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RESEARCH ARTICLE

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On linking the UK and EU carbon markets

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ABSTRACT

Adopting climate-neutral and net-zero emissions targets is central to many nations' climate strategies aimed at mitigating climate change effects and promoting sustainable low-carbon transitions. Emissions trading schemes (ETSs) serve as a key policy mechanism, with linked systems enabling international cooperation. With the intention to establish a UK-EU ETS link announced in Spring 2025, this paper examines institutional factors facilitating or constraining implementation, alongside its potential contribution to UK net-zero objectives. It contributes to discussions surrounding UK-ETS linkage by evaluating ETS compatibility literature alongside post-Brexit climate policy. We identify and assess the feasibility of linking ETSs based on four dimensions: market design, political economy, economic, and environmental considerations. Our analysis reveals strong institutional compatibility between the UK and EU ETS. Linkage offers significant benefits including enhanced market liquidity, more efficient emissions abatement, greater carbon price credibility, and improved cooperation on emerging areas like engineered greenhouse gas removals and carbon capture and storage markets. A linked ETS could strengthen policy alignment between UK-EU climate policies, particularly regarding carbon capture and storage, greenhouse gas removals, and broader decarbonisation investments. However, governance and regulatory autonomy concerns, coupled with evolving market design ambitions, pose barriers requiring sustained cross-jurisdictional policy coordination for long-term success.

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Market linking; emissions trading; energy transition; policy architecture; carbon neutrality

Policy highlights

- Linked markets enable coordinated investment in CCS, engineered GGRs, and cross-border CO_2 transport and storage.
- Durable market linkage requires governance mechanisms for managing future regulatory and market divergence.
- Linkage could strengthen UK market liquidity, carbon-price credibility, cost-effective abatement, and competitiveness as emissions caps tighten and markets contract.
- Key policy challenge involves aligning price stabilisation, sectoral coverage, CBAM, and removals while preserving regulatory autonomy and environmental integrity.

List of abbreviations

ARP	Auction Reserve Price
BEIS	Department for Business, Energy & Industrial Strategy

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CBAM	Carbon Border Adjustment Mechanism
CCM	Cost Containment Mechanism
CCS	Carbon Capture & Storage
CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
CPS	Carbon Price Support
EC	European Commission
EEA	European Economic Area
EEX	European Energy Exchange
EU	European Union
EUR	Euro
FOEN	Federal Office for the Environment in Switzerland
GBP	Great British Pound
GGR	Greenhouse Gas Removal
GHG	Greenhouse Gas
HFC-23	Trifluoromethane
HM Government	His/Her Majesty's Government
HM Treasury	His/Her Majesty's Treasury
ICE	Intercontinental Exchange
MAC	Marginal Abatement Cost
MRV	Monitoring, Reporting & Verification
MSR	Market Stability Reserve
$MtCO_2e$	Million Tonnes of Carbon Dioxide Equivalent
N_2O	Nitrous Oxide
NER	New Entrants Reserve
RGGI	Regional Greenhouse Gas Initiative
SAM	Supply Adjustment Mechanism
TNAC	Total Number of Allowances in Circulation
UNFCCC	United Nations Framework Convention on Climate Change
UK	United Kingdom
USD	United States Dollar
VCM	Voluntary Carbon Market

1. Introduction

Emissions trading schemes (ETSs) have become prominent market-based policy tools to drive the decarbonisation of pollution-intensive industries. By placing a price on polluting emissions through the creation of markets of tradeable allowances, these schemes promote cost-effective emissions reduction (e.g. Ellerman 2003; Keohane 2009; Montgomery 1972; Stavins 2008). The United Kingdom (UK) relies on their UK ETS as a key mechanism for reducing domestic emissions and to incentivise investment targeted at decarbonisation. The current scheme was introduced in 2021 after the UK's exit from the European Union (EU) (Brexit) and its respective EU ETS. Since then, significant emphasis has been placed on the development of the UK ETS to ensure a functioning carbon market that supports the UK's transition towards net-zero by 2050, which was set in law in 2019.

While potential linking with the EU ETS was a relevant part in the initial policy discussion during the design and startup phase of the UK ETS,[1] it had mostly been left out of public discussion up until late-spring of 2025, when commitment to link the schemes was formally announced by both jurisdictions.[2] Here we address the question whether linking the UK and EU schemes is institutionally feasible and a viable strategy towards meeting long run net-zero emissions targets. Our aim is twofold: first, to evaluate the analytical framework for identifying the key factors that underpin effective and efficient linkage between the UK and EU carbon markets; second, to contribute to the current policy debate on ETS linkage in the context of UK climate policy.

Although the analysis often covers both sides, we focus on the UK perspective due to its value as a unique case study. After the institutional separation from the EU ETS, the UK had to develop a domestic ETS while maintaining ambitious climate commitments, which has continued to evolve over the past years with active policy debate on its future design features. This necessitates a UK

policy decision regarding this newfound regulatory autonomy and pursuing market integration. It simultaneously allows evaluation of how upcoming ETS proposals shape linkage feasibility. This offers broader lessons learned and insights for future ETS linkages, particularly regarding regions re-entering an ETS after initial withdrawal.

Our discussion suggests that linking the UK ETS with the EU ETS is technically feasible from a market design perspective and could reinforce UK's net-zero strategy. Although specific market design elements vary slightly, the overall structural alignment of the two schemes supports effective harmonisation of their linkage. This suggests that a linking process could be comparatively streamlined. Specifically, linking could enhance market liquidity and strengthen the allowance price formation in the UK market, which has experienced steady decline and periodic volatility in recent years, now consistently trading below EU allowance prices. The opposite could be witnessed in the initial years of the UK ETS operation.

This price divergence between the two schemes presents a critical challenge for effective market linkage, as it will impact the trading relationship between the UK and EU when Carbon Border Adjustment Mechanisms (CBAM) come into effect in both jurisdictions. It is also crucial to ensure that the allowance price reflects a reliable market-based mechanism that can effectively drive industry decarbonisation, while offering more flexible abatement options for regulated UK entities. Another important driver is the UK's and EU's ambition to develop carbon capture and storage (CCS) markets, where regulatory barriers currently disincentivise cross-border transport and permanent storage of CO_2 between the jurisdictions. Regardless of how extensively the two jurisdictions prefer to integrate, some alignment is necessary to overcome regulatory barriers.

On the other hand, a standalone UK ETS might provide the UK government flexibility in decision-making that is aligned with reaching the 2050 net-zero target, where the joint system would be subject to the EU legal framework and might decelerate required policy changes. Indeed, as a single jurisdiction, coordinating policy stringency is easier and swifter to implement relative to operating in a joint system comprising multiple jurisdictions. Despite this, however, considering the wider benefits of a joint UK-EU ETS as a pathway to a harmonised carbon price, the two jurisdictions could formalise linking by balancing evolving design requirement with regulatory autonomy concerns, protecting the integrity of the link established. The end of the current phase in both systems in 2030 presents an ideal window for such a transition.

In what follows, Section 2 introduces ETS linkage and explores key literature alongside examples of linked systems. Section 3 introduces the framework used to evaluate the potential compatibility of the UK and EU carbon markets for linkage, and subsequently forms the analysis and discussion based on this. Section 4 concludes.

2. Linking emissions trading markets: background, examples and literature

Links between emissions trading markets can be established between different ETS jurisdictions, whether these are nations, states, regions, or cities. Generally, linking entails that one jurisdiction acknowledges the emissions allowances of the other system for compliance, thus allowing allowances to be traded among polluting sources that are participating in the joined market. Alternative options to link markets can be considered, and jurisdictions typically can choose to establish an indirect link, a unilateral link, or a bilateral link (Partnership for Market Readiness 2014). An indirect link is formed when an ETS has a unilateral or bilateral link to another ETS, which then has a unilateral or bilateral link to a third ETS. This causes an indirect link between the first and the third ETS system, which do not necessarily accept each other's allowances for compliance. A unilateral link is where one ETS accepts allowances for compliance from another ETS, but not vice versa. A bilateral link consists of both ETSs accepting the other's allowances for compliance.

As jurisdictions link, allowance prices tend to converge to a new, 'common' price. The degree of price convergence depends on differences in market size; linking differently sized emissions markets tend to equalise the post-link price closer to the price of the larger system. This happens as emitters

with higher marginal abatement costs (MAC) purchase allowances from the emitters in the lower price system with lower MAC, represented as the flow of allowances into the 'higher' pre-linked price system (Santikarn et al. 2018). Thus, linking fosters the 'discovery' of a common price. This is conducive to equalising MACs across regions, leading to an efficient allocation of abatement efforts (Cason and Gangadharan 2011; Flachsland, Marschinski, and Edenhofer 2009; Keohane, Petsonk, and Hanafi 2017). Linking also underpins the polluter pays principle, as the new average price 'burdens the laggards and disburdens the pioneers' (Rudolph et al. 2020, 2).

The literature addressing climate change policy and emissions reduction emphasises the role of a common carbon price, discussing the most appropriate way of achieving this – emissions trading, a carbon tax, or a hybrid of both. For instance, Pengg, Weindl, and Zapf (2019) and Ranson and Stavins (2016) support global cap-and-trade as a policy measure, while Cramton, Ockenfels, and Tirole (2017) have reservations about such a system. Stiglitz (2015) and Nordhaus (2015) note that it is not necessarily one over the other, as the goal of a global carbon price is the important factor, not the policy used to achieve it. What all these papers agree on, however, is the need for cooperation toward a common goal, supporting the notion of a 'common' price for pollution.

A global carbon price, either through a global ETS by linked systems or through a global tax, might currently be too ambitious. There are currently about 40 ETS initiatives – only a couple of them linked – with 89 (sub)nations having any form of carbon pricing policy in place, representing approximately 29 percent of global greenhouse gas (GHG) emissions (ICAP 2024; World Bank 2026). By linking ETSs, even a bilateral link can facilitate cooperation in reaching more ambitious environmental goals. The 2015 Paris Agreement recognises the importance of cooperation (Article 6), allowing international emissions trading while facilitating the establishment of an improved framework for common accounting rules (UNFCCC 2015).

A number of linked ETSs are currently in operation, including the Regional Greenhouse Gas Initiative (RGGI) formed in 2009 by several Northeastern states in the United States, the Tokyo and Saitama market linked in 2011, Québec and California in 2014, and most recently Switzerland and the EU in 2020. In March 2024, the three governments of California, Québec and Washington formally expressed interest in linking, announcing in September 2024 their plans for extending the existing shared California-Québec carbon market to include Washington (Washington State Department of Ecology 2024). The operation and performance of these markets can provide some lessons and motivation for ETS linkage. In the RGGI over the period of 2009–2017, carbon dioxide (CO_2) emissions declined by roughly a half, jobs were created, and an estimated yield of USD 5 billion in economic benefits achieved through auction proceeds to fund energy efficiency programmes (Hibbard et al. 2018). In addition, an analysis of public health impacts of RGGI (covering the period 2009–2014) suggests that the initiative resulted in significant reductions of air pollutants harmful for human health, creating positive health benefits (Manion et al. 2017). The Tokyo-Saitama link, despite criticism on the lack of market liquidity due to low levels of trading activity across prefectural borders, achieved close to 100 percent compliance rates in the first compliance period of 2010/11-2014, with emissions reductions achieved beyond set targets (Rudolph et al. 2020).

On the other hand, there are cases of less successful linking initiatives. Ontario joined the Québec-California link in early 2018, only to de-link mid-2018 when a change in government caused an abrupt change in environmental policy direction due to lack of consensus over GHG emissions reduction through an ETS (Carmody 2019). Similarly, Australia pulled out of an agreement to link with the EU ETS, as its then newly elected government opposed the previous government's environmental policy, opting to terminate Australia's cap-and-trade initiative in 2014 altogether (Müller and Slominski 2017). This shift in Australia's environmental policy meant that the proposed link with New Zealand's ETS also halted (Rudolph et al. 2020). Both the Ontario and Australia cases illustrate the vulnerability to short-term changes in government priorities towards the environment. A further point is that linking can expose smaller systems to systematic risk. This was the case for New Zealand's ETS in 2011/12, when an indirect link with the Clean Development Mechanism (CDM) led to a decline in New Zealand's allowance prices due to an increase of

'imported' offsets from this voluntary carbon market (Diaz-Rainey and Tulloch 2018; Ranson and Stavins 2016). The success and failure of such links prompt the question which policy and market factors should be considered when establishing a potential link between ETS systems. The objective of this paper is to review and discuss the key elements in a succinct way, and to draw some lessons relevant for UK's net-zero strategy.

The literature identifies a range of potential benefits and challenges associated with ETS linkage, primarily relating to economic efficiency and political economy, alongside broader environmental considerations (Bodansky et al. 2016; Flachsland, Marschinski, and Edenhofer 2009; Green, Sterner, and Wagner 2014; Ranson and Stavins 2016). The literature supporting linking generally points out economic implications, such as enhanced market liquidity and efficiency gains, as well as allowance price volatility and competitiveness concerns. Doda, Quemin, and Taschini (2019) show that linking ETSs can bring substantial cost savings due to increased efficiency and price stability. Efficiency gains arise from cost-effectiveness in achieving emissions reductions. The World Bank (2016) estimated that international linkage could reduce the cost of achieving emissions reductions set in the initial Paris Agreement pledges by 54 percent in 2050.

Allowance price volatility can be reduced as uncorrelated price shocks are mitigated across the larger joined market, and the uniform allowance price can decrease competitiveness concerns among the market participants of the linked ETSs. Cason and Gangadharan (2011) provide experimental evidence of enhanced price discovery, ameliorating trading efficiency in linked markets. Doda and Taschini (2017) also demonstrate that linking can lead to overall efficiency gains. However, they also note that price volatility may not necessarily decrease for all individual markets involved. They emphasise the importance of carefully selecting potential jurisdictions for linkage, as differences in technology and market size can influence market outcomes. Additionally, partners' preferences and decisions on cost-sharing arrangements may affect the overall economic performance from linking.

Reasons why jurisdictions might not choose to link are mainly concerned with political economy and environmental implications, such as loss of jurisdictional autonomy, difficulties agreeing on design features (e.g. cost-sharing rules), distributional effects of linking, and potential loss of domestic co-benefits (e.g. Newell, Pizer, and Raimi 2013). Findings by Holtsmark and Sommervoll (2012) raise concerns on the ambiguity of linking where, despite the potential for efficiency gains to be derived from cross-border abatement allocation, a non-cooperative equilibrium comes with inefficiently low abatement levels. A commentary by Green (2017) also discourages linking, noting the difficulty in managing and coordinating linked markets due to competing political control across jurisdictions. This extends beyond transboundary conflict of interest in politics, as domestic lobbying could also influence linkage. Habla and Winkler (2018) show that the hierarchical structure of international environmental policies can be a reason why we have not witnessed the formation of many linked ETS markets.

While the literature often discusses the effects of ETS linking through political economy, economic and environmental implications, these effects are also shaped by the underlying design of the markets being linked. Design features such as offset eligibility, price stabilisation mechanisms, banking and borrowing rules, allocation methods, emissions targets, monitoring, reporting and verification (MRV), compliance rules, registry operation and sectoral coverage all influence whether schemes can function together in practice. Market design therefore overlaps with the existing categorisation. It affects economic outcomes through price formation, liquidity and cost-effectiveness, political economy outcomes through the amount of regulatory coordination and loss of autonomy required, and environmental outcomes through cap stringency and compliance integrity. For this reason, the framework adopted in the next section treats market design as an additional analytical dimension.

3. Assessing ETS linkage: a framework and analysis of the potential UK–EU link

This section introduces the analytical framework for assessing the potential UK-EU link. This framework is then applied to assess linkage feasibility and its alignment with UK decarbonisation

objectives. The framework we adopt uses four dimensions in assessing feasibility of the ETS link: market design, political economy, economic and environmental implications. As mentioned in Section 2, the latter three are extensively discussed in existing literature in the context of arguments both for and against linkage. Political economy involves focusing on the governance structure, negotiating process, regulatory autonomy concerns and ETS sector coverage to evaluate whether the link could be politically feasible. Economic considerations assess whether linking could improve cost-effectiveness, market liquidity, competitiveness, and price stability. Environmental considerations examine whether linkage would support net-zero objectives, reduce carbon leakage and facilitate cooperation on novel policy developments in CBAMs, CCS and GHG removals. In addition, market design is emphasised and discussed extensively in this paper to assess whether the UK and EU schemes can technically operate together. Main market design characteristics that need to be considered concern issues surrounding price stabilisation, the use of carbon offsets, banking and borrowing of allowances, allowances allocation, determination of emissions reduction targets, the compatibility of MRV mechanisms, as well as market coverage and compliance.

Tuerk et al. (2009) categorise differences in ETSs into those that are unlikely to create barriers to linking (i.e. those which are relatively easy to harmonise) and those that are likely to be significant barriers. The former includes banking provisions, MRV rules, compliance periods, allocation methods, and rules governing new entrants. Though, Bodansky et al. (2016) and Keohane, Petsonk, and Hanafi (2017) highlight the importance of compliance in allowance transactions with effective registry operation to minimise the risk of double counting, which can lead to actual emissions being higher than reported. ETS characteristics that are likely to create significant barriers to linking include carbon offset eligibility, price stabilisation mechanisms, relative policy stringency, and emissions targets. It is unrealistic to assume different ETS systems to be identical in all aspects, but some harmonisation of key elements can be all that is needed for two ETS systems to successfully link (Bodansky et al. 2016). In what follows, we will systematically discuss key issues under the headers of market design, political economy, economic, and environmental considerations.

3.1 Market design considerations

The design of ETSs plays a fundamental part in the compatibility of linking them. In view of harmonisation, significant market design aspects with respect to linking are price stabilisation mechanisms and the eligibility of carbon offset credits. We shall respectively discuss these two aspects below, including a discussion on banking and borrowing, MRV, compliance, and treatment of new entrants.

3.1.1 Price stabilisation mechanisms

Price stabilisation mechanisms prevent allowance prices from becoming either excessively high, which could cause sudden cost shocks, or excessively low, thereby undermining credible abatement incentives. The UK implemented two price stabilisation mechanisms in its current ETS design to ensure a smooth transition into a standalone ETS after leaving the EU in 2021: an Auction Reserve Price (ARP) and a Cost Containment Mechanism (CCM).[3] The ARP functions as a minimum price for auction bids and is currently set at GBP 28,[4] preventing too low prices that could undermine the credibility of the UK ETS (HM Treasury 2021). The ARP was treated as a transitional pricing rule, which made it the main mechanism to foster allowance price stability in the initial period of the UK ETS. Where the ARP ensures a minimum price, on the other end of the spectrum the CCM is in place to ensure that no sustained spikes in the allowance price occur. In the initial years of operation, the CCM triggers were more sensitive than EU ETS triggers under the Market Stability Reserve (MSR) (a supply-based policy mechanism that addresses demand-supply imbalances of allowances, discussed below). If the CCM is triggered, appropriate measures by the UK government can be taken to ensure price stability, such as redistributing allowances between the year's auctions

or increasing the volume of allowances to be auctioned, for example by drawing allowances from the market stability mechanism account.[5]

In the EU ETS, price stabilisation is addressed through the Market Stability Reserve (MSR), a supply-based mechanism that responds to the total number of allowances in circulation. Unlike the UK ARP and CCM, which operate through price-related triggers and discretionary intervention, the MSR adjusts allowance supply by setting upper and lower quantity thresholds. The MSR therefore influences prices indirectly through supply management.[6]

A UK government consultation that ran from December 2023 to March 2024 addressed the development of the UK ETS market policy. A formal response from the government in December 2025 concluded that the ARP and CCM continue as the key policy levers to address price fluctuations, including annual inflation adjustment to the ARP in 2026. The original consultation had suggested an implementation of a quantity-triggered Supply Adjustment Mechanism (SAM) to address market stability. The SAM would have functioned in a similar way to the MSR in the EU ETS, where the supply of allowances is adjusted based on an upper and lower range threshold of the total number of allowances in circulation (TNAC). This mechanism was not taken forward in light of the UK-EU link negotiations (HM Government 2023b, 2025b).

The ARP and CCM control price movement through setting upper and lower boundaries of the allowance price, serving as a de facto price collar (Cason, Stranlund, and de Vries 2026; Fell et al. 2012; Holt and Shobe 2016). The MSR sets upper and lower boundaries on the quantity of allowances, adjusting supply accordingly to shape the allowance price. Linking two systems that have different price stabilisation mechanisms could complicate market linking (Hawkins and Jegou 2014) but does not necessarily imply incompatibility (see Vivid Economics 2020). However, Borghesi et al. (2023) and Perino, Ritz, and van Benthem (2025) show that the impact of the MSR on price stability is ambiguous. According to Perino et al. (2021), the link between the Swiss and EU ETSs is an exception here, as the Swiss ETS is significantly smaller compared to the EU ETS.

A similar conclusion might be more challenging to draw between the UK and EU ETS. While the UK market is notably smaller than the EU ETS, it is not as small (as a domestic market) in comparison with the Swiss ETS. The number of regulated entities in the Swiss ETS were around 300, covering around 6 million tonnes of carbon dioxide equivalent ($MtCO_2e$) in 2024, while the UK ETS had around 1,228 operators in 2024 and covered around 97 $MtCO_2e$ in 2023 (FOEN 2024; UK Emissions Trading Registry 2024). The UK has discussed the possibility of implementing the SAM, which, as mentioned earlier, would function as a quantity-based mechanism similar to the MSR. This would mitigate the problem for linking, where the UK ETS could then mirror the EU's MSR, making the two ETSs compatible in that respect.[7] If the UK retains a primarily price-based intervention mechanism while the EU continues to rely on the MSR, linking would remain feasible; however, the two jurisdictions would need clear governance rules on how interventions affect the common market.

3.1.2 Offsets

The second important design feature that needs to be taken into consideration when linking ETS systems is the use of carbon offsets as a means of emissions reduction and meeting compliance obligations. Carbon offset credits are transferrable instruments of reduction or removal of emissions made through different projects (such as reforestation, for instance) to compensate for emissions that are emitted elsewhere. If the use of offsets is permitted, they add flexibility to an ETS, as emitters can meet their compliance requirements through potentially cheaper, easier, and faster emissions reduction measures outside their industry, especially if domestic options are more costly (Bumpus and Liverman 2008). Despite this, ETSs can opt to not allow the use of offsets when there are environmental integrity concerns and/or if governments wish to encourage emissions reduction efforts domestically (Ranson and Stavins 2016).

When the UK ETS was formed, a decision was made to not allow offsets, with the aim to incentivise abatement efforts domestically. It was, however, stated that the UK is open to reviewing the

use of offsets in the future (HM Government 2020). Indeed, recent developments in greenhouse gas removals (GGRs) through CCS brings this matter to the forefront of ETS market development in the UK. The UK in its main response to the 2022 consultation on developing the UK ETS indicated that the scheme could be an appropriate long-term market for GGR credits. The UK has since provided further detail on the integration of GGRs into the UK ETS. It aims to legislate for integration by the end of 2028, with the system expected to become operational by the end of 2029, subject to legislation, regulatory assessments and further consultation. For initial integration, only UK-based removals would be eligible, removal allowances would be awarded ex-post following verification, and projects would need to demonstrate a minimum carbon storage period of 200 years (HM Government 2025a).[8] It has been stated that the result would be a move towards an integrated market framework within which businesses can make economically efficient choices between paying to emit, paying to remove emissions, or investing to lower emissions. The interaction with voluntary carbon markets (VCMs) is also under consideration. Though the focus is on domestic engineered GGRs, this could mean that nature-based removals (the more common type of offsets available in VCMs) and eventually international offset credits could be included in the scheme in the future.

The EU ETS has a history of using carbon offsets through the CDM and Joint Implementation credits, but due to environmental integrity concerns the use of credits from projects which destroy trifluoromethane (HFC-23) and nitrous oxide (N_2O) were banned in 2011 (EC 2011). The use of offsets in general has been criticised, as determining reductions from offsets can be problematic and can undermine the effectiveness of an ETS (Green 2021; van Kooten and de Vries 2013). In the latest phase of the EU ETS (i.e. Phase 4), the use of offset credits is not allowed and there are no plans for adopting their use in the future (EC 2022a). However, within the recent revised Directive 2023/959 a request is set for the Commission to report to the European Parliament and to the Council by July 2026 on how emissions removed from the atmosphere and permanently stored could be covered by EU ETS (EC 2023a, 2024e). In recent years the EU has also developed a carbon removal certification framework to provide transparency and robustness in carbon removals, but this falls outside the scope of the EU ETS. Once such a framework has fully been implemented and creates credible removals credits, there is potential for an integration into the EU ETS. Integration of engineered GGR solutions could be discussed in the upcoming EU ETS review in 2026.

Current legislation shows both systems are broadly aligned because neither permits general offset use for compliance. However, divergence could emerge if the UK introduces GGR credits more quickly or more broadly than the EU. A linked system would therefore need common eligibility rules, robust MRV standards, and agreement on whether removals should be treated as compliance units, separate certificates, or a parallel market mechanism. It can be problematic if the linking jurisdictions do not consider the same offset credits as eligible in their systems, as the credits will affect the supply and thus the price of allowances in the joined ETS market. This also raises issues for compliance, as it becomes challenging to distinguish whether allowances originating from one jurisdiction are freed by offsets that are not eligible in another jurisdiction (Mehling, Tuerk, and Sterk 2011). With appropriate alignment on offset use there is potential for the creation of a larger certified removals market that could help scale up and deploy engineered GGR technologies, where the market is still nascent. Such a development could benefit both jurisdictions in reaching net-zero (or perhaps even net-negative) by 2050.

3.1.3 Operational design: banking and borrowing, MRV, compliance and new entrants

Let us finally turn to some other design elements. Related to the flexibility of an ETS system is the option to bank and borrow allowances. Banking especially can play a key part in achieving maximum gains from trade, as well as help to control price spikes and collapses as emitters can turn to banked allowances (Schmalensee and Stavins 2017). The UK ETS allows for the banking of allowances, which remain to be valid indefinitely. Limited borrowing is also allowed, where a polluting entity can use allowances allocated for free in the current year for compliance in the previous year. These rules for banking and borrowing follow the EU ETS design (ICAP 2022). Indeed, mirroring

the EU ETS on this was suggested by the government when designing the UK ETS (HM Government 2020). This similarity supports UK-EU link compatibility and reduces the need for extensive harmonisation efforts.

The same applies for MRV, compliance design and treatment of new emitters. The UK scheme closely follows the EU ETS on this. Both systems have annual self-reporting frequency, and verification by independent accredited verifiers is required before 31st March each year (ICAP 2022). The UK scheme also adopts some of the proposed EU ETS Phase 4 changes, such as reducing the frequency of improvement reporting as well as simplification of monitoring plans (HM Government 2022). These changes mainly reflect simplifying and streamlining the MRV process in the UK.

The UK system also closely follows the EU ETS design regarding compliance. Both systems retain an annual monitoring and reporting cycle, with verified emissions reports due by 31 March. However, the surrender deadlines now differ. UK ETS participants are still required to surrender allowances by 30 April, while EU ETS operators must do so by 30 September, following EU changes in 2024 that moved the surrender deadline from April to September. While not a major barrier to linking, it is recommended that a linking agreement would need to consider operational coordination in order to address any compliance related timing pressures in the trading market. Treatment of new emitters is also similar in both schemes. Both have a New Entrants Reserve (NER), which sets aside allowances for new entrants and for existing emitters with increases in their operation capacity (ICAP 2022).

Overall, market design compatibility between the UK ETS and EU ETS is relatively high, where the main potential barriers for linking would concern dynamic design choices, i.e. the price stabilisation mechanism and future treatment of removals/offsets. These issues do not necessarily make linkage impossible, but they require explicit agreement as any divergence after linking could affect market confidence, allowance prices, and environmental integrity. Banking and borrowing, MRV, compliance, and treatment of new entrants should not constitute major barriers to UK-EU linkage. They would nevertheless require formal recognition and registry coordination in any linking agreement.

3.2 Political economy considerations

Alongside the market design aspects discussed above, political economy concerns that influence linking of ETSs also require consideration. The relationship between different jurisdictions and the importance emissions trading or environmental concerns governments hold can influence linkage. Such concerns can be associated with the length and complexity of negotiations surrounding linking, multilateral coordination, the potential loss of domestic co-benefits, and the (potential) loss of regulatory autonomy, including evolving sectoral coverage.

3.2.1. Complexity of negotiations and multilateral coordination

It is important to consider how long negotiations on linking can last; a notable example is the ETS linkage agreement between the EU and Switzerland. Negotiations on linking started in 2011, concluded in 2015 and an agreement was signed in 2017. After legislative approval and ratification in 2019, the linked market officially came into operation at the beginning of 2020. This means that it took almost a decade to establish an operational link between the two markets. The never implemented link between the EU and Australia's ETS also had a relatively long timeframe to come fully into effect. The market link was agreed in 2012 with the plan to commence in 2018 (EC 2012).

Another aspect concerns net-zero emissions targets. Similar long-term emissions reduction targets would smoothen market linking, provided they are aligned and stable across both jurisdictions. In addition, since the EU is already linked with the Swiss ETS, this would create an indirect link between the UK ETS and Swiss ETS if the UK and EU were to link, potentially creating a multilateral carbon market.[9] Thus, the UK-EU link could be expanded to include Switzerland from the

start. This could reinforce more partners to join, which would be conducive to creating a more coordinated strategy towards climate change mitigation (see also discussion in Section 2). At the same time, however, a multilateral linking agreement might make negotiations more complex and lengthier. This could potentially deter other parties to participate and join the agreement.

The alternative, where the UK and EU start negotiations bilaterally, would still need to take the EU-Swiss link into account, which can complicate linkage discussions. Mehling and Haites (2009) point out, however, that if there are no restrictions on types and quantities of imported compliance units in bilateral links, the indirect link formed between two jurisdictions – through their respective bilateral links with a third jurisdiction – would be equivalent to that of a multilateral link between all jurisdictions. This would mean that, if all three jurisdictions agree on what is accepted for compliance, the *indirect* UK-Swiss link formed out of a *direct* UK-EU link would likely not be a major bottleneck. Still, it requires coordination across all jurisdictions to ensure a well-functioning carbon market.

3.2.2. Domestic co-benefits and distribution of abatement

Potential loss of domestic co-benefits with emphasis on domestic emissions reduction efforts can also cause difficulties in forming a link (Bodansky et al. 2016; Flachsland, Marschinski, and Edenhofer 2009). Co-benefits are the indirect benefits gained from mitigation efforts, such as reduced local air pollution leading to improved human health and subsequently to healthcare cost-savings. This can be a controversial argument against linking, as the redistribution of abatement efforts would in theory mean that these efforts are being efficiently (re)allocated into areas where average MACs are the lowest, fostering cost-effective linking. Loss of co-benefits as an obstacle for linking would not serve the cooperative global effort in reducing emissions. However, Holtsmark and Weitzman (2020) show that it is not a given that overall emissions under a linked ETS would decrease compared to independent emissions markets. This would deviate from the domestic objectives of emissions abatement, making linking an unattractive policy option. As discussed earlier, since emissions trading is subject to government alignment, it is important to consider this in market linking discussions.

If the link between the UK and EU were to create a joined carbon market, where abatement reductions are more affordable outside the UK system, this might be unpreferred if the goal is to achieve domestic mitigation efforts (i.e. within the UK). The UK government has declared its desire to reach net-zero through a strategy of 'building back greener' involving policy changes in different sectors but aimed to reduce emissions across the whole UK economy (HM Government 2021). If domestic efforts are seen as a priority, this could affect the willingness to link. Since the allowance price reflects the MAC of the jurisdiction, a post-link allowance price that could equalise closer to the consistently higher EU ETS allowance prices (see Figure 1) would be beneficial for emissions abatement efforts in the UK. With the increase in allowance prices, the MAC for the UK increases, which would induce more domestic abatement. The opposite would be true for the EU, however, which could influence their decision on linking due to the implications on EU abatement efforts. Considering the significantly smaller ETS market size of the UK to the EU, the common post-linkage price would most likely not deviate significantly for EU participants for this to cause issues, however.

3.2.3. Regulatory autonomy

One of the most significant political economic concerns is often associated with potential loss of regulatory autonomy (Green, Sterner, and Wagner 2014). As markets are in the process of being linked, design elements need to be coordinated (which in the UK-EU case are already reasonably harmonised, as mentioned earlier). This underscores the need to agree on emissions reduction trajectories and the mechanisms by which environmental targets will be calibrated over time.

The EU ETS functions within the EU's legal framework, and a linked UK-EU ETS would then be subject to this. This means that any changes in joint ETS market design can become more difficult

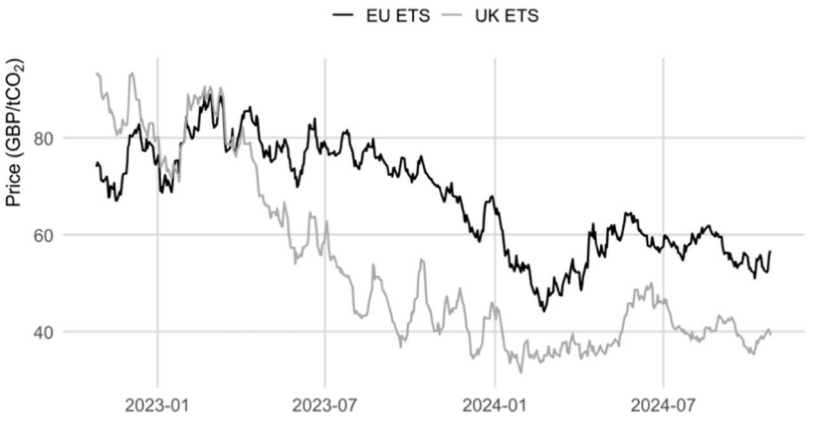


Figure 1. UK ETS and EU ETS Futures DEC24 Prices in GBP October 2022 to October 2024. *Source: Data extracted from ICE (figure constructed by authors).*

to implement. A clear example is the choice of the price stabilisation mechanism. If the joint market adopts a quantity-based mechanism but the UK then decides a price-based mechanism would be more appropriate, this requires unanimous agreement from EU Member States.[10] Gaining the unanimous vote of close to 30 countries with different national priorities can prove to be challenging. Indeed, it can be argued that the adoption of the MSR as a price stabilisation mechanism was a result of the EU legislative process, since it does not need the unanimous vote as a quantity-based mechanism (Fischer et al. 2019).

Delbeke and Vis (2015) argue that the adoption of the ETS as the main carbon pricing policy is attributable to this legal framework, since it did not require a unanimous vote, which a carbon tax would have required. This suggests that a standalone UK ETS might allow the UK Government the flexibility needed to make effective decisions deemed necessary for aligning the UK ETS with the 2050 target. Any coordinated linking requirements, such as harmonising the price stabilisation mechanism, would most likely have to come from the UK being flexible in its design elements. Perino et al. (2021) suggest that rigidness which characterises the choice of the price stability mechanism and the aversion to price-based measures could be a potential liability for the EU ETS as a linking partner. This issue is especially important for future post-linkage decision-making. A UK-EU ETS link would not only require agreement on current design features; it would also require procedures for future changes, including the possible inclusion of new sectors, revisions to price stabilisation mechanisms, and the introduction of credits or removals. Without clear governance rules, future policy development could become slower and more contested.

Sectoral coverage provides a clear example of this post-linkage governance challenge. ETSs are not static instruments, as governments may expand coverage to additional sectors over time, such as maritime transport, waste incineration, buildings or road transport, or modify the treatment of aviation and industrial activities already covered. Both the UK ETS and EU ETS are undergoing scope expansions, although not in identical ways. In the UK, domestic maritime emissions are expected to be included from July 2026, while waste incineration and energy-from-waste are intended to enter full UK ETS scope from 2028, following a transitional MRV-only period from 2026 (HM Government 2025c, 2025d). In the EU ETS, maritime transport has been included from 2024, with methane and nitrous oxide emissions from maritime transport covered from 2026 (EC 2025). The EU is also introducing ETS II, a separate system for buildings, road transport and additional sectors, expected to become operational in 2028 (EC 2024b). Waste-sector coverage is also developing in the EU, although mainly through monitoring and reporting requirements rather than full allowance surrender obligations as of yet.

Both systems are expanding sectoral coverage, but differences in timing and institutional design may require attention in any future UK-EU linking arrangement. In a standalone system, such changes can be decided domestically. In a linked system, however, expanding or modifying coverage in one jurisdiction could affect the common allowance market, price formation, competitiveness conditions and environmental integrity. Post-linkage decisions on sectoral expansion would therefore require coordination between the UK and EU, particularly where one jurisdiction moves faster or adopts a different scope. Similar issues would arise with the introduction of GGR credits or other compliance units, where unilateral design changes could affect allowance supply and compliance incentives across the linked market. Sectoral coverage therefore illustrates how linkage could constrain future regulatory autonomy even where the initial market design is technically compatible.

Political economy is the area where linkage faces the greatest institutional difficulty. Existing links show that negotiations can be lengthy, politically vulnerable, and dependent on stable government commitment. For the UK, the central trade-off is between the benefits of integration and the loss of (some) regulatory autonomy, not only at the point of linking but also in future decisions on sectoral coverage, market stability mechanisms, and the possible introduction of credits or removals. A successful UK-EU link would therefore require not only technical compatibility but also governance rules that preserve sufficient flexibility for the UK, while providing predictability for the joint market.

3.3 Economic considerations

Main economic arguments that affect linking relate to cost-effectiveness and gains from trade, carbon price evolution, market liquidity, distributional effects, and competitiveness concerns.

3.3.1. Cost-effectiveness, gains from trade and carbon price evolution

Gains from trade by ETS linking refer to increased consumer and producer surplus resulting from liberalised voluntary market exchange between entities. Flachsland, Marschinski, and Edenhofer (2009) and Verde et al. (2020) discuss the efficiency gains and its distribution when two regions link. In the partial equilibrium analysis regions possess differently sloped MAC curves, where the flatter sloped curve can be either due to abatement being less expensive or because the system is larger than the other one, which has a steeper MAC curve. In theory, as the two ETSs link the pre-link allowance prices converge to an intermediate price level, which is closer to the pre-link price of the region with the flatter MAC curve. Under this new price, abatement can then shift from the region with higher abatement costs to the region with lower abatement costs. The former gaining from abatement cost savings and the latter from gains from revenue from sold allowances, which together represent savings in aggregate abatement costs.

For instance, assume the EU ETS represents the region with the flatter MAC with its much larger market size compared to the UK. The average 2021 primary auction market allowance price for the UK was GBP 51.62 and for the EU it was GBP 45.92[11] (EEX 2021; ICE 2024b). In April 2022, the secondary futures market price for DEC22 contracts for UK and EU allowances were GBP 75.25 and GBP 67.83,[12] respectively (ICE 2022a, 2022b). Since then, although the two ETSs have often followed similar market trends, their allowance prices have become increasingly separated, with the UK ETS generally trading at lower levels than the EU ETS. Merely two years later the average primary auction market allowance price for the UK was GBP 53.36 and for the EU it was GBP 70.91[13] (EEX 2023; ICE 2024a). Approximately similar figures can be reported for 2025. While UK ETS allowances initially traded at a higher price than EU ETS allowances during the early years of the scheme, this has changed since (Figure 1). From mid-2023 onwards the UK ETS allowance prices have been notably lower compared to EU ETS prices. This would bring the MAC in the UK to be lower than in the EU. This would suggest that UK entities may benefit from some degree of revenue gains from sold allowances in the link. However, the slump in UK ETS allowance prices

could be an artificial consequence of the government's move to bring an additional 53.5 million unallocated allowances to auction over 2024–2027 to compensate the net-zero cap alignment and to avoid resulting price spikes (HM Government 2023a).

A key factor in determining whether to link the two schemes in this context is carbon price evolution. Major price movements like price spikes are present in both systems around the same time periods. Being part of a linked market can help mitigate potential shocks and reduce price volatility, where a stable allowance price can help instil trust in a carbon pricing system. Even if linking would expose UK entities to imported price shocks, the UK and EU being relatively integrated economies would mean that shocks are possibly correlated across the two ETS regions regardless of linking or not (Doda, Quemin, and Taschini 2019). The price spikes in December 2022 and February 2023[14] are present in both markets as separate ETSs (see Figure 1) and could be seen as evidence to this. It could be argued that concerns on experiencing price shocks are more prominent when the two jurisdictions are less integrated economies, including in terms of their approach to carbon pricing.

For the UK to rapidly lower emissions and decarbonise to achieve net-zero, sufficiently high carbon prices are crucial. In this respect, a link with the EU ETS, where the price would most likely converge towards the larger and more established system's pre-link price, could be of high importance. Such convergence could strengthen price signals in the UK ETS and enhance the credibility of the system. However, higher UK ETS prices may also emerge without a link once no more unallocated allowances are introduced into the system and the net-zero aligned cap can fully take effect. Similarly, the EU ETS is also becoming increasingly stringent following the 2023 revision, which introduced two cap reductions of 90 million allowances in 2024 and 28 million in 2026, while the scheme's annual reduction factor of the cap is increased from 2.2 percent to 4.3 percent for 2024–2027, and finally to 4.4 percent from 2028 onwards (EC 2024d). This suggests that while linking may help support higher and more credible carbon prices, price increases may also occur independently as both systems 'shrink'.

3.3.2. Market liquidity and price stability

A further issue therefore becomes increasingly important, i.e. market liquidity. As the UK and EU carbon markets shrink over time, regulated entities may face fewer trading opportunities, greater price volatility, and more limited access to cost-effective abatement options. This is especially true for a carbon market of the size of the UK ETS, which is roughly 6 times smaller than the EU market based on the number of obligated entities.[15] Market liquidity can help reduce price volatility and market power (Mehling, Tuerk, and Sterk 2011). In the UK ETS, being a relatively smaller market, means that a few large participants might enjoy a degree of market power, allowing them to influence allowance prices. A link with the EU ETS increases the number of market participants, and can lead to decreased market power (Haites 2016). Moreover, the UK ETS being still a relatively new, small market can suffer from lack of liquidity, which can then result in price spikes. This was seen in the period that triggered the CCM in December 2021 and January 2022, as mentioned in section 3.1. A link with the EU ETS would significantly increase the amount of market participants in the combined carbon market, providing greater abatement opportunities for UK ETS participants (as well as to EU ETS participants).

3.3.3. Distributional effects and competitiveness concerns

Regarding distributional effects, as there exists a price difference between these carbon markets, in theory, linking the schemes could then create benefits for both jurisdictions. The EU in the form of savings in abatement costs and to the UK in the form of revenue from sold allowances, as the allowance price converges to an intermediate level and the MACs equalise for the two regions. How the net gains are distributed among the linked jurisdictions can also be relevant when considering whether to link or not. Verde et al. (2020, 5) note that 'in partial equilibrium analysis, linking ETSs with different marginal compliance costs always generates an efficiency gain'. These net gains might not be distributed equally between the linked jurisdictions. The distribution of these

gains depends on the relative slopes of the MAC curves with the region with the steeper MAC curve receiving a greater share (Flachsland, Marschinski, and Edenhofer 2009). Distribution of gains at the individual level creates net winners and losers depending on their MACs and whether they are part of the higher-price or lower-price system (Ranson and Stavins 2016). Some emitters in the UK market who are net sellers of allowances might benefit from a new higher price, while some net buyers of allowances in the UK might be disadvantaged.

Note that the potential gains from linkage are most notable when there are significant differences in pre-link prices, MAC profiles, and the size of the ETS markets (Caillaud and Demange 2017; Haites and Mullins 2001). The evolution of the allowance prices for the two ETSs have in the recent year started to diverge.[16] This would suggest a relatively notable change in the allowance price post linking when looking at the current price UK market participants face, and thus potentially significant efficiency gains from linking. This would also mean that a modest transfer of wealth will occur between the UK and EU from the allowance transactions, which can make the link more acceptable for the UK Government (Green, Sterner, and Wagner 2014).

As allowance prices converge to a new common price in a linked carbon market, it can help reduce competitiveness concerns among polluting firms, who would then face similar abatement cost profiles (Edenhofer, Flachsland, and Marschinski 2007). Tiche, Weishaar, and Couwenberg (2013) note that competitiveness concerns arising from carbon prices are higher for carbon intensive industries in smaller carbon markets. Taking into account that the EU is the UK's largest trading partner, with trade in carbon intensive goods, it can cause competitiveness concerns if the price of carbon is different for companies in these two regions, especially if the UK allowance price were to rise above the EU price in the future (Burke et al. 2021; EC 2021). This is particularly important in relation to recent discussions surrounding CBAMs under development in both regions (discussed in section 3.4).

The continuation of a uniform allowance price that would arise from a UK-EU ETS link would then reduce these competitiveness concerns (Tol 2018). Indeed, when the establishment of a standalone UK ETS was under consideration, 42 industry groups (many who would be registered participants in the carbon market), issued a letter to the UK Government urging for a link to be established between the EU and UK carbon markets, raising competitiveness concerns between the EU and UK industries (UK companies 2021). According to Baumol and Oates (1971), carbon prices should be uniform, since carbon is a homogenous good and therefore the price of it should equate among regions. Emitting a tonne of GHG anywhere in any region has the same environmental consequences for everyone (Pizer and Yates 2015).

The economic case for a UK-EU ETS link is relatively strong. Linkage could increase liquidity in the smaller UK market, reduce market power concerns, support price convergence, and reduce competitiveness concerns for carbon-intensive industries trading across the UK and EU. However, the gains would not be distributed evenly. UK net sellers of allowances could benefit from a higher post-link price, while UK net buyers could face increased compliance costs. These distributional effects should therefore be considered in any negotiation or transitional arrangement.

3.4 Environmental considerations

Environmental issues are at the core of emissions trading, and it is only natural that they play a key part in linking ETSs. Main concerns discussed here are policy alignment in emissions reduction targets, carbon leakage concerns, and the development of carbon markets including CCS technology in achieving net-zero. Below we will systematically discuss these issues.

3.4.1. Emissions targets and environmental stringency

Setting emissions reduction targets defines the stringency of the ETS cap and guides other design aspects. Differences in emissions targets across jurisdictions can cause a barrier to linking (Ranson

and Stavins 2016). When the ETS was formed, the UK appeared to have a relatively more stringent approach by setting the initial emissions cap 5 percent lower than what the UK's notional share would have been under Phase 4 of the EU ETS if the UK had stayed as part of the scheme (HM Government 2020). In 2023, this cap was further adjusted downward to 939 million allowances, representing a 30 percent drop from the original 1,365 million allowances, ensuring a net-zero consistent cap in the first phase of the scheme (HM Government 2023a). At the same time, however, the EU also considerably tightened the cap in the EU ETS in 2023.

The emissions reduction targets set by the UK government for 2030 and 2035 are 68 and 78 percent, respectively, compared to 1990 levels, with a net-zero goal for 2050 (BEIS 2021).[17] In the medium term, the EU has a relatively less ambitious emissions reduction target of 55 percent by 2030 compared to 1990 levels, but is also committed to net-zero emissions by 2050 (EC 2020). An ambitious new intermediate target of reducing EU's emissions by 90 percent compared to 1990 levels by 2040 was presented in February 2024 and finalised into law in March 2026 (EC 2024c, 2026). Having the same long-term net-zero objective facilitates cooperation and is conducive to harmonising market linking. Differing short-term goals may impact relevant upcoming policy decisions in the near term, however, which might influence governments' willingness to link. Such upcoming policy decisions could, for example, relate to the specific choice of ETS scope, cap trajectories, the price stabilisation mechanism or the use of carbon offsets, some of which the UK Government has indicated it may reconsider as the market matures, as discussed in section 3.1.

As a single jurisdiction, coordinating and implementing policy stringency can be easier and faster compared to the cooperation of multiple jurisdictions. This can be seen from the quick implementation of the new UK ETS for which consultation started in May 2019, a concluding governmental response in June 2020, and the scheme in operation by May 2021. The UK administration was also able to quickly change the desired ARP to be higher than planned at first, as it was originally set at GBP 15 in 2020, increased to GBP 22 before the start of the auctions in 2021, and has now been adjusted to GBP 28 to account for inflation. Conversely, the implementation of the MSR in the EU ETS was first introduced in 2015 and only began operating at the start of 2019 (EC 2022b).

This concern should not be overstated, however, as participation in the EU ETS does not necessarily limit a country's options for increased environmental policy stringency. Several countries have implemented their own carbon taxes in addition to being part of the EU ETS (e.g. Sweden and Finland), and Germany has implemented a complementary ETS to cover transport and building sectors[18] (ICAP 2024; World Bank 2026). The UK Government could then, if necessary, increase their environmental ambitions through other means even in the presence of a UK-EU ETS link, which would not be affected by the EU's legal framework.[19]

These differences in policy autonomy and environmental stringency need not preclude linking, however, as they may be addressed through the design of the link itself. As Woerman (2023) shows, initial asymmetric environmental policy stringency across different emissions trading programmes can be reflected in an 'allowance exchange rate' to smoothen linking towards a more realigned market arrangement. Beyond policy stringency, other aspects can also be captured by the exchange rate, including alternative abatement options and price containment mechanisms across markets. Woerman (2023) demonstrates that the exchange rate choice has implications for both aggregate emissions and cost-effectiveness in the linked ETS outcome compared to independently operated markets. Depending on the exchange rate set, efficiency gains can be secured in a linked market, but the distribution may be unequal across linked entities.

3.4.2. Carbon leakage and CBAM alignment

Another consequence of varying policy stringency across independent markets is carbon leakage. Carbon leakage refers to having pollution-intensive production moved to areas with less stringent environmental policy, thus displacing emissions rather than reducing them (Tiche, Weishaar, and Couwenberg 2013). The significance of leakage for emissions trading schemes is that even modest

carbon prices can lead to carbon leakage concerns for emissions-intensive and trade-exposed companies. This can make it infeasible for the government to keep carbon prices at sufficiently high levels required for deep decarbonisation (La Hoz Theuer et al. 2021). When the price of carbon equalises among linked markets, carbon leakage can be reduced between the jurisdictions involved, as firms will face a similar carbon cost burden (Jaffe and Stavins 2007). How the impact of linking ETSs on carbon leakage materialises in practise is another matter. If a linked jurisdiction faces a higher post-linked allowance price, this can potentially increase leakage in that region, while a jurisdiction that faces a lower price might see reduced leakage. The effect on leakage depends on the size of the changes in allowance price, as well as the jurisdictions' sensitivity to leakage (Türk 2011). Due to the expected high carbon cost in both jurisdictions with governing bodies emphasising decarbonisation, carbon leakage is not as likely to occur or not of high concern in the long run between the UK and EU, even with currently diverging allowance prices (see section 3.3.).

CBAMs are designed to reduce carbon leakage by imposing a carbon cost on imported goods from jurisdictions with weaker or non-existent climate policy or carbon pricing. In relation to ETS linkage, a common allowance price would reduce the need for border adjustments between linked jurisdictions while preserving protection against leakage from other countries. To prevent carbon leakage, the EU ETS is implementing a CBAM which will gradually be aligned with the ongoing phase-out of free allocation of allowances until fully operational by 2026. Its gradual introduction remains aligned with the phase-out of free allocation under the EU ETS. The current plan is to have a levy on imports covering the following sectors: aluminium, cement, fertilisers, iron and steel, hydrogen and electricity (EC 2024a). The UK has followed suit. After a consultation on carbon leakage risk, in December 2023 it was confirmed that a UK CBAM will be implemented by 2027, covering goods from the aluminium, cement, fertiliser, iron and steel, and hydrogen sectors[20] (HM Government 2024a). Currently, the designs of the two CBAMs differ. The UK CBAM would function as an import levy by sector, set quarterly by the government with reference to previous UK ETS prices, while the EU CBAM requires importers to surrender certificates whose value is derived from the EU ETS allowance price at time of surrender.

An analysis by Burke et al. (2021) of the potential effect of the EU CBAM on the UK finds that a high convergence of policy would be most beneficial, since the EU is the UK's main trading partner in carbon-intensive goods. This would support market linkage. Since these two jurisdictions have relatively similar environmental ambitions, it could be argued that it is unlikely that the UK would be subject to the EU CBAM in the long term, as its purpose is to prevent carbon leakage with regards to regions that have significantly laxer climate policy (Burke et al. 2021). Indeed, Türk (2011) points out that regions such as the EU are mainly concerned about carbon leakage to developing countries where carbon pricing policies can be lax or non-existent. However, the current allowance price divergence (see Figure 1) highlights the concerns that arise between the UK and EU as trading partners when there is a CBAM in place.[21]

As the UK has scheduled their CBAM implementation, there is a potential for aligning the two adjustment mechanisms despite some differences in their design regarding cost structure and current scope. However, considering the UK in its consultation response stated that the certificate model is administratively more complex and not accurately reflective of the cumulative impact of other schemes in the UK (such as the Carbon Price Support (CPS)) rates, it is not clear what the motivation would be to adopt one system over the other. However, it could be argued that having separate CBAMs with different mechanisms would not inhibit linking. The two jurisdictions could benefit from a linked market with a common allowance price, as this renders the CBAMs negligible between the jurisdictions while retaining similar protection against carbon leakage, as CBAMs sit outside ETSs operations. Alternatively, the two schemes could form an exemption for any CBAM obligations between their two jurisdictions. Alignment in the treatment and phase-out of free allowances alongside CBAM implementation is, however, important to ensure a coherent approach to carbon leakage mitigation and to minimise any competitiveness concerns arising from uneven levels of protection across jurisdictions.

3.4.3. CCS, CO_2 removals and cross-border carbon markets

In the context of developing international carbon capture markets, as part of developing UK and EU CCS strategies, the alignment of the EU and UK ETSs is of paramount importance. Linking (or aligning) is required if the two jurisdictions wish to benefit from international trade and export of permanent carbon storage between themselves, avoiding regulatory barriers. Under the current framework, EU ETS installations would not benefit from the exemption to surrender allowances if exporting captured CO_2 for storage outside the European Economic Area (EEA), as this would not comply with Article 12(3a) of the EU ETS Directive (EU 2003). This removes the incentive for EU emitters to export their CO_2 to the UK. Clarity on how CO_2 captured and exported for permanent storage is treated under different ETS schemes is required. The two schemes could, at the minimum, include some form of common regulation regarding the treatment of transport and storage value chain emissions and permanent storage of CO_2, where storage sites in the UK and EEA are legislatively treated equally. The EU ETS Directive and UK ETS Order could be amended to recognise storage in another jurisdiction that satisfies minimum CCS certification criteria.[22] The formation of the UK-Belgium carbon capture, usage and storage arrangement, published in June 2026, further highlights the practical importance of resolving cross-border CO_2 transport and storage rules in the context of ETS linkage discussions.

Environmental considerations support the case for closer UK-EU coordination but also show why market linkage must be designed carefully. The UK and EU share long-term net-zero objectives, but differences in short-term targets, CBAM design, and future treatment of removals could affect the environmental integrity and policy value of linkage. A UK-EU ETS link would be most beneficial if accompanied by common rules on removals/offsets, clearer treatment of cross-border CCS, and coordination on carbon leakage policy.

4. Concluding remarks

Emissions trading schemes (ETSs) are market mechanisms that promote cost-effective emissions reductions and can support energy transitions towards long-term net-zero targets. Yet many ETSs operate independently and do not allow emissions trading between carbon markets. This has led to growing interest in linking such markets. Following Brexit, the UK developed its own independent ETS, despite many energy-intensive sectors previously being regulated under the EU ETS. This raises the question of whether the UK and EU ETSs should be linked, and what factors influence the feasibility of such a link. This is particularly relevant given the UK's legally binding net-zero target for 2050. By reviewing academic and policy literature on ETS linking, this paper draws key lessons for a potential UK-EU ETS link in the context of UK industry decarbonisation and the transition to net-zero.

We identify and discuss ETS linking through four components: (i) market design, (ii) political economy, (iii) economic, and (iv) environmental considerations. On this basis, we conclude that linking is plausible and could support the UK's efforts to meet its 2050 net-zero target. The two systems share several structural design features, making them broadly compatible for linking. A linked market could enhance price stability, improve liquidity, and provide more flexible and cost-effective emissions reduction options for regulated entities. These benefits may become increasingly important as both markets shrink under tighter caps aligned with net-zero ambitions. A UK-EU ETS link could also facilitate cooperation on critical climate technologies, particularly carbon capture and storage (CCS) and engineered greenhouse gas removals (GGRs). CCS currently faces regulatory barriers that hinder cross-border development, while the possible inclusion of GGR credits in ETSs could help expand an underdeveloped removals market. Linkage is therefore not only a question of allowance trading but could also provide an institutional platform for coordinating these emerging climate policies.

The analysis indicates that the main challenge is not current technical incompatibility, but future governance. Market design compatibility is currently relatively strong, but divergence in price

stabilisation, sectoral coverage, Carbon Border Adjustment Mechanisms (CBAMs), and the treatment of offsets/removals could pose future barriers. Political economy concerns, especially regulatory autonomy and post-linkage governance, are therefore central.

The policy implication is that linkage should be understood not as a binary choice between autonomy and reintegration, but as a negotiated governance arrangement. Key issues include joint decision-making, future design changes, the interaction between UK and EU CBAMs, and rules governing cross-border CCS and removals. The UK-EU case also contributes to linking theory by distinguishing between static compatibility, where existing ETS rules are sufficiently aligned, and dynamic compatibility, where linked systems manage future policy change. This distinction matters because static alignment alone cannot sustain a common carbon price. It also highlights asymmetric relinking, where a smaller post-exit market seeks the liquidity and credibility benefits of linking to a larger system it had previously been part of, while retaining sufficient regulatory flexibility.

While this paper provides a qualitative institutional assessment, future research should complement this with quantitative modelling of post-link allowance price dynamics, welfare effects, emissions outcomes, and sector-specific distributional impacts under alternative linkage designs including full linkage, partial linkage, linkage with allowance exchange rates, and limited regulatory alignment without full market integration.

Notes

1. When the UK decided to develop their ETS, it was designed in a way to make it possible to link with the EU ETS, and in the Trade and Cooperation Agreement both parties agreed to cooperate on carbon pricing, expressing openness to consider linking their respective ETSs (EC 2021).
2. The forthcoming 2026 UK–EU Summit is expected to review progress on negotiations towards linking the UK and EU ETS, following the commitment made at the 2025 UK–EU Summit to negotiate a formal linkage agreement.
3. It is beyond the scope of this paper to discuss the ARP and CCM design issues in specific detail. For a rigorous treatment on this see Murray, Newell, and Pizer (2009), Fell and Morgenstern (2010), and Friesen et al. (2022).
4. The ARP was set at GBP 22 based on the rounded average EU ETS price in 2020. It has since been adjusted for inflation, increasing to GBP 28 in 2026.
5. The CCM was triggered in December 2021 and January 2022, as the average price in the three consecutive months for both cases was above the trigger level at that time (i.e. GBP 52.88 and GBP 56.58, respectively); however, the UK government chose not to intervene in the market on both occasions (BEIS 2022).
6. Further adjustments to the EU's MSR are expected take place in the near term alongside the EU ETS review in 2026. However, as it is not assumed that the MSR would move away from being a quantity-based mechanism, this would not significantly alter the analysis presented here.
7. Another debate, beyond the scope of this paper, is whether a quantity-based or a price-based mechanism is more suitable; see Narassimhan et al. (2018), Fischer et al. (2019) and Perino, Ritz, and van Benthem (2025).
8. Examples of engineered GGRs include direct air capture and storage, and power bioenergy with carbon capture and storage.
9. However, Green, Sterner, and Wagner (2014) suggest that such indirect links should be kept to a minimum, considering that political uncertainty can undermine the stability of the system.
10. As set in Article 192(2) of the Treaty on the Functioning of the European Union (EU 2007).
11. EUR 54.13, with Bank of England 22nd August 2024 conversion rate of EUR 1 = GBP 0.8483
12. EUR 79.96, EUR 1 = GBP 0.8483
13. EUR 83.60, EUR 1 = GBP 0.8483
14. The EU ETS system reached an all-time high in allowance price of around EUR 105 per tonne in February 2023; similarly, the UK ETS experienced a price spike.
15. UK ETS covers around 1,228 emitters, while the EU ETS covers 7,705. In 2023, The verified emissions of the UK and EU ETS markets are roughly 97 $MtCO_2e$ and 1,149 $MtCO_2e$, respectively (UK Emissions Trading Registry 2024; EU 2024; Nissen et al. 2024).
16. Though not to the extent as when comparing say the 2023 average allowance auction price of the RGGI of GBP 9.78 to the UK ETS's price of GBP 53.36 (ICAP 2024; ICE 2024a).
17. The UK's new 2035 target of 81 percent reduction compared to 1990 levels was announced by Prime Minister Keir Starmer at the 2024 United Nations Climate Change Conference of the Parties (COP29) (HM Government 2024b).

18. The development of the new EU ETS II (separate from EU ETS) will now create a jurisdiction-wide scheme to cover and address upstream emissions from fuel combustion in buildings, road transport and additional small industry sectors not covered by the existing ETS. The scheme aims to be operational by 2028 (EC 2024b).
19. Note that the UK adopted a carbon price floor via Carbon Price Support (CPS) rates in 2013 to complement the EU ETS in order to ensure a minimum price for carbon, meaning that such solutions have been used before and are an option.
20. Note that sector coverage is identical to the EU CBAM, with the exception of electricity.
21. A discussion supporting the alignment of the two ETSs with regards to the effects of CBAMs on the UK and EU can be found in the report by Frontier Economics (2024).
22. Alternatively, negotiations with the EU could include the amendment of Directive 2009/31/EC and the UK CCS licencing regime to recognise jurisdictions that hold equivalently regulated permitting of CO_2 storage sites.

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Author contributions

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