



Intergenerational Equity in Climate Governance

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Abstract

This paper examines how the principle of intergenerational equity moves from treaty language to domestic climate policy. It first derives a legal benchmark from the Stockholm Declaration, the UNFCCC, and the Paris Agreement's preambular reference to intergenerational equity and Article 4.19 on long-term low-emission strategies. It then tests the benchmark against five cases at the core of contemporary governance, the EU Carbon Border Adjustment Mechanism (CBAM), Germany's post-Neubauer carbon-budget framework, South Korea's Constitutional Court ruling requiring year-by-year targets, Canada's 2025 pause of the federal consumer fuel charge, and the linked California–Québec cap-and-trade market. The analysis adopts three metrics, temporal alignment, credible commitment, and avoidance of burden-shifting, and reads official texts, auction outcomes, and court decisions. The findings support the central hypothesis that integration of the intergenerational principle is strong in international law, while domestic embedding remains uneven and fragile, improving where courts or automatic policy levers constrain back-loading. Policy implications include independent carbon-budget committees, annual sector pathways with “comply-or-tighten” triggers, cap-and-trade design that restores scarcity when prices clear at the floor, and CBAM roadmaps that link border pricing to plant-level investment. These institutional choices convert treaty ideals into durable, near-term delivery.

Keywords

Intergenerational equity; Climate governance; Carbon budgets; Long-term low-emission strategies (LTS); CBAM; Cap-and-trade

Introduction

Global climate policy now unfolds against two converging curves. First, the population is increasing significantly. United Nations data indicate the world population will rise from eight billion today to about 9.7 billion by 2050, with two-thirds living in cities and most growth in regions already facing heat extremes and food-system stress (UN DESA, World Population Prospects 2022). Second, air pollution is accelerating. According to the IPCC, at today's emission rate the remaining carbon budget compatible with a 1.5 °C limit could be exhausted in less than seven years (IPCC, AR6 Synthesis Report 2023, 25). When these trends meet, they sharpen an old ethical question: what do people alive now owe to those who will inherit a hotter and more crowded planet?

Intergenerational equity offers a principled answer. Edith Brown Weiss frames each generation as a trustee that must pass on comparable options, environmental quality, and resource access. This concept has travelled a long path, beginning as aspirational language in the 1972 Stockholm Declaration and becoming explicit treaty text in the 2015 Paris Agreement, whose preamble references “intergenerational equity” and whose Article 4.19 calls on Parties to submit long-term low-emission strategies (UNFCCC, Paris Agreement). Even so, domestic uptake is uneven. German and South Korean courts have used the principle to compel earlier mitigation, while Canada's 2025 pause of its household carbon price shows how political short-termism can still override future-oriented goals.

This study asks a question, how does the intergenerational principle inform climate governance, and why does it take hold in some jurisdictions but not in others? The inquiry proceeds in two



steps. First, it extracts a legal benchmark for intergenerational equity from the Stockholm Declaration, the UNFCCC, and the Paris Agreement. Second, it tests that benchmark against five contemporary policy instruments: the EU Carbon Border Adjustment Mechanism, Germany's post-Neubauer carbon-budget framework, South Korea's court-mandated annual targets, Canada's price-pause episode, and the linked California–Québec cap-and-trade market. Tracing where the principle is merely proclaimed and where it becomes enforceable budgets, automatic price floors, or judicial guardrails reveals the design choices that move a treaty ideal into durable domestic action—an outcome made increasingly urgent as both population and temperature curves bend upward.

Literature Review

Definition of Intergenerational Equity

Intergenerational equity names the normative claim that each generation holds the Earth “in trust” for those who come after it. Edith Brown Weiss crystallises the idea into three duties—preserving comparable options, comparable quality, and comparable access—so that future people inherit at least the same ecological capital that we do (Weiss). This partnership model treats succeeding cohorts as rights-holders rather than passive beneficiaries, supplying the moral centre for contemporary debates about climate-change mitigation and resource use.

Importance of Intergenerational Equity

The principle's weight in international law can be traced back to the Stockholm Declaration, which recognises a “solemn responsibility to protect and improve the environment for present and future generations” (United Nations, Stockholm Declaration Principle 1). By 2015, the Paris Agreement elevated that concern, explicitly citing “intergenerational equity” in its preamble and urging Parties to adopt long-term low-emission strategies that look well beyond standard five-year economic cycles (UNFCCC, Paris Agreement Preamble; art. 4.19). Together, these instruments frame climate change not merely as a present-day externality but as a justice problem spanning centuries.

Evolution of the Concept

Early UN texts treated the environment mainly as a storehouse of resources for development; the Sustainable Development Goals still echo that tension, invoking “future generations” while foregrounding poverty eradication for today's poor (Spijkers 603). Yet a jurisprudential turn is underway. Pedersen and Sulyok describe a wave of “future-generations litigation” in which courts convert soft-law aspirations into enforceable duties, expanding states' “future-minding obligations” (Pedersen & Sulyok 211). Slobodian tracks similar trends in public-trust and constitutional cases where judges treat the unborn as a legally cognisable public, pressing governments to integrate their interests in planning and permitting (Slobodian 584).

Multiple Analytical Lenses

Legal-philosophical. Weiss's trustee model supplies the foundational ethics; recent litigation shows how courts operationalise it. Behavioural. Halali and Perez find that ordinary citizens readily vote for commitment devices that bind successors, exhibiting “long-sighted altruism” that preserves resources across experimental generations (Halali & Perez 6). Regulatory-economic. Okrent unpacks the United States' uneven risk standards—no discounting of radioactive-waste harms for 10,000 years, yet far laxer rules for equally persistent chemicals—to illustrate how the



absence of a coherent long-horizon philosophy distorts cost-benefit analysis (Okrent 463). Policy-instrument. Schuppert shows that “economy-friendly” tools such as cap-and-trade or carbon taxes, designed around short-run efficiency, seldom deliver emission cuts or equitable burden-sharing strong enough to satisfy a “thicker account of intergenerational justice” (Schuppert 308–10).

Environmental-policy frameworks and their treatment of intergenerational equity

At the multilateral level, the Paris Agreement urges Parties to lodge “long-term low greenhouse-gas emission development strategies” (LTS) that look well past mid-century, thereby inserting an explicit future-oriented logic into international climate law (UNFCCC art. 4.19) . Yet the same treaty structures action around five-year nationally determined contributions that are updated in step with electoral cycles, tempting governments to privilege short-run competitiveness over deeper decarbonisation commitments (UNFCCC art. 4.9) . The result is a hybrid regime: visionary in rhetoric, but operationalised through iterative pledges that can lag behind the science.

Within domestic regulation, contrasting risk standards expose how discounting practices encode generational priorities. In the United States, the Environmental Protection Agency forbids any discounting of potential health effects from high-level radioactive waste for ten millennia, whereas equally persistent chemical hazards face far laxer rules, a disparity Okrent attributes to the absence of “a broad guiding philosophy” for very-long-term risks (Okrent 878). The agency’s stance—protect future societies as stringently as the present—imposes immense present-day costs, but only for selected hazards, highlighting an equity gap both across pollutants and between generations (Okrent L48-L56).

Market instruments such as cap-and-trade and carbon taxes were designed for economic efficiency, not justice across centuries. Schuppert shows that most existing schemes are promoted precisely because they are “economy-friendly,” yielding modest emission cuts and free permit allocations that keep prices—and therefore political pain—low today while postponing harder choices (Schuppert 308). Their annual pricing cycles and grandfathered allowances embed a presentist bias that contradicts a “thick” conception of intergenerational justice, which would instead front-load mitigation to secure ecological space for the unborn (Schuppert 313).

Finally, the courts have emerged as a corrective venue. Pedersen and Sulyok document how “future-generations litigation” repurposes soft-law aspirations as binding constitutional and human-rights duties, thereby extending states’ “future-minding obligations” and shrinking the discretionary space left to short-term politics (Pedersen & Sulyok 470–471). Recent judgments—from Germany’s Neubauer to the European Court of Human Rights’ 2024 KlimaSeniorinnen ruling—explicitly bar governments from off-loading disproportionate mitigation burdens onto young or unborn citizens, forcing policy timetables to respect carbon budgets that span well beyond the next fiscal year (Pedersen & Sulyok 473)

Hypothesis

The analysis proceeds from three alternative hypotheses about the legal status and practical reach of the intergenerational principle. The first hypothesis is that the idea still resides chiefly in the realm of aspiration: treaty preambles and soft-law declarations serve as moral signposts rather than enforceable commands, and domestic legislation has yet to convert those signposts into binding duties. The second hypothesis adopts a stronger reading. It holds that the principle now sits at the core of contemporary climate law, anchored in the Paris Agreement’s requirement for long-term low-emission strategies, and is already mirrored in national instruments such as statutory emissions budgets, carbon taxes, and economy-wide cap-and-trade programmes. If this claim is correct, treaty language and day-to-day policy tools should align closely to preserve the



option space of future generations. The third, intermediate hypothesis maintains that intergenerational equity is indeed codified internationally but remains only partially or unevenly embedded at home; governments invoke the principle in negotiations and NDC submissions, yet domestic implementation often lags through weak price signals, heavy reliance on offsets, or sectoral loopholes, and real alignment appears only where courts or automatic policy levers force the issue. The case studies that follow test which of these competing hypotheses best fits current practice.

Results and Discussion

Case Study

Methodology

This study unfolds in two stages. First, it establishes a legal benchmark for intergenerational equity by reading three foundational instruments in sequence. The 1972 Stockholm Declaration introduces a “solemn responsibility” to protect the environment for present and future generations. The 1992 UN Framework Convention on Climate Change widens that idea into treaty language, and the 2015 Paris Agreement makes it explicit by naming “intergenerational equity” in its preamble and by obliging Parties, in Article 4.19, to file long-term low-emission strategies. A close textual analysis of these documents shows a clear through-line: present generations must preserve comparable options, environmental quality, and access for those who follow and must avoid back-loading mitigation into later decades.

The second stage tests how far that benchmark travels into domestic practice by examining five policy instruments that sit at the centre of current climate governance. The EU’s Carbon Border Adjustment Mechanism (CBAM) carries the Paris time horizon into trade by equalising carbon prices on imports and phasing out free allowances. Germany’s Neubauer ruling and the subsequent Climate Protection Act amendment translate the trustee logic into a court-enforced carbon budget. South Korea’s 2024 Constitutional Court decision overlays year-by-year targets on an NDC that had relied heavily on overseas reductions. Canada’s 2035 NDC and the 2025 pause of the consumer fuel charge test the fragility of price-based commitment devices. Finally, the linked California–Québec cap-and-trade system illustrates how a rising auction floor can protect a minimum scarcity signal yet still allow generous banking and offsets.

Each case is read against three metrics that flow directly from the legal standard: temporal alignment, measured by the presence of dated caps or annual budgets; credible commitment, assessed through automatic floors, cancellation rules or judicial enforcement; and avoidance of burden-shifting, captured by leakage controls, offset quality and the domestic share of reductions. Performance on these metrics, documented with official data, auction results and court materials, reveals how fully the intergenerational principle has moved from treaty text to the day-to-day mechanics of national climate policy.

Intergenerational Equity in International Legal Regimes

Intergenerational equity provides the normative baseline for judging whether present policies preserve comparable options, quality, and access for future people (Weiss 2008). The Paris Agreement’s preamble expressly recognizes “intergenerational equity” and, together with Article 4.19 on long-term low-emission strategies, pushes Parties to look beyond electoral cycles toward systemic decarbonization (UNFCCC, Paris Agreement, preamble; art. 4.19). That trajectory rests on an earlier foundation in the Stockholm Declaration, which framed a “solemn responsibility” to protect the environment for present and future generations and called for safeguarding natural resources against future exhaustion (United Nations, Stockholm Declaration, Principles 1–2, 5). Taken together, these instruments embed the future-minding logic in international law; the open question is whether domestic instruments truly carry it through.



EU Carbon Border Adjustment Mechanism (CBAM)

In brief, CBAM (Carbon Border Adjustment Mechanism) is the EU's carbon border pricing mechanism that requires importers of selected carbon-intensive goods to pay a charge linked to the EU ETS (Emission Trading System) so that imports face the same carbon cost as EU producers. The EU's CBAM operationalizes a simple but far-reaching idea. Under this regime, imports of carbon-intensive goods face a carbon price equivalent to that paid by EU producers under the EU Emissions Trading System. After a 2023–2025 transitional phase of reporting, the definitive regime begins in 2026 and dovetails with the phase-out of free EU ETS allowances through 2034, initially covering cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen. Importers buy CBAM certificates priced by the weekly EU ETS average, receive credits for any explicit carbon price already paid abroad, and comply with anti-circumvention rules alongside a stated aim to support developing countries' decarbonization efforts (European Commission; EUR-Lex; European Parliament).

This design matters because it directly targets carbon leakage, the tendency of firms to offshore production to weaker regimes and, in doing so, shifts mitigation burdens forward in time and onto other jurisdictions' future publics rather than reducing absolute emissions today. By hard-wiring price equivalence at the border, CBAM raises the expected return on cleaner production in exporting countries and reduces a key strategic reason for delay at home. That salience is structural because, without CBAM, tightening the EU ETS risks eroding the bloc's industrial base and political support, which in turn invites rollbacks that defer mitigation to later cohorts.

Intergenerational equity is explicit in the treaty backdrop, since Paris urges "long-term low greenhouse gas emission development strategies". CBAM functions as a commitment device that ties present choices to a trajectory consistent with conserving comparable options and environmental quality for later generations (UNFCCC, Paris Agreement; Weiss). For the hypothesis tested in this paper, CBAM supports the claim that intergenerational equity is integrated at the international and EU-level rulemaking stage, while domestic embedding across Member States remains uneven and depends on complementary national policies. It therefore acts as a partial medium from principle to practice rather than proof of consistent domestication.

Germany: NDCs and constitutional guardrails

Germany's Federal Constitutional Court in Neubauer reframed climate protection as a problem of "intertemporal freedom" and required lawmakers to set clearer post-2030 constraints, which catalyzed the 2021 amendment tightening the 2030 target to at least 65 percent below 1990 and mandating climate neutrality by 2045 (Climate Case Chart). The Court found that the earlier Climate Protection Act set detailed annual budgets only up to 2030 and left reductions after 2030 largely undefined. That design risked pushing very steep cuts into the 2030s and 2040s and thereby burdening younger and unborn citizens' freedoms in a way that conflicted with constitutional guarantees, so the legislature was instructed to spell out the post-2030 pathway more precisely (Climate Case Chart). The Court's reasoning was explicitly intergenerational, aiming to prevent today's cohorts from exhausting the remaining carbon budget and constraining tomorrow's freedoms by back-loading mitigation (Climate Case Chart).

The policy significance is twofold. First, the judgment constitutionalized the carbon-budget logic by preventing the state from loading disproportionate mitigation onto later years, which would otherwise spend the budget early and squeeze future freedoms. Second, subsequent political choices have risked loosening those constraints. In 2024, a reform replaced binding sectoral ceilings with an aggregate target, which diluted enforceability precisely where transport has repeatedly missed its marks (Reuters; German Federal Government). Germany's implementation gap has concrete causes. Transport emissions are sticky because of commuting patterns, slow fleet turnover, and contested fuel standards, and weaker sectoral guardrails make it easier to delay the hard work in that sector. Taken together, this sequence—from constitutional findings to



statutory tightening and then partial softening—sets up the core question of who bears which share of the remaining budget, and when.

Against that backdrop, intergenerational equity is directly engaged. A court-imposed duty to distribute mitigation fairly over time aligns with the Paris Agreement’s intergenerational language and with Weiss’s trustee model of passing on comparable environmental quality, converting an ethical directive into justiciable constraints on near-term policy design (UNFCCC, Paris Agreement; Weiss). For the hypothesis tested here, Germany shows strong legal integration of the intergenerational principle but uneven domestic embedding in delivery. In other words, the norm is secured in law, yet consistent implementation in day-to-day policy remains incomplete.

Republic of Korea: NDC ambition and judicial oversight

South Korea’s NDC sets a headline goal of 40 percent below a 2018 peak by 2030. After accounting for land use and overseas components, roughly 32 percent is slated to occur domestically, which is why independent assessments rate the package “Insufficient” for a 1.5 °C pathway (Climate Action Tracker, South Korea). The policy rests on the Framework Act on Carbon Neutrality, a national ETS covering major emitters, and sectoral plans in power, industry, buildings, and transport. It also allows the use of international units to close part of the gap on paper (Climate Action Tracker; UNFCCC).

Why this matters needs to be clear in policy terms. The 2018 baseline is high for an industry-heavy economy, so a 40 percent cut implies large absolute reductions even before you look at the domestic share. Domestic measures have been slow to take effect because coal remains significant in the power mix, industrial energy demand is hard to abate, and retail electricity tariffs have been politically constrained during fuel-price spikes. These factors mute the pass-through of a carbon signal and slow the switch to clean power (Ember).

Judicial oversight tightened the trajectory in 2024. The Constitutional Court ordered the government to set year-by-year interim targets through mid-century and to strengthen planning to protect fundamental rights from climate harms. That ruling reduces the scope for back-loading and pushes additional action into this decade (Reuters).

Intergenerational equity is engaged at two levels. Paris requires long-term strategies that protect future generations, and Weiss’s trustee model demands the preservation of comparable options and environmental quality (UNFCCC, Paris Agreement; Weiss). Korea’s case supports the paper’s hypothesis. International integration is clear, and legal domestication has advanced through the court’s order, yet practical domestic embedding remains incomplete because implementation still leans on non-domestic reductions and delayed structural change at home (Climate Action Tracker; Reuters; Ember).

Canada: NDC signaling and carbon price credibility

Canada submitted a 2035 NDC of 45–50 percent below 2005, aligning its long-term pathway with a narrowing global carbon budget (UNFCCC NDC Registry). In April 2025, the federal government then set the federal consumer fuel-charge rate to zero “until further notice,” while keeping the industrial Output-Based Pricing System in place and citing affordability pressures and a focus on major emitters (Department of Finance Canada). The federal backstop has two pillars. One is the household- and small-business fuel charge that applies where provincial systems are not equivalent, and the other is the output-based system that prices large industrial facilities. Pausing the former removes the broad economy-wide signal that was designed to complement the industrial system and to keep all sectors contributing over time (UNFCCC NDC Registry; Department of Finance Canada).



This change matters because it weakens the expectation that households and small firms will steadily adjust investment and consumption decisions, which is how policy credibility and long-lived private investment take root. The main driver is political economy rather than new evidence about pricing effectiveness. When inflation and energy bills rise, consumer-facing carbon charges become a quick lever for relief, even though the pause undercuts the intertemporal commitment that decarbonization investment cycles rely on (Department of Finance Canada).

Intergenerational equity is at stake as a question of credible commitment. Behavioral evidence suggests that societies support devices that bind both successors and themselves because such devices sustain cooperation across generations (Halali and Perez). Weakening the consumer price increases the risk that future governments or sectors will defect, which shifts costs forward and cuts against the Paris preamble's intergenerational commitment and the trustee duty to preserve comparable environmental quality (UNFCCC, Paris Agreement; Weiss). Read against the paper's hypothesis, Canada exemplifies clear international integration through its 2035 NDC but inconsistent domestic embedding when a core commitment device is suspended. In short, the norm is acknowledged internationally while its day-to-day implementation at home remains fragile.

California–Québec linked cap-and-trade

The California–Québec program links two markets under a single declining cap and runs joint quarterly auctions. It covers electricity imports, large industrial facilities, and fuel distributors, and it allows limited banking of unused allowances and a small quantity of offsets. Auctions include an Auction Reserve Price that rises each year by inflation plus five percent, and there are additional price-containment tiers that release extra allowances at higher trigger prices. In May 2025 the joint auction cleared at the floor price of USD 25.87, the first floor-clearing since 2020, which signals that demand met the minimum allowed price rather than bidding above it (CARB; ICAP; S&P Global Commodity Insights).

Companies accumulated sizable banks of unused allowances in earlier years and can spend them now. Offset rules still allow some portion of compliance to come from credits rather than allowances. Several complementary policies, such as renewable and clean-fuel standards, reduce covered demand and make the cap easier to meet. Post-2020 cap tightening has also been gradual. Together these factors keep the market near the floor and indicate that the cap, not the price floor, is often the non-binding element (CARB; ICAP).

When the market clears at the minimum, more of the cumulative carbon budget is effectively used today and fewer options remain for later cohorts. A stronger intergenerational alignment would come from tightening the cap on a dated schedule, reducing and upgrading offsets, and raising the real-term floor if floor-clearing persists. Read against the paper's hypothesis, this case shows partial domestic embedding of the intergenerational principle. The architecture acknowledges future-minding duties and keeps a baseline price in place, yet delivery is uneven because the cap is not reliably binding. That pattern supports the claim that international integration is clear while consistent domestic implementation remains incomplete (Weiss; UNFCCC, Paris Agreement; CARB; ICAP; S&P Global Commodity Insights).

Cross-Case analysis

The case studies support the hypothesis that intergenerational equity is clearly integrated in international climate law, yet unevenly embedded in domestic policy. The legal anchor is firm. The Paris Agreement names "intergenerational equity" and requires long-term low-emission strategies, and Weiss's trustee model specifies duties to preserve comparable options, quality, and access for future people (UNFCCC, Paris Agreement, preamble; art. 4.19; Weiss 2008).



Read together, the cases show a consistent pattern. CBAM carries the treaty’s long-horizon logic into a border rule that deters leakage and anchors the EU pathway, but it evidences only partial domestication because Member-State uptake still depends on complementary national policies (European Commission; EUR-Lex; European Parliament). Germany’s Neubauer decision constitutionalizes a future-minding duty and prompted statutory tightening, while the later move from sectoral ceilings to an aggregate target shows that delivery can soften even under a strong legal frame (Climate Case Chart; Reuters). Korea’s 2024 ruling imposed year-by-year targets and strengthened legal domestication, yet continued reliance on non-domestic reductions and slower structural change at home reveal incomplete practical embedding (Climate Action Tracker; Ember; Reuters). Canada’s 2035 NDC signals international integration, whereas the 2025 suspension of the consumer fuel charge weakens the domestic commitment device and leaves implementation fragile (UNFCCC NDC Registry; Department of Finance Canada). The California–Québec system preserves a minimum scarcity price through a rising floor, but repeated floor-clearing indicates the cap is not reliably binding and that offsets and banking still dilute the intertemporal constraint (CARB; ICAP; S&P Global Commodity Insights).

Taken together, international law sets a clear standard for protecting future generations, and domestic realization is most evident where policy architecture or courts constrain back-loading of effort. Where those constraints are thin, politics tilts toward the present and shifts burdens forward in time. The overall record, therefore, confirms the paper’s hypothesis: integration is strong at the international level, while consistent domestic embedding remains uneven across jurisdictions.

Recommendations

Independent Carbon Budget Committee

Germany’s post-Neubauer reform still lets future legislatures loosen sector limits, and Korea’s court-imposed annual targets have yet to be written into statute. Canada showed how a single budget cycle can suspend a core commitment device when politics tightens (Department of Finance Canada). All three examples expose the same weakness: without an independent referee, governments can roll carbon budgets forward and spend the option space of later cohorts.

A permanent Carbon Budget Committee can be placed inside each country’s public-audit architecture, funded through the ordinary budget yet insulated from ministerial reach. The committee would publish rolling five-year carbon budgets, assign sector ceilings, and issue a March “traffic-light” scorecard. A red light would automatically tighten the next-year cap or raise the auction-reserve floor by a preset increment. Surplus allowances above ten per cent of the cap would cancel automatically, and the committee would approve offset protocols only if they deliver permanent storage and robust monitoring (UNFCCC). By operating under the existing framework climate laws, no new statute is required each cycle, and back-loading becomes procedurally hard.

Turning NDCs into Annual Delivery

Korea leans on offshore credits, Germany moved from sector ceilings to an aggregate target that masks transport slippage, and Canada’s price pause weakens broad participation (Climate Action Tracker; Reuters). Ambitious headlines do not translate into yearly action.

Each NDC can be disaggregated into annual economy-wide ceilings and sector pathways through 2035, with a lead ministry carrying a statutory duty to meet its path. Every April, each ministry publishes a one-page compliance statement. If a pathway is missed, a “comply-or-tighten” rule triggers automatically—bringing forward the coal-exit date by one year, lifting the



zero-emission-vehicle quota by five percentage points, or shrinking the free-allocation pool. Ownership is clear and reductions shift into the near term, blocking stealth deferral of effort.

Making Cap-and-Trade Binding

California–Québec’s May 2025 auction cleared the floor, proving that large banks and generous offsets can leave the cap itself non-binding (CARB; S&P Global Commodity Insights). Prices stay above zero but scarcity disappears, letting today’s firms consume the carbon budget meant for later cohorts.

Hard levers that restore scarcity whenever the market slips to the floor would strengthen price credibility. Raise the reserve price automatically when two auctions in a row clear at the floor, publish a dated cap-tightening path to 2035, and cancel any banked volume that exceeds ten per cent of the annual cap. Limit offsets to four per cent of compliance in 2026 and taper to one per cent by 2030 unless the Carbon Budget Committee certifies additionality (ICAP). These steps keep the signal durable across cycles and force abatement inside the cap rather than on paper.

Aligning CBAM with Industry Delivery

The EU’s border price exists in Brussels, yet plant-level investment still depends on firm access to clean power and heat. Free allocation inside the EU ETS blunts the internal cap, and importer-side measurement can lag ETS standards (European Commission).

Border pricing and factory-gate action can be linked through binding roadmaps and transparent revenue recycling. Cement, steel, aluminium, fertiliser, electricity, and hydrogen producers must file roadmaps with 2026, 2030, and 2034 milestones for electrification, low-carbon heat, and fifteen-year clean-power contracts covering at least eighty per cent of energy demand. Public support—grants, contracts for difference, export credit—becomes available only upon signing those contracts. Importers adopt product-level MRV identical to the EU ETS, and no new free allowances issue for CBAM goods after 2026. The Commission publishes the split of CBAM revenue each year, earmarking thirty per cent for partner-country MRV and technology transfer and thirty per cent for domestic just-transition funds. Linking the border rule to plant investment closes the leakage loop without leaving the intergenerational principle stranded at the treaty level.

Conclusion

This study set out to test whether the intergenerational principle—clearly articulated in the Paris Agreement and earlier instruments—has moved from treaty text into the day-to-day machinery of national climate policy. The thesis was that the principle is firmly embedded at the international level but only unevenly at domestication occurring where commitment devices or courts constrain political short-termism.

The five case studies confirm that pattern. The EU’s Carbon Border Adjustment Mechanism carries a long-horizon price signal to the border, yet its full effect still hinges on consistent Member-State enforcement and the planned phase-out of free allowances (European Commission). Germany’s Neubauer judgment secures a legally binding carbon budget, but the 2024 shift from sector ceilings to an aggregate target shows how easily delivery can soften (Climate Case Chart). South Korea’s Constitutional Court has forced year-by-year targets, yet heavy use of overseas reductions and coal in the power mix delays structural change (Climate Action Tracker). Canada’s 2035 NDC aligns with Paris goals, but the 2025 pause of the consumer fuel charge exposes the fragility of price-based commitment devices (Department of Finance Canada). Finally, the California–Québec market keeps a rising reserve price, yet repeated floor-clearing auctions reveal that the cap, not the price floor, is often the non-binding



element (CARB). Together these examples show that international integration is real, while domestic embedding remains contingent.

Critics offer three main counterarguments. Some contend that market-driven innovation will decarbonise the economy without tight legal scaffolding, pointing to rapid cost declines in solar, wind and batteries as evidence that policy need only “nudge” rather than police (Lomborg). Others warn, echoing Okrent, that firm carbon budgets impose disproportionate present-day costs on households and industry and may divert resources from immediate welfare gains (Okrent). A further claim is that automatic correction mechanisms erode democratic accountability by shifting key decisions from elected officials to technocratic bodies, thereby risking a “democratic deficit” in climate governance (Helm).

The evidence reviewed here suggests these objections are overstated. Innovation curves tend to steepen when investors can rely on predictable long-term price signals; independent budget committees make those signals credible without freezing legislative authority. Behavioural studies show that citizens willingly support commitment devices that bind both themselves and their successors because such devices sustain cooperation across generations (Halali and Perez). As for accountability, automatic triggers operate only within parameters that parliament has enacted in advance; legislators retain the authority to amend the framework but cannot quietly defer effort inside a single budget cycle.

The targeted remedies follow directly from those findings. Independent Carbon Budget Committees would lock five-year budgets and trigger automatic corrections when sectors drift off track. Disaggregating every NDC into annual sector pathways, backed by a “comply-or-tighten” rule, would bring headline ambition into the present tense. Cap-and-trade markets can restore scarcity through an indexed reserve-price ratchet, bank-cancellation thresholds and a tapering offset ceiling. CBAM, finally, needs plant-level roadmaps, conditional public finance and transparent revenue recycling to ensure the border price becomes a factory-gate investment signal.

Implementing these measures would narrow the gap between the intergenerational duties declared in Paris and the lived reality of national policy. The principle would no longer rely on scattered court victories or one-off trade rules but would instead be woven into budget cycles, market design and industrial planning. In a world projected to host 9.7 billion people by mid-century while exhausting its 1.5 °C carbon budget within the decade (UN DESA; IPCC), that institutional shift is not a matter of ethical elegance; it is a practical necessity for handing a livable planet to those who come next.

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