activated floor.

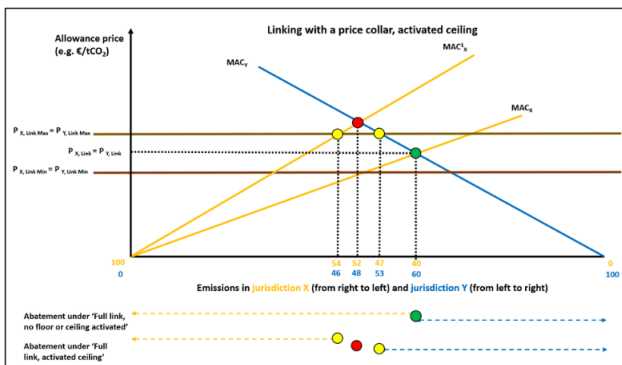
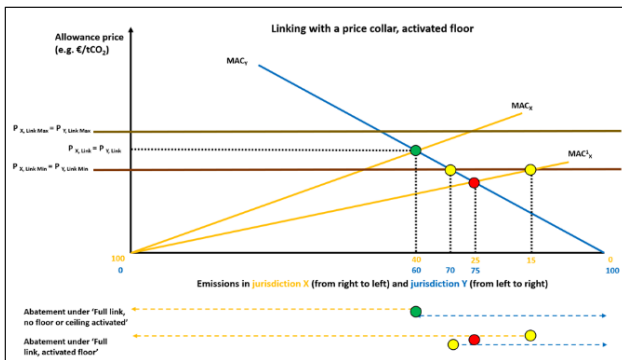


Figure 4: Linking with a price collar, activated ceiling.



The proposed price collar can be implemented by the linked ETSs in different ways. Allowances from a joint cost containment reserve can be sold to regulated entities at a price equal to the ceiling. When the cost containment reserve is exhausted, top-quality carbon offset credits could be sold to regulated installations at a price equal to the ceiling. As opposed to issuing more allowances, sales of carbon credits may preserve the environmental integrity of the linked ETSs. Conversely, allowances can be distributed through auctions with a reserve price equal to the price floor. The unsold allowances can flow into the cost containment reserve. A ‘top-up’ carbon tax can be applied to allowances that are auctioned at a price below the price floor. The rate of the carbon tax would be equal to the positive difference between the price floor and the auction sale price of allowances (Wood and Jotzo, 2011).

4. Insights from the Carbon Market Policy Dialogue

On 7 July 2022, the third CMPD meeting on “ETS Alignment: possible reforms for integration” brought together over 40 international experts. These were policymakers, including the regulators of the six ETSs represented in the CMPD and of the UK, researchers and representatives of regulated industries and civil society. A selection of relevant insights from the interventions and discussion is reported below.¹⁹

- Participants in the CMPD noted a general political preference for domestic abatement action and against large financial flows financing abatement action elsewhere, even if it is cost-effective to do so.
- Participants noted that linking ETSs is perceived as a very complex exercise. Many participants in the CMPD who have been involved in actual linking negotiations or followed them closely highlighted the importance of strengthening general and mutual trust and improving understanding among future partners. Linking requires time, also because “knowing each other’s ETS” takes a long time.
- Linking is ultimately a political decision. As such, the involvement of policymakers, including those of the highest level (e.g. finance and prime ministers), is needed.
- Price collars would facilitate the establishment of new linkages. If successful, they could improve international coordination of carbon prices, perhaps starting in smaller, relatively more homogenous groups like the G7 before being discussed and implemented more broadly, for example, in the G20.
- Several CMPD participants agreed that the magnitude of the expected price impact is a key determinant of the decision to link ETSs. Larger differences between autarky prices make it more difficult to link by implying a large price change after linking in at least one jurisdiction.
- The width of the proposed price collar is critical. Notably, the collar should not be too narrow, as it should not hinder market discovery of the allowance price.

¹⁹ The insights that follow reflect some of the main considerations emerging from the discussion among participants at the CMPD meeting, and do not represent the opinions of all participants and/or of the authors of this policy brief.

- With a view to establishing a price collar shared by two or more linked ETSs, carbon prices in the same ETSs could be gradually aligned in preparation.
- The static analysis of linking might provide a limited picture as it refrains from considering the underlying price dynamics. Price dynamics are essential as all prices naturally fluctuate over time, and the increased liquidity delivers additional benefits to the market. In the absence of explicit acceptable price ranges, jurisdictions can rely on the observed overlap between historical price distributions or on modelling exercises in the systems to be linked for guidance.
- Linking in itself can contribute to creating a larger, more liquid carbon market, hence contributing to the reduction of price volatility. The increased liquidity and hedging opportunities allow participating parties to become more resilient to price shocks.
- The specific rules of intervention when the price collar is triggered will have distributional implications which are inherently political. For example, if developments in one jurisdiction come to be seen as triggering the price floor more frequently than others, the political acceptability of the linked system may be undermined.
- It is important that the would-be partners consider the balance between emissions trading and other climate policies in delivering the other jurisdictions' climate targets because this balance can have significant implications for the prices prevailing in the ETSs to be linked. The use of complementary policies requires more coordination among the participating jurisdictions due to their implications for the allowance prices. Ultimately, linking *per se* might not be cost-efficient if a jurisdiction using price policies would link with another jurisdiction with many companion policies.
- Some jurisdictions might be reluctant to take explicit actions based on observed prices and rather rely on quantity-based rules to provide guidance and let the market determine the allowance price without strict limits on the values the price can take.

5. Concluding remarks

The public report abridged in this policy brief makes two main contributions.

Firstly, building on the broader literature, it identifies and reviews the necessary conditions to ensure a functioning link between the ETSs. These conditions include sufficient mutual trust prior to negotiations, acceptability of the resulting allowance prices and the resulting distribution of net benefits in the linked system. Second, during the linking negotiations, jurisdictions need to agree on the alignment of the different ETS design elements to ensure the effective functioning of the link. After a linking agreement is reached and implemented, built-in reviews and mechanisms for revision and dispute resolution ensure the partners will identify and address any emerging issues.

Secondly, it develops a proposal for a price collar between ETSs to facilitate the linking agreement. As a result of the price collar, the price linking risk is reduced, limiting excessive price volatility, and increasing the buy-in from the industry. By making the jointly acceptable price range in the linked system explicit, the price collar can also act as a reference for new members who may consider joining the system in the future. The agreement on the design elements of a price collar in the linked system is generally difficult to achieve. First, governments might not be willing to interfere in market-driven price discovery. Second, the specific rules of intervention when the price collar is triggered will have distributional impacts with far-reaching political implications. Finally, if the overlap between the jurisdictions' acceptable ranges for allowance prices is narrow, the price collar will be triggered frequently with all the attendant inefficiencies.

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