Making international carbon markets work for Europe

Jurisdictional Reward Funds and the EU's 2040 climate target

PIK Policy Paper

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Executive Summary

- **The revised EU Climate Law allows the use of international flexibility mechanisms for up to 5% of 1990 net emissions under the 2040 target.** The provision is not a relaxation of ambition: it shifts part of the mitigation effort abroad to contain costs while keeping the overall emissions reductions unchanged. The challenge is ensuring that what is credited abroad is real.
- **Properly designed, international flexibility acts as an insurance mechanism against geopolitical uncertainty.** If global climate ambition remains weak, access to lower-cost mitigation abroad helps contain compliance costs and sustain political support for ambitious EU targets. If international climate ambition strengthens, international opportunities for emission reductions become scarcer and mitigation efforts naturally shift back to Europe.
- **We propose Jurisdictional Reward Funds (JRFs) as a high-integrity framework for implementing the 5% provision.** Unlike previous mechanisms, whose systematic failure to deliver real emissions reductions is well-documented, JRFs rely on universal baselines on jurisdiction-level rather than project-level additionality assessments or negotiated benchmarks. They thereby avoid the existing incentive problems undermining existing Article 6 mechanisms and ensure credited mitigation is environmentally credible.
- **A strategically optimized procurement portfolio for reducing fossil fuel use and conserving tropical forests could fully utilize the 5% provision at annual costs of roughly €5 billion in 2040 (€21/tCO_2).** Under stylized integration scenarios, international credits could reduce ETS1 allowance prices after 2030 by around 40-45% relative to baseline, with smaller but meaningful effects under ETS2 integration and substantially larger effects under earlier or more prolonged integration.

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1. Introduction

Europe's 90% emissions reduction target for 2040 marks a turning point. Much of the EU's past emissions reductions came from relatively low-cost adjustments (EEA 2025a; Delbeke 2026). Now, decarbonization must increasingly address expensive hard-to-abate activities (Rodrigues et al. 2026), raising the economic and political costs of the transition. At the same time, international conditions for climate cooperation have deteriorated. Russia’s invasion of Ukraine and conflict in the Middle East, intensifying industrial rivalry with China and the US retreat from multilateral platforms increased uncertainty whether other major emitters will pursue emissions reductions consistent with the Paris Agreement or instead “free-ride” on EU climate ambition.

Against this backdrop, the revised EU Climate Law allows the use of international carbon credits under Article 6 of the Paris Agreement for up to 5% of 1990 EU net emissions toward the 2040 target (EU 2026). The central question is therefore no longer whether the EU should engage with international carbon markets, but how such engagement can be governed effectively.

The function of the EU’s 5% provision is not to relax the 2040 target, but to lower costs and uncertainty of achieving it. By shifting parts of European mitigation efforts abroad, it changes the location of emission reductions while maintaining overall ambition. What is more, international flexibility acts as a hedge against uncertainty about future climate cooperation. If major emitters fail to pursue ambitious climate policies, access to lower-cost mitigation opportunities abroad can help contain compliance costs and sustain political support for ambitious climate policy as decarbonization costs rise. If international cooperation strengthens, global climate ambition rises and the supply of low-cost offshore mitigation opportunities will decline – a larger share of mitigation then will naturally shift back to the EU. Properly designed, international flexibility should therefore not be understood as a substitute for domestic climate ambition, but as a mechanism for stabilizing EU climate policy under geopolitical uncertainty: when global climate policy ambitions are weak, international flexibility curbs domestic costs; when global ambitions strengthen, international carbon markets become more expensive and make domestic abatement more attractive.

Currently, the EU lacks a mechanism to realize these benefits of the EU’s 5% provision without reproducing the credibility problems of earlier cooperation mechanisms. We propose Jurisdictional Reward Funds (JRFs) as a possible institutional framework for operationalizing the EU’s new Article 6 flexibility provisions. JRFs avoid many of the flaws that undermine existing offset markets by relying on universal baselines rather than negotiated benchmarks or project-level additionality assessments that hardly deliver in practice. More broadly, JRFs create incentives for countries to participate in high-integrity climate cooperation while supporting the development of institutional capacities required to deliver mitigation outcomes at scale.

We further show that JRFs enable the EU to implement its international flexibility provision at low cost while ensuring that credited emission reductions are real and measurable. Under an optimal procurement strategy, the EU could fulfil its 5% flexibility allowance with annual spending of around €5 billion (€21/tCO_2) in 2040 on forest conservation and reductions in fossil fuel demand in low- and middle-income economies. Integrating even relatively modest volumes of international credits into

EU carbon markets could reduce EU ETS1 allowance prices by 40-45% on average between 2036 and 2050 relative to baseline levels.

Box 1: Jurisdictional Reward Funds (JRFs)

1. What they are and why they work

JRFs pay governments for results, not promises. Rewards are determined ex post by transparent, pre-announced rules tied to measurable, jurisdiction-wide outcomes — not by negotiated baselines or project-level assessments. Unlike project-based offset mechanisms, JRFs do not attempt to determine the additionality of individual activities. Unlike ad hoc bilateral jurisdictional agreements, they do not rely on negotiated baselines. Instead, all participating countries are assessed using the same ex ante benchmark methodology and rewarded according to a common pre-announced allocation formula.

Under a JRF, donors first commit to a fixed funding envelope and a universal benchmark methodology without bilateral negotiations. In its simplest form, the benchmark rule depends on a country's mitigation outcome being rewarded (e.g., low deforestation rates or renewables expansion) and applies the same reference level to all countries. More sophisticated approaches may draw on statistical forecasting models that incorporate objective and largely non-manipulable country characteristics, such as income levels, demographics, or geographic conditions, and use country-specific baselines. While benchmark levels vary across countries, the underlying methodology remains uniform.

At the end of each reward period, outcomes are independently verified using observable indicators (e.g., satellite-based for deforestation, renewable expansion rates or effective fuel tax rates). The available budget is then allocated according to the pre-announced formula, with each country rewarded in proportion to its performance relative to its benchmark. The exact payment rate per unit of mitigation may vary with aggregate performance across participants, but the conditions under which a country qualifies for rewards are fixed. Governments can therefore be confident that (stronger) performance will be rewarded, even if the precise payment rate remains uncertain.

This fundamentally changes the incentive structure of international climate finance. Without commitment to pre-committed, universal rules, donors face incentives to tighten benchmarks after strong performance has occurred. Anticipating this, recipient countries have incentives to underperform in order to secure more favorable future benchmarks. Universal rules break this dynamic: because benchmarks are fixed in advance and applied uniformly, a country's current mitigation effort cannot reduce its future reward.

The cost of this design is that universal benchmarks generate informational rents. Countries with structurally low deforestation rates, for example, may receive payments that exceed the costs of their mitigation effort. These rents are an unavoidable consequence of using *uniform rules across heterogeneous countries under imperfect information – and the price of maintaining credible and rules-based incentives over time.*

2. The Tropical Forest Forever Facility: A leading JRF example

The Tropical Forest Forever Facility (TFFF), launched at COP30, is the leading current example of a JRF. The initiative would provide rules-based payments to tropical forest countries linked to national deforestation outcomes relative to a universal benchmark. More than 50 countries, including several European governments, have expressed support for the initiative (TFFF 2026). The TFFF combines the two core features of JRFs: jurisdiction-wide outcome-based payments and universal benchmark rules.

The current TFFF combines the simple reward structure with a more complex financial architecture involving a leveraged investment fund (Tenkhoff/Voigt 2026). A simpler pay-as-you-go structure based on annual donor contributions and direct reward payments could improve transparency and facilitate integration into Article 6 accounting frameworks. Under such an approach, mitigation outcomes could be estimated on the basis of a small number of observable parameters, including the responsiveness of mitigation outcomes to reward payments and estimated carbon leakage rates, i.e., adjustments of deforestation due to increased crop and land prices.

2. Why existing carbon market mechanisms fall short

The Paris Agreement provides two principal pathways for international carbon market cooperation. Article 6.2 enables decentralized bilateral or plurilateral cooperation through the transfer of internationally transferred mitigation outcomes (ITMOs) between countries. Article 6.4 establishes a centralized UN-supervised crediting mechanism – the Paris Agreement Crediting Mechanism (PACM) – as the successor to the Kyoto Protocol's Clean Development Mechanism (CDM). Both mechanisms allow mitigation outcomes generated abroad to contribute towards another country's climate targets and therefore facilitate exchange of carbon credits, either at the project or jurisdictional level (EPRS 2025).

The central problem of project-based offset markets is additionality. That is, emissions reductions should only be credited if they would not have occurred in the absence of international finance. In practice, additionality is difficult to verify, particularly for the "low-hanging fruits" of global mitigation activities such as renewable energy deployment, electrification or energy-efficiency investments.

In principle, market-based carbon crediting mechanisms attempt to solve this problem by relying on the assumption that firms maximize profits. However, even conservative estimates from the Kyoto-era Clean Development Mechanisms indicate that at least 51% of accepted projects were already commercially viable without carbon credit revenues (Calel et al. 2025). More broadly, systemic reviews of offset markets have repeatedly identified persistent problems of non-additionality, over-crediting and weak verification standards (e.g., ESABCC 2025, Probst et al. 2024; West et al. 2020).

Moreover, project-based mechanisms also interact strategically with domestic policy choices. Once international finance becomes available, governments may reduce domestic subsidies or relabel already planned mitigation activities as conditional on external support. In this case, international finance substitutes for domestic policy efforts (Banerjee et al. 2026a). Evidence from development finance suggests that such crowding-out dynamics are common when external funding becomes available (e.g., Dykstra et al. 2019; Lu et al. 2010).

Because of low additionality and effectiveness, integrating project-based offsets into compliance markets like the EU ETS would actually weaken overall climate policy (Macintosh et al. 2025). Jurisdictional approaches partly address these problems by rewarding mitigation outcomes at the level of governments rather than projects (Bolton et al. 2024, Cantillon et al. 2025). Norway's forest partnership with Guyana is a prominent example: payments were linked to national deforestation outcomes relative to a negotiated benchmark. Empirical studies suggest the arrangement effectively contributed to lower deforestation rates (Roopsind et al. 2019).

However, negotiated jurisdictional baselines create a different problem. When current performance determines baseline setting, governments have incentives to weaken present mitigation efforts to secure more favorable future conditions. Similarly, mechanisms that reward countries for outperforming their Nationally Determined Contributions (NDCs) might create incentives to submit less ambitious NDCs in the first place (Schneider et al. 2025).

Donor countries face related problems. Once strong mitigation performance occurs, donors benefit from tightening future baselines in order to limit payments for mitigation that countries would likely have delivered anyway. Anticipation of such renegotiation weakens long-term incentives and encourages strategic underperformance. This "ratchet effect" is a structural feature of negotiated baseline systems (Kalkuhl/Stern 2025).

The described weaknesses of existing approaches are structural rather than methodological. They arise not from poor implementation but from the fundamental difficulty of verifying additionality at the project level under conditions of information asymmetry and misaligned incentives — conditions that no amount of tightened standards or improved monitoring has so far been able to overcome. Credible large-scale international carbon crediting therefore requires mechanisms that reward jurisdiction-wide outcomes while committing ex ante to transparent and universal benchmark rules. Jurisdictional Reward Funds combine these features (see Box 1). Rather than attempting to determine the additionality of individual activities, JRFs shift the unit of accountability from projects to governments, and from negotiated baselines to universal, pre-announced benchmark rules tied to observable outcomes. This design removes the specific incentive structures that have caused existing mechanisms to fail systematically. Whether JRFs deliver on this promise in practice will depend critically on the governance conditions under which they operate.

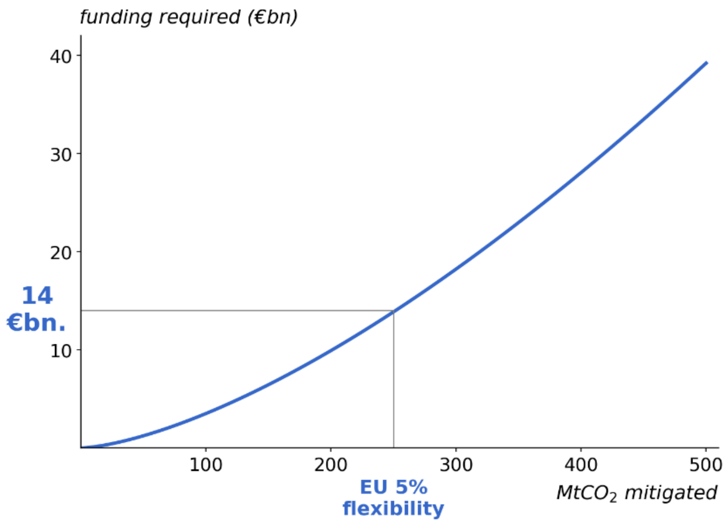
3. What Reward Funds can do for the EU

Given historic experiences with international carbon markets, recent contributions to the Article 6 debate increasingly favor centralized EU procurement structures and strong public oversight (Raude et al. 2026; Schneider et al. 2026). Jurisdictional Reward Funds fit naturally into this emerging governance approach because they combine centralized procurement with standardized rules and jurisdiction-wide incentives.

What remains largely absent from the debate, however, is the concrete design structure and the economic dimension: what would it actually cost the EU to fully utilize its new 5% flexibility provision once economic rents and carbon leakage effects are taken into account? And how should scarce fiscal resources be allocated most effectively across mitigation activities abroad?

Initiatives such as the Tropical Forest Forever Facility (TFFF) suggest that elements of a reward-fund architecture are already beginning to emerge in practice (see Box 1). The TFFF provides a useful benchmark for estimating the scale and funding requirements of such an approach. Figure 1 shows the estimated funding requirements for an economically optimized "TFFF 2.0". If the EU were to fulfil its entire 5% international flexibility provision – equivalent to roughly 236 MtCO_2 in 2040 – exclusively through avoiding tropical deforestation, annual transfers to partner countries would amount to approximately €14 billion by 2040.

Figure 1. Estimated annual EU funding requirements for an optimized "TFFF 2.0"



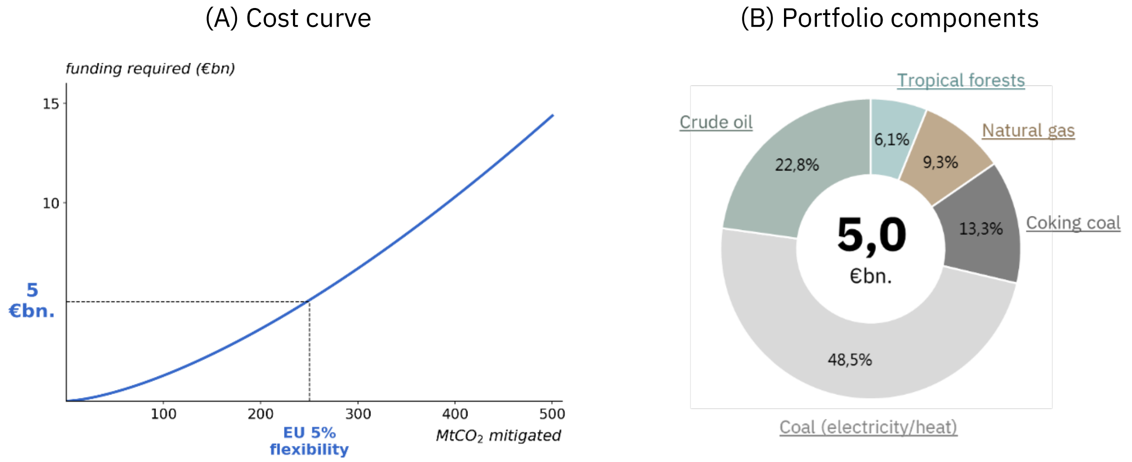
Source: Own calculations. Based on Banerjee et al. (2026b).

However, tropical forest conservation alone is unlikely to constitute the EU's economically optimal procurement strategy. An efficient portfolio would also include Jurisdictional Reward Funds targeting reductions in fossil fuel demand in low- and middle-income economies. Such mechanisms generate an additional benefit for the EU: lower global fossil fuel prices that reduce Europe's fossil fuel import bill. This also aligns closely with the EU's growing emphasis on combining climate policy with energy security, industrial resilience and strategic autonomy (Marcu et al. 2026; Delbeke/Tagliapietra 2026).

Once these terms-of-trade effects are taken into account, the optimal allocation of finance for international credit procurement shifts toward reward funds targeting reductions in oil, gas and coal demand (Edenhofer et al. 2025). Operationally, such an EU reward fund architecture could reward countries according to observable indicators associated with lower fossil fuel consumption, including fuel pricing policies[1], reductions in fossil fuel subsidies, renewable-energy deployment or electrification performance[2].

Figure 2 shows the portfolio of funding that achieves any emission target at maximal welfare for the EU. The optimized mix combines tropical forest conservation with reward funds targeting reductions in oil, gas, thermal coal and coking coal demand. Under this portfolio, average procurement costs fall to around €5 billion[3] in 2040 (ca. €21/tCO_2) for full use of the EU's Article 6 provision.[4]

Figure 2. Welfare-maximizing allocation of EU international credit procurement



Source: Own calculations, based on Banerjee et al. (2026b) and Edenhofer et al. (2025).

At the same time, JRFs generate distributive gains for partner countries. Because universal benchmark systems apply identical rules across heterogeneous jurisdictions, most countries receive payments exceeding the costs of their induced mitigation effort. Under the optimized universal reference level, half of the transfers made by each JRF accrue to recipient countries as rents.

From a narrow efficiency perspective, these transfers may appear excessive. The necessary compensation for reducing coal in developing and emerging economies can be comparably low (see,

[1] Payments would be proportional to an incentive-preserving prediction of a country's fossil fuel consumption.

[2] Rewarding countries based on effective fuel tax rates appears to be most effective. Rewarding countries directly for lower emissions performs worse because emission levels differ strongly across countries, even after controlling for factors such as GDP. Another promising approach is to reward countries based on the ratio of renewable capacity expansion to GDP (Kalkuhl/Stern 2026).

[3] The estimated costs reflect compliance costs for procuring international credits through JRFs, not net fiscal or welfare costs. Welfare costs are generally below compliance costs since the EU "gets" avoided climate damages and fossil fuel prices in exchange. Fiscal costs could even be negative if credits enter EU carbon markets at higher ETS prices.

4 Note that the emission reductions achieved under the JRFs as shown in Fig. 2 are already net of carbon leakage and constitute therefore additional global emission reductions. Since EU's territorial climate targets are subject to carbon leakage, increasing international flexibility of EU's compliance markets with JRFs that account for carbon leakage actually increases global mitigation efforts.

e.g. Bolton et al. 2024). In practice, however, the implicit transfers are the counterpart of maintaining credible long-term incentives under imperfect information while avoiding repeated baseline renegotiation. Seen as a “premium”, these rents are also consistent with the EU Climate Law’s requirement that benefits associated with international credits should be shared with partner countries (EU 2026).

4. Implications for EU carbon prices

At the time of writing, key implementation elements of the 5% flexibility under the revised EU Climate Law remain unresolved, including the phase-in of eligible volumes, the duration of eligibility and the institutional docking point of international credits within the EU’s climate policy architecture. Besides the overall eligible volumes, the compliance system in which credits are used matters, because identical volumes can generate different price effects across ETS and non-ETS sectors.

We focus on the price effects of integrating international credits into ETS1 and ETS2.[5] To provide a transparent benchmark, we assume a stylized allocation between both systems based on historical emission shares (1990 and 2024). Following Graichen et al. (2025), we assume a gradual phase-in of international credits from 1% in 2036 to 5% in 2040. Credit use then declines linearly to zero by 2050. We also analyze alternative scenarios involving earlier and more prolonged credit use associated with larger cumulative supply volumes.

ETS1 as institutional docking point

Based on 1990 emission shares, ETS1-covered sectors receive approximately 49% of total credit supply. This translates into around 116 $MtCO_2$ in 2040 and approximately 868 $MtCO_2$ cumulatively over 2036-2050, equivalent to an average annual supply of 58 $MtCO_2$. Allocating credits based on current (2024) emission shares (36%) reduces the ETS1 allocation to 85 $MtCO_2$ in 2040 and about 638 $MtCO_2$ cumulatively over 2036-50, corresponding to an average annual supply of 43 $MtCO_2$.

At this scale, integrating international credits into ETS1 would effectively expand the emissions cap by around 20-30% from 2031 onwards. Based on the price estimates in Best et al. (2026), such an increase in allowance supply is associated with a decline in average allowance prices of approximately 40-45%[6] relative to the baseline pathway[7]. Under more expansive integration scenarios, the price impact could become even larger, with allowance prices falling by up to half relative to baseline level (Figure 3).

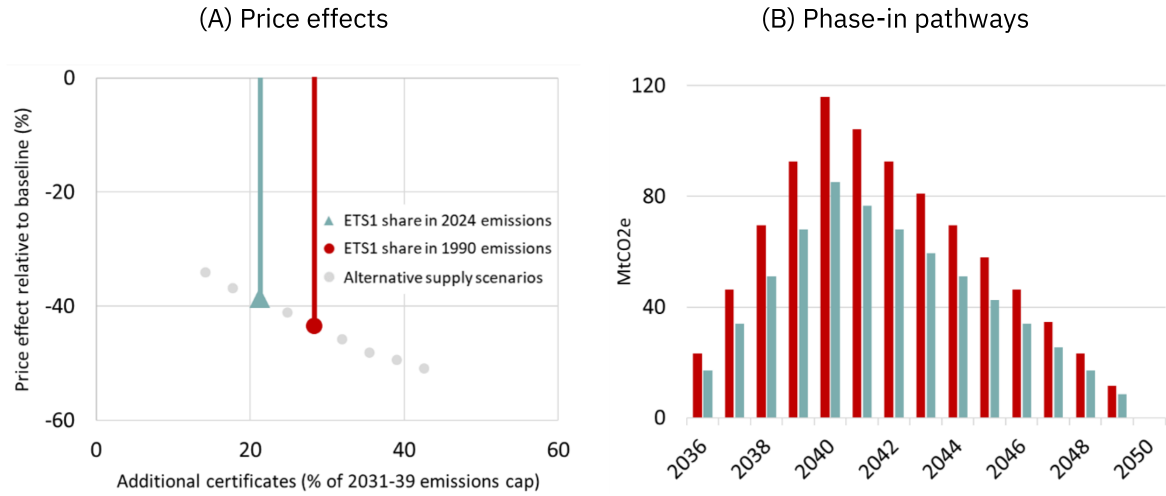
5 We focus on relative price changes because absolute allowance price levels are highly sensitive to assumptions about complementary policies. Relative price effects are more robust because, when calibrated around the status quo, the effects of incremental policy changes scale broadly proportionally and are therefore less sensitive to these uncertainties.

6 The relevant integration scenarios in Best et al. (2026) imply cumulative additional allowance supply of 660 MtCO2 and 880 $MtCO_2$ over a 15-year period, resulting in average ETS1 price reductions of 38.6% and 43.5%, respectively.

7 Best et al. (2026) assume a constrained CCS availability, slower hydrogen ramp-up as their reference scenario. They also provide corresponding estimates for changes in absolute ETS1 prices under different supply scenarios.

These estimates highlight the high sensitivity of ETS1 prices to additional allowance supply. The combination of a comparatively tight cap trajectory and relatively steep marginal abatement cost in industrial sectors means that even a relatively moderate inflow of additional credits could generate substantial downward pressure on carbon prices. Because the ETS is forward-looking, expectations about future credit availability may already reduce prices before credits enter the market formally (Best et al. 2026; Sultani et al. 2026).[8]

Figure 3. Price effects and phase-in pathways of international credits in ETS1



Source: own calculations based on Best et al. (2026).

ETS2 as institutional docking point

Applying a 1990 emissions benchmark, ETS2 sectors would receive approximately 29% of total credit supply, corresponding to 69 $MtCO_2$ in 2040 and 515 $MtCO_2$ cumulatively over 2036-2050. This implies an average annual inflow of 34 $MtCO_2$. Using 2024 emissions shares (42%) as an alternative benchmark increases the allocation to 99 $MtCO_2$ in 2040 and 744 $MtCO_2$ cumulatively, equivalent to an average of 50 $MtCO_2$ per year (Figure 4).

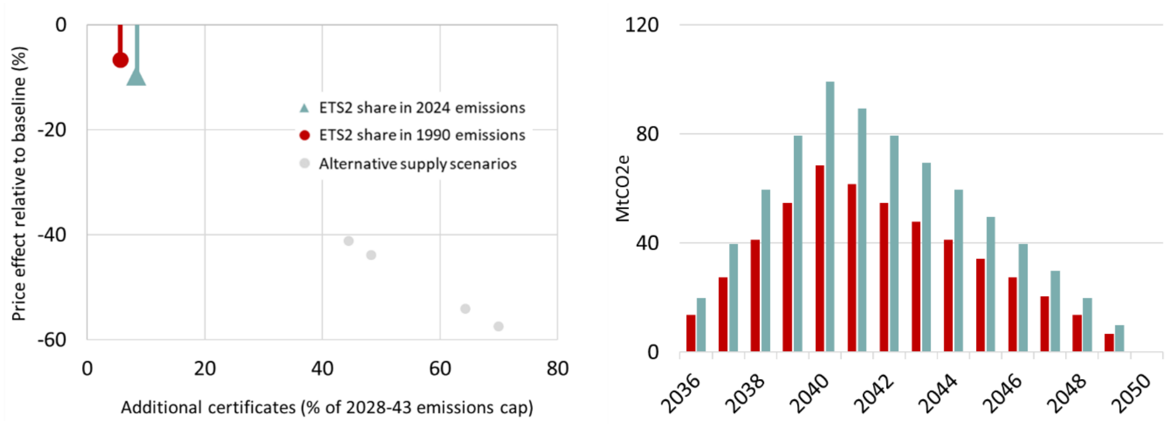
Compared to the ETS1, these quantities imply a smaller increase in the allowance supply of roughly 6-8% due to the larger ETS2 cap. Based on Bergmann et al. (2026), this lowers average prices by

8 This implies that carbon prices are influenced by factors that extend beyond simplified supply-and-demand dynamics. As a result, the estimates in Best et al. (2026) should be interpreted as indicative rather than predictive: while they are arguably robust with respect to the direction and approximate magnitude of the effect, they should not be understood as precise forecasts. This is particularly important because carbon prices will also reflect investment and operational decisions across EU industry, which are shaped by broader geoeconomic developments and industrial policy, rather than by the EU ETS alone.

approximately 6-9% relative to baseline levels over 2036-2050.[9] In scenarios with extended credit supply, price reductions increase by up to a factor of six relative to the baseline integration pathway (Figure 4).

Figure 4. Price effects and phase-in pathways of international credits in ETS2

(A) Price effects (B) Phase-in pathways



Source: Own calculations based on Bergmann et al. (2026).

The different price effects in ETS1 and ETS2 are primarily driven by the size of the credit supply relative to the respective cumulative emissions caps. Although the absolute volume of international credits is similar in both systems, it represents a much larger share of the shrinking ETS1 cap (particularly after 2030) than of the considerably larger ETS2 cap. Price impacts also depend on how costly additional emission reductions have become when credits enter the market. In the ETS1, abatement costs are expected to rise sharply during the late-stage decarbonisation “endgame” (Pahle et al. 2022), making allowance prices highly sensitive to additional supply. In the ETS2, abatement pressure appears to be concentrated in the early years, with prices easing as additional low-cost mitigation options become available (Graichen/Ludig, 2024).

5. Why early EU engagement matters

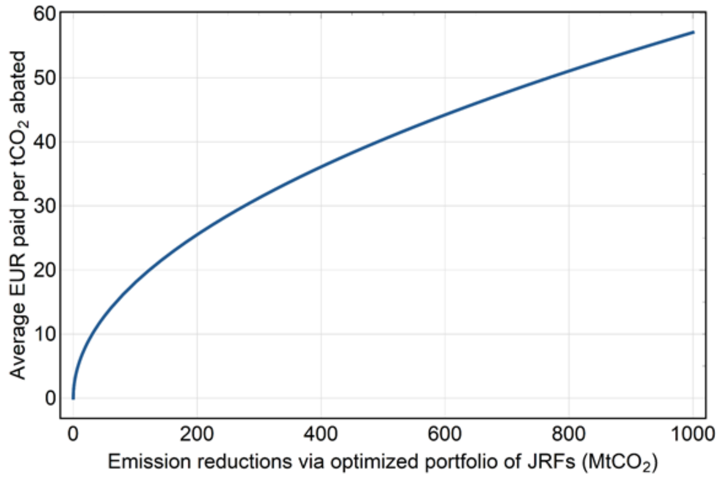
Hedging against geopolitical uncertainty

Carbon credit prices will not be set by the EU alone. How China, the US and other major economies position themselves in international markets will matter as much as European demand — and

9 Bergmann et al. (2026) provide corresponding estimates for changes in absolute ETS2 prices under different international credit inflow scenarios and backstop price assumptions. Baseline ETS2 prices in 2027 in Bergmann et al. (2026) are €365/tCO_2 without complementary policies like fleet standards, national carbon prices and market stability interventions.

waiting carries its own risks. If China were also to scale up participation in Article 6 markets, competition for a limited pool of low-cost mitigation opportunities would intensify. Under such a scenario, procurement cost for international mitigation could rise substantially, reaching around €60/tCO_2 for additional global demand of 1.000 MtCO_2 (Figure 5).

Figure 5. Credit prices under increasing demand by EU and China in international carbon markets



Source: Own calculations.

However, this dynamic is not necessarily a disadvantage for the EU. Rather, international flexibility functions as a hedge against geopolitical uncertainty. If global climate ambition remains weak, mitigation opportunities abroad stay relatively inexpensive, allowing the EU to contain the costs of achieving increasingly stringent targets. If major emitters strengthen climate ambition and compete for international mitigation outcomes, higher credit prices would reflect stronger global decarbonization overall which also reduces carbon leakage and competitiveness issues of EU's domestic climate policy. In this case, the EU would rely more on domestic mitigation, against the backdrop of lower global emissions and climate damages.

International flexibility therefore acts less as a substitute for domestic mitigation than as a mechanism that stabilizes the economic and political feasibility of ambitious EU climate policy across different global ambition scenarios. Early engagement in international carbon markets is therefore a form of strategic risk management against uncertain future mitigation costs and global climate ambition.

Building credible markets abroad

High-integrity international credits do not emerge automatically. Partner countries need time to build the institutional capacities, accounting systems and monitoring frameworks that effective mitigation at scale requires. That process cannot begin without a credible long-term demand signal from the EU. Experience with the CDM and Article 6 implementation confirms this (Bencini et al. 2026).

The pilot phase established under the EU Climate Law between 2031 and 2035 should be actively understood as a phase of market development and institutional learning. Delayed EU decisions on procurement structures, eligibility rules or long-term demand commitments could constrain future supply precisely when compliance demand begins to rise after 2035. Conversely, early and credible European engagement could help coordinate expectations and accelerate investment in administrative capacity, institutional frameworks and mitigation policy pipelines in partner countries. One option would be to begin with a smaller number of strategically selected pilot partnerships organized through Jurisdictional Reward Funds, which could later be expanded into broader cooperation frameworks.

6. Conclusion

The EU's decision to allow limited use of international credits under the 2040 climate target reflects a changing political economy of European decarbonization. The central challenge is to sustain ambition under rising cost pressure and weaker international cooperation. In this context, the EU's renewed engagement with international carbon markets should be understood less as a substitute for domestic mitigation than as a strategic safety valve that stabilizes ambitious climate policy across different global ambition scenarios.

However, implementing the EU's 5% flexibility provision is institutionally challenging. Existing offset markets continue to suffer from structural additionality and credibility problems. We therefore propose Jurisdictional Reward Funds as an alternative architecture. By relying on transparent, universal and pre-announced benchmark rules tied to jurisdiction-wide outcomes, JRFs could provide a more credible framework for procuring high-integrity carbon credits abroad while supporting durable mitigation policy arrangements in partner countries.

A strategically optimized portfolio combining tropical forest conservation with reductions in fossil fuel demand abroad would imply annual transfers of around €5 billion in 2040 if the EU fully utilizes the flexibility. The price effects of carbon market integration could be substantial. Under the stylized, proportional baseline integration pathway analyzed here, international credits could reduce average ETS1 prices after 2030 by around 40-45% relative to the baseline pathway, with smaller but still meaningful effects in ETS2. If governed credibly, the EU's flexibility provision could help contain excessive ETS price increases, maintaining the credibility of the EU's climate targets under increasingly fragmented geopolitical conditions. Setting up JRFs could also help establishing coalitions for scaling up international climate finance to reduce climate damages in their own economies (Bolton et al. 2025, Edenhofer et al. 2025).

As international credits become scarcer with strengthening global cooperation, forward-looking investors retain their incentives for decarbonization while the safety valve is active. Properly designed, JRFs reduce mitigation costs when cooperation is low, strengthen incentives for cooperation when it is high, and prevent a weakening of the EU's climate ambition. These properties depend on robust governance, independent verification, and a clear institutional commitment to the long-term climate targets.

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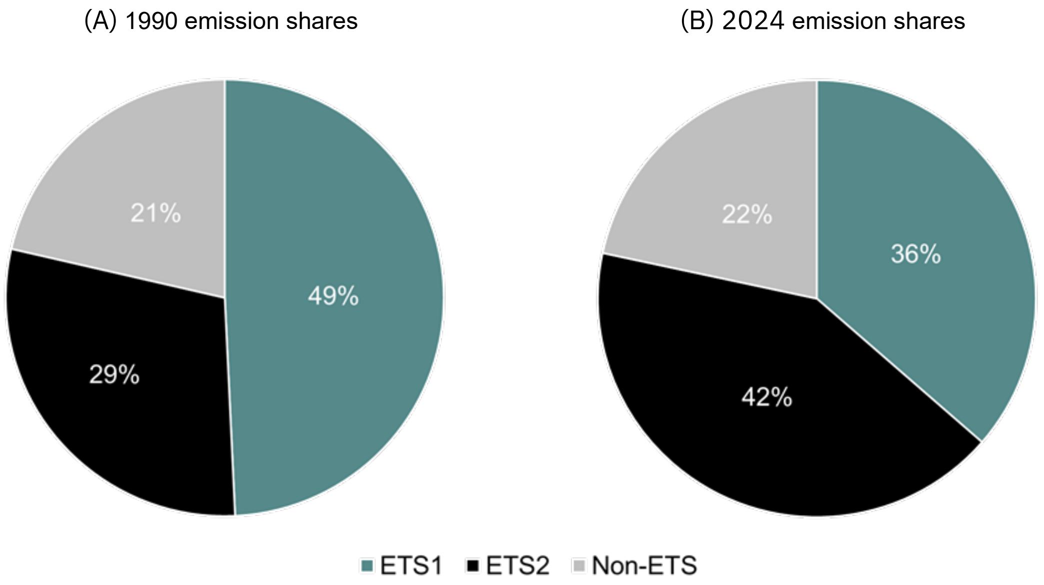
Annex

Figure A1. Historical emission shares across compliance pillars (ETS1, ETS2, non-ETS)



Source: Own calculations based on EEA (2024) and EEA (2025b).

Table A1. Phase-in of international credits and implied allowance supply (1990 shares)

Year	Offset share (percent)	ETS1 relevant ($MtCO_2$)	ETS2 relevant ($MtCO_2$)
2036	1.0	23.2	13.7
2037	2.0	46.3	27.4
2038	3.0	69.5	41.1
2039	4.0	92.6	54.8
2040	5.0	115.8	68.5
2041	4.5	104.2	61.7
2042	4.0	92.6	54.8
2043	3.5	81.1	48.0
2044	3.0	69.5	41.1
2045	2.5	57.9	34.3
2046	2.0	46.3	27.4
2047	1.5	34.7	20.6
2048	1.0	23.2	13.7
2049	0.5	11.6	6.9
2050	0.0	0.0	0.0
Sum		868.4	514.0
Annual average supply		57.9	34.3

Table A2. Phase-in of international credits and implied allowance supply (2024 shares)

Year	Offset share (percent)	ETS1 relevant ($MtCO_2$)	ETS2 relevant ($MtCO_2$)
2036	1.0	17.0	19.8
2037	2.0	34.0	39.7
2038	3.0	51.0	59.5
2039	4.0	68.1	79.4
2040	5.0	85.1	99.2
2041	4.5	76.6	89.3
2042	4.0	68.1	79.4
2043	3.5	59.5	69.5
2044	3.0	51.0	59.5
2045	2.5	42.5	49.6
2046	2.0	34.0	39.7
2047	1.5	25.5	29.8
2048	1.0	17.0	19.8
2049	0.5	8.5	9.9
2050	0.0	0.0	0.0
Sum		638.0	744.3
Annual average supply		42.5	49.6

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