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Building Thailand's Carbon Pricing Architecture

Comparative Insights from the EU and International Experience
on ETS, Carbon Tax, and CBAM



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Disclaimer

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Executive Summary and Recommendations

Carbon pricing assigns a monetary value to greenhouse gas emissions, embedding the cost of carbon into economic decision making and correcting a key market inefficiency. By ensuring that the external costs of emissions are reflected in production and consumption choices, it provides a clear and predictable price signal that guides investment, output, and behaviour toward lower carbon alternatives.

Revenues generated through these mechanisms, whether from emissions trading systems, carbon taxes, or hybrid models- can support mitigation and adaptation efforts, industrial transition, and broader fiscal objectives. Carbon pricing has become a central component of climate policy worldwide, with jurisdictions across both developed and emerging economies adopting or preparing such instruments as part of their strategies to meet domestic and international climate commitments.

Thailand's draft Climate Change Act marks a major step toward establishing a comprehensive framework for climate governance and carbon pricing. The draft Act introduces a hybrid approach combining market-based mechanisms (Emission Trading System (ETS) and carbon credits) with fiscal measures (carbon tax and Carbon Border Adjustment Mechanism (CBAM)). If effectively designed and implemented, this architecture has the potential to position Thailand as a regional leader and support a credible pathway toward a low carbon economy. At the same time, the hybrid architecture introduces challenges related to policy coherence, administrative complexity, public understanding and support, overlapping obligations, and risks of arbitrage and abuse. Our analysis of the draft Climate Change Act establishes that the current provisions on deductions and offsetting rights risk constraining Thailand's ability to pursue future linkage with the EU and UK ETS, and could potentially limit prospects for EU CBAM recognition.

International experience with emissions trading and carbon border measures offers valuable regulatory lessons for shaping Thailand's emerging carbon pricing framework. The EU ETS - now in its fourth phase - remains the world's most developed cap and trade system, illustrating how a scheme can evolve from a pilot with limited data and extensive free allocation into a mature market with robust MRV rules, increasing auctioning, and clear compliance structures. Over more than a decade, it has generated practical precedent on cap setting, allocation, registry operations, and enforcement, and has become the reference model for most subsequent international ETS designs.

This report offers a detailed legal assessment of Thailand's draft Climate Change Act and draws comparative insights from the EU, UK and other jurisdictions across voluntary ETSS, carbon taxes, voluntary carbon markets, and CBAM. As a comparative model, it highlights how the EU has progressively refined its carbon pricing architecture through phased implementation, sectoral expansion, allocation methodologies, market stability tools, and revenue use approaches. It also reviews the EU's CBAM compliance framework for Thai exporters to the EU, and outlines initial considerations for a potential Thai CBAM in the future.

In addition, the report identifies key gaps and risks within the proposed hybrid model, particularly those arising from how the draft Act currently links and sequences the different carbon pricing instruments. It further examines the distributional impacts of carbon pricing and underscores the need to build public trust by ensuring that these mechanisms are viewed as fair and socially balanced. The analysis emphasises the importance of capacity building and transparent communication, especially regarding the use of carbon revenues and how benefits can be equitably recycled across society, to maintain legitimacy and secure broad public support. Taken together, these insights serve as a valuable reference source for Thailand as it develops its carbon pricing architecture and prepares for deeper engagement with international carbon markets.

Part 1- Designing Thailand's ETS: Insights and Experience from the European Union

Overarching comments on draft Climate Change Act

The draft Act aligns broadly with international obligations under the Paris Agreement, embedding principles of transparency, inclusivity, and cooperation. The draft Climate Change Act would benefit from a stronger focus on just transition and human rights safeguards, including clearer commitments to equality, non-discrimination, and participatory decision-making to prevent socioeconomic disparities during the transition.

While the Act establishes a clear governance structure through the NCCC and the DCCE, it would be strengthened by more explicit provisions for multilevel participation, particularly through clearer institutional mechanisms for engaging provincial authorities, local communities, and vulnerable groups. The creation of a climate fund is a positive step, with revenue streams aligned to international climate finance practice, but its impact will depend on transparent management, independent oversight, and dedicated support for industrial transition and social protection. Ensuring that carbon revenues are recycled into green infrastructure, clean technologies, and assistance for workers in carbon intensive sectors will be essential for the building of public trust and promoting a fair transition.

A critical gap is the absence of grievance and redress mechanisms. Climate policies and projects can have unintended adverse impacts on communities and businesses. Establishing an independent complaint mechanism, similar to the Green Climate Fund's Independent Redress Mechanism would provide affected stakeholders with a fair and transparent avenue for resolving disputes and addressing non-compliance. This mechanism should operate independently of implementing agencies and report directly to the Committee to ensure accountability.

Recommendations

We suggest DCCE to make the following key amendments to the draft Act:

- strengthen the focus on the just transition and human rights standards by amending section 3 of the draft Climate Change Act as follows: *"the goal is to achieve carbon neutral economic development while addressing adverse socioeconomic impacts of the transition on the most affected regions and sectors. This shall be pursued through a bottom up, human rights-based approach to adaptation and mitigation, ensuring equality, non-discrimination, participation, and accountability. Systematic stakeholder engagement and inclusive decision-making shall be central to this process, with a specific emphasis on the participation of women affected by climate change. These principles shall be upheld alongside maintaining national competitiveness in the global economy."*;
- include provincial governors in the National Climate Change Policy Committee to decentralise climate governance and ensure that provinces are involved and can contribute meaningfully to climate planning and decision-making. In addition, appoint a representative of an affected group or community to the Committee to guarantee meaningful participation and ensure that policy outcomes reflect on the ground realities; and
- establish an independent complaint and redress mechanism within the institutional framework to provide remedies where a responsible State agency fails to perform its duties and such failures have not otherwise been penalised or addressed. This would strengthen accountability and public participation in climate governance.

Emissions Trading System framework under the draft Climate Change Act

The draft Act introduces a national ETS intended to deliver cost-effective emissions reductions and support Thailand's carbon neutrality targets by 2050 and a 47% cut by 2035, while also responding to external pressures such as the EU CBAM.

The ETS will function as a cap-and-trade system overseen by the Department of Climate Change and the Environment (DCCE), with mandatory MRV and annual allowance surrender. Five-year allocation plans will set caps, trading rules, and auctioning arrangements. However, key design elements including sectoral scope, allocation methods, and coordination with other instruments remain to be defined through secondary legislation.

The draft Act does not clearly delineate the scope and participants of the ETS and the carbon tax, creating a risk that the same emissions could be priced twice. International practice typically avoids such overlap by sequencing or clearly segmenting instruments and sectors, as seen in the EU and UK.

The draft Act also lacks price stability mechanisms such as floors, ceilings or stability reserves, which have become standard in mature systems to limit volatility, trust in the carbon price and strengthen market confidence. Incorporating such mechanisms would strengthen market resilience and investor confidence.

Key Concerns from Industry on a National ETS

Consultations with industry stakeholders indicate a range of concerns regarding Thailand's readiness for a national ETS and its interaction with the EU CBAM. The points below reflect issues raised by private sector participants during consultations, but rather illustrate the practical concerns currently expressed by market actors. Stakeholders highlight uncertainty around ETS design, including timelines, sectoral coverage, cap setting methodologies, and the transition arrangements, particularly for SMEs with limited carbon accounting capacity.

Data and MRV challenges remain a major barrier. Thailand's emission factor and lifecycle databases are incomplete, in the sense that sector-specific emissions factors are not yet consistently aligned with internationally recognised methodologies (including EU MRV standards), coverage across sectors remains uneven, and certain upstream and Scope 3

data points are not systematically captured or digitised (see Section 8.2(b) (Data & MRV Challenges) for further detail). In addition, domestic verification bodies are not currently recognised by EU or UK authorities. This is significant because CBAM declarations relying on actual emissions must be verified by accredited verifiers meeting EU requirements. In the absence of recognised or equivalently accredited verifiers in Thailand, exporters may face delays, higher verification costs, or be compelled to rely on EU default values, thereby increasing compliance risk and cost exposure.

Manual reporting processes further undermine data integrity, transparency and institutional trust. Collectively, these weaknesses heighten CBAM compliance risks, as exporters may be forced to rely on conservative EU default values, potentially increasing costs by an estimated 15–35%. Limited Scope 3 data visibility and insufficient CBAM literacy among SMEs further exacerbate these risks and may restrict continued access to EU markets.

Financial and technological constraints also impede decarbonisation. Businesses face high upfront investment needs, limited access to green finance, and uncertainty around carbon pricing timelines, whereby such limitations are expected to impact SMEs more than larger, established market players. Continued reliance on carbon intensive processes and outdated equipment leaves many supply chains unprepared for CBAM level data requirements.

Finally, governance gaps - including the absence of a dedicated CBAM management structure, overlapping regulations, unclear administrative competences between agencies, limited digital integration across registries and reporting platforms, and uncertainty regarding enforcement thresholds and appeal mechanisms - have been identified by stakeholders as potential sources of systemic uncertainty. Market participants have expressed concern that, without clearer delineation of responsibilities and enforcement procedures, compliance burdens may increase and confidence in the credibility of Thailand's emerging carbon pricing framework could be affected.

Key Concerns from civil society

Civil society organisations have raised five main concerns regarding the proposed ETS and broader carbon pricing framework. First, governance structures are perceived as insufficiently inclusive, with limited civil society

representation and unclear mechanisms for meaningful local participation in policy design.

Second, while the proposed Climate Fund is a positive development, stakeholders have expressed the expectation that it will offer more inclusive and flexible funding arrangements, including provisions for adaptation financing. Concerns have also been raised that carbon tax revenues flow to the general budget rather than to the Fund, potentially constraining resources for social and climate programmes.

Third, questions remain around the integrity and governance of carbon credits, particularly in relation to the integration of voluntary markets into the compliance system. Civil society groups point to gaps in transparency, inconsistent consent processes, and weak bargaining power for community participants.

Fourth, distributional impacts are a key concern, with vulnerable groups likely to face disproportionate cost burdens from carbon pricing while remaining underrepresented in consultation processes.

Finally, limited public awareness and understanding of carbon market instruments risk undermining acceptance, highlighting the need for clearer communication and community engagement.

How the EU Addressed ETS Challenges

When the EU launched its ETS in 2005, it faced many of the same challenges Thailand is encountering today: weak emissions data, limited MRV capacity, competitiveness concerns, and fears of carbon leakage. The EU adopted a sequenced rollout, beginning with a pilot phase focussed on learning, system testing, and MRV development before imposing significant carbon costs.

To protect competitiveness, the EU relied heavily on free allocation in the early phases while building robust emissions baselines and benchmarking methodologies. As data quality improved, the system transitioned toward harmonised benchmarks and increased auctioning.

Small emitters received simplified MRV tools and targeted exemptions, while stakeholders buy in was fostered through extensive consultations and early policy papers.

As auctioning expanded in Phase III, the EU created dedicated financial mechanisms

including the Innovation Fund, Modernisation Fund and Social Climate Fund demonstrating that effective carbon pricing must be priced with financial support for industry and households as the market matures.

It is worth noting that a number of elements of the EU ETS and its perceived success from today's perspective were not designed from day one, however the administration and underlying legislative basis were flexible enough to respond to unexpected market developments over the long term.

Key challenge: ETS effectiveness depends in part on underlying power market structure

Thailand's single buyer electricity market structure, in which EGAT centrally procures and dispatches power under long-term power purchase agreements with fixed or regulated remuneration, may limit the transmission of carbon price signals relative to liberalised wholesale markets. Where generators face limited commercial exposure to carbon costs and have constrained ability to pass costs through, the carbon price may not materially influence dispatch order or short-term operational decisions. While the single-buyer market design does not prevent the introduction of an ETS, it may reduce the effectiveness of carbon price signals unless complemented by gradual market reforms or parallel policy measures.

Where the Thai ETS covers the power generation sector, as generators face limited commercial exposure to the carbon price and cannot typically pass carbon costs through to the system, the price signal may not influence dispatch, operational behaviour, or investment decisions under the current market structure as intended. This reduces the ability of carbon pricing to drive decarbonisation in the power sector and has downstream implications for CBAM-exposed industries, which rely heavily on electricity and may face higher embedded emissions over time.

Beginning in the late 1980s, the United Kingdom initiated a multi-stage liberalisation and unbundling programme. This transformation, which took more than a decade to complete and was subsequently replicated by the EU, created the competitive market structures which were later necessary for carbon pricing to operate effectively.

Policy considerations and recommendations on ETS design

Provide certainty about carbon pricing coverage

A clear lesson from international practice - including the EU ETS and the UK ETS - is that regulated entities must know early, and with certainty, which activities, fuels, gases and installations will be covered by which carbon pricing instrument. Thailand's draft Act currently establishes multiple instruments (ETS, carbon tax, voluntary offsets, CBAM) without yet clarifying their respective scope. Without clear sectoral delineation, the risk of double exposure, arbitrage behaviour or inconsistent price signals increases.

We therefore recommend DCCE to publish sectoral coverage and instrument interaction rules early enough to enable firms to begin data collection, develop MRV systems, and plan investments, thereby reducing resistance and compliance risks upon the implementation date.

Scope and sequencing of sectors

The EU's experience shows the value of starting with a limited set of large emitters and the greenhouse gas CO₂ only, before then expanding to other sectors and greenhouse gases. A phased launch enables regulators to test reporting systems, verification capacity, and registry operations under real world conditions before expanding coverage to additional gases, smaller installations, or more complex sectors. This approach will additionally prevent against a sudden increase in market prices and administrative efforts as may be expected in the case of a large-scale multi-sector rollout.

We would therefore recommend DCCE to start with a limited number of large emitters and CO₂ only, expanding gradually as systems mature. Aviation for example may offer a manageable number of regulated entities, strong existing data, and opportunities for simplified MRV. Applying ETS rules first to domestic or departing flights, with small emitter simplifications, can help build operational capacity ahead of wider ETS expansion.

Align Power Sector Reform with Carbon Pricing Effectiveness

Thailand should consider gradual, well sequenced power market reforms over the medium to long term to strengthen carbon price transmission within the single buyer system. As international experience, including in the UK, shows, carbon pricing is most effective when market structures allow carbon costs to shape dispatch and investment decisions. Enhancing price pass-through in Thailand's power sector would increase the impact of the ETS, support systemwide decarbonisation, and reduce CBAM-related risks for electricity intensive export sectors.

Balance between free allocation and auctioning

EU experience shows that while early generous free allocation can build industry support, a planned shift to benchmarking and auctioning is needed to drive effective decarbonisation, with auction revenues recycled to support industrial transition and social measures.

We recommend DCCE to maintain early free allocation to secure buy in, while transitioning progressively to benchmarking and auctioning and committing to recycling revenues into industrial transition and social protection.

We also recommend providing forward-looking guidance on how and when free allocation will decline. This can be as important as the initial allocation itself, as it shapes investment expectations and future carbon-cost planning by regulated entities.

Apply proportional treatment for small emitters

The EU's opt-out mechanism for small installations (Article 27) and simplified tools for aviation small emitters were crucial to avoid verifier bottlenecks.

We encourage DCCE to introduce simplified MRV processes, de minimis thresholds, and/or alternative compliance pathways for small installations to avoid bottlenecks and focus regulatory resources on large emitters.

Build market stability provisions into the framework

Drawing from the EU's experience with significant surplus and price collapse in early phases, we strongly recommend DCCE to include provisions for future market stability mechanisms, such as a reserve, price corridor, or other stability tools, so that regulators can manage allowance surpluses and prevent price collapse without amending primary legislation. Early monitoring of the supply–demand balance will be critical to ensure a predictable and credible carbon price signal.

Adopt a Phased Penalty Regime

Penalties should start at a symbolic or modest level in the initial compliance phases to reflect early data and system immaturity and increase over time. A clearly signalled escalation path encourages participation and learning in the early years while strengthening enforcement credibility as MRV capacity improves. We recommend DCCE to amend Chapter 14 of the draft Climate Change Act to this effect.

Invest early in MRV capacity and data readiness

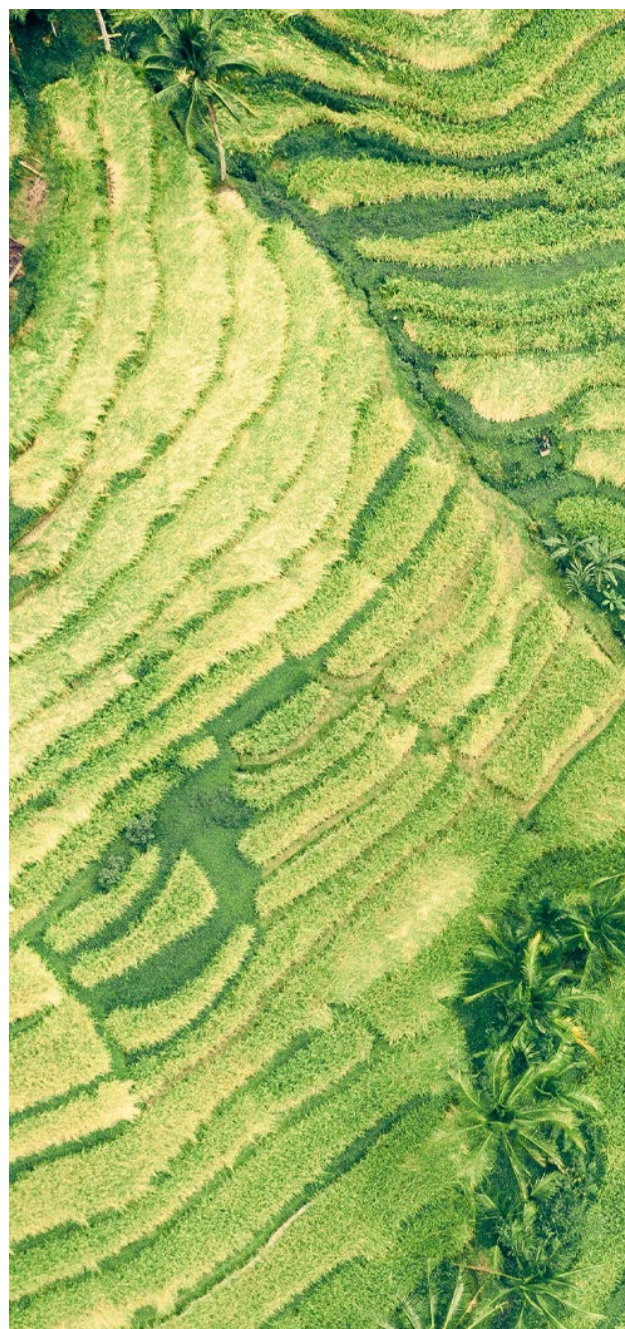
We recommend DCCE to prioritise early investment in robust MRV systems (including improved emissions factor databases, verifier accreditation and training, digital reporting platforms, and targeted support for SMEs) to address current data and capacity gaps. Strengthening MRV infrastructure in the pre-compliance phase will reduce long term system risks, lower compliance costs, and ensure the ETS operates with integrity from the outset.

Clarify revenue use priorities to support political and industrial buying

To strengthen the political viability of carbon pricing policies, we recommend that DCCE adopt and communicate a balanced financing strategy that channels carbon revenues to help ETS regulated firms and CBAM-exposed exporters invest in emissions tracking, clean technologies, workforce transition and social protection. Early clarity and transparent revenue recycling mechanisms can strengthen stakeholder confidence and address industry concerns about upfront costs, thereby improving political and economic acceptability of the carbon pricing framework.

Engage stakeholders through structured, ongoing consultation

International experience underscores the importance of structured and sustained stakeholder engagement. Prior to the introduction of the EU ETS, extensive consultations – including the publication of a Green Paper – were instrumental in building understanding, identifying capacity gaps and refining system design. We recommend DCCE to adopt a similar stakeholder engagement approach.



Part 2 Navigating CBAM: EU Compliance Requirements and Pathways Toward a Future Thai CBAM

The entry into force of the EU CBAM's definitive phase on 1 January 2026 marked a major shift for Thai exporters, with impacts concentrated in carbon intensive sectors such as steel and aluminium, where liabilities are tied to embedded emissions and EU ETS-indexed prices.

The principal near term risks are technical and data related: gaps in Thailand's emissions factor and lifecycle inventory data, limited Scope 3 visibility, uneven MRV capability, and the absence of internationally recognised verification arrangements mean many exporters may be forced to rely on EU default values, which include penalty markups and may rise over time, significantly inflating CBAM liabilities and eroding competitiveness.

These challenges are especially acute for SMEs and downstream producers, who face limited CBAM literacy, constrained MRV resources, and dependence on upstream data, heightening the risk of late or incomplete submissions and restricted market access.

As CBAM evolves within a contested global trade and climate landscape, the draft Climate Change Act establishes an enabling framework for a Thai CBAM.

Key operational elements relevant to legal certainty and enforceability, including importer registration, registry governance, data disclosure, verification responsibilities, and dispute resolutions mechanisms would benefit from further clarification.

At this stage, the scope of covered goods, the interaction with the national ETS and carbon tax, and the treatment of foreign carbon prices remain undefined, creating uncertainty for both importers and domestic producers regarding future compliance exposure.

Policy considerations and Recommendations

Compliance with EU CBAM

Prioritise EU CBAM readiness as a competitiveness strategy

We recommend DCCE and relevant governmental agencies to treat CBAM preparedness as a core export-competitiveness measure by accelerating the development of internationally aligned emissions factor and life-cycle inventory datasets, deploying digital MRV and reporting platforms, and issuing sector-specific technical guidance for exposed value chains, particularly steel, aluminium, cement and fertilisers.

Reduce default-value exposure through targeted capacity building

We encourage DCCE and relevant governmental agencies to support exporters in compiling auditable, plant-level emissions data and strengthening supply-chain data capture, including Scope 3 emissions where relevant. Capacity-building programmes should prioritise SMEs and key upstream suppliers to mitigate reliance on EU default values and reduce compliance volatility.

Additional we would recommend the adoption of a deliberate strategy on the use of actual versus default values, recognising that default values are permissible but typically incorporate mark-ups and may increase over time. Exporters should assess verification costs against expected CBAM savings and avoid structural reliance on default values where actual data would deliver lower liabilities.

Finally, the authorities should ensure that consistency and transparency is maintained in reporting methodology. Where switching between actual and default values occurs, exporters should retain detailed records in the CBAM Registry explaining the rationale (eg data gaps, verification constraints, supply-chain limitations) to mitigate audit and enforcement risk.

Clarify Institutional Responsibilities and Strengthen Procedures for Emissions Data Governance

We recommend DCCE to Strengthen institutional and procedural arrangements by clarifying responsibility for the accuracy and completeness of emissions information (including the respective roles of importers/exporters and verifiers) and establishing clear mechanisms for correction, revision and appeal, including for good faith errors, without undermining enforcement.

Future Thai CBAM

Strengthen procedural safeguards and allocation of responsibility

We recommend that DCCE and relevant governmental agencies clarify legal responsibility for the accuracy and completeness of emissions information, distinguishing clearly between the obligations of importers/exporters and the assurance role of verifiers. Establish structured mechanisms for correction, revision and appeal, including for good-faith errors, while preserving effective enforcement and deterrence.

Design robust legal gateways and enforcement architecture for any Thai CBAM

We recommend that DCCE incorporate clear legal gateways and integrity safeguards, including (where appropriate) a prohibition on importing covered goods except through registered importers, risk-based enforcement powers, and explicit recognition of electronic submission as the primary reporting channel.

Embed minimum registry governance and data-integrity standards

We recommend that DCCE embeds transparency, auditability, secure handling of commercially sensitive information, and reliable tracking of issuance and surrender within the registry framework. Although operational detail may be developed flexibly through secondary legislation, minimum integrity standards should be embedded in primary law.

Coordinate CBAM and ETS development

We recommend that DCCE ensures close coordination between any future Thai CBAM and the national ETS to maintain consistent MRV methodologies, coherent pricing signals, and operational compatibility. The framework should be designed with sufficient flexibility to adapt efficiently to evolving EU CBAM technical rules, guidance, and international trade developments.

Collectively, these measures would reduce compliance risk, protect export competitiveness, and support the development of a legally robust and internationally credible CBAM framework aligned with Thailand's broader carbon pricing strategy.

Part 3 Hybrid Carbon Pricing Architecture: Gaps, Risks, and Interactions Across Instruments

The draft Act establishes a hybrid carbon pricing architecture (ETS, carbon tax, CBAM, and T-VER integration) but leaves the interaction rules largely to secondary legislation. This creates legal and commercial uncertainty at precisely the point when regulated entities need clarity to build MRV systems and plan investment.

The most immediate systemic risk is overlapping coverage between the ETS and the carbon tax. In the absence of clear statutory boundaries or a sequencing rule, the same emissions could be exposed to both instruments (or, conversely, firms may be able to structure activity to minimise exposure), undermining price signals and increasing compliance uncertainty.

The carbon tax "deduction" mechanism (Section 95) is potentially helpful in principle but is currently underspecified and could distort the ETS. Without clear eligibility rules, quantitative limits, and a defined conversion methodology, the mechanism may:

- 1 incentivise arbitrage behaviour;
- 2 weaken ETS auction demand and price formation; and
- 3 reduce the predictability of carbon price exposure for covered entities.

Instrument interaction has direct fiscal implications for the Climate Fund. If carbon tax payments reduce effective ETS auction prices (while carbon tax revenues flow to the general budget), the Climate Fund may face structural revenue leakage, particularly as auctioning increases in later ETS phases.

The proposed integration of voluntary carbon credits into ETS compliance (15% offset limit) creates market integrity and price signal risks unless quality thresholds and accounting safeguards are specified. The draft Act does not currently distinguish between Standard and Premium T-VER, despite materially different governance and MRV safeguards, and does not set minimum quality criteria in primary law.

Vintage risk and supply composition make arbitrage procurement likely in early phases. Given the predominance of Standard T-VER supply (including older vintages), obliged entities may rationally rely on low-cost credits rather than allowances or higher integrity units, potentially depressing the ETS carbon price and weakening incentives for process change abatement.

Double counting and double claiming risks are material unless registry architecture and

accounting rules are integrated. Without unified serialisation, status tracking, and clear "single use" rules (and, where relevant, corresponding adjustments for Article 6 transfers), the same mitigation outcome could be used/claimed across the ETS, voluntary claims, and the national inventory.

Thailand's emerging carbon pricing framework has also direct implications for both CBAM Article 9 deductions and the country's longer-term prospects for ETS linking. Under Article 9, EU importers may deduct carbon prices "effectively paid" in the country of production, but only where those costs are mandatory, transparent, and clearly attributable to the embedded emissions of CBAM covered goods.

Thailand's current design, combining multiple carbon pricing instruments, creates a blended and nonuniform effective carbon cost. This complexity may make it difficult for EU authorised declarants to demonstrate that a specific, mandatory carbon price has been paid, potentially limiting the ability of Thai exporters to benefit from Article 9 deductions.

Clarifying and streamlining the interaction between Thailand's instruments would strengthen the evidentiary basis for CBAM recognition and, at the same time, improve alignment with the structural features expected for future ETS linkage under Article 25 of the EU ETS Directive.

Thailand's interest in potential future linking of its ETS with the EU ETS carries important design implications too. Linking is governed by Article 25 of the EU ETS Directive and requires deep compatibility between systems, including mutual recognition of allowances, aligned market rules, and strong environmental integrity. To date, the EU has linked only one external system, the Swiss

ETS, and the UK is currently pursuing linkage on the basis of a system that is already highly aligned with EU ETS design.

While no formal EU guidance exists on the compatibility of ETS linkage with offset-accepting systems, EU practice since Phase III shows a preference for closed, allowance-only cap and trade systems with transparent price formation driven solely by allowance scarcity. Systems that allow compliance through various mechanisms, including offsets and deductions, that can materially alter the effective carbon price might be viewed as incompatible with linkage.

Given Thailand's current framework, which includes the use of converted voluntary credits, interactions between the carbon tax and ETS obligations, future linkage discussions could be complicated unless these elements can be structurally isolated, capped, or suspended for linkage purposes.

Strengthening the Thai ETS so that it can operate independently of the T-VER system, and ensuring that compliance is based primarily on allowances, would better align the system with the EU's requirements and improve Thailand's long-term prospects for successful EU ETS linkage.

Policy considerations and Recommendations

Set clear legal boundaries and sequencing between the ETS and carbon tax

We strongly recommend that DCCE specify in primary legislation that each emissions source is subject to only one effective carbon price and adopt an explicit hierarchy/segmentation approach (eg ETS for large stationary sources; tax for diffuse sectors), with clear transitional arrangements.

Operationalise carbon tax deduction mechanism for ETS compliance (section 95) with clear guardrails

We recommend that DCCE inserts guardrails in primary legislation for how deductions under section 95 will operate. This is to ensure that the deduction mechanism does not undermine ETS integrity or Climate Fund revenues. This should include:

- clear eligibility rules defining which entities and activities may claim deductions;
- scope limitations clarifying whether deductions apply only to emissions that overlap with the ETS;
- quantitative caps and temporal limits, e.g. restricting deductions to the pilot and Phase 1 periods (2027-2035) as a transitional measure while entities adapt to the new carbon pricing framework; and
- a transparent, rules-based conversion methodology that preserves market-based price formation and prevents unintended revenue leakage.

In parallel, market design safeguards should be introduced to protect the integrity of the ETS price signal and maintain confidence in the system's long-term stability.

Introduce price stability tools (eg auction reserve price, cost containment mechanisms) and ensure that tax deduction and offset rules cannot become a structural substitute for allowance scarcity.

Strengthen section 91 by embedding explicit offset quality criteria in primary legislation

We encourage DCCE to consider excluding offsets and voluntary credits from compliance, or at minimum establishing a declining threshold, such as 10% from ETS Phase 1 (2030) reducing to 5% in Phase 2 (2035), to protect price signal integrity, support Climate Fund revenues, and ensure reasonable compatibility with EU CBAM recognition and future ETS linkage under Article 25 of the EU ETS Directive.

In addition, explicit offset quality criteria in primary legislation should be included to establish clear, binding quality standards for offsets eligible for ETS compliance.

- Option 1: Quality Filtered Access Restrict ETS eligible offsets to Premium T-VER credits or units meeting equivalent international benchmarks (e.g., ICVCM CCP labelled, CORSIA eligible, Article 6 compliant). This ensures high integrity compliance, aligns Thailand with global best practice, and maintains a manageable offset supply as Premium T-VER volumes scale toward 2027–2030.

- Option 2: Phased Transition Permit both Standard and Premium T-VER credits in early phases but introduce quantitative preferences or pricing differentials that favour Premium units, with a clear transition to Premium-only eligibility by 2030. This approach provides flexibility during system establishment while signalling a firm long term quality trajectory.

Safeguard framework to prevent double counting and strengthen system integrity

To mitigate double counting risks and ensure full alignment between the ETS, voluntary carbon market, and Article 6 mechanisms, DCCE should develop and implement an integrated set of safeguards through primary and secondary legislation. These should include:

- harmonised MRV protocols across ETS and VCM systems to ensure consistent and credible emissions quantification;
- a unified, serial number-based registry with automated tracking of credit status across all instruments;
- explicit legal prohibitions on multiple use, specifying that credits retired for ETS compliance, Article 6 transfers, or voluntary neutrality claims cannot be reused for any other purpose, with technical measures ensuring permanent withdrawal from circulation;
- automatic corresponding adjustments to the national inventory whenever credits are retired domestically or transferred internationally; and
- realtime registry updates and transparent status changes, supported by audit ready data to maintain trust and verifiability across all markets.

Together, these measures would create a coherent integrity framework that protects Thailand's carbon market credibility, supports international cooperation, and ensures that all credit use is transparent, exclusive, and fully traceable.

Distinguish process-change abatement from compensatory offsets

We recommend that the ETS compliance framework clearly recognise and reward direct emissions reductions through fuel switching and technological transformation, such as replacing fossil fuels with biogas, biomass, or renewable hydrogen, separately from compensatory offset use. Consider establishing differentiated treatment whereby process-change abatement is reflected directly in reduced surrender obligations through updated emissions factors. This way entities investing in genuine technological transformation would receive appropriate recognition, while offsets would be used for residual or hard-to-abate emissions.

Ringfence Climate Fund fiscal resilience

We suggest that DCCE models and manages the cumulative revenue impacts of free allocation, offsets, and tax deductions, and adopt design choices that maintain predictable, investable revenue streams for transition support as auctioning expands in later phases.

Align the Thai ETS Design with EU Expectations to Enable Future Linking

If Thailand intends to pursue future linkage of its ETS with the EU or UK ETS, the system should be designed to reflect the structural features consistently prioritised by the European Commission. Although the EU provides no formal linking criteria, its practice since Phase 3 demonstrates a preference for, *inter alia*:

- comparable climate ambition to the EU ETS, cap setting approaches that ensure real, verifiable, and permanent emissions reductions, equally stringent MRV rules;
- market design compatibility (allowance type, allocation methods, secure and interoperable registry systems);
- market-based price formation driven by allowance scarcity, without mechanisms that materially alter the effective carbon price (e.g., tax deductions, credit conversions, implicit subsidies);
- closed cap and trade systems in which compliance is met exclusively through allowances; and
- high integrity market stability tools that are compatible with EU ETS design.

To position Thailand for credible linkage discussions, the national ETS should be capable of operating independently of the T-VER system, with any offset recognition mechanisms clearly isolated, capped, or suspended for linkage purposes. This would ensure that the Thai ETS presents a transparent, allowance-based carbon price signal consistent with EU expectations and avoids structural features that could be viewed as undermining cap integrity or price alignment.

Enable CBAM Article 9 Recognition and Support Future ETS Linking

As discussed throughout the paper, we strongly recommend to refine the interaction between its carbon pricing instruments to ensure that carbon costs can be transparently demonstrated as "effectively paid" for the purposes of Article 9 of the EU CBAM Regulation.



Part 4 Distributional impacts of carbon pricing policies

Carbon pricing can quickly become politically vulnerable when it is viewed as unfair, even if it is economically efficient. Without visible and credible compensation or transition support, households and affected sectors often resist these measures.

The risk of regressive impacts is significant: carbon taxes, ETS can increase electricity and fuel prices, and CBAM-related cost pressures can fall disproportionately on low-income households, micro and small enterprises, and carbon-intensive regions.

How these burdens are distributed ultimately depends on policy design, including sectoral scope, sequencing, exemptions, free allocation levels, cost pass-through dynamics, and how revenues are recycled.

Robust data and modelling capacity are essential to assess these impacts, requiring detailed household consumption data, input-output tables, regional labour market exposure, and clear assumptions on price elasticities and pass-through rates.

Beyond compliance costs, CBAM also creates labour market and supply-chain pressures for export-oriented sectors and their upstream suppliers, particularly for informal or subcontracted workers, unless paired with transition assistance.

In Thailand, the Climate Fund represents the primary institutional mechanism to mitigate regressivity, but its effectiveness will hinge on transparent allocation rules, strong oversight, and dedicated support for vulnerable households, SMEs, and exposed workers or regions. Ultimately, procedural fairness and clear communication are as important as fiscal design: public acceptance improves when revenue use is transparent, benefits are tangible - such as rebates, bill reductions, or housing upgrades, and when affected groups are engaged early and meaningfully.

Recommendations

Build distributional safeguards into the carbon pricing package from the outset

We recommend DCCE to pair ETS/tax/CBAM measures with a defined approach to protecting low-income households, microenterprises, and exposed workers/regions.

Undertake a formal distributional impact assessment before implementation and update it periodically

In doing so, it will be of vital importance to carry out thorough analysis of how the schemes will affect different income groups over time. The assessment should form a core part of the ministerial regulations' impact assessment, with redistribution options built in from the start.

This requires detailed data, including household budget surveys by income decile, national input-output tables to track direct and indirect price effects, and regional employment data for carbon-exposed sectors. Key factors to assess include how different income groups adjust energy use in response to price changes, how much carbon costs are passed through to consumers, and the strength of existing social protection systems. Together, these inputs will enable the design of compensation measures that effectively shield microenterprises, and exposed workers/regions, vulnerable households from regressive impacts.

Adopt a clear revenue recycling strategy with visible, targeted benefits.

We encourage DCCE to consider a balanced mix of:

- targeted cash transfers (or rebates) for vulnerable households;
- energy efficiency/housing upgrade support to reduce bills structurally; and
- skills, reskilling, and job transition support in exposed sectors/regions.

Operationalise "Just Transition" delivery through the Climate Fund

In light of first formal UNFCCC "just transition" framework dedicated to ensuring energy transitions are fair, inclusive, we suggest DCCE and relevant government agencies to make the operationalisation of a Just Transition through the Climate Fund a priority. This should include:

- establishing eligibility and prioritisation criteria that explicitly target households, SMEs, workers, and regions most exposed to carbon pricing and structural change; and
- ringfencing a defined share of Climate Fund resources for social protection, skills development, and workforce transition programmes.

Prioritise SME readiness and inclusion

We also recommend DCCE and relevant government agencies to assess carbon pricing impacts on SMEs and provide simplified tools, technical assistance, and targeted finance to ensure they manage compliance related costs (including MRV capability) and prevent exclusion from supply chains.

Embed a proactive communications strategy

Communicate early and repeatedly how carbon revenues will be used, who benefits, and how safeguards work using simple messaging tied to household and local economic impacts.

1 Definitions

Allowance / EUA means an emissions allowance that represents the right to emit one tonne of carbon dioxide equivalent (tCO₂e) under an emissions trading system. In the context of the EU ETS, an EU Allowance (EUA) is the standard unit of compliance and may be auctioned or allocated and traded between participants.

Auctioning means the process by which emission allowances are sold to market participants through competitive bidding, rather than allocated for free, with prices determined by supply and demand.

Authorised CBAM declarant means an importer (or, where applicable, an indirect customs representative) authorised under the EU CBAM Regulation to import CBAM goods into the EU customs territory and responsible for CBAM reporting, certificate purchase and surrender obligations.

Benchmarking means an allocation methodology under which free allowances are set by reference to performance benchmarks (e.g., emissions intensity of efficient installations), rather than purely historical emissions.

Carbon Credit or Offset means a unit representing a verified reduction or removal of one tonne of CO₂-equivalent achieved outside a capped emissions trading system, which may be used, subject to eligibility rules and quantitative limits, to meet part of a compliance obligation.

Carbon Leakage means a situation in which carbon intensive production shifts from a jurisdiction with stricter climate policies to one with less stringent or no carbon constraints, leading to an increase or no net reduction in global greenhouse gas emissions.

Carbon Tax means a fiscal instrument that imposes a levy on greenhouse gas emissions, typically expressed as a fixed price per tonne of CO₂-equivalent, with the objective of internalising the social cost of emissions and incentivising emissions reductions.

Cap-and-Trade means a market based regulatory approach in which a total limit (cap) is set on greenhouse gas emissions from covered entities, emission allowances up to that cap are issued and distributed, and entities may trade those allowances (trade) to achieve compliance in a cost-effective manner.

CBAM means Carbon Border Adjustment Mechanism. A trade related carbon pricing instrument that imposes a charge on certain imported goods based on their embedded greenhouse gas emissions, with the aim of reducing carbon leakage and ensuring that imported products face a carbon cost equivalent to that borne by domestic producers.

Climate Fund means the fund established under the Climate Change Draft Act to finance climate mitigation, adaptation, capacity building, and just transition measures, funded by carbon pricing revenues and other sources.

Corresponding Adjustment means an accounting adjustment applied to a country's greenhouse gas inventory or NDC balance to ensure that an emission reduction transferred or used by another entity or jurisdiction is not counted more than once.

Criteria means the requirements, conditions, and methodologies prescribed by law or regulation for determining eligibility, calculation methods, reporting obligations, verification standards, or compliance procedures under a carbon pricing mechanism.

Default values means Commission-determined emissions values that may be used to calculate embedded emissions where actual emissions data are not available, in accordance with the EU CBAM Regulation and implementing acts.

Dispatch means the process by which electricity generators are scheduled to operate to meet demand, based on system needs and economic criteria such as marginal cost.

Embedded emissions means the greenhouse gas emissions associated with the production of CBAM goods, calculated in accordance with the EU CBAM methodologies and expressed in tonnes of CO₂-equivalent.

ETS means Emissions Trading System. A cap-and-trade scheme under which a government or regulator sets an overall limit (cap) on greenhouse gas emissions and issues emission allowances which regulated entities must hold and surrender in respect of their verified emissions and which may be traded on the market.

ETS2 means the separate emissions trading system established in the European Union for fuel combustion in buildings, road transport and certain small industrial installations, intended to complement the main EU ETS and extend carbon pricing coverage to additional sectors.

Equivalency means the recognition that a foreign carbon pricing system, emissions trading scheme, or carbon tax achieves comparable environmental ambition, coverage, and integrity to a domestic system, allowing for mutual recognition, linkage, or deduction of carbon costs.

Excess emissions penalty (EEP) means the monetary penalty applied under the EU CBAM Regulation for failure to surrender sufficient CBAM certificates by the deadline, calculated per certificate not surrendered and indexed over time.

Free Allocation means the allocation of emission allowances to regulated entities at no cost, typically based on benchmarks or historical activity levels, used to mitigate carbon leakage and competitiveness risks during the transition to full auctioning.

Indirect emissions means emissions associated with electricity (and, where applicable under the EU CBAM methodologies, other energy inputs) consumed during the production of the CBAM goods but occurring at sources not owned or controlled by the producer.

Innovation Fund means EU level climate funding mechanism financed by the EU ETS. The Innovation Fund supports the demonstration and deployment of innovative low-carbon technologies and processes in energy intensive industries, renewable energy, energy storage and carbon capture, utilisation and storage (CCUS).

Just Transition means a framework for ensuring that the shift to a low-carbon economy is fair and inclusive, addressing social, employment, and distributional impacts on affected workers, communities, and sectors.

LT-LEDS means a Long-Term Low Greenhouse Gas Emission Development Strategy submitted under Article 4.19 of the Paris Agreement, setting out a country's long-term pathway toward low-emissions development.

Market Stability Reserve (MSR) means a mechanism in the EU ETS designed to address structural imbalances between the supply of and demand for allowances by automatically adjusting the volume of allowances to be auctioned, based on predefined thresholds for the total number of allowances in circulation.

Modernisation Fund means EU level climate funding mechanism financed by the EU ETS. The Modernisation Fund provides financial support for modernising energy systems and improving energy efficiency in lower income EU Member States, including investments in renewable energy, grids and energy efficiency.

MRV means Monitoring, Reporting and Verification. The set of rules, procedures and technical requirements used to quantify greenhouse gas emissions or removals, report them to the competent authority and subject them to independent verification in order to ensure accuracy, consistency and completeness.

NDC means Nationally Determined Contribution. A climate commitment communicated by a Party to the Paris Agreement setting out its national targets, policies and measures for reducing greenhouse gas emissions and, where applicable, adapting to climate change.

Net Zero Emissions means a state in which anthropogenic greenhouse gas emissions are balanced by removals over a specified period, resulting in no net increase in atmospheric greenhouse gas concentrations.

Non-Annex I Party means a developing country Party to the UNFCCC that is not listed in Annex I of the Convention and is subject to differentiated mitigation obligations.

Paris Agreement means the international treaty adopted in 2015 under the UNFCCC, aimed at limiting global temperature increase to well below 2°C and pursuing efforts to limit warming to 1.5°C above pre-industrial levels.

PPA means Power Purchase Agreement. A contractual arrangement under which a buyer agrees to purchase electricity (and, in some cases, associated attributes such as renewable energy certificates) from a generator on agreed terms, typically over a long-term period.

Single-Buyer Model means an electricity market structure in which a central public entity procures electricity from generators and controls dispatch and system operation.

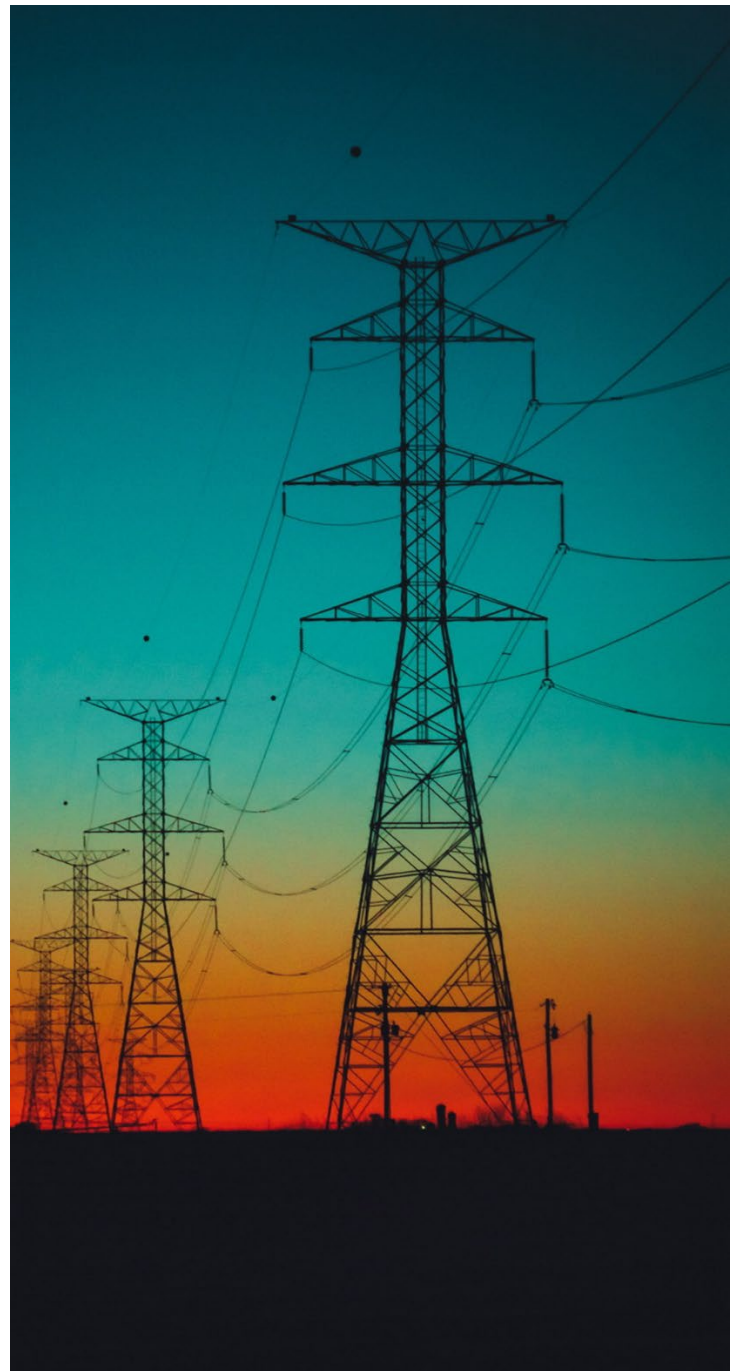
Single mass-based threshold means the EU CBAM de minimis exemption threshold under which an importer is not required to be an authorised CBAM declarant (and may be exempt from reporting/surrender obligations), currently set at 50 tonnes net mass of CBAM goods per calendar year (subject to review).

Social Climate Fund (SCF) means an EU fund financed partly by revenues from ETS2 and designed to mitigate the social and distributional impacts of carbon pricing on vulnerable households, microenterprises and transport users, including through support for energy efficiency, clean mobility and temporary direct income support.

UNFCCC means the United Nations Framework Convention on Climate Change, the international treaty adopted in 1992 that provides the overarching framework for global climate governance.

Wholesale electricity market means a market in which electricity is traded between generators, suppliers and other market participants, typically based on short-run marginal cost pricing and competitive dispatch.

WTO means World Trade Organization. The international organisation responsible for regulating trade between its member states through a system of agreements, rules and dispute settlement procedures.



2 Background to the report

2.1 About us

UK PACT (Partnering for Accelerated Climate Transitions) is a flagship programme under the UK's International Climate Finance (ICF) portfolio. The programme is jointly governed and funded by the Foreign, Commonwealth and Development Office (FCDO) and the Department for Energy Security and Net Zero (DESNZ). The UK is committed to tackling climate change and is investing £11.6bn via ICF over the five-year period to March 2026.

DLA Piper is a global law firm helping our clients achieve their goals wherever they do business. Our pursuit of innovation has transformed our delivery of legal services. With offices in the Americas, Europe, the Middle East, Africa and Asia-Pacific, we deliver exceptional outcomes on cross-border projects, critical transactions and high-stakes disputes. Every day we help trailblazing organisations seize business opportunities and successfully manage growth and change at speed. Through our pro bono work and community investment around the world, we help create a more just and sustainable future. Visit dlapiper.com to discover more.

2.2 Background to the report

Global law firm DLA Piper has been advising the Department of Climate Change and Environment (DCCE) on the development of the country's new carbon pricing framework as part of the UK PACT-funded project Pathways to Carbon Market Readiness: ETS (Emissions Trading System), Carbon Tax, and CBAM (Carbon Border Adjustment Mechanism) for Equitable Climate Action.

As part of the UK PACT funded project, and in response to DCCE's request for comparative evidence and international best practice, this report draws on the experience of the European Union and other international jurisdictions. The

EU's ETS and CBAM frameworks are among the most advanced and mature examples currently in operation, and they offer relevant lessons on policy design, implementation and institutional readiness. Examining this international experience supports the UK PACT objective of strengthening Thailand's capacity to develop sustainable, evidence-based climate policy. It is intended to help Thailand assess the potential implications for its economy and to inform a carbon pricing architecture tailored to Thailand's own context and circumstances, rather than to promote the adoption of any specific international model.

The project supports Thailand's efforts to establish fair and effective ETS, Carbon Tax, and CBAM programmes, aligned with international standards and national socio-economic priorities.

The programme began with DLA Piper co-hosting a technical workshop in July 2025 for key Thai ministries, stakeholders, and implementing partners, which, focused on readiness for the proposed ETS and CBAM. The session delivered insights into the background and future direction of these measures and provided a platform for attendees to share experiences with similar systems.

Over the course of the project, DLA Piper conducted technical workshops and targeted consultations with institutional stakeholders, UN agencies, and local civil society organisations. These exchanges helped ensure that policy and legal recommendations included in this report reflect a wide range of perspectives, concerns, and lived experiences in relation to carbon pricing design while supporting the design of a carbon pricing system that is inclusive, operationally sound and capable of adapting to future developments.

3 Introduction

3.1 Why Carbon Pricing Matters

Carbon pricing is a policy tool designed to reduce greenhouse gas emissions by assigning a monetary value to emitting activities. By integrating the cost of carbon into economic decision making, it ensures that the external costs associated with emissions are reflected in production and consumption choices. In doing so, carbon pricing addresses a fundamental market inefficiency, aligning private decision making with broader environmental objectives.

In the absence of a carbon price, the economic costs of greenhouse gas emissions remain external to the market. By incorporating these costs into the price faced by emitters, carbon pricing provides a clear and predictable economic signal that informs investment, production, and consumption decisions.

Revenues generated through carbon pricing mechanisms, whether through allowance auctions or emissions charges, can be applied to support a range of policy priorities, including mitigation and adaptation measures, industrial transition, or fiscal objectives.

ETS have become a widely adopted form of carbon pricing, alongside carbon taxes and hybrid approaches. Over time, many jurisdictions have incorporated carbon pricing instruments into their climate policy frameworks as part of broader efforts to meet domestic and international emissions reduction targets.

Global adoption of carbon pricing has expanded significantly in recent years. According to the United Nations Framework Convention on Climate Change, by 2020, approximately one quarter of global greenhouse gas emissions were covered by carbon pricing mechanisms. Jurisdictions adopting or preparing to adopt carbon pricing include both developed and emerging economies, such as South Korea, China, Thailand, Singapore, Bangladesh, Kazakhstan, South Africa, Côte d'Ivoire, Colombia, Chile, Argentina, Brazil, Mexico, Panama, and Trinidad and Tobago. In addition, the

V20 group of climate vulnerable developing countries has announced plans to introduce carbon pricing mechanisms by 2025.

Governments adopt carbon pricing for a range of reasons, including its potential to deliver emissions reductions in a cost-effective and flexible manner. By applying a uniform price signal across the economy, carbon pricing allows reductions to occur where they are most economically efficient. In some cases, revenues from carbon pricing are recycled to support industrial transition, fund climate related measures, or address distributional impacts.

3.2 Types of Carbon Pricing Instruments

Carbon pricing instruments can take several forms, all of which aim to create a price signal on greenhouse gas emissions. The way in which this price signal is generated differs across instruments.

ETS

An ETS, also referred to as cap-and-trade, is a market-based mechanism that sets a quantitative limit (the cap) on total emissions from covered sectors. Regulated entities are required to hold one emission allowance for each tonne of greenhouse gases emitted. Allowances can be allocated for free, auctioned, or purchased on the secondary market. Entities can trade allowances, enabling emissions reductions to occur where they are most cost-effective. The overall cap determines the total number of allowances available, while the carbon price is determined by supply and demand in the market.

Carbon Taxes

A carbon tax sets a fixed price on emissions, typically through a tax on fossil fuels or direct emissions. Unlike an ETS, it provides certainty about the price but does not set an explicit limit on total emissions. This approach applies the price signal economy-wide, encouraging emitters to reduce emissions where it is least costly to do so.

Hybrid Approaches

Some jurisdictions adopt "hybrid" carbon pricing frameworks, but international practice shows this works best where the interaction rules are explicit and designed to prevent double exposure and arbitrage. Hybrid designs may combine an ETS with price-stabilisation tools (such as a price corridor, market stability reserve, or an explicit price floor), or pair an ETS with a carbon tax that is either clearly segmented by sector (e.g, a tax for diffuse sectors, ETS for large emitters) or structured as a defined "top-up" where the tax only applies when the ETS price falls below a statutory threshold. Where offsets are permitted, they are typically subject to tight quantitative limits and quality filters to protect the ETS cap, maintain market integrity, and preserve the price signal.

Absent clear boundaries

Such as carve-outs, hierarchies, eligibility limits, and conversion rules - hybrid systems can create overlapping obligations, incentives to select the lowest-cost instrument rather than reduce emissions, and unintended fiscal effects (including revenue leakage where tax payments reduce auction revenue). Thailand's draft Act therefore makes it especially important that the secondary legislation clearly specifies how the carbon tax, ETS and offset channel interact, including safeguards against double pricing, arbitrage, and integrity risks.

Emission Reduction Funds

In some cases, governments establish funds to purchase verified emission reduction credits, effectively creating a carbon price through public expenditure rather than market or tax mechanisms. Australia's Emissions Reduction Fund is one example of this model.

Jurisdictions select among these instruments based on their regulatory objectives, economic structure, and administrative capacity. ETS offers certainty over total emissions, while carbon taxes offer greater price stability. Hybrid approaches seek to combine the advantages of both.

Around the world, carbon pricing has gained significant traction. As of recent

years, approximately 40 national and 25 subnational jurisdictions have implemented some form of carbon pricing, covering roughly 15% of global greenhouse gas emissions. About half of these initiatives take the form of emissions trading systems, and the other half are carbon taxes, reflecting the variety of approaches taken to suit different legal and economic contexts. A growing trend is the development of linkages between carbon markets across jurisdictions, which can improve market efficiency and support cost-effective mitigation.

3.3 International Climate Milestones

The development and expansion of carbon pricing mechanisms have been closely linked to major international climate agreements. The Kyoto Protocol, adopted in 1997 and entering into force in 2005, introduced binding greenhouse gas emissions reduction targets for industrialised countries and established mechanisms such as international emissions trading to facilitate cost-effective compliance.

The Paris Agreement, adopted in 2015, marked a shift in approach. Rather than imposing top-down targets, it requires each Party to prepare and communicate its own Nationally Determined Contributions (NDCs), setting out how it intends to contribute to global mitigation efforts. Many countries have incorporated carbon pricing or other market-based instruments into their NDCs as part of their strategies for achieving emissions reduction objectives.

Many countries are incorporating carbon pricing into their strategies for meeting NDCs under the Paris Agreement. Approximately two thirds of submitted NDCs reference the use of carbon pricing instruments, including emissions trading systems, carbon taxes, and offsetting mechanisms as part of their approach to achieving emission reduction targets. According to the World Bank, applying carbon pricing on a large scale could reduce the global cost of meeting NDC mitigation targets by around 32% by 2030. In practice, carbon pricing is often implemented alongside complementary energy and environmental policies to maximise its effectiveness.

3.4 ETS as a Core Climate Tool and CBAM as the Next Step

In Section 1 of the report, we provide detailed insights into and draw relevant lessons from the EU ETS that can inform the design of a future Thai ETS. Within the European Union and the United Kingdom, the ETS functions as the central mechanism for reducing greenhouse gas emissions across key sectors, including power generation, industry, and aviation. By setting an overall cap on emissions and enabling the trading of allowances, the ETS combines environmental certainty (through the cap) with economic flexibility (through trading). Successive reforms have tightened the emissions cap and increased allowance prices, reinforcing the ETS as a core instrument for achieving binding climate targets.

However, the operation of an ETS within a single jurisdiction can create incentives for emissions-intensive industries to relocate to jurisdictions with less stringent carbon constraints, a phenomenon referred to as carbon leakage. To address this risk, the European Union has developed the Carbon Border Adjustment Mechanism (CBAM) as a complementary policy. CBAM applies a carbon price to certain imported goods based on their embedded emissions, thereby aligning the carbon cost faced by foreign producers with that faced by domestic producers. This helps maintain a level playing field between domestic and imported goods and supports the environmental integrity of the ETS.

In European practice, CBAM is viewed not as a standalone mechanism but as the logical extension of a mature ETS. It ensures that the carbon price signal applies consistently across domestic and international supply chains, mitigating leakage and promoting fair competition.

3.5 International Context for CBAM

A detailed analysis of the European Union's CBAM is provided in Section 2 of the report. This Section outlines the broader international context in which CBAM type mechanisms are emerging, to frame their relevance for Thailand's evolving carbon pricing framework.

The European Union's CBAM, currently in its transitional phase and moving to full implementation in 2026, remains the most advanced example of a carbon border adjustment system. It has already prompted other jurisdictions to consider similar measures. The United Kingdom has announced plans to introduce its own CBAM by 2027, while several other economies including Turkey, Indonesia, Vietnam, and Thailand have begun examining CBAM type mechanisms in response to trade exposure and competitiveness concerns.

The introduction of CBAMs represents a significant shift in global climate policy. They aim to extend carbon pricing beyond domestic borders, ensuring that imports face a comparable carbon cost to domestic products, and reducing the risk of carbon leakage. CBAMs are closely tied to the existence of a domestic ETS or equivalent carbon pricing system, which provides the reference carbon price applied at the border.

For Thailand, this international trend underscores the importance of designing its ETS and CBAM in tandem. As more jurisdictions adopt CBAMs, exporters to those markets will increasingly need to demonstrate compliance with carbon pricing regimes. Conversely, adopting a domestic CBAM can protect domestic industries from competitive disadvantages and align Thailand with emerging global standards. The following sections consider Thailand's emerging framework in this wider international policy context.

4 Focus of this study and structure of the report

- 4.1 In response to DCCE's request for comparative evidence, and consistent with the UK Pact objective of strengthening Thailand's capacity for evidence-based climate policy, this report draws on the EU's ETS and CBAM frameworks and other international experience to inform a carbon pricing architecture tailored to Thailand's context, rather than to promote any specific international model.
- 4.2 This report offers a detailed assessment of the draft Climate Change Act and draws on comparative insights from the EU and other international jurisdictions regarding voluntary ETS, carbon tax, voluntary carbon markets, and CBAM. In particular, it examines how the EU has designed, implemented, and refined its carbon pricing instruments over time. This includes lessons from the EU ETS - its phased approach, sectoral coverage, allocation methods, market stability mechanisms, and revenue recycling. It also examines the EU's CBAM compliance requirements and offers preliminary insights into how a future Thai CBAM could be designed.
- 4.3 The report also identifies gaps and risks inherent in the proposed hybrid model, particularly those stemming from the way the Act currently links the various carbon pricing instruments.
- 4.4 Finally, the paper examines the distributional impacts of carbon pricing and underscores the importance of building public trust by ensuring that carbon pricing is perceived as fair and socially balanced. It emphasises that capacity building and transparent communication on how carbon revenues will be used, and how benefits will be equitably recycled across society, are essential for maintaining legitimacy and broad public support.
- 4.5 These insights provide a valuable reference point for Thailand as it shapes its own carbon pricing architecture and prepares for deeper integration with international carbon markets. The report is divided into four parts as follows:
- Part 1: Designing Thailand's ETS:**
Insights and Experience from the European Union
- Part 2: Navigating CBAM:**
EU Compliance Requirements and Pathways Toward a Future Thai CBAM
- Part 3: Hybrid Carbon Pricing Architecture:**
Gaps, Risks, and Interactions Across Instruments
- Part 4: Distributional Risks of Carbon Pricing and Revenue Recycling Strategies:**
Insights from EU Experience
- An annotated version of the draft Climate Change Act is provided in the annex to this report.
- 4.6 **Legal and Policy references**
- Unless otherwise stated, all references in this report to legislation, delegated/implementing acts, official guidance, and institutional publications are references to the versions in force (or publicly available) as at the date of publication of this report. Subsequent amendments, implementing measures, or guidance updates may affect the interpretation or application of the matters described.

Part 1 Designing Thailand's ETS: Insights and Experience from the European Union

5 Thailand's Climate Commitments: From Paris Ratification to NetZero Ambition

- 5.1 Thailand ratified the Paris Agreement on 21 September 2016.¹ As a developing country (known as Non-Annex- I Parties under the United Nations Framework Convention on Climate Change (UNFCCC), the provisions of the Paris Agreement that apply to developed countries are not applicable to Thailand.
- 5.2 While developed countries are required to undertake absolute emissions reduction targets, developing countries are only required to "enhance their mitigation efforts" and move towards reduction or limitation targets over time depending on the national circumstances (Article 4(4)). As a developing country, Thailand is recognised as being especially vulnerable to the adverse impacts of climate change.
- 5.3 Thailand submitted its Long-Term Low Greenhouse Gas Emission Development Strategy (LTLEDS) in 2022. Although submissions of LTLEDS under the Paris Agreement are not mandatory, decision 1/CMA.5 at COP28 encouraged all Parties to communicate their LTLEDS by 2024 and to align their forthcoming NDCs with these long-term strategies. On 4 November 2025, Thailand submitted its third Nationally Determined Contribution (NDC 3.0) to the UNFCCC. The updated NDC marks a shift from a business-as-usual framework to an absolute emissions reduction target, using 2019 as the baseline year. Thailand now commits to reducing net greenhouse gas emissions by 47% by 2035, capping emissions at 152 million tonnes of CO₂ equivalent and has advanced its long-term goal of achieving carbon neutrality by 2050 - 15

years earlier than previously pledged. The NDC covers five sectors: energy and transport, industry, agriculture, waste management, and forestry, and aligns with the Paris Agreement's global 1.5°C pathway.

- 5.4 Thailand's climate strategy is supported by a suite of national policies that complement its NDC commitments. The Climate Change Master Plan (2015-2050) provides the overarching vision for mitigation and adaptation, while the National Adaptation Plan addresses sectoral resilience to climate impacts. Thailand's long-term decarbonisation pathway is further articulated through its Long-Term Low Greenhouse Gas Emission Development Strategy (LTLEDS). The energy transition is guided by the Power Development Plan (PDP), the Alternative Energy Development Plan (AEDP), and the Energy Efficiency Plan (EEP), which collectively aim to diversify energy sources, increase the share of renewable energy, and improve energy efficiency. These policies, alongside sector-specific strategies such as the National Energy Plan and Green Growth Framework and development initiatives including the Bio-Circular-Green (BCG) Economy Model, form an integrated approach to achieving carbon neutrality by 2050.

6 Overarching comments on Thailand Climate Change Draft Act²

- 6.1 Thailand has been exploring the use of economic instruments to reduce greenhouse gas emissions for several years. The 2018 National Reform Plan required the Government to develop and implement such instruments, paving the way for the country's first Climate Change Act.

¹ UNFCCC. (n.d.). Thailand. United Nations Framework Convention on Climate Change. Available at: Thailand | UNFCCC.

² See Schedule 2 for a comprehensive review of the Climate Change Act.

- 6.2 Thailand's draft Climate Change Act represents a significant step toward establishing a comprehensive legal framework for climate governance and carbon pricing. The draft Act establishes a legal basis for four key carbon pricing instruments: ETS, a carbon tax on products, a carbon border adjustment for imports, and a regulated carbon credit market. These measures, if effectively designed and implemented, will position Thailand as a regional leader in climate policy and support its transition to a low-carbon economy.
- 6.3 The draft Act introduces a hybrid approach, combining market-based mechanisms (ETS and carbon credits) with fiscal measures (carbon tax and Carbon Border Adjustment Mechanism (**CBAM**)). While this integrated design offers flexibility and revenue generation, it also raises challenges around policy coherence, administrative complexity, and risk of overlapping obligations for regulated entities, arbitrage and fraud. Clear rules on interaction between these instruments- such as whether carbon tax applies to sectors covered by ETS will be essential to avoid double taxation, market distortions, and compliance uncertainty³.
- 6.4 The Act prescribes a centralised governance structure. While provincial perspectives may be reflected indirectly through representation of the Ministry of Interior and civil society organisations, there is no explicit provision for direct subnational participation in national-level climate decision-making. In this context, consideration could be given to whether subnational engagement should be more formally institutionalised, for example through representation of provincial governors, rotating regional participation, or an advisory mechanism, to strengthen implementation coordination and ensure that local-level considerations are reflected in national policy design. International practice supports this approach. For example, in Germany, climate governance frameworks involve federal states (Länder) and local authorities in both planning and implementation,⁴ recognising that effective delivery of climate policy depends on subnational engagement.
- 6.5 A notable feature of the draft Act is the establishment of a Climate Fund (**Fund**), designed to finance mitigation and adaptation measures through diverse revenue streams, including carbon market revenues, CBAM proceeds, administrative fines, and international contributions. The Fund's objectives align with global climate finance principles, but its effectiveness will depend on transparent governance, independent oversight, and earmarked allocations for industry transition and social protection. Recycling carbon revenues toward green infrastructure, clean technologies, and support for workers in carbon intensive sectors will be critical to maintaining public trust and ensuring a just transition. Successful decarbonisation depends on broad support for carbon pricing measures such as carbon taxes and emissions trading schemes. Without public and business buy-in, these policies risk becoming politically unsustainable and economically disruptive. Returning carbon revenues to households and businesses helps offset costs, builds public trust, and ensures that carbon pricing is perceived as fair and effective rather than punitive, fostering momentum toward a low-carbon economy⁵.
- 6.6 A critical gap in the current draft is the absence of grievance and redress mechanisms. Climate policies and projects can have unintended adverse impacts on communities and businesses. Establishing an independent complaint mechanism -similar to the Green Climate Fund's Independent Redress Mechanism -would provide affected stakeholders with a fair and transparent avenue for resolving disputes and addressing non-compliance. This mechanism should operate independently of implementing agencies

³ For more information, see part 3, Hybrid Carbon Pricing Architecture: Gaps, Risks and Interaction across Instruments

⁴ European Parliament Research Service, *Climate neutrality by 2050: Zeroing in on the*

target (Briefing No EPRS_BRI(2024)767182, 2024) <[Germany's climate action strategy](#)

⁵ For more information, see part 4, Distributional Risks of Carbon Pricing and Revenue Recycling Strategies .

and report directly to the Committee to ensure accountability.

- 6.7 The final draft of this legislation is expected to be submitted to the Cabinet and Parliament in 2026, with entry into force anticipated in 2027. Once the Act is enacted, the DCCE will be responsible for developing subsidiary legislation to operationalise the Act. These regulations will determine key design features and the practical timeline for carbon market instruments' implementation, meaning that market operations may commence after the Act's formal entry into force.
- 6.8 To ensure the Act functions effectively, its implementation will need to be aligned with Thailand's existing legal and policy frameworks. Several current instruments may limit the ability of the carbon pricing mechanisms to operate as intended. Structural features of the power sector - particularly the single-buyer model under the Energy Industry Act and regulated dispatch arrangements - constrain the ability of an ETS or carbon tax to influence generation costs, dispatch decisions and long-term investment.⁶ This limits how strongly carbon price signals can shape Thailand's future power mix. Fossil fuel subsidies, existing fiscal legislation, such as the State Fiscal and Financial Discipline Act, may also either operate in direct tension with carbon pricing by lowering end-user fuel costs and counteracting incentives to shift away from high-emitting fuels or constrain the ability to earmark or allocate carbon pricing revenue. A comprehensive review of the laws requiring reform will need to be carried out once the Act and its secondary legislation are in place. This will be vital to the efficiency of carbon pricing in Thailand to ensuring that the system operates in a coherent, predictable, and economically sound manner.

7 Thailand's Emerging Emission Trading System Framework⁷

7.1 ETS framework under CC draft Act

- (a) Section 74 and 75 of the draft Act establishes a legal basis for an ETS. Thailand's ETS shares several common elements with ETS frameworks in other jurisdictions, such as the EU ETS, California Cap-and-Trade Program, and China's National ETS.
- (b) ETS will operate under a cap-and-trade framework, administered by the DCCE and overseen by the Committee. Covered entities will be required to surrender allowances annually to meet compliance obligations. They will be subject to mandatory monitoring, reporting, and verification (**MRV**) of greenhouse gas emissions and removals. Ministerial regulations will specify the activities and gases covered by these obligations. An electronic GHG reporting platform managed by the DCCE will serve as the backbone for all four pricing instruments.
- (c) DCCE will prepare allocation plans covering- scope, caps, credit use limits, and allocation methods for- a period not exceeding five years, in line with the Master plan and greenhouse gas reduction plan. The Department will ensure that entities receive emission rights, conduct auctions, establish, manage a registry and accounting system for data related to the greenhouse gas emission trading system. It will also adopt rules on allowance trading, banking limits, and credit eligibility.

⁶ World Bank, Thailand PMI (P179593) Just-in-Time Support for Carbon Pricing Impact Analysis and Policy Design, 12 February 2025.

⁷ International Carbon Action Partnership (ICAP), Thailand Emissions Trading System (ETS)

Overview. ICAP. Available at: Thailand | International Carbon Action Partnership.

- (d) The Committee will approve the rights allocation plan, promote and oversee the implementation of the ETS, issue regulations and establish measures to link Thailand's ETS with international trading systems.
- (e) The application of carbon pricing across the various instruments established under the legislation would need to be clarified in the Act. At present, the Act creates obligations relating to the ETS, the carbon tax, the carbon credit market and the domestic CBAM, but it does not expressly state that controlled entities will be subject to only one carbon price for the same emissions. International systems generally avoid overlapping carbon prices on the same tonne of emissions, such as by ensuring that entities covered by the ETS are not simultaneously liable for a carbon tax. This is because multiple prices create inconsistency, weaken the function of the primary pricing instrument and generate uncertainty for investors. Where instruments are intended to operate together, international practice typically establishes an explicit hierarchy or “top-up” design (e.g., a price floor supplement), rather than allowing the same emissions to be subject to more than one carbon pricing obligation.
- (f) Given that entities falling under Section 54 will report emissions under a unified MRV framework, it may be useful to confirm that a single pricing mechanism will apply to those emissions once the ETS is operational. This would provide greater legal certainty, ensure that the ETS becomes the primary cost signal for covered sectors, and avoid double pricing or administrative duplication. It would also support the integrity and coherence of Thailand's carbon pricing architecture as the various instruments are phased in.
- (g) Measures such as price floors and ceilings to stabilise the market are not explicitly mentioned in the draft Act. These mechanisms are used in the EU ETS and California to mitigate the consequences of potential extreme price fluctuations and have a guaranteed floor price for emissions. We have recommended the Government to insert such measures in Section 99-100. In addition, the draft Act could benefit from a “market stability” clause (e.g., reserve-based tools, auction volume adjustment triggers, or cost containment measures) so that stability interventions can be implemented without reopening primary legislation.

8 Concerns by Industry and Civil Society over a National ETS Scheme

- 8.1 Consultations with industry stakeholders indicate a range of concerns regarding Thailand's readiness for a national ETS and its interaction with the EU CBAM. The points below reflect issues raised by private sector participants during the consultation process and do not necessarily represent the views of DLA Piper, but rather illustrate the practical concerns currently expressed by market actors. Stakeholders have highlighted uncertainty around ETS design, including timelines, sectoral coverage, cap setting methodologies, and transition arrangements, particularly for SMEs with limited carbon accounting capacity.
- 8.2 **Industry concerns over an ETS scheme**
 - (a) ETS and CBAM readiness

Industry stakeholders have expressed significant uncertainty regarding the design and implementation of Thailand's ETS and CBAM frameworks. There is a lack of clarity on implementation timeframe (including any pilot phases), obliged industries, cap allocation methodologies and boundary definitions for major sectors such as steel, cement,

and chemicals. Small and medium-sized enterprises (**SMEs**) face additional challenges due to the absence of robust carbon accounting and MRV systems, making participation difficult. Businesses are concerned about potential competitiveness loss if ETS obligations are enforced without an adequate transition period. Furthermore, the absence of clear linkage between Thailand's ETS and CBAM creates uncertainty for exporters who must comply with international carbon border measures.

(b) Data & MRV Challenges

- (i) Emission factor (EF) and life-cycle inventory (LCI) databases remain incomplete. Sector-specific emissions factors are not yet consistently aligned with internationally recognised methodologies (including EU MRV standards where relevant), coverage across sectors remains uneven, and certain upstream and Scope 3 data points are not systematically captured or digitised.
- (ii) In addition, domestic verification bodies are not currently recognised by EU or UK authorities. This is significant because CBAM declarations relying on actual emissions must be verified by accredited verifiers meeting EU requirements. In the absence of recognised or equivalently accredited verifiers in Thailand, exporters may face delays, higher verification costs, or be compelled to rely on EU default values, thereby increasing compliance risk and cost exposure.

- (c) Manual reporting processes further undermine data integrity, transparency and institutional trust. Collectively, these weaknesses heighten CBAM compliance risks, as exporters may be forced to rely on conservative EU default values, potentially increasing costs by an estimated 15–35%. Limited Scope 3 data visibility and insufficient CBAM literacy among SMEs further exacerbate these risks and may restrict continued access to EU markets. Financial & Investment Barriers.
- (d) Transitioning to low-carbon production requires substantial investment in clean technologies and MRV systems. However, businesses report high upfront costs, limited access to green finance, and uncertainty around carbon tax and ETS timelines, which hinders long-term planning. The shortage of climate finance professionals compounds these challenges, slowing the pace of investment. Technology & Production Constraints.
- (e) Many Thai industries operate with high carbon intensity processes and outdated machinery, limiting their ability to meet ETS and CBAM requirements. The lack of carbon capture, utilisation, and storage (**CCUS**) technologies and insufficient availability and integration of renewable energy further constrain decarbonisation efforts. Supply chains remain unprepared for CBAM data requirements, creating systemic compliance risks. Governance & Regulatory Issues.
- (f) Stakeholders have identified governance gaps as a source of systemic uncertainty. These include the absence of a dedicated CBAM management structure, overlapping regulations, unclear administrative competences between agencies, limited digital integration across registries and reporting platforms, and uncertainty regarding enforcement thresholds and appeal mechanisms. Market participants have expressed

concern that, without clearer delineation of responsibilities and enforcement procedures, compliance burdens may increase and confidence in the credibility of Thailand's emerging carbon pricing framework could be affected.

8.3 Civil society concerns over an ETS scheme

(a) Governance and participation

Civil society organisations (CSOs) have expressed concerns regarding the limited representation of non-governmental actors in the governance structures established under the draft Act. The Climate Change Committee includes minimal civil society membership, and the avenues for local participation in the development of mitigation and adaptation plans are not detailed in the primary legislation. Community actors have noted that planning processes remain largely top-down, with insufficient mechanisms to ensure that perspectives from provincial and community levels are reflected in policy design. Broadening the composition of key committees and clarifying participatory processes in secondary legislation could strengthen the legitimacy and inclusiveness of the carbon pricing framework.

(b) Climate fund access

Existing environmental funding mechanisms provide a foundation for climate finance, yet stakeholders report practical barriers to access, including short disbursement cycles, limited grant sizes, and eligibility criteria that do not accommodate smaller organisations and community-based initiatives. The draft Act establishes a Climate Fund, but its current design prioritises mitigation-related expenditure without expressly providing for adaptation. Stakeholders have noted that ring-fencing a portion of Climate Fund resources for CSO-led initiatives and expanding the scope of eligible expenditure

to include adaptation and resilience-building would help ensure that carbon pricing revenues benefit climate-vulnerable communities as well as market participants.

They have also noted that under the State Fiscal and Financial Discipline Act B.E. 2561, carbon tax revenues flow to the general budget rather than to the Climate Fund, which may limit the overall resources available for climate and social programmes and reduce the scope for revenue recycling to benefit vulnerable communities.

(c) Carbon credit quality and ETS interaction

Stakeholders working in community forestry and carbon project development have raised questions about the quality criteria that will apply to credits eligible for conversion into offset emission rights under the draft Act. The proposed interlinkage between the voluntary carbon market and the compliance system through the offset conversion mechanism means that community-level carbon credit projects may increasingly serve both voluntary and compliance demand. Civil society organisations have highlighted that communities participating in T-VER projects often have limited access to technical information and limited bargaining power when negotiating contract terms with project developers. Consent processes are not standardised, and benefit-sharing arrangements vary considerably across projects, with limited transparency on revenue distribution between developers, government agencies, and local stakeholders.

(d) Equity and distributional consideration

Vulnerable groups, including ethnic minorities, informal sector workers, and low-income households, face disproportionate exposure to cost pass-through effects of carbon pricing yet remain largely absent from

climate policy consultation processes. Civil society organisations have called for the integration of targeted allocation mechanisms, exemptions, and redistributive measures into ETS design to mitigate regressive impacts.

(e) Communication and climate literacy

Public understanding of ETS, CBAM, and carbon market instruments remains limited, creating a barrier to informed participation and broader acceptance of carbon pricing. Civil society organisations note that the technical complexity of these instruments, combined with the absence of accessible public information, risks entrenching a perception of carbon pricing as a regulatory cost rather than as part of a broader climate and economic opportunity. . Accessible, local-language communication campaigns co-designed with trusted community actors could help build the public support base needed for effective implementation.

exceeding predefined emission thresholds.

(d) The global financial crisis of 2008/09 resulted in the EU allowance price sinking as various emitters relocated outside the EU to reduce costs. As a result, the EU has developed various instruments to protect the EU ETS against market price fluctuations and to ensure robust carbon price signals, such as allowance auction backloading and the development of the Market Stability Reserve (**MSR**).

(e) Revenue generated through the sale of allowances is directed primarily to national budgets, with Member States required to use these funds to support renewable energy, energy efficiency, and low-carbon technologies.

(f) The legislative framework has evolved over time, most recently under the 2023 revision of the ETS Directive and the "Fit for 55" package. Key changes include:

(i) tightening the emissions cap to achieve a 62% reduction by 2030 relative to 2005 levels;

(ii) scaling down free allocations and linking them to companies' decarbonisation performance, with free allowances for aviation phased out by 2026;

(iii) strengthening the MSR to balance allowance supply;

(iv) allocating revenues to support a just transition, including the Social Climate Fund (SCF), which mobilises EUR86.7 billion (2026–2032) to address social impacts of carbon pricing;

(v) establishing ETS2 for emissions from buildings, road transport, and small industrial installations, operational from 2027; and

9 Lessons Learnt from EU and UK ETS

9.1 Learning by doing: a staged approach

(a) When the EU launched the ETS in 2005, it deliberately avoided a "perfect from day one" system.

(b) EU ETS commenced in 2005 as the first largescale greenhouse gas trading system worldwide. It was designed to assist EU member states in meeting emission reduction obligations under the Kyoto Protocol and subsequently the Paris Agreement.

(c) Initially, the EU ETS covered power generation and energy intensive industrial sectors, including steel, cement, and refineries. Participation was mandatory for installations

- (vi) the EU ETS remains central to EU climate policy and serves as a reference framework for international carbon pricing and the EU CBAM.

Concept of Cap-and-Trade System

- (g) The ETS is based on a cap-and-trade system, a market-based regulatory mechanism that sets a quantitative limit on total emissions from defined entities. Regulated entities must surrender allowances equivalent to their verified emissions which exceed a pre-determined cap. Entities which fall below their cap may sell any excess allowances.
- (h) Key features include:
 - (i) Cap:

A total emissions ceiling, declining annually to ensure progressive reductions.
 - (ii) Allocation:

Can be either free allocation, often to protect sectors at risk of carbon leakage, or auctioning, which generates public revenue.
 - (iii) Trade:

Allowances can be traded among entities on the secondary markets, either directly or through third parties, creating a liquid market price that signals the marginal cost of greenhouse gas emissions.
 - (iv) Compliance:
 - (A) Entities must submit allowances annually, with penalties for non-compliance.

- (B) The cap-and-trade model enables cost-effective emissions reductions by allowing reductions to occur where they are most economically efficient while providing certainty over total emissions.

Emissions Reduction Targets and Achievements

- (i) To date, the EU ETS has evolved through four phases, each progressively strengthening its design to improve market efficiency, environmental integrity, and emissions performance.
 - (i) Phase I (2005–2007):

Pilot phase primarily designed to test system operation and establish a price signal. Allowances were allocated largely for free, resulting in overallocation and limited emission reductions.
 - (ii) Phase II (2008–2012):

Implemented tighter caps consistent with the EU's Kyoto Protocol commitments. Improved MRV procedures enhanced data reliability. Aviation was incorporated from 2012.
 - (iii) Phase III (2013–2020):

Marked a structural reform of the system, in particular following the global financial crisis. Auctioning became the default method of allocation, harmonised across Member States. Sectoral coverage expanded and the annual emissions cap decreased by 1.74%. These measures contributed to verified emission reductions across covered sectors.

- (iv) Phase IV (2021–2030):
Aligned the ETS with the EU's 2030 climate target of a 55% reduction in net greenhouse gas emissions compared to 1990 levels. The cap has been further tightened, and the MSR was introduced to address surplus allowances and price volatility.

- (j) Amendments across these phases have addressed early operational challenges such as overallocation, market imbalance, and limited investment incentives. Coverage has expanded over time, and complementary measures have stabilised allowance prices. By 2023, verified emissions from power and industry sectors had declined by approximately 47% compared to 2005 levels, underscoring the ETS's role as the cornerstone of EU climate policy.

Reform of the EU ETS I

- (k) Key reforms implemented across early phases include:

- (i) MSR:
Adjusts the supply of allowances in response to surpluses or shortages, reducing the risk of long-term allowance price volatility.
- (ii) Auctioning:
Transition from free allocation to auctioning as the default allocation method, with exemptions for sectors at risk of carbon leakage.
- (iii) Sector Expansion:
Aviation and other industrial sectors were gradually included.

These reforms aim to strengthen regulatory predictability, provide more accurate price signals, and enhance the environmental integrity of the EU ETS.

Introduction of the EU ETS II

- (l) Phase III and Phase IV reforms were introduced to align with long-term EU climate goals:
 - (i) Declining Cap:
Annual reductions set to meet 2030 and 2050 emission targets.
 - (ii) Auctioning & Free Allocation:
Auctioning is the default, with limited free allocations for sectors at risk of carbon leakage.
 - (iii) Enhanced MRV:
Stringent reporting, verification, and compliance requirements to improve data accuracy and enforcement.
 - (iv) Policy Integration:
ETS interacts with complementary measures, such as renewable energy obligations and energy efficiency policies, to reinforce emissions reductions.

These phases serve as a reference model for international carbon pricing systems and inform CBAM design.

Overview of the UK ETS and the ETS-CBAM relationship (comparative context)

- (m) The UK ETS, established in 2021 post-Brexit, mirrors many aspects of the EU ETS while operating independently:
 - (i) covers power, industrial, and aviation sectors;
 - (ii) cap declines by 4-5% annually, more stringent than the EU ETS Phase IV;
 - (iii) price management mechanisms include a price floor and ceiling; and
 - (iv) provides a domestic reference carbon price, which informs potential UK CBAM implementation.

The UK ETS is designed to maintain alignment with domestic climate targets while providing regulatory flexibility.

Relationship between ETS and CBAM

- (n) The CBAM complements a functioning ETS:
 - (i) CBAM applies a carbon cost on selected imports based on embedded emissions;
 - (ii) the ETS provides the reference price used in CBAM calculations;
 - (iii) CBAM mitigates carbon leakage from the EU, ensuring importers face costs comparable to domestic producers; and
 - (iv) together, ETS and CBAM create a coherent framework linking domestic emission reductions with international trade compliance. CBAM implementation relies on accurate ETS pricing and MRV systems; for exporters, MRV credibility and verifier availability often determines whether actual values can be used or whether conservative default values apply.

CBAM implementation relies on accurate ETS pricing and MRV systems to determine emissions associated with imported goods.

9.2 How the EU addressed issues when they introduced ETS

When the EU introduced its ETS in 2005, it faced many of the same challenges raised by Thai industry: uncertainty around compliance costs, an absence of reliable emissions data, limited verifier capacity, and concerns regarding the competitiveness of energy-intensive sectors. The EU adopted a sequenced and capacity-

aligned approach to address these issues.

Issue 1: Lack of reliable emissions data, limited MRV capacity, and strong industry resistance to immediate carbon cost exposure

When the EU introduced the ETS in 2005, it had almost no verified emissions data on which to base sectoral caps or allocation levels. MRV procedures were not yet standardised, and national verification bodies were still being established. Industry expressed significant concern about being exposed to a carbon price before the underlying data infrastructure and compliance systems were fully operational.

EU response:

To address this, the EU deliberately designed Phase I (2005–2007) as a pilot period focused on "learning by doing." The scope of the system was intentionally narrow, covering only CO₂ emissions from large industrial installations and power generators. Nearly 100% of allowances were allocated for free, ensuring that most installations were not immediately exposed to a carbon cost while they adapted to new reporting obligations. The penalty for excess emissions was set at a relatively low €40 per tonne in Phase I, rising to €100 per tonne from Phase II onwards.⁸ Caps in the pilot phase were based on estimated emissions because verified baselines did not yet exist. This transitional design gave both regulators and industry the time and operational space required to develop robust MRV systems, test registry operations, train verifiers, and become familiar with compliance obligations before stricter rules and genuine carbon cost exposure were introduced in later phases.

⁸ Practical Law Environment (2016). European Commission's allocation of free EU ETS allowances for Phase III (2013–20) invalid (ECJ). Practical Law (Thomson Reuters). Available at: European Commission's allocation

of free EU ETS allowances for Phase III (2013–20) invalid (ECJ) | Practical Law.

Issue 2: Competitiveness fears, carbon leakage risks, and absence of reliable baseline data for benchmarking

Many energy intensive and trade exposed industries argued that introducing a carbon price too early would undermine their competitiveness, particularly because the EU was acting ahead of most major economies. Concerns about "carbon leakage" where production relocates to jurisdictions without carbon constraints were especially prominent. At the same time, incomplete emissions data made it impossible to establish accurate sectoral benchmarks for free allocation.

EU response:

- (a) The EU addressed this by relying heavily on free allocation during the first two phases. In Phases I and II (2005-2012), almost all allowances were allocated free of charge to covered installations.⁹ This acted as a transitional shield while robust emissions data, sectoral baselines, and benchmarking methodologies were developed. Free allocation ensured that installations were brought into the system early but without imposing immediate cost impacts that could distort competitiveness.
- (b) Once sufficient data had been gathered and industry had adjusted to MRV obligations, the EU introduced harmonised, EU-wide benchmarks and began shifting progressively towards auctioning. This transition was formalised in Phase III (2013-2020) under Commission Decision 2011/278/EU, which established Unionwide rules for harmonised free allocation pursuant to Article 10a of the ETS Directive. From that point onwards, auctioning became the default allocation method, with free allocation reserved for

specific sectors at demonstrable risk of carbon leakage.

Issue 3: Small installations lacked the capacity to meet full MRV requirements

Small and medium-sized industrial installations often lacked the financial and technical resources required to comply with the same MRV standards expected of large emitters. Requiring the same level of detail risked imposing disproportionate compliance costs and overburdening verification systems during the early years of ETS.

EU response:

The EU addressed this through Article 27 of the ETS Directive, which allowed Member States to exclude small installations from the ETS if they were subject to "equivalent measures" at the national level. These measures typically involved energy efficiency or emissions reduction obligations. The effect was twofold: it prevented bottlenecks in the verifier market during the early implementation phase, and it provided regulatory relief to small emitters without undermining the system's environmental integrity. This approach ensured that administrative resources were focused where emissions were most concentrated and where compliance capacity was greatest.

Issue 4: Aviation small emitters faced disproportionate administrative burdens

When aviation was brought into the ETS in 2012, many small aircraft operators such as charter companies and business aviation providers did not have the systems or resources to carry out detailed emissions monitoring. Requiring fuel measurements and flight level emissions reporting for hundreds of small operators risked causing significant administrative strain.

EU response:

To simplify compliance, the EU introduced the EUROCONTROL Small Emitters Tool (SET), which allowed

⁹ European Commission (2011), Commission Decision 2011/278/EU of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC, OJ L 130/1

Available at:
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011D0278>.

small aircraft operators to estimate their emissions using standardised modelling rather than bespoke monitoring systems. This reduced administrative burden, avoided verifier overload, and enabled the aviation sector to be incorporated into the ETS without overwhelming operators with disproportionate compliance requirements. The approach provides a clear precedent for Thailand if aviation is selected as a pilot sector, demonstrating how MRV simplification tools can significantly reduce entry barriers.

Issue 5: Limited buy-in and poor understanding of obligations

Prior to the introduction of the ETS Directive, many stakeholders lacked clarity about how the system would operate, what their compliance obligations would be, and how carbon pricing would affect their commercial activities. There was also scepticism about whether emissions trading could deliver real mitigation outcomes.

EU response:

To build legitimacy and secure buy-in, the European Commission launched a Green Paper in 2000¹⁰ and conducted extensive multi-year consultations with industry, Member States, civil society, and academic institutions. These consultations played a key role in shaping the final legislation and addressing early concerns. They also created space for stakeholders to understand the system design, identify capacity gaps, and propose practical implementation pathways. For Thailand, a similar process such as a "Thai ETS Green Paper" followed by sector-specific consultations would help build confidence, reduce resistance, and ensure that rules introduced through ministerial regulations reflect real sectoral capabilities.

Issue 6: Industry required financial support for decarbonisation, but early ETS phases generated almost no revenue

Because Phase I and much of Phase II relied almost entirely on free allocation, the ETS generated almost no auction revenue in the early years. As a result, the EU had limited financial resources to support industrial decarbonisation, MRV improvements, or technology transition during the initial phase of implementation.

EU response:

As auctioning gradually expanded in Phase III (2013–2020), the EU was able to establish dedicated financial mechanisms to channel ETS revenues into decarbonisation.¹¹ Key among these were the Innovation Fund and the Modernisation Fund, both designed to support investment in clean technologies, industrial transformation, and energy transition projects in lower-income Member States. Notably, the Innovation Fund was initially capitalised not by auction revenue but by 300 million allowances from the ETS "New Entrants Reserve," meaning it was funded through allocation rights rather than cash revenues. This demonstrates how revenue recycling and industrial support can be phased in as the market matures, rather than being required- from the outset.

9.3 EU Revenue Recycling Funds - Lessons for Thailand's Climate Fund

- (a) A central lesson from the EU ETS is that carbon pricing was eventually paired with dedicated funds to support both industry and households. In the early phases, almost all allowances were allocated for free, so the ETS generated very little auction revenue and there was no meaningful pool of money to finance decarbonisation. Only once auctioning expanded (from Phase III onwards) did the EU

¹⁰ The evolution of emissions trading in the European Union – The role of policy networks, knowledge and policy entrepreneurs - ScienceDirect

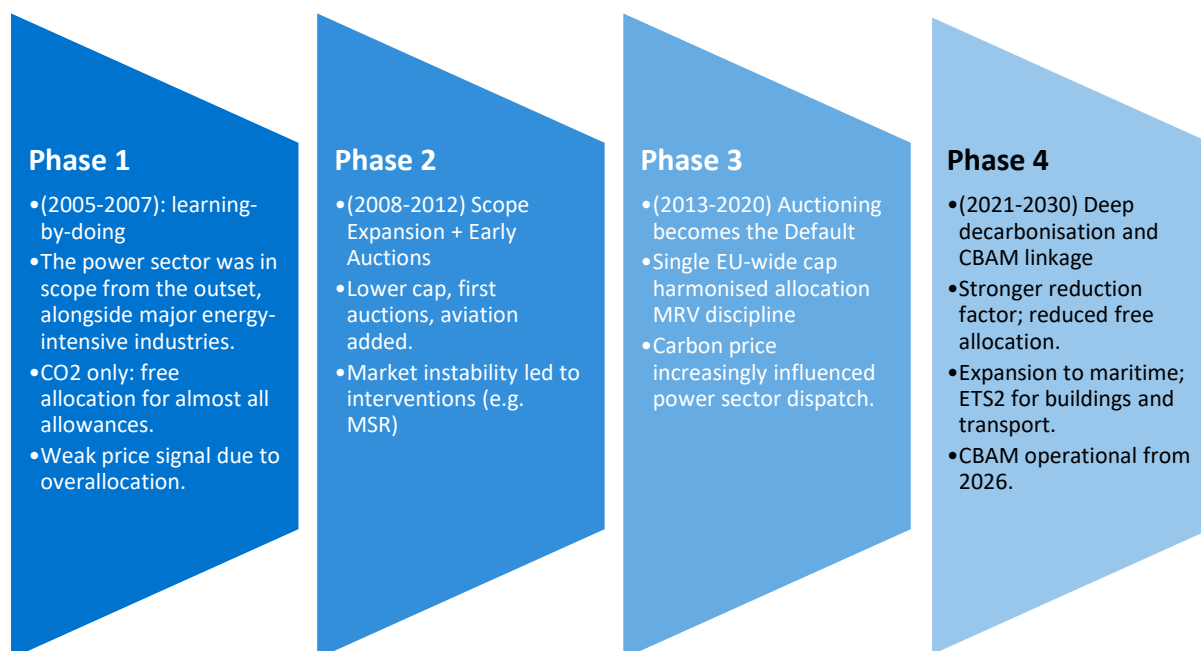
¹¹ EUR-Lex (2010). Commission Decision 2010/670/EU of 22 October 2010 on the allocation of free allowances in accordance with Directive 2003/87/EC. Official Journal of the EU. Available at: Decision - 2010/670 - EN - EUR-Lex.

- have sufficient revenues to create targeted funding mechanisms.
- (b) For industry and infrastructure, the EU now relies primarily on two ETS-backed funds:
- (i) Innovation Fund

Financed by the auctioning of a dedicated volume of EU ETS allowances. It supports first-of-a-kind and large-scale low-carbon projects in sectors such as hydrogen, CCUS, renewable fuels, and industrial process decarbonisation. In effect, it channels ETS revenues back into the same sectors that face the carbon price, helping them invest in new technologies rather than simply absorbing the cost.
 - (ii) Modernisation Fund

Funded by ETS allowances earmarked for lower-income Member States. It supports modernisation of power systems and energy infrastructure, including grid upgrades, renewables and energy-efficiency investments. This creates a structured solidarity mechanism within the ETS, targeted at regions with more limited fiscal space.
- (c) For households and vulnerable groups, the EU has more recently created the Social Climate Fund (SCF), backed by revenues from ETS2 (the separate ETS for buildings, road transport and small installations). The SCF is designed specifically to cushion distributional impacts of extending carbon pricing to fuels used by households and micro-enterprises. It will co-finance measures such as building renovation, heat pump deployment, clean mobility and direct income support for vulnerable households during the transition period.
- (d) Taken together, these funds mean that the EU's carbon pricing architecture now has:
- (i) two main funds for industry / infrastructure (Innovation Fund, Modernisation Fund); and
 - (ii) one dedicated social fund for households and micro-businesses (SCF, linked to ETS2).
- (e) This structure responds directly to the concerns raised by Thai industry and FTI about the "chicken and egg" problem: firms are expected to decarbonise, but the financial support to do so only materialises once carbon pricing is in place. The EU experience shows that this problem was not solved on day one; instead, funds were created and scaled as auction revenues grew and the system matured.
- (f) For Thailand, the Climate Fund under the Climate Change Act can play a similar anchoring role. If ETS and CBAM revenues are transparently channelled into:
- (i) industry-facing windows (e.g., technology upgrading, MRV support, sectoral transition programmes); and
 - (ii) social / household-facing windows (e.g, cash transfers, energy-efficiency in low-income housing, workers upskilling, SME assistance),
- the Climate Fund can become the Thai analogue of the Innovation Fund / Modernisation Fund / Social Climate Fund ecosystem. Signalling this intent early - even before ETS revenues materialise - would help address industry's concerns and demonstrate that carbon pricing is a strategic enabler of investment and just transition, not simply a new cost.

The below diagram highlights how ETS design evolved over four phases:



10 UK Power Market Case Study

10.1 To support Thailand's broader decarbonisation strategy, this Section considers international experience with electricity market structures. The UK case study illustrates how the effectiveness of carbon pricing instruments - both in reducing emissions and generating auction revenue - tends to increase when power sector arrangements allow carbon costs to be reflected in dispatch decisions and investment planning.

10.2 Background: A Historically Centralised Power System

- (a) Until the late 1980s, the United Kingdom operated one of the most centralised and state-controlled electricity systems in the world. Generation, transmission and supply were vertically integrated under public ownership, prices were regulated, and competition was extremely limited. In this environment, investment signals were muted, and dispatch decisions were not based on marginal cost considerations.

- (b) Because of this structural configuration, early market-based environmental instruments - such as emissions pricing - would have had little effect. Generators were not exposed to competitive pressures, and retail electricity prices did not reflect underlying production costs, let alone any carbon price.

10.3 Relevance for Thailand

- (a) Thailand's current single-buyer model, under which EGAT centrally procures and dispatches electricity, shares several of the characteristics that historically limited the effectiveness of market-based signals in the UK.
- (b) Generators typically operate under long-term PPAs with fixed or regulated remuneration, meaning that dispatch decisions and investment planning are guided primarily by contractual and regulatory obligations rather than short-run cost competitiveness. In this environment, the ability of an ETS or any carbon pricing mechanism to influence operational behaviour is inherently constrained. Even if

generators are required to acquire and surrender allowances, they may have limited commercial exposure to the carbon price and may be unable to reflect that cost in the electricity supplied to the system. As a result, the carbon price signal may not flow through to generation choices, system dispatch, or long-term investment decisions in the way intended.

- (c) This has wider implications for Thailand's decarbonisation pathway and for CBAM-exposed sectors. Electricity is a significant component of embedded emissions in industries such as steel, aluminium and other energy-intensive products. Where carbon costs cannot be effectively transmitted through the power sector, the ETS may have limited ability to reduce grid emissions over time, resulting in higher embedded emissions for exporters. As EU CBAM phases in, this may translate into higher compliance costs for Thai producers. Strengthening the link between carbon pricing and real operational behaviour in the power sector will therefore be an important consideration as Thailand continues to develop both its ETS and its broader carbon pricing architecture.
- (d) While Thailand's single-buyer model provides stability and reliability, it may moderate how strongly ETS price signals operate in the power sector over time. In the medium to long term, Thailand may wish to consider a gradual, carefully sequenced approach to power market evolution to enhance the effectiveness of its carbon pricing instruments.

10.4 Liberalisation Pathway: From Monopoly to Market-Based Electricity

Beginning in the late 1980s, the United Kingdom initiated a multi-stage liberalisation and unbundling programme. This transformation, which took more than a decade to complete, created the competitive market

structures necessary for carbon pricing to operate effectively.

(a) Structural Unbundling and Privatisation

The UK separated generation, transmission and supply functions, breaking up large state-owned generation assets into competing companies. Retail supply was gradually opened to competition, allowing consumers to choose among multiple suppliers. These reforms created a wholesale and retail market in which electricity prices increasingly reflected system costs rather than regulated tariffs.

(b) Introduction of Wholesale Competition

Centrally determined dispatch was replaced with competitive wholesale markets. As prices began to reflect marginal generation costs, operational efficiency, and fuel choice, the system became capable of transmitting price signals - including carbon costs. Once wholesale prices were market-driven, generators had both an incentive and an opportunity to respond to carbon pricing.

(c) Integration with Carbon Markets

The UK joined the EU ETS at its launch in 2005. After leaving the EU, it established the UK ETS (Phase 1 beginning in 2021). Because power generators were already operating in a competitive environment, carbon prices were immediately relevant to their operational behaviour. The ETS contributed to:

- (i) fuel switching from coal to gas;
- (ii) increased investment in renewable generation;
- (iii) accelerated closure of carbon-intensive plants; and
- (iv) dispatch decisions that incorporated a real carbon cost.

10.5 Why Carbon Pricing Works Better in a Liberalised Market

- (a) The EU and UK ETS rely on auctioning of allowances, market-based price formation and a robust annual monitoring, reporting and verification (MRV) cycle. In respect of emissions from the power generation sector, these features only function as intended when generators:
 - (i) face real competition;
 - (ii) must obtain allowances through auctions or secondary markets; and
 - (iii) can reflect carbon costs in wholesale electricity prices.
- (b) In a liberalised market:
 - (i) carbon costs become real financial costs for generators rather than an administrative obligation;
 - (ii) ETS revenues increase because allowances are purchased rather than allocated for free; and
 - (iii) carbon price signals influence investment planning, dispatch, and long-term system development.
- (c) These additional costs are commonly passed on to utilities and the end consumers of power (in a process commonly referred to as "cost socialisation") as part of the electricity cost.
- (d) In contrast, in a single-buyer model such as Thailand's:
 - (i) prices are often fixed under long-term PPAs;
 - (ii) generators may not be exposed to market-driven carbon costs;
 - (iii) carbon cost pass-through may be restricted;
 - (iv) the ETS may operate less efficiently in the power sector, as the carbon price signal is weakened and dispatch and investment decisions are less responsive to marginal

carbon costs, countervailing the ETS's decarbonisation objectives;

- (v) where carbon costs are recoverable through regulated tariffs or tariff adjustments, the cost of allowances may ultimately be passed through to electricity consumers, rather than being absorbed by generators, reducing incentives for operational and investment-led decarbonisation; and
- (vi) demand for ETS allowances may be lower, reducing potential auction revenue.
- (e) Under both the EU ETS and the UK ETS, one allowance represents the right to emit one tonne of CO₂ equivalent. Allowances are acquired through auctions or secondary markets, with auctioning conducted on transparent platforms such as the European Energy Exchange (EEX). Operators must monitor and report emissions annually, ensure verification by accredited bodies, and surrender allowances by a fixed annual deadline. These mechanisms depend on competitive pricing environments to function effectively.

10.6 The UK Experience: Interaction Between Power Market Reform and Carbon Pricing

The evolution of the EU and UK ETS illustrates how carbon pricing becomes progressively more effective as underlying market structures mature. As markets became increasingly liberalised and competition increased, carbon prices became a material consideration for generators (both utility-owned and independent power producers). Carbon prices were factored into their cost stacks, leading to generators seeking to achieve operational efficiencies and incorporate decarbonisation technology. The pricing-in of carbon emissions has additionally been a promoting factor in the development of renewable and low carbon generation technologies.

10.7 Key insight

Carbon pricing gained real traction only after the UK electricity market became competitive. Without liberalisation, the ability to pass through carbon costs, generate auction revenue, and incentivise fuel switching would have been significantly diminished.

10.8 Lessons for Thailand

- (a) ETS effectiveness depends in part on underlying power market structure
A single-buyer model can limit:
 - (i) the transmission of carbon costs through electricity prices;
 - (ii) the level of ETS demand from generators;
 - (iii) the magnitude of auction revenue; and
 - (iv) the influence of carbon pricing on dispatch and investment decisions.
- (b) Without structural evolution, the ETS may underperform
In the absence of reforms, an ETS may function more as an administrative mechanism than as a true market signal.
- (c) Reform does not need to be immediate or comprehensive
A gradual, carefully sequenced approach - similar to the UK pathway - could include:
 - (i) partial or functional unbundling;
 - (ii) increased competition in generation;
 - (iii) reduced reliance on long-term fixed PPAs; and
 - (iv) allowing a portion of the system to be dispatched on market terms.
- (d) Why this matters for CBAM
Effective domestic carbon pricing will be increasingly important as EU CBAM phases in. If electricity-related emissions remain high because carbon cannot be priced or passed through effectively, Thai exporters - particularly in

steel and aluminium - may face higher embedded emissions and therefore higher CBAM liabilities.

10.9 Key Policy Message

- (a) International experience, including the UK case, indicates that the effectiveness of carbon pricing instruments - both in emissions reduction and in revenue generation - tends to increase when market structures allow carbon costs to influence real-world behaviour. In Thailand, the current single-buyer model may moderate the extent to which ETS price signals shape dispatch decisions and investment plans.
- (b) Over the medium to long term, consideration of gradual, well-sequenced power market reforms could enhance the impact of the ETS, strengthen price transmission, and reduce CBAM-related exposure for electricity-intensive export sectors. The UK example demonstrates how market evolution and carbon pricing frameworks can reinforce one another and may provide valuable insights for Thailand as it develops its own carbon market architecture.

10.10 Policy considerations and recommendations on ETS design

Drawing on the EU's staged development, several aspects of Thailand's draft framework will require careful calibration to balance environmental ambition with administrative feasibility, competitiveness and political acceptability in the early years of implementation.

- (a) Certainty about carbon pricing coverage
 - (i) A clear lesson from international practice - including the EU ETS and the UK ETS - is that regulated entities must know early, and with certainty, which activities, fuels, gases and installations will be covered by which carbon pricing instrument.

- (ii) Thailand's draft Act currently establishes multiple instruments (ETS, carbon tax, CBAM, voluntary offsets) without yet clarifying their respective scope. Without clear sectoral delineation, the risk of double exposure, arbitrage behaviour or inconsistent price signals increases. Providing advance certainty on which sectors fall under the ETS, which remain under the carbon tax, and how the offset mechanism interacts with both would reduce compliance uncertainty and support long-term investment planning.¹²
 - (iii) International experience suggests that this certainty should be provided well ahead of first compliance obligations, even if carbon prices are introduced gradually. Early publication of sectoral coverage and interaction rules allows firms to begin internal data collection, MRV system development and investment planning, reducing resistance and compliance risks at the point of implementation.
- (b) Scope and sequencing of sectors
 - (i) The draft Act provides a high-level legal basis for carbon market instruments in Thailand, with all operational details to be determined through secondary legislation. The EU's experience shows the value of starting with a limited set of large emitters and CO₂ only, before then expanding. For Thailand, a "narrow but deep" launch (e.g, selected industry sectors and/or aviation) would help manage MRV complexity and compliance risk in the early phases of implementation.
 - (ii) A phased launch also allows regulators to test emissions reporting platforms, verification capacity and registry operations under real-world conditions before extending coverage to additional gases, smaller installations or more complex sectors. This reduces early credibility risks associated with weak data or inconsistent enforcement.
- (c) Aviation as a Pilot Sector – EU Experience and Lessons for Thailand
 - (i) The EU introduced aviation into its emissions trading framework using a clear jurisdictional boundary and a strong MRV backbone. Under the post-2023 aviation ETS reforms, the EU maintains ETS coverage for intra-EEA aviation and extends surrender obligations for flights between the EEA and Switzerland/UK through 31 December 2026, while progressively phasing out free allowances and moving aviation toward full auctioning by 2026.¹³

¹² For a detailed analysis of potential overlaps and interaction risks between the ETS, carbon tax and offset mechanisms in the draft Act, see our section on Interlinkages between Carbon Tax, ETS, and Voluntary Carbon Market.

¹³ EUR-Lex (2023). Directive (EU) 2023/958 of the European Parliament and of the Council

amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading. Official Journal of the EU. Available at: Directive - 2023/958 - EN - EUR-Lex.

- (ii) A key implementation enabler has been administrative proportionality: EU monitoring rules define "small emitters" (including operators below flight-frequency and emissions thresholds) and allow simplified fuel-consumption estimation using Eurocontrol-type tools, reducing MRV burdens and preventing verifier bottlenecks.
- (iii) Aviation can provide a pragmatic pilot sector for an initial phase of a Thai ETS. The number of regulated entities is relatively limited; emissions data is well established through fuel and flight records, and compliance can be supported through simplified MRV tools for smaller operators. Thailand could adopt a phased approach, for example by applying coverage initially to domestic or departing flights, incorporating small-emitter simplifications, and subsequently expanding scope or tightening allocation rules as MRV capacity and registry systems mature.
- (iv) More broadly, the aviation example illustrates how early ETS coverage can be used to build MRV, registry, and enforcement capacity before extending the system to more complex or politically sensitive sectors.
- (d) **Align Power-Sector Reform with Carbon-Pricing Effectiveness**
Thailand should consider gradual, well-sequenced power-market reforms over the medium to long term to strengthen carbon-price transmission within the single-buyer system. As international experience, including in the UK, shows, carbon pricing is most effective when market structures allow carbon costs to shape dispatch and investment decisions. Enhancing price pass-through in Thailand's power sector would increase the impact of the ETS, support system-wide decarbonisation, and reduce CBAM-related risks for electricity-intensive export sectors.
- (e) **Balance between free allocation and auctioning**
 - (i) The draft Act does not pre-determine the auctioning/free allocation balance. EU lessons suggest:
 - (A) early heavy free allocation helped secure industry buy-in;
 - (B) transition to benchmarking and auctioning is essential to preserve decarbonisation incentives; and
 - (C) auction revenues can be recycled into industrial transition and social protection (e.g, EU Innovation Fund, Modernisation Fund, Social Climate Fund).
 - (ii) Thailand's allocation plans could explicitly include a glide-path for this transition.

- (iii) Providing forward-looking guidance on how and when free allocation will decline can be as important as the initial allocation itself, as it shapes investment expectations and future carbon-cost planning by regulated entities.
- (f) Treatment of small emitters
 - (i) The EU's opt-out mechanism for small installations (Article 27) and simplified tools for aviation small emitters were crucial to avoid verifier bottlenecks. Thailand could adopt:
 - (A) simplified MRV or "de minimis" thresholds for smaller facilities; and
 - (B) alternative compliance measures (such as energy efficiency obligations) for very small emitters.
 - (ii) Differentiated treatment would allow regulatory and verification resources to be focused on the largest sources of emissions, while maintaining proportionality and reducing compliance burdens for smaller entities.
- (g) Market stability and surplus management

While the Thai draft Act provides for a registry and trading platform, it does not yet specify market stability mechanisms. The EU's experience with significant surplus and price collapse in early phases led to structural reforms (auction backloading and the MSR). Thailand may wish to:

 - (i) monitor allowance supply–demand balances from the outset; and
- (ii) consider including enabling provisions for later introduction of a reserve, price corridor, or other stability tools without needing to amend primary legislation.
- (h) Phased Penalty Regime

Penalties should start at a modest level in the initial compliance phases to reflect early data and system immaturity and increase over time. A clearly signalled escalation path encourages participation and learning in early years while strengthening enforcement credibility as MRV capacity improves. We recommend DCCE to amend Chapter 14 of the draft Climate Change Act to the effect.
- (i) Data availability, MRV capacity and readiness
 - (i) Reliable emissions data and MRV capacity are preconditions for an effective ETS, yet these rarely exist at scale prior to system launch. Thailand's current MRV landscape remains fragmented, with gaps in emissions factor databases, limited verifier capacity and inconsistent reporting practices across sectors.
 - (ii) Targeted capacity-building measures will therefore be essential in the pre-compliance and early compliance phases. These may include investment in national emissions databases, accreditation and training of verifiers, development of digital reporting platforms and tailored support for SMEs and first-time participants. Early public investment in MRV capacity can materially reduce long-term compliance costs and system risks.

- (j) Revenue use and political acceptability
 - (i) The draft Act recognises four pricing instruments and establishes a Climate Fund, including provisions on sources of revenue and broad uses of funds. However, it does not yet clearly specify how ETS revenues in particular will be prioritised or allocated within that framework. The EU's trajectory suggests that:
 - (A) revenue earmarking for climate and industrial transition measures can be decisive for stakeholder support; and
 - (B) transparent revenue recycling (e.g, funding MRV capacity, industrial decarbonisation, just transition measures) can address the "chicken and egg" concerns raised by Thai industry regarding upfront capital for decarbonisation.
 - (ii) In Thailand, signalling early that auction revenues will be reinvested in decarbonisation, MRV infrastructure and SME support could materially increase buy-in from controlled entities and other stakeholders.
- (k) Stakeholder engagement and consultation
 - (i) International experience underscores the importance of structured and sustained stakeholder engagement. Prior to the introduction of the EU ETS, extensive consultations – including the publication of a Green Paper – were instrumental in building understanding, identifying capacity gaps and refining system design.
 - (ii) For Thailand, a similar process, such as the publication of a "Thai ETS Green Paper" followed by sector-specific consultations, could help manage expectations, improve regulatory design and build legitimacy. Ongoing consultation should continue beyond system launch, recognising that ETS design evolves as experience is gained.



Part 2 Navigating CBAM: EU Compliance Requirements and Pathways Toward a Future Thai CBAM

11 Carbon Border Adjustment Mechanism (CBAM)

11.1 Introduction

- (a) External developments, most notably the European Union's CBAM that entered full compliance on 1 January 2026, create new regulatory obligations for Thai exporters of covered goods such as iron and steel, aluminium, fertiliser, cement, electricity, hydrogen, and specified derivatives. From 2026 onward, EU importers must register as authorised declarants and purchase and surrender CBAM certificates reflecting the carbon price that would have been paid under the EU ETS.
- (b) In this context, Thailand now faces a dual transition: complying with the EU CBAM as an exporter, while at the same time preparing for the introduction of a national ETS. These parallel developments will impose new regulatory, technical, and financial obligations on Thai industries, both in relation to exports to the EU and domestic greenhouse gas regulation.

Compliance with EU CBAM

- (c) While the aggregate macro-economic impact of EU CBAM on Thailand is currently expected to be modest, the effects are highly concentrated. According to available trade and exposure data, Thailand exports CBAM-covered products to the EU primarily in two sectors: iron and steel and aluminium. In 2022, Thailand's exports of CBAM-covered goods to the EU

amounted to approximately USD 212.9 million, representing around 0.7% of Thailand's total exports to the EU for iron and steel and 0.4% for aluminium.¹⁴ These sectors are therefore disproportionately exposed to CBAM compliance costs from 2026 onwards, with indicative carbon cost estimates ranging from THB 1,338 to THB 1,545 per tonne of CO₂, depending on carbon prices and embedded emissions intensity.¹⁴

- (d) CBAM compliance is not only a financial issue but also a technical and administrative challenge. Significant uncertainty remains around key elements of the EU CBAM framework, including:
 - (i) the registration process and ongoing obligations of local "authorised declarants" with respect to CBAM goods imported from Thailand;
 - (ii) the final methodologies for calculating embedded emissions,
 - (iii) the treatment of indirect emissions;
 - (iv) benchmark and default values;
 - (v) the pricing and availability of CBAM certificates; and
 - (vi) how carbon prices paid under foreign ETS or carbon tax systems will be recognised or deducted.

¹⁴ Yieh Corp., *Thailand's steel & aluminum exporters to face new tariffs from CBAM* (2023).

- (e) Thai-based exporters face heightened risks under the EU CBAM due to non-acceptance of Thai EF/LCI data in their emissions data submissions, forcing reliance on high EU default values, which can increase costs by 1535%. The lack of Scope 3 emissions data across supply chains further complicates compliance. SMEs and downstream exporters often lack CBAM knowledge and trained MRV personnel, risking high costs of compliance and/or any penalties for incomplete or late submissions, as well as creating a significant barrier to market access.
- (f) These uncertainties complicate forward planning for Thai exporters and reduce the predictability of compliance costs.
- (g) Beyond technical challenges, CBAM also sits within a landscape of growing international trade and climate tensions. At COP30 in Belém in November 2025, unilateral trade measures - particularly carbon border measures - emerged as a major point of contention. Developing countries expressed concern that CBAM-style policies risk acting as protectionist instruments and may conflict with the UNFCCC principle that climate measures should not constitute arbitrary or unjustifiable discrimination or a disguised restriction on international trade. The COP30 cover decision reaffirmed this principle and mandated annual dialogues on trade and climate measures, involving institutions such as the WTO.
- (h) For Thailand, this means that CBAM must be understood not only as a technical trade instrument but also as part of an evolving geopolitical and legal landscape. Its design choices - both externally in relation to EU compliance, and internally in developing a Thai CBAM - will shape Thailand's position in global carbon markets, trade

relationships, and climate diplomacy.

Future Thai CBAM

- (i) Our review of the draft Climate Change Act finds that it establishes a clear enabling structure for a Thai CBAM, with detailed implementation to be developed through secondary legislation. Several refinements, however, could further strengthen legal certainty, transparency, and enforceability - including clarifications on importer registration, registry governance, data disclosure, verification responsibilities, and mechanisms for correction and dispute resolution. These suggestions are presented in sub-section 10.
- (j) Overall, we are of the opinion that Thailand is well-positioned to build a coherent carbon pricing framework that supports competitiveness, attracts investment, and aligns with global climate policy trends. With refinements to the Climate Change Act's CBAM provisions, the development of and continued strengthening of MRV capacity, and strategic planning for power market development, Thailand can implement a carbon pricing system that delivers both environmental and economic benefits, provided that the key interlinkages between the carbon tax, ETS, CBAM and the voluntary market are carefully managed.
- (k) Sub-section 8 summarises the obligations under EU CBAM for Thai importers and identifies areas of technical uncertainty still present in the EU CBAM framework, emerging international tensions and their implications for developing countries; and practical pathways for Thai policymakers and industries to prepare.
- (l) Sub-section 9 offers a detailed commentary on the Thai CBAM framework as currently prescribed by the draft Climate Change Act and suggest amendments and recommendations.

12 Summary of the EU CBAM and considerations for Thai importers

12.1 The key legislative instrument establishing the EU CBAM is Regulation (EU) 2023/956 (**CBAM Regulation**), which entered into force on 17 May 2023. This introduced EU CBAM in two phases: the transitional phase from 1 October 2023 until 31 December 2025, and the definitive phase from 1 January 2026.

12.2 The transitional phase was designed as a preparatory period with limited obligations, allowing CBAM authorised declarants and authorities to familiarise themselves with the new reporting framework, emissions accounting methodologies, supply chain processes, and verification requirements. During this phase, authorised declarants were obliged to register and submit declarations to the national authorities, however they were not required to purchase or surrender CBAM certificates. During this transitional phase, the European Commission refined its technical rules and guidance, with a legislative and guidance package being published in December 2025.

Legal framework

12.3 In addition to the CBAM Regulation, the operation of EU CBAM relies on a suite of regulations and associated guidance published by the EU Commission, with the most recent set of regulations having been enacted in December 2025 in advance of the definitive phase.

12.4 From an EU legal perspective, the CBAM Regulation was adopted by the EU "co-legislators", being the Council of the European Union and the European Parliament. The Commission however acts as an executive organ responsible for the administration of CBAM, acting through two main instruments. "Commission Implementing Regulations" are legislative acts enacted where unified rules are required for the implementation of the CBAM Regulation, whereas "Commission Delegated Regulations" would supplement the CBAM Regulation only as to non-essential aspects of its operation.

12.5 A brief summary of the key regulations in force for the commencement follows:

- (a) Regulation (EU) 2025/2083, which was designed to simplifying the EU CBAM regime;
- (b) Commission Implementing Regulation (EU) 2023/1773, which sets out rules specific to the transitional phase;
- (c) Commission Implementing Regulation (EU) 2025/2546, which sets out verification principles for declared embedded emissions;
- (d) Commission Implementing Regulation (EU) 2025/2547, which sets out calculation methodologies regarding the emissions embedded in CBAM goods;
- (e) Commission Implementing Regulation (EU) 2025/2548, which sets out rules on the calculation and publication of the price of CBAM certificates;
- (f) Commission Implementing Regulation (EU) 2025/2619, which sets out information to be communicated by EU member state customs authorities;
- (g) Commission Implementing Regulation (EU) 2025/2620, which sets out calculations for the free allocation adjustment to the number of CBAM certificates to be surrendered;
- (h) Commission Implementing Regulation (EU) 2025/2621, which sets out the initial set of default values applicable to the definitive period;
- (i) Commission Implementing Regulation (EU) 2025/486, which sets out the application process, continuing obligations and revocation of the status of authorised CBAM declarants (as amended by Commission Implementing Regulation (EU) 2025/2549);

- (j) Commission Implementing Regulation (EU) 2024/3210, which sets out rules on the establishment and operation of the CBAM registry (as amended by Commission Implementing Regulation (EU) 2025/2550); and
- (k) Commission Delegated Regulation (EU) 2025/2551, which sets out conditions for granting accreditation to verifiers, for the control and oversight of accredited verifiers, for the withdrawal of accreditation and for mutual recognition and peer evaluation of accreditation bodies.

Obligations during the definitive phase

- 12.6 During the definitive phase, the CBAM obligations may be summarised as the authorisation, reporting and CBAM certificate surrender obligations. These are set out in more detail below, however it must be noted that the summaries are merely a summary of key terms under CBAM and should be read in conjunction with the CBAM Regulation.

Authorisation obligation

- 12.7 Annexes I and II set out the list of goods subject to the CBAM regime (known as **CBAM Goods**). As of 1 January 2026, Article 4 of the CBAM Regulation prohibits the import of CBAM Goods into the EU customs territory, unless done by an "authorised CBAM declarant". We note that, from the perspective of Thailand, electricity as a CBAM Good is of no relevance and we therefore make no further reference thereto.
- 12.8 Article 5 of the CBAM Regulation sets out the application process for importers to become authorised declarants. Applicants may either be the importer of CBAM Goods directly, or an "indirect customs representative". Where the importer is not established within an EU member state, it must operate through the indirect customs representative, which itself must be established within the EU customs territory. If such an approach is selected, the indirect customs representative will be treated

as an authorised declarant for the purposes of EU CBAM. The status of an authorised declarant must be achieved prior to the import of CBAM Goods into the EU.

Reporting obligation

- 12.9 As of 1 January 2026, authorised declarants must calculate and record the embedded emissions associated with the CBAM Goods imported during the calendar year (referred to hereinafter as a "reporting year") pursuant to Article 7 of the CBAM Regulation. Annex IV sets out detailed methodologies for this calculation, split into simple goods (defined as those produced using exclusively input materials and fuels having zero embedded emissions) and complex goods (those not simple goods).
- 12.10 Embedded emissions in goods other than electricity are to be determined using actual emissions data, or where such data is not available, default values. Default values are to be determined by the Commission pursuant to Article 7(7) in implementing acts, being the average emission intensity for each exporting country and CBAM Good and determined using the best available data. These default values are to be updated on a regular basis, and where reliable data for an exporting country cannot be applied for a certain type of CBAM Good, the average emissions intensity of the 10 exporting countries with the highest emission intensities for such CBAM Good shall be applied.
- 12.11 CBAM Goods set out in Annex II require the consideration only of direct emissions, whereas the remaining CBAM Goods of Annex I require consideration of both direct and indirect emissions.¹⁵ Considered broadly, only fertiliser and cement require consideration of both direct and indirect emissions. We note that the key exports anticipated to be affected by EU CBAM from Thailand are aluminium, iron and steel, rather than fertiliser and cement. As such, the calculation of indirect emissions is presently of limited relevance to the Thai markets.

¹⁵ Indirect emissions are defined in Article 3(34) as "emissions from the production of electricity which is consumed during the production

processes of goods, irrespective of the location of the production of the consumed electricity."

12.12 By 30 September in the year following a reporting year, authorised declarants must submit a CBAM declaration for such reporting year. This declaration is to be submitted on the electronic CBAM registry, and is to include the quantity and type of CBAM Goods imported during the calendar year (in tonnes), the total embedded emissions (in tonnes of CO₂), the total number of CBAM certificates to be surrendered (relating to the total embedded emissions), and copies of verification reports (if applicable).

12.13 Where an authorised declarant submits a CBAM declaration with reference to actual emissions, it must ensure that the total embedded emissions declared are verified by an accredited verifier pursuant to Article 8 of the CBAM Regulation in conjunction with the principles set out in Annex VI.

12.14 Under Annex IV(6), authorised declarants may use actual emissions values instead of default values in respect of indirect emissions either where there is a direct technical link between the generator and CBAM good production facilities, or where a power purchase agreement (PPA) is used in respect of electricity consumed by the production facilities. Further requirements on direct technical links and PPAs are set out in Section D.4.3 of Annex II to the Commission Implementing Regulation (EU) 2025/2547, however as the calculation of indirect emissions is of limited practical relevance for Thailand, this is not set out in material detail. The Commission is empowered to enact and update its implementing acts to provide further detail the calculation of emissions values, verification principles, the reporting obligation and its format.

12.15 The submission of CBAM declarations may be delegated by the authorised declarant to a third party pursuant to Article 5(7a), however the authorised declarant remains responsible for compliance with its obligations under the CBAM Regulation.

CBAM certificate purchase and surrender obligation

12.16 Based on the embedded emissions set out in an authorised declarant's declaration, the authorised declarant must purchase an equivalent number of

CBAM certificates, with one CBAM certificate being required for each 1 tonne CO₂e. CBAM certificates shall be available for purchase from the competent authority of the EU Member State in which the authorised declarant is registered. Such CBAM certificates are to be sold at prices determined weekly as the average of the closing prices of EU ETS allowances for such calendar week pursuant to Article 21. For calendar weeks where no auctions are held, the price shall be the average closing price on the previous calendar week in which an auction was held.

12.17 By 30 September in the year following a reporting year, authorised declarants must surrender the relevant number of CBAM certificates to the national competent authority (ie, simultaneously as the CBAM declaration). Authorised declarants are however required to purchase a number of CBAM certificates during the reporting year itself pursuant to Article 22(2), whereby by the end of each quarter of the reporting year, the authorised declarant must ensure that the number of CBAM certificates held in its account corresponds to at least 50% of the embedded emissions imported during the beginning of the calendar year. Therefore, in the nine months following the end of the reporting year, the authorised declarant must purchase the remaining CBAM certificates.

12.18 It is worth noting that in the first two years of the CBAM definitive period, a slightly different regime applies:

- (a) in 2026, no CBAM certificates are available for purchase, however embedded emissions must be determined and verified for submission by 30 September 2027; and
- (b) in 2027, as of 1 February 2027, CBAM certificates will be available for purchase, therefore authorised declarants must purchase CBAM certificates for 2026 values (for surrender by 30 September 2027) and 2027 values (for surrender by 30 September 2028).

12.19 CBAM certificates must be repurchased by the national competent authority, so that – where an excess has been purchased by the authorised declarant – it may sell these at the same price for

which they were originally purchased. At the time of writing, no secondary market for CBAM certificates is foreseen by the CBAM Regulation, so that the price for CBAM certificates remains linked to the relevant EU ETS allowance price.

- 12.20 CBAM certificates held within an authorised declarant's account are to be cancelled by the Commission on 1 November of the second year following the reporting year. By way of example, any CBAM certificates purchased during the 2028 reporting year will be cancelled on 1 November 2030. Unique to the CBAM certificates purchased in 2027 for the 2026 reporting year, these will be cancelled on 1 November 2027 (noting the surrender date of 30 September 2027).
- 12.21 Pursuant to Article 9 of the Regulation, an authorised declarant may claim a reduction in the number of CBAM certificates to be surrendered in respect of claimed actual emissions (in contrast to default values). The authorised declarant must demonstrate that the carbon price for the declared embedded emissions has been "effectively paid" in the country of production. There is limited further guidance on this point, however in order to rely on this, the authorised declarant must retain evidence related to any rebate or other form of compensation, references to the relevant legislation, and proof of payment. Such documents must be retained for 4 years following the relevant submission deadline. The carbon price payment must furthermore be certified by an independent third party to the authorised declarant and the authorities of the relevant country.
- 12.22 With respect to Thailand, under the proposed Climate Change Act, three potential carbon price payments could be considered: the Thai ETS allowance, the carbon tax and the voluntary carbon market instruments. Subject to further guidance from the Commission and without an in-depth review of these instruments, by virtue of their legal nature, purpose and structure, it is arguable that use of ETS allowances

and payment of the carbon tax may be considered as a carbon price having been paid. As the Thai voluntary carbon market instruments operate on a voluntary rather than compliance basis and are therefore not strictly speaking related to a carbon price, it would require further investigation whether these would be accepted for purposes of Article 9.

De minimis exemption

- 12.23 The above obligations are subject to a *de minimis* threshold, referred to in Article 2a as the "single mass-based threshold". Pursuant to Article 2a in conjunction with Annex VIII(1), where an importer imports CBAM Goods equal to 50 tonnes of net mass or less in a calendar year, it shall not require the status of an authorised declarant.
- 12.24 Where an importer has the status of an authorised declarant, and in one calendar year it does not import CBAM Goods in excess of the single mass-based threshold, it shall be exempt from both the reporting and CBAM certificate surrender obligations.
- 12.25 This single mass-based threshold has been set for 2026 and is subject to annual review by the Commission pursuant to Article 2a(3). Any adjustments shall apply as of 1 January of the next year following the Commission's determination.

Penalties

- 12.26 In order to enforce the above obligations, the CBAM Regulation sets out a penalty regime in its Article 26.
- 12.27 Where an authorised declarant fails to surrender sufficient CBAM certificates by the relevant deadline, it will be subject to a penalty in the amount of €100 per each CBAM certificate not surrendered, with this penalty amount increasing each year in line with the European consumer price index- applicable in the year of importation of the goods- a rule that has applied since 1 January 2013 under the excess emissions penalty (EEP)),¹⁶ ¹⁷purchase

¹⁶ The Excess Emissions Penalty is linked to compliance of European obliged entities under the ETS Directive, Directive 2003/87/EC.

and surrender the requisite number of CBAM certificates.

- 12.28 The import of CBAM Goods into the EU customs union by a person other than an authorised declarant is punishable by a financial penalty. A specific quantum is not specified but is to fall within the range of 3 to 5 times the EEP for each CBAM certificate which had to be surrendered, with the level intended to be effective, proportionate and dissuasive. This penalty also applies in the case of importers which are not authorised declarants and which exceed the single mass-based threshold in a calendar year, however, where the actual amounts imported do not exceed 10% of the threshold, the penalty may be reduced. By the payment of this penalty, the importer shall no longer be required to submit a declaration and surrender the relevant CBAM certificates.
- 12.29 It is worth noting that these penalties are to be set and paid to the relevant competent national authority, rather than to the Commission.
- 12.30 More generally, Article 27 empowers the Commission to actively review and address circumvention practices in respect of CBAM. Practices of circumvention are defined as *"a change in the pattern of trade in goods, which stems from a practice, process or work, for which there is insufficient due cause or economic justification other than to avoid, wholly or partially, any of the obligations laid down in this Regulation"*. Where the Commission becomes aware of any such circumvention practices, it is empowered to enact delegated acts to update the list of CBAM Goods.

Potential concerns of Thai importers into the EU

- 12.31 EU CBAM will certainly increase administrative requirements and costs on producers of CBAM Goods in all non-EU "third countries". The below sets out a list of key potential concerns of Thai importers, however due to the complex economics underpinning CBAM and its compliance and its broader impact, it is not intended to be an exhaustive list.
- 12.32 Thai authorised declarants will need to establish information gathering and retention processes for greenhouse gas emissions involved in their processes

and supply chains. This will involve establishing MRV systems in their production facilities and in those of their suppliers, and if present, ensuring that these are in alignment with the EU's requirements. Where such MRV systems are incomplete or incompatible with the EU's requirements, Thai authorised declarants will be required to make their declarations on the basis of default values calculated by the Commission. It is worth noting that these are calculated conservatively and subject to annual review by the Commission, which may result in higher compliance costs.

- 12.33 Any actual values prepared by Thai authorised declarants in their declarations must be verified prior to submission to the relevant EU CBAM national authorities. These third-party verifiers must be EU-accredited, and therefore have met various requirements, including sufficient technical experience with verification principles. There is a material risk that, in the first years of the CBAM definitive period, there are an insufficient number of accredited verifiers in Thailand, which may additionally delay the verification process to allow authorised declarants to submit their declarations in a timely manner.
- 12.34 The price of CBAM certificates and penalties for non-compliance are linked to the EU ETS auction price. For Thai authorised declarants, this poses two risks – firstly regarding the relative purchasing power of the Thai baht and European euro, and secondly regarding currency volatility. The first risk will likely lead to an increased cost of doing business for Thai producers for any goods being produced for export to the EU, as well as the associated economic consequences. The second risk will likely be outside the reasonable control of any Thai authorised declarants, however – within the requirements for purchasing CBAM certificates – will certainly lead to the development of CBAM certificate procurement strategies to minimise currency fluctuations over a compliance year.
- 12.35 In part due to the early stage of the CBAM definitive phase, the ability of Thai authorised declarants to rely on carbon prices incurred domestically on the production of CBAM goods being

recognised by the EU national CBAM authorities remains uncertain. These may include those in relation any carbon tax paid in the future, as well as any allowances procured and surrendered under the future Thai ETS. Greater clarity may be achieved in time as the Commission issues updated regulations and guidance in future. In relation to the Thai ETS, this risk may be mitigated to the extent that the EU and Thailand reach an agreement to link their respective ETSs and mutually recognise their respective allowances.

- 12.36 Different authorised declarants in Thailand will be impacted to varying extents. For those which pass the *de minimis* threshold, SMEs in particular are expected to be more materially impacted compared to larger companies. In addition to limited ability to gather information as well as limited technical, legal and financial means to mitigate the above listed risks, it may be anticipated that SMEs will carry higher per-unit compliance costs, will need to manage limited technical expertise regarding MRV compliance, and will potentially suffer from weaker price negotiating positions with EU-based buyers.

13 Thai CBAM under the Climate Change Act

13.1 Context and General Considerations

- (a) As part of the Climate Change Act, the principles and operating provisions of a new Thai CBAM have been established. As noted above, this is understood to complement the proposed ETS, protecting against carbon leakage as well as treating the imports of CBAM goods on an equal footing to those produced within Thailand.
- (b) We note that, as of the date of publication, there has been no clear indication of which imported goods are intended to be subject to the Thai CBAM reporting and certificate surrender obligation.
- (c) Based on experience with the EU ETS and CBAM, it is worth noting that, whilst addressing similar concerns regarding GHG

emissions intensity, the two schemes deal with two different aspects of such emissions. The obligation under the EU ETS lies with individual "installations", each defined as a "*stationary technical unit where one or more [regulated activities] are carried out [...]*". The reporting and ETS allowance surrender obligations of installations relates to GHG emissions associated with their business activities during a calendar year.

- (d) In contrast, the EU CBAM places an obligation on "authorised CBAM declarants", generally defined as importers of CBAM Goods into the EU. The reporting obligation on such authorised declarants is however linked to the GHG emissions associated with the quantity of goods imported within a calendar year. As part of their determination, these emissions will however be considered in respect of one or multiple production facilities upstream in the supply chain prior to their import into the EU.
- (e) In comparing and aligning the exposure of a Thai ETS and CBAM, therefore, as well as in determining the obliged Thai installations and CBAM goods, it should be recognised that there are limits due to the different nature of reporting and compliance under the respective schemes.
- (f) In using the EU CBAM as a benchmark for comparison, it should also be recognised that, at the date of publication, CBAM is still in its first year of the definitive phase and that the Commission is expected to publish additional implementing acts and guidance as well as make any amendments as may be expected for a nascent system in its initial phase. In developing the Thai CBAM, therefore, it would be advisable for the Thai Government to observe the development of the EU CBAM as the sole such system currently in operation.

- (g) In the broader context of linking ETS between the EU and Thailand at a future date, the European Commission may be expected to require an alignment not only of the ETS but also of the CBAM. There is limited guidance on such considerations, as historically the EU ETS has only been linked with one third country ETS, being Switzerland with effect of 1 January 2020. At the time of writing, the European Commission is negotiating on the potential linking of the EU and UK ETS, which is anticipated to link the EU and UK CBAMs, if the latter enters into force prior to the linking date.
- (h) It may be anticipated that, in addition to the ETS linking criteria set out in Part 1, 11.10(k), a linkage of CBAMs may require the alignment in scope of CBAM goods as well as MRV methodologies.
- (i) In implementing the Thai CBAM, the administration may be expected to be relatively simple in comparison to the EU CBAM. Whilst the Commission is responsible for harmonising the approaches of 27 Member States, the relevant Thai ministry would have direct effect on managing the authorised declarants. Nevertheless, it should be recognised that submissions from importing countries may be made on the basis of different standards and potentially different languages (including in respect of supporting documentation).

13.2 Overview and Purpose of Suggested Amendments

- (a) Thailand's draft Climate Change Act establishes a well-structured enabling framework for domestic CBAM. The provisions set out the core building blocks of a CBAM system, including importer registration, embedded emissions reporting, carbon pricing certificate obligations, and administrative oversight by the Department of Climate Change and Environment (**DCCE**). As with the EU CBAM, much of the

operational detail will be implemented through secondary legislation, allowing the system to evolve over time.

- (b) In reviewing the draft Act, we have identified several areas where targeted clarification or refinement may help strengthen legal certainty, promote compliance, and enhance international credibility. These suggested enhancements draw on the experience of the EU CBAM legal framework, which provides a useful comparator as the world's most advanced CBAM regime. Importantly, the EU framework incorporates mechanisms to ensure transparency, reduce administrative ambiguity, protect the integrity of the carbon price signal, and maintain alignment with WTO principles. Adapting comparable features - tailored to Thailand's regulatory context - may assist Thailand in implementing a robust and durable CBAM system.
- (c) This Section provides a commentary on the CBAM provisions in the draft Climate Change Act. It explains:
 - (i) what the draft Act currently provides,
 - (ii) how the equivalent issue is handled under the EU CBAM and related legislation, and
 - (iii) why the recommended refinement or clarification is important for Thailand from a policy, legal, and administrative perspective.

13.3 Part 1 - Supervision of the Cross-Border Carbon Pricing Mechanism

- (a) Current provision
Section 102 establishes the domestic CBAM mechanism and assigns to the DCCE responsibility for:
 - (i) establishing a registry and accounting system for CBAM-related data;

- (ii) ensuring that importers submit greenhouse gas emissions reports and pay for carbon pricing certificates;
 - (iii) providing capacity building for government and private stakeholders;
 - (iv) assessing risk factors and reporting findings to the Committee; and
 - (v) implementing the Committee's decisions.
- (b) Rationale for refinement
- (i) The duties set out in Section 102 create a strong foundation, but the provision does not expressly provide for structured, recurring engagement with stakeholders. International experience - particularly in the EU CBAM - shows that carbon border mechanisms evolve continuously as methodologies, verification practices and international rules develop. Incorporating a requirement for periodic stakeholder consultations (including industry, customs authorities, verifiers and foreign exporters) would improve transparency and help the DCCE identify practical issues early. This would also enable Thailand to maintain regulatory alignment with key trading partners as CBAM methodologies evolve.
 - (ii) The registry and accounting system is central to the credibility and integrity of the CBAM. It will hold sensitive commercial data and record financial liabilities relating to the purchase of carbon pricing certificates. In comparable international systems, such as the EU CBAM registry, legal frameworks emphasise independence, transparency and robust system design to avoid technical failures or data discrepancies. Clarifying in the Act that the registry "must operate independently, transparently and with appropriate safeguards for data integrity" would help build trust among participants, reduce operational risks and support Thailand's reputation as a reliable CBAM jurisdiction.
- 13.4 **Part 2 - Registration and Reporting of Greenhouse Gas Emissions of Imported Goods**
- Section 104: Importer Registration**
- (a) Current provision

Section 104 places a requirement on importers to register with the DCCE. Registration may be revoked in two situations - if operations cease or if certificates remain unpaid.
 - (b) Rationale for refinement
 - (i) The current provision creates a positive obligation for importers to register but does not expressly prohibit the import of CBAM-covered goods by unregistered entities. Under the EU CBAM framework, CBAM goods may not be imported unless the importer is an authorised declarant, and breach constitutes an offence. This structure provides a clear legal gateway into the jurisdiction and minimises opportunities for circumvention. Introducing a similar prohibition in the Thai system would clarify the scope of permissible import activity, enhance enforceability, and reduce the risk that CBAM obligations could be bypassed through non-registered intermediaries.
 - (ii) The Act provides only two grounds for revocation of

registration. International CBAM regimes, including the EU's, anticipate a wider range of scenarios - such as fraud, repeated non-compliance, deliberate misreporting, obstruction of verification, or other conduct undermining system integrity. Allowing the DCCE broader or delegated authority to suspend or revoke registrations in such circumstances would provide the flexibility needed to uphold robust enforcement without requiring future legislative amendment.

- (iii) A de minimis threshold would help ensure that the regime remains administratively efficient and proportionate. The EU CBAM currently exempts import volumes below 50 tonnes of CBAM goods per calendar year. Adopting a similar threshold in Thailand would avoid imposing reporting and verification obligations on very small importers, reduce administrative congestion for both government and industry, and focus supervisory resources on entities with meaningful emissions exposure.

Section 107: Reporting of Embedded Emissions

- (c) Current provision
 - (i) Importers must submit an annual emissions report within five months of year-end, using prescribed methodologies, scopes, emission factors and verification requirements.
 - (ii) Where an importer fails to submit a report, or where the carbon pricing certificates indicated in the report are missing, the DCCE may inspect and

determine the total certificates payable.

- (iii) The Department may require the verifier to correct or supplement documents and must notify the importer of any additional certificates payable. Determinations must be made within two years of the submission deadline, or within four years of submitting an incorrect report.

(d) Rationale for refinement

- (i) Although Section 107 sets out the reporting obligation and the Department's powers where information is missing, the provision does not address a number of operational scenarios that are common in CBAM systems - namely, late submissions, incomplete data, miscalculations, or good-faith errors made by either the importer or the verifier. The EU CBAM addresses these challenges through structured procedures for correction, revision and appeal, recognising that emissions accounting is complex and that errors are likely, especially in the early years of implementation. Incorporating a formal correction and dispute-resolution mechanism into the Thai regime would provide legal certainty, allow for timely rectification of mistakes, and avoid unnecessary penalties where errors are not deliberate.
- (ii) The current drafting places the emphasis on the verifier to correct inaccurate reports, but verifiers necessarily depend on data supplied by importers. International practice makes clear that primary liability for accuracy rests

with the importer, not the verifier, because the importer holds the underlying production and supply-chain data. Clarifying this in the Thai Act would align with the EU approach and reduce ambiguity about responsibility for under-reporting or misreporting. At the same time, verifiers play a critical assurance function, and their role should be governed by an accountability regime - including potential penalties or accreditation revocation - where verification failures occur repeatedly or negligently.

- (iii) The provision currently allows the Department to determine missing certificates but does not specify a mechanism for contesting or appealing this determination. Introducing a limited, structured appeal process would support procedural fairness while maintaining administrative efficiency. Such a mechanism is common in environmental compliance systems and would help ensure that determinations made by the Department are based on complete and accurate information.
- (iv) Finally, the ability to correct reports is especially important because emissions methodologies, default values and verification techniques are continuing to evolve internationally. A flexible, well-defined correction and review process would enable Thailand to update requirements in line with global best practice without reopening primary legislation, while also supporting smoother compliance for importers during the transition phase.

Section 107 (second limb): Determination of Missing Certificates

- (e) Current provision
 - (i) Section 107 empowers the DCCE to determine the number of carbon pricing certificates payable where an importer either fails to submit an emissions report or submits a report in which required certificates are missing.
 - (ii) The DCCE may instruct the verifier to correct or supplement the documentation and resubmit it with explanations.
 - (iii) Once the DCCE has made its determination, the importer must pay any additional certificates within one month of receiving the notification.
- (f) Rationale for refinement
 - (i) Clarification of responsibility between importer and verifier is necessary for legal certainty

Under the current drafting, the verifier is required to correct deficient submissions. However, verifiers depend entirely on data supplied by importers and cannot independently verify operational information, emissions activity data, or underlying production parameters. The EU CBAM addresses this by making the importer - as the entity holding primary data - legally responsible for the accuracy and completeness of submissions. Verifiers serve as assurance providers, not data owners. Clarifying this hierarchy in the Thai Act would help avoid disputes, misallocated liability, and situations where verifiers are instructed to "correct"

information they cannot substantiate.

- (ii) Introducing explicit mechanisms for corrections, good-faith revisions and dispute resolution would enhance enforceability

The current text does not specify what occurs if an importer submits late, incomplete, or partially incorrect data, nor how good-faith errors can be rectified. The EU CBAM includes structured processes for revision, correction and appeal, recognising the technical complexity of emissions accounting. Incorporating similar mechanisms would provide greater legal certainty, reduce administrative friction, and encourage early compliance during the initial years of implementation.

- (iii) Accountability for verifiers should be better defined to ensure system integrity

While ultimate responsibility should rest with importers, verifiers must still meet high professional standards. Introducing a penalty or accreditation-revocation regime for verifiers who repeatedly fail to perform their duties - as seen in other MRV frameworks, including the EU ETS - would strengthen oversight and reinforce confidence in the verification system.

- (iv) Clarifying the application of the two-year and four-year time limits would avoid ambiguity in enforcement

The provision states that determinations may be made "within two years from the due date for report submission or within four years from the submission

of incorrect reports". It is unclear whether these periods run from the act of submission, from the point of discovery, or from another reference point. Clear rules would reduce procedural uncertainty and provide both regulators and importers with greater predictability.

Section 108: Electronic Registration and Reporting

- (g) Current provision

Section 108 provides that importer registration, submission of emissions reports, and verification activities may be carried out electronically, and that electronic submissions are considered legally valid.

- (h) Rationale for refinement

- (i) The current drafting appears to treat electronic submission as an optional method rather than the primary mechanism for CBAM administration. This creates uncertainty as to whether paper-based submissions are expected to remain the default. Given the international nature of CBAM reporting - where underlying data, emissions calculations, and verification documents will almost always originate in digital form - there is a strong practical basis for clarifying that electronic submission should be the main channel.

- (ii) International comparators reinforce this point. The EU CBAM operates exclusively through a centralised digital registry and reporting platform, reflecting the need to process large volumes of data, interface with foreign suppliers, and ensure system integrity through automated checks. Positioning electronic submission as the primary mode within the Thai

CBAM would similarly promote efficiency, reduce administrative burden, and accommodate foreign exporters who will not be familiar with Thai paper-based processes.

- (iii) Explicitly elevating electronic submission as the standard would also reduce operational risks. A digital system can incorporate validation rules, audit trails, and automated alerts, support timely compliance and reduce the likelihood of errors. It also enables better integration with the Thai ETS registry over time, should the systems be linked.
- (iv) Clarifying this point in the Act - or at least signalling that detailed rules will be issued through secondary legislation - would help manage expectations for importers, verifiers, and regulators and ensure the design aligns with the realities of cross-border data exchange.

Section 110: Recordkeeping

- (i) Current provision
Importers must retain greenhouse gas emissions reports, verification reports and all records necessary to calculate embedded emissions for at least seven years from the date of import.
- (j) Rationale for refinement
 - (i) The Act does not specify the acceptable format or location for record retention. This creates uncertainty, particularly for businesses whose data management systems are cloud-based or located outside Thailand. Given that CBAM reporting relies on information generated by foreign suppliers and international verification bodies, records may naturally be stored across

multiple jurisdictions or digital platforms.

- (ii) International experience - including the EU CBAM and the EU ETS - accepts electronic recordkeeping provided that records are accessible, auditable and tamper-resistant. Clarifying that electronic storage is acceptable under the Thai regime would align with common industry practice and reduce unnecessary administrative burden.
- (iii) It may also be useful to clarify whether records must be physically retained within Thailand or whether offshore storage is permissible provided that the DCCE is granted timely access upon request. This would balance operational flexibility for importers with the regulator's need to conduct effective audits and investigations.
- (iv) Addressing these points in primary legislation or expressly allowing them to be defined through secondary regulations would enhance legal certainty and reduce compliance risks - particularly for multinational importers unfamiliar with Thai data-handling requirements.

13.5 Part 3 - Payment of Carbon Pricing Certificates

Section 113: Payment of Certificates

- (a) Current provision
 - (i) Under Section 113, importers must purchase carbon pricing certificates equivalent to the embedded emissions reported under Section 106(3). The certificate price must reflect the average auction price of ETS emission rights, considering the level of free allocation. The DCCE is responsible for publishing

	the applicable price for each period.	period - whether comparable to the EU's two-year period or designed to suit Thailand's system - would help preserve the market's integrity and ensure that the carbon price remains closely connected to the cost of current emissions.
(ii)	The framework also provides for deductions where a carbon price has been paid in the exporting country, subject to evidence requirements (Section 114), and outlines the document retention obligations and refund procedures.	(iii) Aligning with international practice to support system credibility and WTO defensibility
(b)	Rationale for refinement	The EU approach demonstrates that expiry provisions are considered necessary to ensure environmental effectiveness and avoid market manipulation. Incorporating a similar rule in the Thai system would help signal that Thailand's CBAM framework is designed with comparable safeguards, strengthening credibility with trading partners and reducing risks of challenge or perceived discrimination under WTO rules.
(i)	Absence of certificate expiry provisions may weaken the carbon price signal The Act currently does not specify whether carbon pricing certificates have an expiry date. Under the EU CBAM, certificates expire two years after purchase. This is designed to maintain the integrity of the price signal by ensuring that certificates reflect contemporaneous decarbonisation costs. Without an expiry mechanism, importers could accumulate certificates during periods of low ETS prices and use them many years later, which would dilute the intended incentive to reduce emissions and could undermine the predictability of the system.	(iv) Maintaining operational discipline and predictability An expiry mechanism would also help the administering authority manage annual certificate issuance and reconciliation more effectively. By ensuring that certificates can only be used within a defined timeframe, Thailand would avoid the build-up of liabilities that could complicate forecasting or budgetary management in future years.
(ii)	Avoiding stockpiling and speculative behaviour In a price-based compliance mechanism, the ability to bank certificates indefinitely can create distortions. Large importers may be able to purchase substantial volumes of certificates at favourable prices and hold them for prolonged periods, reducing the link between certificate prices and the emissions generated in the relevant compliance year. Introducing an expiry	

14 Conclusion

- 14.1 The entry into force of the EU CBAM definitive phase on 1 January 2026 marks a material shift in the regulatory and commercial environment for Thai exporters. Although the aggregate macro-economic impact is expected to remain limited, the exposure is highly concentrated in carbon-intensive sectors, notably iron and steel and aluminium, where compliance costs are directly linked to embedded emissions intensity and EU ETS-indexed certificate prices.
- 14.2 The analysis demonstrates that the principal near-term risks arising from CBAM are technical and institutional rather than purely financial. Incomplete alignment of national emissions factor and life-cycle inventory data, limited Scope 3 visibility, uneven MRV capacity, and the absence of internationally recognised verification arrangements materially increase the likelihood that Thai exporters will be required to rely on EU default values, significantly inflating liabilities and undermining export competitiveness. These risks are particularly acute for SMEs and downstream exporters, whose dependence on upstream data and limited internal capacity heighten vulnerability to compliance failures and market access constraints.
- 14.3 At the same time, CBAM is evolving within a broader and increasingly contested trade and climate policy landscape. Ongoing international dialogues and potential legal and political challenges underscore that CBAM frameworks are likely to continue developing over time, with implications for methodology, scope, and enforcement.

- 14.4 The draft Climate Change Act provides a credible enabling basis for the future development of a Thai CBAM. However, the effectiveness, credibility, and defensibility of any domestic mechanism will depend on the clarity of its legal gateways, the robustness of its institutional architecture, and its alignment with international MRV standards and evolving EU technical rules. Without targeted refinement, there is a risk that implementation uncertainty, weak data governance, and procedural gaps could undermine both compliance outcomes and Thailand's position in international carbon-constrained markets.
- 14.5 With early investment in data systems, institutional capacity, and regulatory design, Thailand is well positioned to manage EU CBAM exposure while developing a coherent domestic framework that protects competitiveness, supports industrial transition, and aligns with emerging international practice.

15 Policy consideration and Recommendations

- 15.1 **Compliance with EU CBAM**
 - (a) Prioritise EU CBAM readiness as a competitiveness strategy

We recommend DCCE and relevant governmental agencies to treat CBAM preparedness as a core export-competitiveness measure by accelerating the development of internationally aligned emissions factor and life-cycle inventory datasets, deploying digital MRV and reporting platforms, and issuing sector-specific technical guidance for exposed value chains, particularly steel, aluminium, cement and fertilisers.

- (b) Reduce default-value exposure through targeted capacity building

- (i) We encourage DCCE and relevant governmental agencies to support exporters in compiling auditable, plant-level emissions data and strengthening supply-chain data capture, including Scope 3 emissions where relevant. Capacity-building programmes should prioritise SMEs and key upstream suppliers to mitigate reliance on EU default values and reduce compliance volatility.
- (ii) Adopt a deliberate strategy on the use of actual versus default values, recognising that default values are permissible but typically incorporate mark-ups and may increase over time. Exporters should assess verification costs against expected CBAM savings and avoid structural reliance on default values where actual data would deliver lower liabilities.
- (iii) Maintain consistency and transparency in reporting methodology. Where switching between actual and default values occurs, exporters should retain detailed records in the CBAM Registry explaining the rationale (e.g. data gaps, verification constraints, supply-chain limitations) to mitigate audit and enforcement risk.

- (c) Clarify Institutional Responsibilities and Strengthen Procedures for Emissions Data Governance

We recommend DCCE to Strengthen institutional and procedural arrangements by clarifying responsibility for the accuracy and completeness of emissions information (including the respective roles of importers/exporters and verifiers) and establishing clear

mechanisms for correction, revision and appeal, including for good faith errors, without undermining enforcement.

15.2 Future Thai CBAM

- (a) Strengthen procedural safeguards and allocation of responsibility

We recommend DCCE and relevant governmental agencies to clarify legal responsibility for the accuracy and completeness of emissions information, distinguishing clearly between the obligations of importers/exporters and the assurance role of verifiers. Establish structured mechanisms for correction, revision and appeal, including for good-faith errors, while preserving effective enforcement and deterrence.

- (b) Design robust legal gateways and enforcement architecture for any Thai CBAM

We recommend DCCE to incorporate clear legal gateways and integrity safeguards, including (where appropriate) a prohibition on importing covered goods except through registered importers, risk-based enforcement powers, and explicit recognition of electronic submission as the primary reporting channel.

- (c) Embed minimum registry governance and data-integrity standards

We recommend DCCE to embed transparency, auditability; secure handling of commercially sensitive information, and reliable tracking of issuance and surrender within the registry framework. Although operational detail may be developed flexibly through secondary legislation, minimum integrity standards should be embedded in primary law.

(d) Coordinate CBAM and ETS development

(i) We recommend DCCE to ensure close coordination between any future Thai CBAM and the national ETS to maintain consistent MRV methodologies, coherent pricing signals, and operational compatibility. The framework should be designed with sufficient flexibility to adapt efficiently to evolving EU CBAM technical rules, guidance, and international trade developments.

(ii) Collectively, these measures would reduce compliance risk, protect export competitiveness, and support the development of a legally robust and internationally credible CBAM framework aligned with Thailand's broader carbon pricing strategy.



Part 3 Hybrid Carbon Pricing Architecture: Gaps, Risks, and Interactions Across Instruments

16 Interlinkages between Carbon Tax, ETS, and Voluntary Carbon Market

- 16.1 Thailand's draft Climate Change Act introduces a hybrid regime of pricing instruments: an ETS (Chapter 8), a CBAM for imports (Chapter 9), and a carbon tax on products (Chapter 1010). These additionally sit alongside the existing national voluntary carbon market mechanism of T-VERs. Each instrument is designed to put a value on greenhouse-gas emissions, but they rely on different administrative channels, different points of taxation, and different price-formation mechanisms. At this stage, design of the schemes will be set through secondary legislations over the next 24 months, once the Climate Change Act is enacted.
- 16.2 This Section examines:
- (a) how the three pricing instruments created under the Climate Change Act might interact in practice;
 - (b) how the existing voluntary market could integrate into a compliance framework; and
 - (c) what safeguards may be required to maintain market integrity and stability during implementation.
- 16.3 Combining market-based mechanisms (ETS and carbon credits) with fiscal measures (carbon tax and CBAM), the integrated design in the Act offers prospects for greater revenue generation, however it also raises challenges around policy coherence, administrative complexity, overlapping obligations for regulated entities, and poses the risk of market players seeking arbitrage opportunities and potentially abuse of the various systems for fraudulent purposes.

- 16.4 Clear rules on interaction between these instruments, such as whether carbon tax applies to sectors covered by ETS, will be essential to avoid double taxation, market distortions, regulatory competence grey zones, and compliance uncertainty.

17 Interlinkages between ETS and Carbon Tax under the Climate Change draft Act

- 17.1 The International experience: hybrid carbon pricing systems
- (a) In most jurisdictions, carbon taxes and ETSs are either sequenced (tax first, ETS later) or segmented (ETS for large stationary sources; tax for diffuse sectors). Only a small number of countries run both at once, and where they do, the boundaries are explicit.
 - (b) The EU, for example, combines the EU ETS with national energy/carbon taxes, but ETS-covered installations are carved out of tax liability, and the tax applies upstream to fuels used in households, transport and smaller commercial actors. In the United Kingdom, the former Carbon Price Floor operated as a supplement to the ETS, not in parallel to a separate economy-wide carbon tax. Similarly, the Netherlands applies a domestic CO₂ levy to ETS-covered sectors only as a "top-up" when the ETS price falls below a statutory floor, ensuring complementarity without double exposure. By contrast, Thailand's draft Act does not yet specify whether the ETS and the carbon tax will apply to different sectors or whether one will supersede the other.

- (c) The operation of an ETS and carbon tax is commonly considered on a per-tonne CO₂-equivalent basis. In considering sectors to incorporate under a carbon tax or ETS, it is unusual for a single sector to be covered by both a carbon tax and an ETS, as this would arguably result in disproportionate or duplicative treatment of that sector compared to others which are subject to either a carbon tax or ETS. Is it therefore advisable to define clearly which sectors are to be subject to a carbon tax, which are to be subject to the ETS, and whether any sectors are to be excluded from both mechanisms.
- (d) From a temporal perspective, the EU ETS has demonstrated the progressive expansion of sectoral scope of obliged sectors over a twenty-year period. To ensure a smooth transition, all future obliged sectors should be given sufficient lead time to prepare and establish the necessary compliance systems, including MRV capacity, an approach which aligns with the principle of legal certainty. Where a sector currently subject to a carbon tax is intended to transition to the ETS (or vice versa), in addition to lead time, consideration should be given to the interaction between different pricing regimes. Whilst a carbon tax may apply on a fixed amount or proportionate basis, the ETS allowance price is determined on the basis of the interaction of supply and demand, varying over time. A transition between systems therefore requires careful coordination to avoid unintended price shocks, whether upward or downward.
- (e) In summary, the interaction between these different policy instruments should be considered both from a scope and temporal perspective, with the overarching principle of a clear, coordinate and gradually strengthening carbon price signal over time to support decarbonisation.

18 ETS and carbon tax under the draft Climate Change Act

18.1 Potential overlapping coverage

- (a) The Act fails to clearly distinguish the distinct scope and applicability of these different instruments.
- (b) The ETS will operate under a cap-and-trade framework, administered by the Department of Climate Change and Environment (**DCCE**) and overseen by the National Climate Change Committee. Covered entities will be required to surrender allowances annually to meet compliance obligations. They will be subject to mandatory monitoring, reporting, and verification (**MRV**) of greenhouse gas emissions and removals. Sectoral coverage will be decided in secondary legislations.
- (c) Thailand's excise tax, introduced in 2025 at a rate of THB 200 per tonne of CO₂, is currently embedded within the existing excise tax system for petroleum products such as gasoline, diesel, and LPG. This integration ensures that retail fuel prices remain stable, as the carbon component is absorbed into the existing tax burden rather than added on top. Once the ETS becomes operational - expected around 2029 - the excise tax on fuel is anticipated to shift from a passive excise mechanism to an active pricing tool, potentially used to deduct from emissions allowances under Section 95 of the Climate Change Act.

- (d) Modelling results presented in domestic stakeholder consultation data¹⁸ highlights the significance of this interaction. These preliminary estimates suggest that approximately 315 installations emitting about 45% of national emissions would fall within the preliminary ETS threshold of 25,000 tCO₂e/year. These same entities, cement, steel, petrochemicals, refining, power generation, are major consumers of fuels subject to excise and customs duties under the carbon tax framework.
- (e) Without clear sectoral delineation, a single tonne of CO₂ from coal combustion could theoretically fall under both instruments, resulting in controlled entities being subject to double taxation.

18.2 Deduction mechanism under Climate Change draft Act

- (a) The draft Act introduces a deduction mechanism under which controlled entities may submit proof of carbon tax payments to the Department in order to reduce the price payable in ETS allowances.
- (b) Section 95 provides that "Controlled legal entities may submit proof of carbon price payment under the carbon tax system in Chapter 10 to the Department to reduce the price payable in greenhouse gas emission rights auctions, according to criteria and methods specified in an announcement by the Committee."

- (c) We understand that eligibility limits, quantitative ceilings, or whether the deduction is intended for non-overlapping activities will be decided in secondary legislations. In preparing these ministerial regulations, it will be of vital importance to address the following questions:

- (i) Which entities can claim this deduction? Only ETS-covered facilities?
- (ii) Does this apply only during the transitional phase (2027-2030), or indefinitely?
- (iii) Must the tax payment and ETS obligation relate to the same activity, or can tax paid on any fuel offset ETS obligation on any emissions?
- (iv) How will the carbon tax payments translate to ETS auction price reductions? Since the Act does not specify the conversion mechanism, implementing regulations could adapt one of three approaches:
 - (A) *Full offset (1:1 ratio)*. Every baht paid in carbon tax equals a one-baht reduction in ETS auction price. This maximises compliance cost relief for industry but transfers revenue from the Climate Fund to the general treasury, potentially undermining the Fund's capacity to finance climate action;

¹⁸ Commissioned by DCCE and presented in the 2024-2025 ETS stakeholder meetings

- (B) *Partial offset (0.5:1 fractional ratio).* A discounted conversion rate where every baht of carbon tax generates only a partial reduction in ETS price. This balances industry relief with Climate Fund revenue preservation but still creates revenue leakage between the two systems; and
 - (C) *Formula-based approach.* Variable conversion rates based on sector, emissions type, or time period. While potentially more equitable, this approach requires complex regulations and creates uncertainty for market participants trying to plan compliance strategies; and
 - (v) Without clear guidance on this conversion mechanism, entities cannot accurately assess their carbon pricing exposure or make informed investment decisions in low-carbon technologies. There is also the practical question of how this payment applies to allowances which are procured on the secondary markets (if established) rather than the initial ETS auctions.
- entities can select the lowest-cost compliance route, between the tax, the ETS, and the offset channel, irrespective of the policy intention behind each mechanism, potentially undermining the overarching intention of such mechanism.
- (ii) As the Climate Change draft Act currently stands, these instruments and their interlinkages may produce unintended effects:
 - (A) *Carbon tax scope.* The excise tax on fuel is structured as an excise-type levy on selected fuels and products, with the taxable base and rates to be determined by ministerial regulation. Without clarity on how these goods intersect with ETS-covered activities, an installation theoretically subject to the ETS could meet part of its compliance obligation by relying on taxed fuels rather than purchasing allowances. Compliance behaviour would follow relative costs and would in turn require the cooperation of two separate governmental departments to ensure proper compliance; and
 - (B) *Deduction mechanism.* The deduction mechanism links the two carbon prices. If the carbon tax rate per tonne differs from the ETS allowance auction price, entities may

18.3 Risks

- (a) Arbitrage between instruments
 - (i) In a system where multiple carbon-pricing instruments coexist, it must be made clear that market participants will only be covered by a single carbon price. When these boundaries remain undefined, regulated

- have an economic incentive to adjust their compliance strategies accordingly. Secondary legislation will set the operational rules - such as caps, eligibility limits, or conversion ratios - to manage this interaction. Without clear parameters upfront, entities could structure their operations to exploit cost differences between the two instruments rather than focus on reducing emissions, in turn distorting the ETS market prices (which operates on the basis of the interaction of supply and demand for allowances) and thus sending inaccurate price signals.
- (iii) This interaction differs from international precedents where carbon taxes and ETSs either apply to distinct sectors or maintain explicit hierarchies through legal carve-outs, raising questions about how the two instruments will function when applied to overlapping activities.
- (b) Long-term lock-in
 - (i) Experience in other jurisdictions shows that carbon taxes, once introduced, tend to persist. Their predictable revenue and established compliance processes make them hard to scale back or remove without a clear transition plan from the outset. Combined with path-dependent compliance strategies, this can create a "double lock-in": entities optimise around both the tax and the cheapest mix of instruments, while the tax itself becomes resistant to change.
 - (ii) Furthermore, a transition to a replacement to a carbon tax (e.g. applicability of the ETS) would need to be adjusted to ensure that its implementation does not unintentionally result in a more favourable regime to the covered entities.
 - (iii) Therefore, if the policy intent is for the Thai ETS to become the primary instrument for large emitter once it matures, the long-term role of the carbon tax and any phase-in/out needs to be clarified from the outset.
- 18.4 Unintended consequences on Climate Fund revenues**
- (a) The deduction mechanism has direct fiscal implications because ETS auctions partly fund the Climate Fund, while carbon tax revenues go to the general budget. When carbon-tax payments reduce the effective price of allowances purchased at auction, Climate Fund revenue drops, creating a gap between expected and actual auction income.
 - (b) This also influences market behaviour. If firms anticipate reducing auction costs through tax deductions, demand for ETS allowances falls. Lower demand means weaker bidding and lower clearing prices, further reducing Climate Fund revenue. The effect is compounded by:
 - (i) free allocation, which reduces the volume of allowances available for auction; and
 - (ii) offset use, which provide cheaper compliance alternatives
 - (c) Together, these factors put downward pressure on allowance demand, auction prices, and ETS fiscal capacity. While detailed

- modelling is needed to quantify the overall impact, the direction is clear: deductions, offsets, and free allocation significantly reduce ETS revenues compared to full auctioning at an undistorted carbon price. This limits resources for transition measures critical to Thailand's climate goals. As noted, such pressures on the primary and secondary markets will additionally send misleading carbon market price signals to the market.
- (d) The implementation timeline for Thailand's carbon pricing instruments remains subject to ongoing policy development. The draft Climate Change Act anticipates entry into force in 2027, with a pilot ETS planned for 2029 and full ETS Phase I from 2030. However, the operational relationship between the carbon tax, ETS, and existing voluntary carbon market mechanisms has not yet been clearly established.
 - (e) While the current draft Act does not explicitly provide for the phase-down of any instrument when others become operational, stakeholder consultations suggest that transitional arrangements and sequences implementation may still be under consideration.
 - (f) Should the instruments operate simultaneously as currently drafted, the interaction effects may not immediately be apparent. Phase 1 (2030–2035) may mask the problem because high free allocation (80–95%) keeps auction volumes low. But as free allocation declines in Phase 2 (2035 onward), auction volumes should rise, unless deductions, offsets, and residual free allocation suppress demand so much that auctions clear at low prices.
 - (g) The key risk could therefore emerge in the transition from Phase 1 to Phase 2. Expected revenue growth may not materialise if low prices and cost-optimisation strategies (tax deductions, cheap offsets, banked allowances) are already entrenched. This could leave the Climate Fund under-resourced just as transition finance needs peak. Once these behaviours become standard, reversing them through regulation may be politically and economically costly, especially given the institutional persistence of the carbon tax.
 - (h) As discussed in section 17 par. a) and b) in jurisdictions where different instruments coexist, the interaction between them is managed in ways that prevent one from draining the revenue base of the other. Installations covered by the EU ETS in France are entitled to reduced rates or to reimbursement on the energy excise taxes that incorporate the Contribution Climat-Énergie¹⁹. Germany instead avoids overlap entirely by confining its national ETS to sectors outside the EU ETS²⁰, while channeling revenues from both system into a single Climate and Transformation Fund (Klimatund Transformationsfonds), which received approximately EUR 18.5 billion in combined auction and certificate revenues in 2024²¹.
 - (i) California's Greenhouse Gas Reduction Fund, which finances climate investments, environmental justice programmes and household energy cost relief²², is protected by an auction reserve price that

¹⁹ LOI n° 2013-1278 du 29 décembre 2013 de finances pour 2014 (establishing the carbon component of French energy excise taxes); the CCE does not apply to sectors subject to the EU ETS to avoid double taxation: Hanafi, O., Josseume M., Menner M., Reichert G., Schwind S., *Carbon Pricing in France & Germany Differences, Similarities and Perspectives*, cepInput 11/2019, p. 5-10.

²⁰ [DEHSt - Understanding national emissions trading - Understanding national emission trading](#)

²¹ [Umwelt Bundesamt, Revenue from emissions trading once again at record level, press release No. 1/2025](#)

²² [Icap, "California extends Cap-and-Trade to 2045, renames program "Cap-and-Invest", 2025](#)

guarantees minimum revenue per allowance (USD 25.87 in 2025, increasing annually by 5% plus inflation), and from 2026, by a requirement that every offset credit used for compliance triggers the retirement of one allowance from the following year's budget²³, so that offsets do not dilute the supply of auctioned allowances or reduce Fund income.

- (j) The combination of overlapping coverage, split fiscal destinations and a cross-instrument deduction currently envisaged in the draft Act does not appear to have a close parallel in the jurisdictions reviewed. The design responses outlined above, from auction price floors to offset retirement mechanisms and clear instrument separation, illustrate the range of tools that have been deployed elsewhere to address comparable revenue risks. How these experiences might inform the design of Thailand's secondary legislation is considered further in the recommendations set out in section 22.

19 Interlinkages between ETS and the Voluntary Carbon Market

19.1 Offset emission rights under Section 93 of the Act

- (a) The draft Act establishes a framework for integrating voluntary carbon credits into ETS compliance. Section 93 allows controlled entities to convert eligible carbon credits into "offset emission rights" for compliance purposes, subject to a maximum usage limit of 15% of total surrender obligations. The conversion process, along with detailed eligibility criteria, allocation periods, and operational procedures, will be determined through Committee

announcements and specified in the rights allocation plan.

- (b) Section 94 defines the source of eligible credits. They must originate from projects certified by the Thailand Greenhouse Gas Management Organization (TGO), with specific standards and methodologies to be established by the Committee. Critical quality parameters, such as additionality requirements, permanence safeguards, or distinctions between credit types, remain undefined in the primary legislation.

19.2 Identified gaps

- (a) Thailand operates a dual voluntary carbon credit framework managed by TGO: Standard T-VER and Premium T-VER. Both programmes certify emission reductions or removals from domestic projects, generating tradeable Thailand Certified Emission Reductions (TCERs), but each differs in governance requirements, intended function, and market positioning.
- (b) The Standard T-VER, established in 2013, was designed primarily for domestic voluntary offsetting - supporting corporate carbon neutrality claims, carbon footprint reporting, and CSR initiatives within Thailand. Projects follow TGO-approved methodologies across sectoral scopes including renewable energy, energy efficiency, transport, and forestry. Registration requires legal compliance, demonstration of additionality (or inclusion on the positive list), adherence to calculation methodologies, and standard monitoring, reporting, and verification (MRV) procedures.

²³ Assembly Bill 1207 (2025), § 3(c) (requiring retirement of allowances equivalent to offset credits used for compliance from 2026)

- (c) The Premium T-VER, introduced in 2022, was developed specifically to align Thai carbon credits with international standards and position them for Article 6 cooperation mechanisms under the Paris Agreement. In addition to Standard T-VER requirements, Premium projects must satisfy Core Carbon Principles (**CCPs**), including mandatory local stakeholder consultation, formal Sustainable Development Goals (**SDGs**) assessments, safeguards to prevent negative impacts ("do no harm" principles), permanence risk management with buffer mechanisms for removal-based projects, and alignment with ISO 14064-2/3 international standards.
- (d) The draft Climate Change Act does not differentiate between these two credit types. Section 94 refers generically to "projects certified by the Organization according to criteria and methods specified in an announcement by the Committee", without distinguishing between Standard and Premium methodologies.
- (e) This creates uncertainty regarding which governance standards will apply to ETS-eligible offsets. The Standard T-VER, developed for voluntary corporate use, does not embed the enhanced safeguards, stakeholder consultation requirements, or permanence buffers that characterise the Premium T-VER. Without explicit quality criteria established in implementing regulations, the ETS risks accepting credits developed under voluntary market governance frameworks into a compliance system that must maintain robust accounting and alignment with Thailand's NDC commitments.

19.3 Risks

- (a) Voluntary Carbon Market Arbitrage
 - (i) The integration of voluntary carbon credits into ETS compliance creates a third potential pathway for arbitrage within Thailand's emerging pricing framework. Section 93 permits up to 15% of ETS obligations to be met with eligible carbon credits converted into offset emission rights. Given the supply composition and price differential between the two T-VER credit tiers, this integration raises questions about compliance incentives and revenue implications for the Climate Fund.
 - (ii) As of mid-2024, Thailand's certified T-VER inventory comprises approximately 19.5 million tonnes, with 17.8 million tonnes remaining unretired across 438 projects. Of these, 434 projects follow Standard methodologies, while only four are Premium T-VER projects - all removal-based and collectively expected to reduce around 19,500 tCO₂e per year. A further 27 Premium projects are under development, but meaningful credit volumes are not anticipated before 2027-2030. This means that the vast majority of currently available offset supply was developed under Standard T-VER governance frameworks, designed for voluntary corporate offsetting rather than mandatory compliance systems.²⁴

²⁴ Thailand Greenhouse Gas Management Organization (TGO), Thailand Carbon Neutral Network (TCNN), Kasikornbank (KBank) and

Kasikorn Research Center (KResearch), The 2024 Thailand's Voluntary Carbon Market Report, Bangkok, June 2024

- (iii) Beyond the Standard-Premium distinction, temporal considerations add another layer of complexity. Because Thailand's T-VER programme has issued credits since 2014, older units may reflect pre-Paris Agreement baselines, methodologies, and NDC contexts that are no longer aligned with current national targets. Allowing early vintage credits to satisfy ETS offset limits could undermine environmental integrity and depress demand for new, higher-quality credits developed under strengthened methodologies and baseline assumptions consistent with Thailand's updated NDC commitments.
- (b) Price differentials and compliance incentives
 - (i) The T-VER market exhibits significant price dispersion that directly affects compliance incentives. Standard credits, particularly renewable energy projects, which account for 58 percent of traded volume, remain inexpensive, with historical prices around USD 1.5/tCO₂e and an average of USD 5.1/tCO₂e in Q4 2024. By contrast, nature-based removal credits traded at USD 50–62/tCO₂e at the end of 2024,²⁵ with some categories reaching annual averages above USD 80/tCO₂e.²⁶
 - (ii) This price structure reflects a clear quality hierarchy. Standard credits are abundant and inexpensive, while removal credits command a premium due to stronger additionality, permanence requirements, and associated co-benefits. Survey data show that 73 percent of market participants expect prices to rise over the next five years, driven by the Climate Change Act, future ETS operation, and growing financial support measures. Removal developers show the greatest price gap, with sellers expecting up to 67% more than current buyer offers - indicating strategic holding behaviour.²⁷
 - (iii) If all T-VER credits qualify for ETS surrender and entities use the full 15% offset limit, the current stock of Standard T-VER could meet compliance demand for years before Premium supply scales up. This would drive rational behaviour toward low-cost Standard credits (USD 1.5–5) instead of auctioned allowances or high-integrity removals (USD 50–80), creating a structural arbitrage opportunity.
 - (iv) More generally, faced with a choice between procuring either ETS allowances or T-VER credits, obliged entities will tend to go for the cheaper instrument. This risks market price distortions in both markets, and would potentially artificially increase the T-VER market price, discouraging investment from entities not subject to

²⁵ Reccessary, *Thailand's voluntary carbon trading set for 2027 with 15% offset limit*. Reccessary. Available at: [Thailand's voluntary carbon trading set for 2027 with 15% offset limit | NEWS | Reccessary](#).

²⁶ TGO et al. (2024), supra note 1.

²⁷ TGO et al. (2024), supra note 1.

the Thai ETS compliance regime.

- (c) Quality differentiation and policy options
 - (i) Unlike the tax-ETS deduction mechanism (Section 1.2), which affects pricing but maintains a fixed compliance relationship, the VCM integration creates quality-based arbitrage that could fundamentally undermine environmental integrity.
 - (ii) International precedent demonstrates that compliance systems typically establish quality filters for offset eligibility to maintain system integrity and appropriate price signals. Singapore's ETS restricts offset use to 5% of obligations and limits eligibility to high-quality international credits meeting CORSIA or equivalent standards. The EU ETS Phase 4 allows minimal offset use, limited to Article 6 mechanisms with corresponding adjustments to prevent double counting. California's Cap-and-Trade programme imposes strict additionality requirements and quantitative usage limits across all offset protocols. These approaches reflect a consistent principle: voluntary market credits developed under different governance frameworks require quality assessment before integration into mandatory compliance systems.
 - (iii) Section 94 should be amended in primary legislation to establish explicit quality criteria for ETS-eligible offsets, rather than delegating these critical parameters to implementing regulations.

Two main options are as follows:

- (A) *Option 1: Quality-filtered access.* Limit ETS offset eligibility to Premium T-VER or credits meeting equivalent standards (ICVCM CCP-labelled, CORSIA-eligible, Article 6-compliant mechanisms). This ensures compliance integrity and alignment with international best practices, while maintaining more limited offset supply in initial compliance periods as Premium T-VER projects scale up toward 2027-2030;
- (B) *Option 2: Phased transition.* Allow both Standard and Premium T-VER initially, with quantitative preferences or pricing differentials that favour Premium credits, transitioning to quality-only requirements by 2030 as Premium supply increases and market infrastructure matures. This provides compliance flexibility during the ETS establishment phase while clearly signalling long-term quality trajectory;

- (iv) Options 1 or 2 would preserve Standard T-VER's valuable role as an accessible voluntary mechanism for domestic corporate CSR, carbon neutrality claims, and community-scale mitigation projects, while ensuring ETS compliance integrity aligns with international standards for mandatory carbon pricing systems. This approach would support Thailand's Article 6 credibility by demonstrating that domestic compliance standards match international cooperation commitments, protect Climate Fund revenues by maintaining stronger demand for auctioned allowances, and create appropriate market incentives for Premium T-VER pipeline development.
- (d) Double Counting and Double Claiming Risks
 - (i) A coherent carbon-pricing framework must prevent the same tonne of mitigation from being counted or used more than once across different instruments or reporting frameworks, as unchecked it may cause an unjustifiably discriminatory impact on specific entities or industries. In Thailand's current landscape, voluntary carbon credits can serve multiple purposes, CSR neutrality claims, corporate disclosures, and potentially ETS compliance, alongside their role in the national greenhouse gas inventory. Without explicit safeguards, this creates several pathways for both double use of credits and double claiming of underlying reductions.
 - (ii) Double use occurs when the same physical credit unit is applied to multiple compliance or neutrality claims. Without clear eligibility rules and registry coordination, Standard T-VER credits could potentially be surrendered for ETS compliance while simultaneously being claimed for voluntary corporate carbon neutrality, if the ETS registry and voluntary registry do not automatically communicate and update unit status as having been surrendered and retired from circulation. Similarly, if credits surrendered for ETS compliance are not transparently tagged and removed from voluntary registries with immediate effect, entities may inadvertently (or deliberately) use the same unit for both regulatory compliance and voluntary offsetting claims. If Premium T-VER is authorised for Article 6 cooperation, corresponding adjustments will be required, creating another interface where dual use must be prevented through registry coordination.
 - (iii) Double claiming is a related but distinct concern: the same underlying emission reduction is counted toward multiple national or corporate inventories, even if the credit itself is used only once. Because voluntary retirements of Standard T-VER credits do not trigger automatic adjustments in Thailand's national greenhouse gas inventory, a reduction achieved by a domestic project could be claimed both by the retiring company (for voluntary carbon neutrality) and by Thailand toward its NDC. This accounting mismatch does not involve physical reuse of the credit, but it does mean the same real-

- world mitigation is counted twice across different reporting frameworks.
- (iv) These risks can be mitigated through several interconnected measures:
- (A) harmonise MRV protocols across ETS and VCM systems to ensure consistent quantification;
 - (B) establish a unified serial-number registry with automated tracking of credit status across all instruments;
 - (C) specify clearly that credits retired for ETS surrender, Article 6 transactions, or voluntary neutrality claims cannot be simultaneously or subsequently used for other purposes, and ensure that on a technical basis, any retired credits are withdrawn from circulation and cannot be used by third parties for separate claims or any other purpose;
 - (D) implement automatic corresponding adjustments in the national inventory when credits are retired domestically or transferred internationally; and
 - (E) require immediate registry updates and status changes when credits are used for any compliance or voluntary purpose, and ensure that these are transparent and capable of third-party
- audit to ensure system integrity.
- (v) Together, these safeguards would ensure that each tonne of mitigation is used and counted once across Thailand's carbon-pricing architecture.
- (e) Implication of domestic instrument interactions for CBAM and linking
- (i) As detailed in Part 2, Thai exporters of CBAM-covered goods may seek deductions under Article 9 of the EU CBAM Regulation for carbon prices effectively paid in the country of production. As Thailand finalises its carbon pricing architecture, there is an opportunity to consider how the interaction between instruments can be structured to support recognition under CBAM and enable Thai exporters to benefit from the Article 9 deduction mechanism."
 - (ii) Article 9 provides that an authorised declarant may claim a reduction in CBAM certificates where the carbon price for declared embedded emissions has been "effectively paid" in the country of production. The Commission's implementing guidance indicates that deductible carbon prices must represent mandatory costs corresponding to the emissions embedded in exported goods.
 - (iii) Thailand's framework currently provides multiple compliance pathways. Section 93 permits controlled entities to meet up to 15% of their ETS surrender obligations through converted eligible carbon credits credits. Section 95 allows carbon tax payments to reduce the price payable at ETS auctions. These provisions,

- combined with high initial free allocation rates (80-95% during Phase 1), mean that the effective carbon cost borne by a Thai installation may reflect a blend of auctioned allowances, freely allocated allowances, converted voluntary credits, and deducted tax payments, rather than a single transparent price.
- (iv) Without further clarity, EU authorised declarants seeking Article 9 deductions may face evidential challenges in demonstrating that a carbon price has been "effectively paid" when compliance has been achieved through multiple instruments at varying implicit prices.
 - (v) Similar considerations apply to the longer-term prospect of linking Thailand's ETS with other carbon markets under Article 25 of the EU ETS Directive, as discussed in paragraph (e) below. The structural adjustment outlined in that section would equally strengthen Thailand's position in relation to CBAM recognition.
- (f) Recognition for purposes of linking with EU ETS
- (i) As noted above, we understand that the Thai Government is considering in its design of the Thai ETS the option of linking with the EU ETS in the future. From the EU's perspective, this process is governed by Article 25 of Directive 2003/87/EC (as amended). The linking of two ETS allows for the mutual recognition of emissions allowances between both systems, and thereby a larger market for obliged parties.
 - (ii) Limited guidance on the linking process exists under European Union law and at the date of publishing, only one "third country" ETS has been linked with the EU ETS. With effect of 1 January 2020, the Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems entered into force.²⁸ Negotiations between the EU and Switzerland began in December 2010 and the agreement was ultimately signed in late 2017.
 - (iii) At the date of publishing, the UK Government is negotiating with the European Commission on a potential linking of the UK ETS with the EU ETS. It is worth noting that the UK ETS fundamentally derives from the EU ETS, having implemented a significant portion of the underlying legislation and systems prior to the UK's withdrawal from the European Union in early 2020. A specific timeline for the linking agreement negotiation and linking process is not currently clear, however estimates suggest linking by 2028.²⁹ One broader consideration of both the EU and UK in this process is the difference between current EU and UK

²⁸ Agreement between the European Union and the Swiss Confederation on the linking of their greenhouse gas emissions trading systems, EU-Swiss ETS Linking Agreement, Consolidated text (04 Dec 2024). Available at: [EUR-Lex - 02017A1207\(01\)-20241204 - EN - EUR-Lex](#).

²⁹ European Parliamentary Research Service (2025). *Linking the EU and UK emissions trading systems* (EPRS briefing, PE 775.873). European Parliament. Available at: [Linking the EU and UK emissions trading systems](#).

allowances, as upon linkage the obliged parties of one system risk suffering a sudden increase in carbon price due to such differential. This concern is actively managed as part of the linking process.

- (iv) While no formal EU guidance exists on the compatibility of ETS linkage with offset-accepting systems, the EU's consistent practice since Phase III indicates a strong preference for closed cap-and-trade systems. The exclusion of international credits from the EU ETS, the structure of the EU-Switzerland linking agreement, and the design of the UK ETS all suggest that acceptance of voluntary or offset-type instruments for compliance could be viewed by the Commission as undermining cap integrity and price formation. As a result, a Thai ETS that permits compliance via voluntary market credits may face obstacles in future linkage discussions unless such mechanisms can be clearly isolated, capped, or suspended for linkage purposes:

- (A) since the commencement of the ETS Phase 3 in 2013, the EU has ceased to recognise carbon credits (in particular CERs and ERUs issued under the Kyoto Protocol)³⁰ as compliance units under the EU ETS. Under Phase 3 these may have been exchanged for allowances, and

under the current Phase 4, no carbon credits are accepted. In view of this change in practice, it is questionable whether the EU would permit linkage with a third country system such as Thailand which allows for the (partial) recognition of voluntary carbon market instruments instead of ETS allowances; and

- (B) where Thai ETS obliged entities are entitled to reduce the number of allowances they must purchase for their installation's emissions, this may indirectly change the effective carbon price. Whilst this may diminish the effectiveness of the Thai ETS more generally, the Commission may consider this as a risk as part of the linking process, especially in respect of the price alignment process.

³⁰ Under the Kyoto Protocol, Certified Emissions Reductions (CERs) were credits issued under the Clean Development Mechanism pursuant to Article 12, and Emission Reduction Units

(ERUs) were credits issued under the Joint Implementation pursuant to Article 6.

- (v) Where the long-term intention of the Thai Government is to explore the linking of the Thai ETS with the EU or UK ETS, it is relevant to note that the EU treats the ETS allowance price as the sole carbon price signal for emissions covered by the system. There is no formal EU guidance on the compatibility of ETS linkage with systems that recognise offsets or alternative carbon price instruments. However, EU practice since Phase III demonstrates a clear preference for:

- (A) market-based price formation driven by scarcity within the cap. Mechanisms that materially alter the effective carbon price (e.g., tax deductions, credit conversions, implicit subsidies) must be minimised or structurally isolated;
- (B) closed cap-and-trade systems in which compliance is met exclusively through allowances; and
- (C) compatible market stability tools.

In absence of any published linking criteria, and given this consistent practice, it would be advisable to ensure that the Thai ETS can operate independently of the T-VER system, or that any offset-recognition mechanics can be clearly isolated for the purpose of linkage negotiations with the Commission or UK Government.

19.4 Unintended consequences on revenues

- (a) Offset use directly reduces demand for auctioned allowances. When low-cost Standard credits substitute for allowances, Climate Fund revenues fall. The size of the impact depends on ETS auction prices, but it adds to revenue losses from free allocation and the tax-ETS deduction mechanism discussed in Section 2.2. Even modest per-tonne revenue differentials become fiscally significant when scaled to the 15% offset limit on Thailand's covered emissions (approximately 46.6% of national emissions under preliminary ETS thresholds).
- (b) Lower cost offset availability depresses auction demand by providing an alternative compliance pathway at substantially reduced cost. This weakens bidding intensity at ETS auctions, potentially reducing clearing prices and further diminishing Climate Fund revenues. The effect is particularly pronounced if accumulated Standard T-VER inventory, generated under voluntary market conditions with different additionality and permanence requirements, becomes immediately fungible with new ETS allowances subject to absolute cap constraints. This creates downward pressure on the carbon price signal intended to drive investment in emissions-reduction technologies and industrial transformation.
- (c) Standard T-VER methodologies were designed for voluntary use. They do not require the broader safeguards, permanence buffers, stakeholder consultation, or sustainable-development criteria embedded in Premium T-VER. Without differentiation, the ETS risks importing these concerns into a compliance system that must maintain robust accounting and alignment with Thailand's NDC.

- (d) Thailand has positioned Premium T-VER as its vehicle for Article 6 cooperation, with bilateral agreements signed with Switzerland, Japan, and – very recently – Singapore.³¹ Premium T-VER requires enhanced additionality through updated methodologies, sustainable development co-benefits via formal assessments, safeguards and "do no harm" principles, stakeholder engagement including local consultation, permanence risk management with buffer credits for removal projects, and alignment with ISO 14064-2/3 international standards. The sharp price premium for forestry and agriculture credits compared to renewable energy credits reflects market recognition of these enhanced characteristics. If the domestic ETS accepts unlimited Standard T-VER without quality differentiation while marketing Premium T-VER internationally, the economic incentive to develop the 27 Premium projects currently in the pipeline may be substantially reduced, as developers cannot recover the higher costs of enhanced stakeholder consultation, safeguards assessments, and stricter MRV requirements.

19.5 International experience: how did the EU address this?

- (a) The EU experience shows a clear shift from broad offset use to a fully closed system. In the early phases of the EU ETS, operators were allowed to surrender large quantities of Clean Development Mechanism credits (**CERs**) and Joint Implementation credits (**ERUs**) issued under the Kyoto Protocol. In Phase 2 alone, more than one billion tonnes of these international units were used. This flexibility was intended to reduce compliance costs but, in practice, it weakened the carbon price by enabling firms to rely on cheaper external credits rather than reducing emissions within the capped sectors.
- (b) During Phase 3, the EU progressively tightened this flexibility. Industrial gas project credits were prohibited, strict qualitative and quantitative limits were introduced, and any remaining eligible units from the Clean Development Mechanism or Joint Implementation had to be exchanged into EU allowances before surrender. This prevented the cap from expanding but still diluted the price signal because converted units remained significantly cheaper than auctioned allowances.
- (c) With the Phase 4 reforms and Directive (EU) 2018/410, the legal basis for using international credits was removed entirely. Since 1 January 2021, compliance under the EU ETS must be met exclusively with EU allowances, including sector-specific units for aviation, and the same prohibition applies to the forthcoming ETS2 for buildings and road transport.
- (d) Any remaining role for "offset-like" instruments has been moved outside the ETS architecture, for example, limited flexibilities under the Land Use, Land-Use Change and Forestry Regulation (LULUCF) for non-ETS sectors, or potential future use of Paris Agreement Article 6 internationally transferred mitigation outcomes (**ITMOs**) for long-term EU targets. Importantly, EU institutions have explicitly excluded these units from the ETS itself to safeguard scarcity, market integrity, and the system's ability to drive decarbonisation within covered sectors.

³¹ Carbon Herald (2025). *Singapore and Thailand sign landmark carbon credits agreement*.

Available at: [Singapore And Thailand Sign Landmark Carbon Credits Agreement](#).

19.6 Data infrastructure and registry integration

- (a) Ensuring that carbon units are used only once across Thailand's carbon-pricing instruments also depends on the design of the national registry. As highlighted in regional discussions on corresponding adjustments, Article 6 requires countries to maintain consistent records across their national inventory, NDC accounting, and any internationally transferred mitigation outcomes. In the absence of an integrated registry, these parallel reporting streams can diverge, creating gaps or overlaps that are difficult to correct once transactions occur.
- (b) This challenge is especially relevant for Thailand, where T-VER credits may circulate across three different domains: the voluntary market, the domestic ETS, and, in the case of Premium T-VER, potential international Article 6 cooperation. If these movements are recorded in separate systems without a unified data backbone, under the supervision of separate authorities, and without unified tracking, the same credit could inadvertently appear simultaneously in the voluntary registry, the ETS compliance cycle, and Thailand's national inventory, representing a system failure that would undermine both ETS integrity (including public acceptance thereof) and Thailand's credibility on the international stage in Article 6 transactions.
- (c) International experience with hybrid carbon pricing systems demonstrates that unified registry infrastructure with consistent serialisation, clear unit status tracking, and automated Article 6 tagging significantly reduces accounting risks and administrative burden. For Thailand, integrating the ETS registry, the T-VER registry and the national carbon accounting platform into a unified system would provide a transparent chain

of custody for all units, reduce the administrative burden on project developers and regulated entities, and ensure that every credit's lifecycle is recorded once, and only once, across all carbon-pricing instruments.

20 Behavioural-Change vs. Compensatory Offsets

- 20.1 In addition to the interactions between pricing instruments themselves, the system must also govern how these instruments interact with the actual abatement behaviour of regulated entities. A carbon-pricing framework functions coherently only if the incentives embedded in the tax, the ETS and the offset provisions align with the technologies and feedstock choices available to industry. For this reason, distinguishing real process-change abatement from compensatory offsetting is a critical component of the overall interlinkages analysis.
- 20.2 Currently the draft Act does not clearly distinguish between two fundamentally different compliance pathways: process-change abatement and compensatory offsets. This distinction is critical to system integrity.
- 20.3 Process-change abatement occurs when an entity switches to lower-carbon inputs, for example, replacing fossil natural gas with biogas, coal with biomass, or conventional fuels with renewable hydrogen. These changes reduce the entity's actual emissions at source. A cement plant using biogas rather than coal physically produces fewer tonnes of CO₂ per unit of clinker. This is not offsetting; it is direct emissions reduction through technological substitution.
- 20.4 Compensatory offsets, by contrast, allow an entity to continue its existing emissions intensity but purchase credits representing reductions achieved elsewhere. A power plant burning coal can maintain its emissions profile while buying T-VER forestry credits to "neutralise" its carbon footprint. The plant's actual emissions remain unchanged; it has simply paid for reductions occurring in a different location and sector.

20.5 From a policy perspective, the distinction matters enormously. Process change abatement stimulates domestic markets for low-carbon technologies, drives infrastructure investment in renewable fuel supply chains, and builds long-term industrial decarbonisation capacity. Compensatory offsets, while potentially valid under certain conditions, do not change the emissions profile of covered sectors, they merely redistribute the responsibility for reduction.

20.6 This concept has been recognised by various international standards, which recommend that entities which voluntarily elect to reduce their greenhouse gas emissions achieve this first through reducing direct sources of emissions, through increasing efficiency, transitioning to use of renewable source electricity, and use of technologies such as carbon capture, use and storage (CCUS), and then using offsets only in respect of hard to abate emissions.

20.7 The ETS design must therefore distinguish clearly between these mechanisms. If process change abatement is treated equivalently to purchasing T-VER offsets, the system fails to reward the behaviour it should most strongly encourage actual technological transformation of industrial processes. The policy intent is not to suppress fuel consumption but to shift consumption toward cleaner alternatives. This requires that fuel-switching abatement be recognised as compliance-relevant without being conflated with offset use.

20.8 We recommend that DCCE ensure that:

- (a) fuel switching to lower-carbon inputs (such as biofuels, biogas, or renewable hydrogen) should be recognised as direct compliance through reduced reported emissions;
- (b) the MRV framework should be designed to capture and credit actual emissions reductions achieved through technological substitution, ensuring that entities investing in process change receive full compliance benefit for their reduced emission intensity;

- (c) offset use should remain subject to the quantitative limits and qualitative threshold discussed above and should not be positioned as equivalent to genuine abatement at source; and

- (d) guidance should clarify that the policy objective is to incentivise the shift to cleaner fuels and technologies within covered sectors, rather than focusing on cost minimization through credit purchase.

21 Conclusion

21.1 Thailand's draft Climate Change Act represents a significant and timely step toward establishing a comprehensive carbon pricing and climate governance framework. By introducing a national emissions trading system, a carbon tax, and enabling provisions for carbon border measures, the Act positions Thailand to align more closely with international climate policy trends and respond to emerging trade-related carbon constraints such as the EU CBAM.

21.2 At the same time, the analysis highlights that the effectiveness, credibility, and political sustainability of the framework will depend critically on its detailed design and implementation. Key risks arise from unresolved interactions between instruments, gaps in MRV capacity and data infrastructure, uncertainty for regulated entities, and the absence of institutional mechanisms to manage distributional impacts, grievances, and transitional adjustment.

21.3 International experience - particularly from the EU ETS and CBAM - demonstrates that successful carbon pricing systems are built incrementally, with clear legal boundaries between instruments, phased implementation, robust data and verification systems, and complementary financial and social support mechanisms. Without these safeguards, there is a risk that Thailand's emerging framework could impose significant compliance costs without delivering commensurate environmental or economic benefits.

- 21.4 With targeted refinements to the draft Act, careful sequencing of instruments, and early investment in institutional and technical capacity, Thailand has the opportunity to establish a carbon pricing regime that supports competitiveness, attracts investment, and delivers an orderly and socially balanced transition to a low-carbon economy.

22 Policy considerations and recommendations

22.1 Set clear legal boundaries and sequencing between the ETS and carbon tax

We strongly recommend DCCE to specify in primary legislation that each emissions source is subject to only one effective carbon price and adopt an explicit hierarchy/segmentation approach (eg ETS for large stationary sources; tax for diffuse sectors), with clear transitional arrangements.

22.2 Operationalise Carbon Tax Deduction Mechanism for ETS Compliance (section 95) with Clear Guardrails

- (a) We recommend DCCE to insert guardrails in primary legislation for how deductions under section 95 will operate. This is to ensure that the deduction mechanism does not undermine ETS integrity or Climate Fund revenues. This should include:
- (i) clear eligibility rules defining which entities and activities may claim deductions
 - (ii) scope limitations clarifying whether deductions apply only to emissions that overlap with the ETS
 - (iii) quantitative caps and temporal limits, e.g. restricting deductions to the pilot and Phase 1 periods (2027-2035) as a transitional measure while entities adapt to the new carbon pricing framework

- (iv) a transparent, rules-based conversion methodology that preserves Market-based price formation and prevents unintended revenue leakage

- (b) In parallel, market design safeguards should be introduced to protect the integrity of the ETS price signal and maintain confidence in the system's long term stability.
- (c) Introduce price stability tools (e.g., auction reserve price, cost containment mechanisms) and ensure that tax deduction and offset rules cannot become a structural substitute for allowance scarcity.

22.3 Strengthen section 93-94 by embedding explicit offset quality criteria in primary legislation

- (a) We encourage DCCE to consider excluding offsets and voluntary credits from compliance, or at minimum establishing a declining threshold, such as 10% from ETS Phase 1 (2030) reducing to 5% in Phase 2 (2035), to protect price signal integrity, support Climate Fund revenues, and ensure reasonable compatibility with EU CBAM recognition and future ETS linkage under Article 25 of the EU ETS Directive.
- (b) In addition, explicit offset quality criteria in primary legislation should be included to establish clear, binding quality standards for offsets eligible for ETS compliance.
 - (i) Option 1 - Quality Filtered Access: restrict ETS eligible offsets to Premium T-VER credits or units meeting equivalent international benchmarks (e.g., ICVCM CCP labelled, CORSIA eligible, Article 6 compliant). This ensures high integrity compliance, aligns Thailand with global best practice, and maintains a manageable offset supply as Premium T-VER volumes scale toward 2027–2030.

- (ii) Option 2 - Phased Transition: permit both Standard and Premium T-VER credits in early phases but introduce quantitative preferences or pricing differentials that favour Premium units, with a clear transition to Premium-only eligibility by 2030. This approach provides flexibility during system establishment while signalling a firm long term quality trajectory.
- (v) Realtime registry updates and transparent status changes, supported by audit ready data to maintain trust and verifiability across all markets
- (b) Together, these measures would create a coherent integrity framework that protects Thailand's carbon market credibility, supports international cooperation, and ensures that all credit use is transparent, exclusive, and fully traceable.

22.4 **Safeguard Framework to Prevent Double Counting and Strengthen System Integrity**

- (a) To mitigate double counting risks and ensure full alignment between the ETS, voluntary carbon market, and Article 6 mechanisms, DCCE should develop and implement an integrated set of safeguards through primary and secondary legislation. These should include:
 - (i) Harmonised MRV protocols across ETS and VCM systems to ensure consistent and credible emissions quantification
 - (ii) A unified, serial number-based registry with automated tracking of credit status across all instruments
 - (iii) Explicit legal prohibitions on multiple use, specifying that credits retired for ETS compliance, Article 6 transfers, or voluntary neutrality claims cannot be reused for any other purpose, with technical measures ensuring permanent withdrawal from circulation
 - (iv) Automatic corresponding adjustments to the national inventory whenever credits are retired domestically or transferred internationally

22.5 **Ringfence Climate Fund fiscal resilience**

We suggest DCCE to model and manage the cumulative revenue impacts of free allocation, offsets, and tax deductions, and adopt design choices that maintain predictable, investable revenue streams for transition support as auctioning expands in later phases.

22.6 **Align the Thai ETS Design with EU Expectations to Enable Future Linking**

- (a) If Thailand intends to pursue future linkage of its ETS with the EU or UK ETS, the system should be designed to reflect the structural features consistently prioritised by the European Commission. Although the EU provides no formal linking criteria, its practice since Phase III demonstrates a preference for, *inter alia*
 - (i) Comparable climate ambition to the EU ETS, cap setting approaches that ensure real, verifiable, and permanent emissions reductions, equally stringent MRV rules;
 - (ii) Market design compatibility (allowance type, allocation methods, secure and interoperable registry systems)

- (iii) Market-based price formation driven by allowance scarcity, without mechanisms that materially alter the effective carbon price (e.g., tax deductions, credit conversions, implicit subsidies)
 - (iv) Closed cap and trade systems in which compliance is met exclusively through allowances
 - (v) High integrity market stability tools that are compatible with EU ETS design
- (b) To position Thailand for credible linkage discussions, the national ETS should be capable of operating independently of the T-

VER system, with any offset recognition mechanisms clearly isolated, capped, or suspended for linkage purposes. This would ensure that the Thai ETS presents a transparent, allowance-based carbon price signal consistent with EU expectations and avoids structural features that could be viewed as undermining cap integrity or price alignment.

22.7 **Enable CBAM Article 9 Recognition and Support Future ETS Linking**

As discussed throughout the paper, we strongly recommend refining the interaction between its carbon pricing instruments to ensure that carbon costs can be transparently demonstrated as "effectively paid" for the purposes of Article 9 of the EU CBAM Regulation.



Part 4 Distributional impacts of carbon pricing policies

23 Introduction

- 23.1 Carbon pricing is typically regarded as the most efficient decarbonisation policy. Market acceptance and public buy-in are however critical to the success of decarbonisation efforts, particularly when it comes to implementing carbon pricing. Without broad support, policies like carbon taxes or emissions trading schemes risk being politically unsustainable and/or economically disruptive. When businesses and consumers understand the rationale behind carbon pricing, e.g, protecting long-term economic stability from climate-related disruptions, they are more likely to adapt behaviour, invest in cleaner technologies, and support innovation. Likewise, when carbon pricing revenues are returned to households and businesses through investment in clean infrastructure, cash transfers or tax rebates, it offsets the cost burden and builds trust. Public trust ensures that these measures are seen as fair and effective, rather than punitive, helping to build momentum toward public acceptance of climate policies.
- 23.2 Compliance carbon market instruments - including Cap-and-trade systems (**ETS**), carbon taxes and CBAM - can produce socially regressive effects if not carefully designed and accompanied by appropriate safeguards. They risk increasing the cost of energy, transport, and basic goods, disproportionately affecting small businesses and low-income households, especially where these intersect with poverty. Without targeted remediation measures, carbon market instruments can deepen existing inequalities, undermining both welfare and inclusive economic growth.

- 23.3 These support equity measures are especially important in the context of the recently concluded UNFCCC COP where negotiators secured the establishment of the Belém Action Mechanism (**BAM**) - the first formal UNFCCC "just transition" framework dedicated to ensuring energy transitions are fair, inclusive, and supported by funding for workers, Indigenous peoples, and frontline communities.
- 23.4 Building on the experiences of other jurisdictions, this Section seeks to provide Thai policymakers, institutional stakeholders, and other actors with international perspectives on the distributional impacts of carbon market instruments, best-practice examples of the use of carbon revenues to advance social equity as well as redistribution measures that have proved effective.

24 Distributional impacts of EU ETS

- 24.1 At the time of writing, design of the new Thai ETS scheme, including scope, cap setting and allowance allocation, has not been decided. The regressive impact of the scheme will largely depend on the scheme's design, particularly its sectoral coverage and exemptions, levels of free allocation, staged implementation, and the extent to which consumer prices and employment are impacted by the carbon price set under the ETS.
- 24.2 A detailed assessment of possible redistribution impacts over time will be required as part of the ministerial regulations' impact assessment, with a redistribution mechanism carefully considered from the outset. Such assessment should draw on household budget survey (HBS) data disaggregated by income decile, capturing expenditure shares on energy and carbon-intensive goods; national input-output tables to trace both direct and indirect price effects across sectors; and regional employment data for industries exposed to carbon costs. The IMF-World Bank Climate Policy

Assessment Tool (CPAT) methodology provides a replicable framework, combining household consumption microdata with sectoral carbon intensities to model distributional incidence before and after revenue recycling.³² Key variables include energy price elasticities by income group, which quantifies the behavioural responses of consumers, showing how consumption patterns adjust to price changes; pass-through rates, which represent the share of carbon costs passed forward to consumer prices; and baseline social protection coverage (social safety nets). All these data are essential to calibrate compensation mechanisms that offset regressive impacts on vulnerable households.

- 24.3 Drawing on experiences from other jurisdictions, the Thai ETS is likely to generate adverse distributional impacts over time by disproportionately burdening lower-income households and carbon-intensive regions. Carbon pricing tends to be regressive, as lower-income households bear a larger burden relative to their income compared to wealthier households.

*"The average highest-income household in Europe paid about \$10.75 per tonne of carbon dioxide in 2020. As the [Chart of the Week](#) shows, the lowest-income households pay on average \$1.25 more. This gap rises to \$1.75 and \$2 in countries such as Germany and France, and \$5 in Bulgaria."*³³

- 24.4 During the first trading period (2005–2007) of the EU ETS - limited to power generation and energy-intensive industrial sectors - the allocation design led to unequal distribution of benefits and costs. Large industrial emitters, particularly in the iron, steel, cement, and some power sectors, received generous free allowances, often generating significant surplus revenues when they sold excess permits. Small firms faced high fixed transaction costs

and limited access to the carbon market, reducing their ability to profit from allowance trading. While households and consumers bore indirect costs through modest increases in energy prices, these impacts were largely mitigated by sectoral exemptions and free allocation, which lowered pass-through effects. However, this dynamic created a regressive pattern at the EU level, since households in lower-income Member States spent a higher share of income on carbon-exposed goods, in part due to differential exemptions, resulting in a disproportionate burden on low-income households.³⁴

- 24.5 During the second trading period (2008–2012), the EU ETS tightened its cap to align with Kyoto Protocol commitments, but free allocation remained the dominant method of distributing allowances. Power generators continued to receive substantial free permits, which enabled them to pass costs on to consumers while retaining windfall profits. The 2008 financial crisis and overallocation led to a collapse in carbon prices, undermining incentives for decarbonisation. Smaller firms struggled with administrative and transaction costs, while households faced indirect increases in energy prices. Equity concerns persisted, as the benefits of free allocation accrued to large industrial players, while costs were unevenly distributed across consumers and smaller businesses.
- 24.6 Phase III (2013–2020) marked a major reform of the EU ETS. Auctioning became the default method of allocation, especially for the power sector, while free allowances were restricted to industries deemed at risk of carbon leakage. A benchmarking system was introduced to tie free allocation to efficiency standards, reducing windfall profits and incentivising cleaner production. Carbon prices recovered, providing a stronger

³² Black, S. et al. (2023). "The IMF-World Bank Climate Policy Assessment Tool (CPAT): A model to help countries mitigate climate change". IMF Working Paper WP/23/128. This methodology provides a systematic and quantitative framework for determining distributional impacts, encompassing economic, environmental, fiscal, and social effects.

³³ **International Monetary Fund (IMF)** (26 September 2024). *How Europe can make*

carbon pricing policies less regressive. IMF Blog (26 Sept 2024). Available at: [How Europe Can Make Carbon Pricing Policies Less Regressive](#).

³⁴ Merkle, M., & Dolphin, G. (2024). *Distributional impacts of heterogeneous carbon prices in the EU* (IMF Working Paper No. 2024/149). International Monetary Fund.

signal for emissions reduction. Importantly, auction revenues created opportunities for redistribution through modernisation and innovation funds, though implementation varied widely across Member States. While fairness improved compared to earlier phases, disparities remained: poorer households and smaller firms in less affluent Member States were still disproportionately exposed to indirect costs, particularly where auction revenues were not recycled into social or climate programmes.

- 24.7 The fourth trading period (2021-2030) reflects the EU's heightened climate ambition, with a strengthened linear reduction factor and expanded scope to include the maritime sector. Free allocation is being phased out more aggressively, with auctioning now the dominant mechanism. "ETS 2" has been introduced to address emissions from road transport and buildings, moving ETS costs downstream, with tangible effects on households. The carbon price established under the new ETS will influence the fuel costs paid by households and drivers, similar to how electricity prices are already affected under ETS 1, assuming the carbon price is fully passed through to consumers. Revenues are earmarked for climate and social initiatives, most notably the Social Climate Fund (72 billion euros for 2025-2032), designed to offset regressive impacts on vulnerable households facing energy and transport poverty. Equity considerations are more explicitly integrated into policy design, but effectiveness depends heavily on national-level implementation and the targeting of compensation measures. While Phase IV represents a significant step toward aligning carbon pricing with social fairness, challenges remain in ensuring that vulnerable groups and smaller firms in lower-income Member States will be adequately protected from disproportionate burdens.

25 Carbon Border Adjustment Mechanism (CBAM)

25.1 Industries likely to be impacted by EU CBAM

- (a) As detailed in Section 2, EU CBAM is expected to have limited overall impact on Thailand's manufacturing sector.
- (b) The iron and steel and aluminium industries are the only ones expected to be the most affected by CBAM due to their high carbon intensity and export volumes to the EU. From 2026, these exporters will be required to purchase CBAM certificates to offset the embedded emissions in their products, with projected costs ranging between THB 1,338 and THB 1,545 per tonne of CO₂.³⁵
- (c) According to the World Bank, however, the potential expansion of CBAM to additional sectors, along with the adoption of comparable measures by other countries or major corporations, could pose increased competitiveness risks for Thailand. These developments may also result in lost revenue opportunities if a domestic carbon pricing mechanism is not implemented in the foreseeable future. At the same time, large multinational enterprises are increasingly greening their supply chains. That may lead to the exclusion of suppliers that are either unable or unwilling to invest in cleaner technologies and sustainable practices.
- (d) It is to be noted that although EU CBAM compliance will transition to full compliance in 2026, there is still a lot of uncertainty - not only around technical implementation (benchmarks, pricing, certificate timing), but also around evolving international trade dynamics, frictions and potential disputes. At COP30 in Belém, unilateral trade

³⁵ KASIKORN Research Center, *CBAM poses major challenge of adaptation for Thai steel exporters to the EU* (2023).

measures, mostly CBAM, emerged as flashpoints. Developing nations argued that these initiatives are protectionist, may be in breach of the UNFCCC principle against arbitrary trade barriers and may disproportionately impact exporters in the Global South. In its paragraph 56, the "*Global Mutirão: Uniting humanity in a global mobilization against climate change*" cover decision reaffirmed that "measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade". The subsidiary bodies will be required to hold annual dialogues at mid-year intersessional meetings, with the participation of the World Trade Organisation among others.

25.2 Regressive impact of EU CBAM on developing economies

The effects of CBAM on developing economies will depend on multiple variables, including trade patterns, carbon intensity of production processes of countries as well as carbon pricing policies of the EU's trade partners. Carbon tariffs are however expected to create adverse distributional effects for countries subject to the measure. That includes reduced export and development opportunities for developing economies, impact on small and medium enterprises embedded in global supply chains, as well as on unskilled workers employed in CBAM covered sectors.³⁶

25.3 Employment in Export-Linked Industries

CBAM targets carbon-intensive industries that employ a significant number of unskilled workers, including in Thailand, often through informal or subcontracted arrangements. The rollout of CBAM is likely to reshape labour demand and wage levels, particularly in sectors exposed to it.³⁷ As CBAM raises the cost of exporting to the EU, manufacturers may face reduced demand, prompting downsizing or closures. This could potentially lead to job losses or wage compression, disproportionately affecting vulnerable workers who lack social protections or alternative employment options.

25.4 Price Pass-Through Effects

Developing countries may face reduced competitiveness and economic strain due to the pass-through of carbon costs into domestic prices".³⁸ As Thai exporters absorb the financial burden of CBAM compliance, particularly through the purchase of carbon certificates, they may seek to recover costs by raising domestic prices for goods that are sold both locally and internationally. This is especially relevant for construction materials like cement and steel, which are widely consumed within Thailand. Such price increases could disproportionately affect low-income households, who spend a larger share of their income on basic goods and infrastructure-related services.

25.5 Supply Chain Disruption

Small and medium-sized enterprises (SMEs) in low- and middle-income countries will be indirectly impacted through their participation in complex supply chains. As EU importers shift compliance costs downstream, SMEs that lack robust data management or decarbonisation capabilities may face financial pressures and risk being excluded from global value chains. Concerns extend beyond direct costs and may cascade through indirect enforcement, renegotiated client relationships, and administrative

³⁶ United Nations Conference on Trade and Development, A European Union Carbon Border Adjustment Mechanism: Implications for developing countries (2021).

³⁷ Ibid.

³⁸ Ibid.

requirements.³⁹ SMEs, which form the backbone of Thailand's industrial ecosystem, may struggle to absorb compliance costs or invest in emissions tracking technologies, further amplifying economic vulnerability.⁴⁰

26 Mitigating Social Risks: Safeguards for Thailand's Carbon Pricing

26.1 Climate Fund offers opportunity to recycle carbon revenues to advance social equity

- (a) Section 19 of the draft Climate Change Act establishes a Climate Fund within the Ministry of Natural Resources and Environment to support Thailand's transition to a low-carbon economy, ensuring sustainable, equitable, and fair development. The fund aims to enhance national competitiveness, create an enabling environment for climate change management, and strengthen resilience for climate adaptation. The objectives of the Fund align with global climate finance principles.
- (b) Revenues (Section 21 of the draft Act) will include greenhouse gas emissions trading system revenues, cross-border carbon pricing, government subsidies, fees from authorizing the international use of carbon credits, other revenues or mechanisms under the Act, private sector contributions, international funding, administrative fines, donations, investment returns, as well as any other money or assets received by the Fund.
- (c) The draft Act makes it clear that the Fund's assets will not have to be remitted to the treasury as State revenue, but shall be used to support climate action through loans and grants to government agencies, private entities,

educational institutions, as well as community financial tools for investment or operations in a number of areas, including mitigation and adaptation to build climate resilience.

- (d) The Climate Fund Committee established under Section 24 of the Act should adopt and communicate a politically balanced financing strategy that channels carbon revenues to help ETS-regulated firms and CBAM-affected exporters (e.g, steel, aluminium, cement) invest in emissions tracking, clean technologies, and workforce transition. This will be key to maintaining industrial competitiveness and public trust.⁴¹ To ensure inclusive decarbonisation, the Fund should also earmark a dedicated share, such as 10-15% of revenues from ETS auctions and CBAM certificate sales for direct social protection, including for workers in CBAM-exposed sectors (e.g, steel, aluminium) facing layoffs or wage cuts.
- (e) Critically, ETS and carbon border revenues alone will not suffice to finance the full scope of the transition, including Just Transition measures. The Climate Fund should therefore be designed to leverage international climate finance and catalyse private investment through blended finance structures. The Green Climate Fund, bilateral donors, and ASEAN facilities can provide concessional capital to de-risk investments in digital infrastructure, MRV systems, and community-based programme delivery.
- (f) Blended finance mechanisms, in which public or philanthropic capital absorbs first-loss positions, have proven effective in mobilising private investment for climate projects in emerging

³⁹ The EU CBAM's reform and remaining implementation challenges for low- and middle-income countries.

⁴⁰ Amporn Supjindavong, 'Why SMEs Must Prepare for the Green Economy' *Bangkok Post* (2024).

⁴¹ See Part 1 on ETS,

markets. To date, 1,233 blended finance transactions have been recorded globally, with a combined market value of \$231 billion, according to Convergence data.⁴²

- (g) Development impact bonds and outcomes-based funds offer additional instruments to finance workforce retraining and social services linked to verified results, shifting performance risk to investors while ensuring accountability for measurable outcomes. Thailand may also consider issuing sovereign green or sustainability-linked bonds

earmarked for just transition objectives, following the framework established by ICMA principles and the ASEAN green bond standards.

- (h) A diversified funding architecture, combining carbon revenues, international concessional finance, impact investment, and private sector participation, will be essential to ensure that the Climate Fund's resources match the scale of Thailand's decarbonisation ambitions while protecting vulnerable workers and communities throughout the transition.

26.2 Examples of other jurisdictions

Country/region	Mechanism	Social allocation
European Union	Social Climate Fund (SCF)	Redistributes ETS2 revenues to support vulnerable households and SMEs with energy bills, transport, and building upgrades. European Union – Social Climate Fund (Regulation EU 2023/955) Article 3.2: The specific objectives of the Fund shall be to support vulnerable households, vulnerable micro-enterprises and vulnerable transport users, through temporary direct income support and through measures and investments intended to increase the energy efficiency of buildings, decarbonisation of heating and cooling of buildings, including through the integration in buildings of renewable energy generation and storage, and to grant improved access to zero and low emission mobility and transport.
Switzerland	CO ₂ Levy	Two-thirds of the revenue is returned to the population and businesses, while the remaining one-third funds programmes for energy-efficient buildings, renewable energy, and

⁴² State of Blended Finance 2024: Climate Edition, Convergence.

Country/region	Mechanism	Social allocation
		greenhouse gas reduction technologies
Germany	Energy and Climate Fund (EKF) (has been folded into the broader Klima und Transformationsfonds (KTF))	Germany – Energy and Climate Fund Act (EKFG) Section 2: the special fund enables additional programme expenditures to promote an environmentally friendly, reliable, and affordable energy supply, as well as climate protection. Furthermore, all federal programme expenditures for the development of electromobility are consolidated within the special fund. Measures in the following areas can be financed from the special fund: • Energy efficiency • Renewable energies • Energy storage and grid technologies • Energy-efficient building renovation • National climate protection • International climate and environmental protection • Development of electromobility

26.3 Why it matters?

(a) In Thailand, the implementation of climate policies, particularly carbon pricing, faces a significant risk of public backlash and resistance, especially among sectors and communities reliant on carbon-intensive industries such as oil refining, manufacturing, oil and gas refining and cement and construction. These sectors not only contribute substantially to national emissions but also provide livelihoods for a large portion of the population, including informal workers who lack social protection.

- (b) Rising energy and fuel costs driven by carbon pricing could potentially disproportionately affect low-income households and small businesses, exacerbating existing economic vulnerabilities. Limited market acceptance of carbon pricing - due to low awareness, perceived unfairness, and weak incentives - could undermine its effectiveness and political viability.
- (c) Concerns around national competitiveness also loom large, as industries fear losing ground to regional peers not subjected to similar carbon costs. Aggravating these challenges are energy security risks, given Thailand's heavy reliance on imported fossil

- fuels and the volatility of global energy markets.
- (d) Without targeted support, transparent governance, strategic reinvestment of carbon revenues through the Climate Fund and clear communication, Thailand's decarbonisation efforts may struggle to gain the public trust and institutional resilience needed for a just and sustainable transition.
 - (e) According to the OECD, there is greater public acceptance for climate policy, including carbon pricing, when climate revenues are earmarked toward green infrastructure, low-carbon technologies and social protection.⁴³ Green spending amounts to 40% of carbon taxes and ETS revenues and 10% for direct transfers to vulnerable households and firms.⁴⁴

especially on vulnerable households. They are direct payments of money to individuals or households, typically aimed at improving welfare, reducing poverty, or offsetting costs - such as those from rising energy prices due to carbon pricing.

- (ii) They come in various types and forms:

- (A) **Unconditional Cash Transfers (UCTs)** provide support without requirements, while **Conditional Cash Transfers (CCTs)** link payments to behaviours like school attendance or health check-ups.

- (B) **Targeted transfers** focus on specific groups such as informal workers or rural poor, based on income or location, whereas *universal transfers* offer payments to all citizens, often with progressive taxation to recover costs from higher-income groups.

- (iii) Delivery mechanisms vary by context.
- (iv) *Bank account transfers* are efficient where financial infrastructure is strong, while *mobile money* is ideal for populations with high phone penetration but limited banking access.

27 Examples of social safeguards measures

Cash transfers, housing upgrades, skills and job transition programmes have consistently proven effective in addressing regressive income effects, labour market dislocation, and distributional inequities associated with carbon pricing. These measures support populations most exposed to transition risks, including low-income households, workers in carbon-intensive sectors, and structurally disadvantaged regions. This Section outlines key social safeguards and policy options that can be considered to ensure inclusive decarbonisation from the outset.

27.1 Carbon Revenue Redistribution via Targeted Cash Transfers

- (a) Cash transfers
 - (i) Cash transfers can be specifically designed to compensate for the impacts of carbon pricing,

⁴³ A. Dechezleprêtre, A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico, and S. Stantcheva, "Fighting Climate Change: International Attitudes toward Climate Policies," OECD Economics Department Working Paper 1714, 2022.

⁴⁴ A. Poupard, M. Fetet, and S. Postic, "Global Carbon Accounts in 2022," Institute for Climate Economics, September 2022: [220915-18h13-i4ce3632-ComptesMondiaux2022-VA-10p.pdf](https://www.ice3632.comptesmondiaux2022-VA-10p.pdf).

- (v) *Cash-in-hand* distribution through local offices remains important in remote areas, and
- (vi) *Digital wallets* like Thailand's Prompt Pay offer scalable, tech-driven solutions.
- (vii) These transfers offer *quick relief* from rising energy costs, flexibility in spending, and, by increasing the purchasing power of low-income households, *stimulate local economies*, particularly when directed at low-income groups. Most importantly, they help *offset the regressive effects of carbon pricing*, promoting social equity.
- (viii) Implementation faces challenges, however, particularly in identifying who truly needs support, especially in countries with large informal sectors. *Targeting accuracy* is critical in countries with large informal sectors, and *administrative capacity* must be strong to prevent fraud and delays. Finally, *political buy-in* is essential. Public trust in the fairness and transparency of these programmes determines their long-term success.
- (ix) Several jurisdictions have successfully implemented cash transfers to compensate for the impacts of carbon pricing.

Country/ region	Climate Fund name	Cash transfer use case	Relevant provisions
Canada	Canada Carbon Rebate (previously the Climate Action Incentive or CAI)	Direct cash payments were made to households and small businesses to offset the cost of federal pollution pricing. In March 2025, the Government of Canada stopped the federal fuel charge as well as the Carbon Rebate for individuals.	Government of Canada, Department of Finance, Budget 2019 "A portion of the fuel charge proceeds shall be returned to individuals and families through Climate Action Incentive payments, delivered via tax returns." Payment amounts are set by the Greenhouse Gas Pollution Pricing Act. As of March 2025, direct cash payments were stopped by setting the payment amounts in Schedule 2 to the Act at zero.
Kenya	National Safety Net Program (NSNP)	Regular electronic cash transfers (now largely delivered via mobile money and eCitizen-M-Pesa channels) to poor and vulnerable groups, including informal workers, to reduce poverty and strengthen resilience.	Constitution of Kenya (2010), Kenya's Vision 2030, and Kenya National Social Protection Policy 2011 (establishing NSNP as the main social assistance framework implementing constitutional and Vision 2030 commitments)

27.2 Energy Efficiency and Housing Upgrades

Carbon pricing mechanisms may disproportionately affect low-income households due to their limited capacity to absorb increased energy costs.

Therefore, targeted energy efficiency and housing upgrades are essential to ensure equitable climate action. Carbon pricing revenues can be recycled to reinforce existing support mechanisms to improve energy efficiency and housing upgrades and therefore mitigate increased energy costs.

27.3 Energy efficiency and housing upgrades measures include:

- (a) **Subsidised Retrofitting:** includes subsidies to improve homes' energy efficiency, including better insulation, improved ventilation, energy-efficient lighting and appliances.

Through partnerships with local authorities, civil society and community groups, households receive materials, technical support and appliances at reduced or no cost.

- (b) **Heat Pump Leasing Programmes** offer lease-to-own schemes that allow households to access energy-efficient systems - like heat pumps - without large upfront costs. This is particularly relevant for Thailand. The hot climate drives demand for cooling. Many households rely on inefficient fans or old AC units which are energy-consuming.

- (c) **Landlord-Tenant Incentive Alignment:** Provide renovation subsidies only if tenants are protected from rent hikes ("renoviction" safeguards).

Country/ region	Climate fund name	Energy efficiency and housing upgrades use case
France	National Carbon Tax Revenue Energy Transition for Green Growth Act (2015) and reinforced by the Finance Law 2020, which earmarks carbon tax revenues for residential energy retrofits.	Revenue from carbon tax is recycled into the "MaPrimeRénov" program, offering direct subsidies for energy retrofits (home insulation, window replacement and heating system upgrades) targeting low-income households
California, United States	Inflation Reduction Act (IRA) + State Climate Funds	Programmes like TECH Clean California (funded by California Climate Investments and now channelling IRA-funded Home Energy Efficiency and Electrification Rebates Act rebates) and Bay Area Regional Energy Network (California Public Utilities Commission-funded regional efficiency programmes) provide incentives and rebates for home retrofits, including dedicated offers for low-income and income-qualified households.

Country/ region	Climate fund name	Energy efficiency and housing upgrades use case
Germany	Energy and Climate Fund (EKF)	EKF (now the Climate and Transformation Fund) finances KfW loans and grants for energy-efficient construction and renovation, among other climate programmes. The fund is largely fed by emission-trading and national carbon-pricing revenues, so building retrofit support indirectly helps households and firms cope with higher energy costs under carbon pricing.
European Union	• Clean Industrial Deal, announced in February 2025 to link industrial competitiveness with decarbonisation. • Industrial Decarbonisation Accelerator Act (planned under the Clean Industrial Deal). • The Commission's Action Plan for Affordable Energy includes an EU Guarantee Scheme for Energy Efficiency Services (to support leasing models). • The Commission has announced upcoming guidance on "social leasing" for EVs and heat pumps under the Clean Industrial Deal	EU guidance under the Clean Industrial Deal promotes social leasing models and financial guarantees so that low-income households can access heat pumps without upfront costs, with monthly payments backed by public support.
United Kingdom	Boiler Upgrade Scheme Boiler Upgrade Scheme (England and Wales) Regulations 2022(SI 2022/565), are made under Section 100 and 104(2) of the Energy Act 2008	The scheme, administered by Ofgem, provides upfront capital grants to reduce the cost of switching to heat pumps (currently £7,500 for air and ground source heat pumps) and £5,000 for biomass boilers, helping households overcome upfront cost barriers. (Funding comes from general public expenditure under the Heat and Building Strategy).

Country/ region	Climate fund name	Energy efficiency and housing upgrades use case
Germany	CO₂ Cost Sharing Law CO ₂ KostAufG (Carbon Dioxide Cost Sharing Act), effective January 1, 2023. Linked to Germany's Fuel Emissions Trading Act (BEHG), which introduced carbon pricing for heating fuels.	Mandated cost-sharing between landlords and tenants. Landlords must cover a portion of carbon price-related heating costs if buildings are inefficient up to 95%. In very efficient buildings, tenants pay 100%. This is designed to incentivise landlords to retrofit.
British Columbia, Canada	Carbon tax revenue Rental Apartment Retrofit Accelerator (RARA) is a pilot programme in British Columbia, delivered by LandlordBC and FRESCO, funded by the City of Vancouver, CleanBC, BC Hydro, and later also Victoria, Saanich and the BC Retrofit Accelerator/ZEIC.	RARA, funded by the City of Vancouver and partners (CleanBC, BC Hydro, ZEIC and participating municipalities), provides grants and technical support for retrofits in rental buildings. Programme design and associated guidance highlight maintaining stable tenancies and minimising tenant displacement during upgrades. However, formal limits on evictions and rent increases are mainly governed by BC's Residential Tenancy Act, not RARA alone.
Canada (federal)	Canada Greener Homes Affordability Program Grants provided by the Government of Canada (Natural Resources Canada). The program is administered through partnerships with provincial governments. Currently, only Manitoba residents may apply to the program.	The program provides low to median income homeowners and tenants with no-cost home retrofits, such as insulation and heat pumps. The program launched in 2025 and will be delivered to participants by selected organizations that will handle all the logistics and costs associated with planning and delivering home retrofits to reduce energy bills.

27.4 Skills and Job Transition programmes

The Just Transition

- (a) The EU CBAM targets carbon-intensive sectors such as steel, aluminium, cement, and fertilisers, industries that employ large numbers of low-income and informal workers in Thailand. As CBAM raises the cost of exporting to the EU, Thai manufacturers may face reduced demand, leading to downsizing, wage compression, or job losses. Without proactive support, vulnerable workers risk being

displaced from carbon-intensive industries without access to alternative employment or social protections.

- (b) The concept of a *Just Transition* emerged from labour movements in the 1970s and has since evolved into a global framework for ensuring that climate action does not come at the expense of workers and vulnerable communities. It emphasises equity in the shift to low-carbon economies by supporting retraining, job placement, and social protection for those

affected by decarbonisation policies.⁴⁵ Several jurisdictions have implemented job transition programmes to operationalise this principle. For example, Spain launched a national Just Transition Strategy that includes early retirement schemes and retraining for coal workers;⁴⁶ Canada established a Task Force for Just Transition for coal power workers and communities in

2018, whose 2019 recommendations led to the government programmes offering skills development, economic diversification support and transition centres in affected regions;⁴⁷ and Scotland created a Just Transition Commission to guide inclusive labour market reforms tied to its net-zero goals.⁴⁸

Case study: South Africa

South Africa stands out among developing countries for formally embedding Just Transition principles into its climate governance framework. Through its **Presidential Climate Commission ("PCC")**, South Africa developed a national Just Transition Framework that emphasises **procedural equity, restorative justice, and economic diversification for affected regions and sectors**. This approach is closely linked to its **national carbon tax**, which has been in place since 2019 and is designed not only to reduce emissions but also to fund transition support for workers in carbon-intensive industries such as coal, steel, and cement.

As the most industrialised economy in Africa, it has historically exhibited a highly carbon-intensive profile, ranking among the top 20 global emitters, with coal accounting for 80–90% of electricity generation. This heavy reliance on fossil fuels, particularly due to Eskom's ageing fleet of coal-fired power plants, makes the power sector the country's largest source of greenhouse gas emissions. Additional emissions stem from energy-intensive industries such as mining, petrochemicals, and metals production. This fossil-heavy profile, coupled with the country's socio-economic challenges (including a poverty rate of roughly half the population living under \$100 per month and unemployment exceeding 30%), has shaped its climate policy.

The Carbon Tax Act 15 of 2019 put a price on carbon emissions in line with the polluter-pays principle. The rate increased to R236 per tonne CO₂e as of January 2025 (approximately USD 12-13 at prevailing exchange rates), with legislated annual increases. However, recognising the need for a "soft landing" for the economy, the tax was designed with generous allowances in its first phase (2019-2025). Tax-free exemption thresholds ranging from 60% up to 95% of emissions were granted, resulting in effective tax rates of only R6-R48 per tCO₂e, far below the headline rate.⁴⁹

The Government stipulated that the carbon tax would not raise electricity prices during the first phase. This was achieved by coupling the tax on Eskom's emissions with a commensurate reduction in an existing electricity levy and other support, so that the net effect was neutral on tariffs.

⁴⁵ International Labour Organization, *Guidelines for a just transition towards environmentally sustainable economies and societies for all* (ILO 2015).

⁴⁶ Government of Spain, *Just Transition Strategy* (2020). Available at: <https://www.miteco.gob.es/es/ministerio/planes-estrategias/estrategia-transicion-justa.aspx>.

⁴⁷ Government of Canada, *Final Report of the Task Force on Just Transition for Canadian Coal Power Workers and Communities* (2019).

⁴⁸ Scottish Government, *Just Transition Commission: Final Report* (2021).

⁴⁹ Climate Action Tracker, South Africa – Policies & Action. Climate Action Tracker. Available at: [Policies & action | Climate Action Tracker](#).

The policy goals were thus twofold: mitigate climate change cost-effectively (the tax is central to meeting South Africa's Paris pledge of cutting emissions to 350–420 MtCO₂e by 2030) and do so in a way that avoids undermining economic growth or exacerbating energy poverty in the near term. Alongside the tax, the Climate Change Act 22 of 2024 (which came into effect on 17 March 2025) establishes a legal architecture for a low-carbon transition, including binding sectoral emission targets and carbon budgets for major emitters. The Act's objective explicitly calls for "a long-term just transition to a climate-resilient low-carbon economy and society".

Impact on Affected Populations: Due to design features such as high allowances and neutralisation of electricity tariffs, the tax had minimal direct impact on low-income households during Phase 1. Vulnerable communities were further protected through existing mechanisms like the Free Basic Electricity allowance. Industrial employment remained stable, as energy-intensive sectors were largely shielded from compliance costs. However, medium-term risks were identified for coal-dependent regions such as Mpumalanga, where future plant closures linked to climate policy could affect local employment, municipal revenues, and social cohesion. Meanwhile, Indigenous and traditional communities in areas such as the Northern and Eastern Cape faced exclusion risks as large-scale renewable energy and hydrogen projects advance without robust FPIC mechanisms, raising concerns about land rights, consultation gaps, and equitable benefit-sharing.

These risks prompted the establishment of the Presidential Climate Commission and the formulation of the National Just Transition Framework (2022), outlining priorities such as regional economic diversification, worker reskilling, and community consultation.

Policy Response: The policy response included layered interventions: (i) fiscal measures such as energy efficiency tax incentives and renewable energy support funded in part by carbon tax revenue; (ii) tariff protection via a reduced electricity levy; and (iii) strategic planning under the Just Transition Framework.

The Climate Change Act 2024 legally requires climate measures to be "fair and inclusive," and mandates sectoral plans from key ministries. While direct cash transfers have not been implemented, pilot projects under the Just Energy Transition Partnership (JETP), a USD 8.5 billion international financing programme, have begun targeting coal region redevelopment. This includes training coal plant workers for renewable energy operations and localised economic stimulus packages. Stakeholder dialogue has remained a core pillar of implementation. The Presidential Climate Commission has held public consultations in coal towns such as Secunda and Emalahleni, and community-led just transition planning is emerging as a model.

However, gaps remain: Indigenous peoples are not formally recognised as a distinct stakeholder group in either the Climate Change Act or PCC structures, and revenue recycling mechanisms to support affected communities (e.g. off-grid renewables, wage bridging) remain at proposal stage. The Carbon Tax Act does not earmark revenues for social programmes, and vulnerable groups may still face indirect cost burdens through rising prices in sectors like food and transport. Civil society has called for reforms including domesticating Free, Prior and Informed Consent (FPIC) obligations, earmarking carbon revenues for transition support, and enhancing community participation in climate planning. These reforms would align South Africa's approach with international best practices and human rights obligations, offering valuable lessons for countries like Thailand seeking to balance carbon pricing with social equity.

27.5 Additional case studies

Six additional case studies examining distributional impacts across a range of jurisdictions and instrument types are presented in Schedule 3, each framed around specific policy issues and institutional choices that have shaped the outcomes and the perceived legitimacy of carbon pricing instruments in different jurisdictions. Together with the South Africa case study, they cover political support issues linked to compensation design (Australia); community safeguards embedded in primary legislation (Kenya); welfare-integrated carbon tax compensation (Singapore); distributional modelling methodology (New Zealand); and interactions between emissions trading systems and regulated electricity markets with implications for revenue generation and distributional outcomes (South Korea).

28 Communication and outreach

Perceptions of fairness in the process, not just in the outcome, play a vital role in shaping the political acceptability and long-term sustainability of climate transition policies. This means that when designing new decarbonisation strategies and transitional assistance measures, policymakers must go beyond technical efficiency and actively engage those most vulnerable to economic or social losses. Identifying, empowering, and involving these groups early in the policy cycle fosters trust and legitimacy. Equally important is prioritising interventions that deliver tangible, relatable benefits, e.g., delivery of cash transfers or reduced energy bills, rather than focusing solely on abstract emissions targets. Clear, frequent, and transparent communication about redistributive mechanisms and co-benefits of low-carbon policies is essential to counter misinformation and populist narratives that exploit fears of unfairness. In short, fairness must be embedded both in policy design and in how policies are communicated, as this dual approach strengthens resilience against backlash and enhances public support for the transition.

29 Conclusion

- 29.1 The analysis confirms that distributional impacts constitute one of the central political and institutional risks to the durability of Thailand's emerging carbon pricing framework. While carbon pricing remains among the most cost-effective instruments for emissions reduction, its social and economic incidence is inherently uneven and, absent targeted safeguards, may generate regressive outcomes across households, firms and regions.
- 29.2 Direct price effects arising from carbon taxes, ETS cost pass-through and CBAM-related compliance pressures are likely to fall disproportionately on low-income households, micro and small enterprises, and workers in carbon-intensive sectors and regions. Indirect effects transmitted through electricity prices, transport costs and upstream supply chains further amplify exposure, particularly where labour is informal or subcontracted and adjustment capacity is limited.
- 29.3 The distributional consequences of the framework will be highly design-dependent. Sectoral coverage, sequencing, free allocation, exemptions, and the treatment of cost pass-through will shape the initial incidence of costs, while the scale, targeting and governance of revenue recycling will determine whether net outcomes are progressive or regressive over time. In this context, the Climate Fund represents the primary institutional mechanism through which distributional risks can be mitigated, provided that it operates with transparent allocation rules, credible oversight, and a clear mandate to support households, SMEs and affected workers and regions.
- 29.4 At present, data and modelling constraints represent a binding limitation on effective policy design. Without a robust empirical foundation based on household consumption micro-data, input-output tables and regional employment exposure, the calibration of compensation mechanisms risks being ad hoc and politically vulnerable. International experience demonstrates that failure to anticipate and address distributional effects at an early stage significantly increases the likelihood of

public resistance, policy reversals and long-term credibility loss.

- 29.5 With early investment in analytical capacity, institutional safeguards and transparent revenue recycling, Thailand has a material opportunity to embed just-transition principles into the core architecture of its carbon pricing system, thereby strengthening political legitimacy, protecting vulnerable groups, and supporting an orderly structural transformation of the economy.

30 Recommendations

- 30.1 To strengthen the social sustainability and political resilience of Thailand's carbon pricing framework, we recommend the following measures.
- 30.2 Integrate distributional safeguards into system design from the outset
- 30.3 Explicit distributional objectives should be embedded alongside environmental and fiscal objectives in the design of the ETS, carbon tax and any future CBAM. Safeguards should be defined ex ante to protect low-income households, micro-enterprises and exposed workers and regions, rather than relying on ex post corrective measures once adverse impacts emerge.
- 30.4 Undertake and institutionalise distributional impact assessment
- 30.5 A formal distributional impact assessment should be undertaken prior to the first compliance period and updated periodically as sectoral scope and price levels evolve. This assessment should combine household budget survey data (disaggregated by income decile), input–output analysis and regional employment exposure mapping, supported by transparent assumptions on cost pass-through and behavioural response. Results should inform both policy calibration and the allocation strategy of the Climate Fund.

- 30.6 Adopt a coherent and visible revenue-recycling strategy

- (a) Carbon revenues should be recycled through a clearly articulated strategy combining:
- (i) targeted cash transfers or rebates to offset energy and transport cost increases for vulnerable households;
 - (ii) structural bill-reduction measures, including energy-efficiency and housing-upgrade programmes; and
 - (iii) workforce transition instruments, including reskilling, job-placement and regional diversification support in exposed sectors and regions.
- (b) Visibility of benefits will be central to sustaining public acceptance and compliance.

- 30.7 Operationalise Just Transition delivery through the Climate Fund.

- 30.8 The Climate Fund should be endowed with a clear statutory mandate to deliver social protection and workforce transition objectives. Transparent eligibility criteria, prioritisation rules and reporting obligations should be established, with ring-fenced allocations for households, SMEs and affected workers and communities. Independent oversight and outcome monitoring should be incorporated to ensure credibility and accountability.

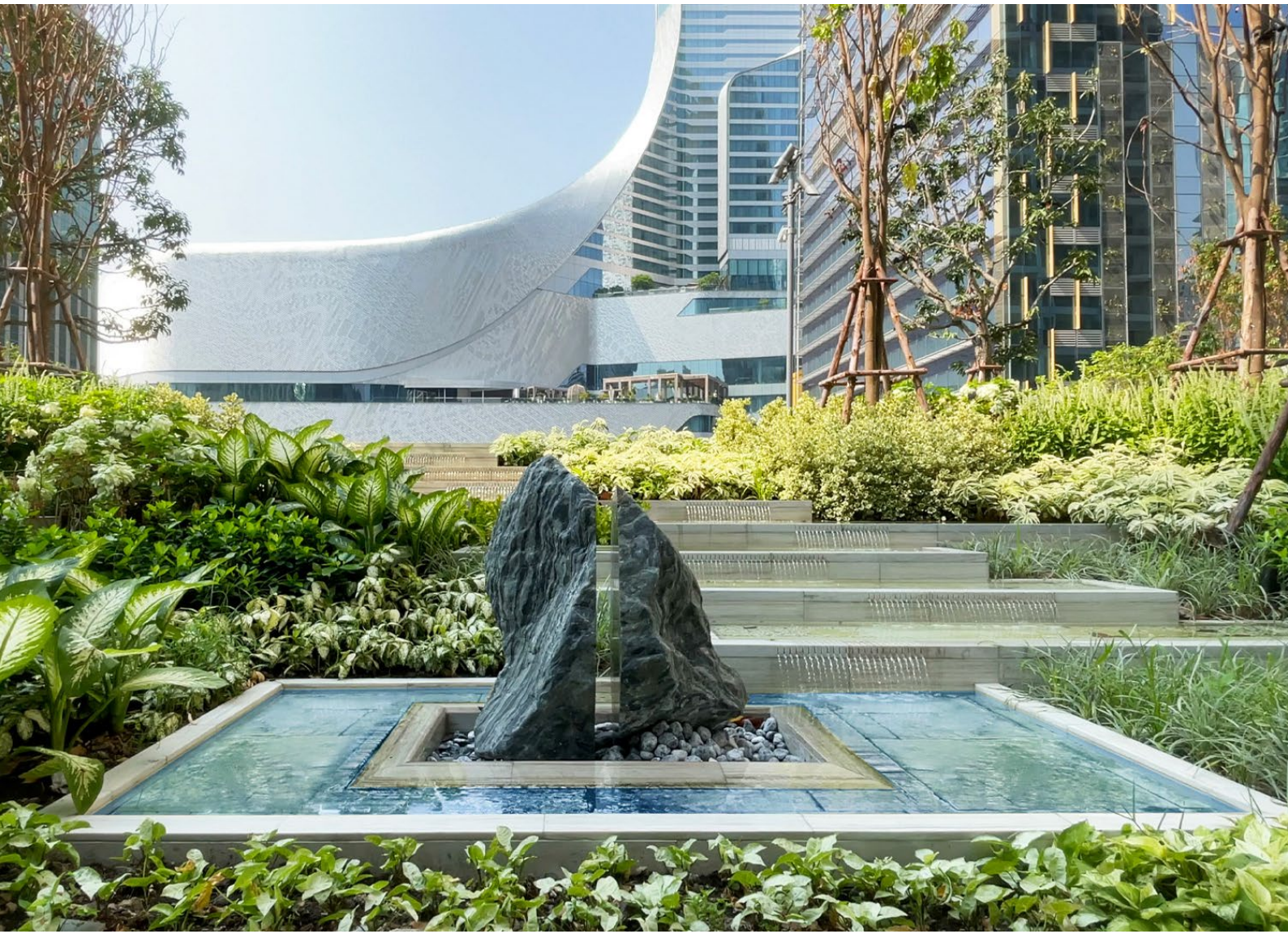
- 30.9 Prioritise SME inclusion and capacity building

- 30.10 Targeted technical assistance, simplified compliance tools and dedicated finance should be provided to SMEs to manage carbon-pricing exposure, build MRV capability and prevent exclusion from domestic and international supply chains. Particular attention should be paid to export-linked SMEs exposed to CBAM-driven cost transmission.

- 30.11 Strengthen governance, procedural fairness and grievance mechanisms

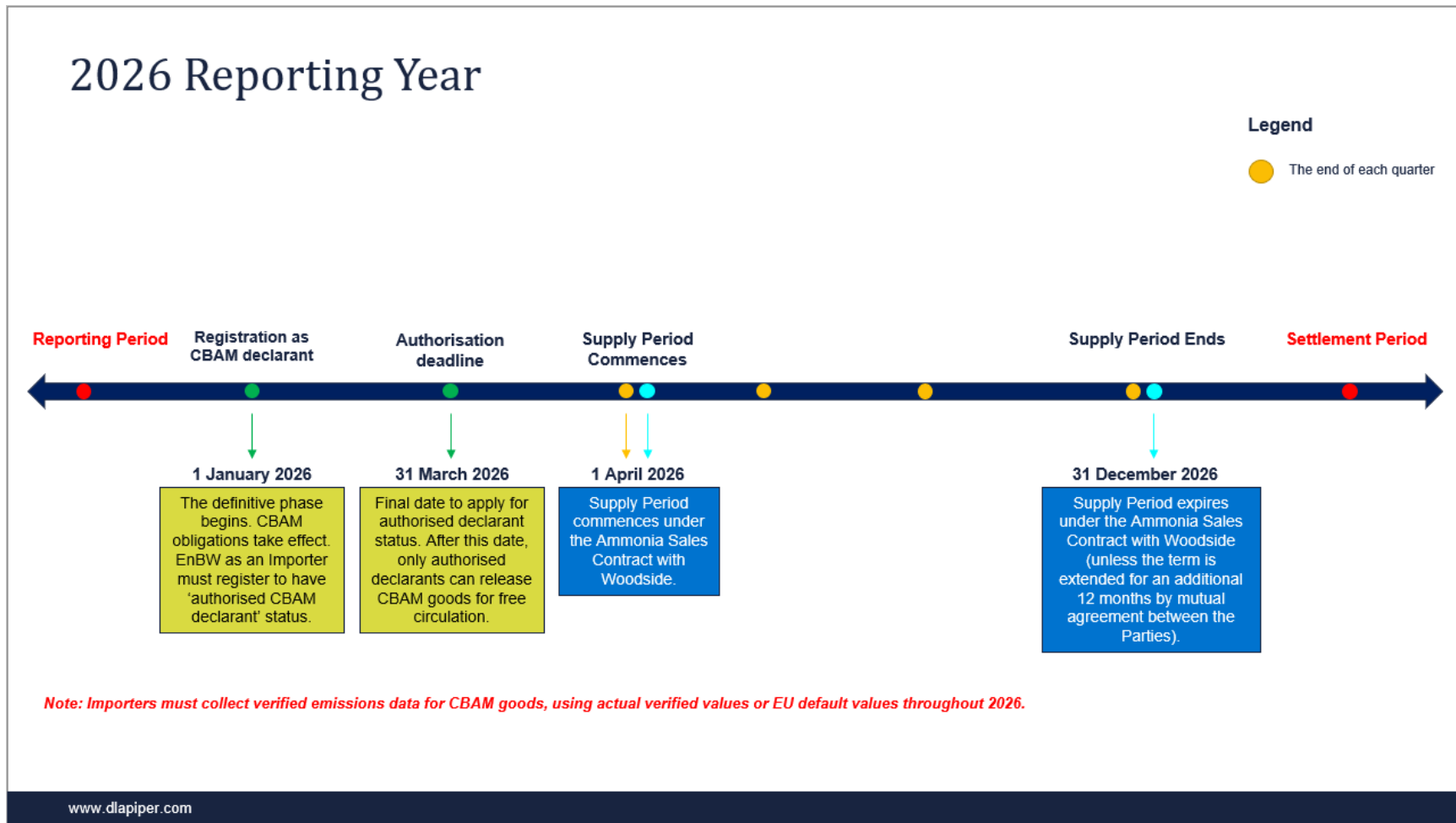
- 30.12 Accessible grievance and redress mechanisms should be established to allow households, workers and firms to raise concerns where climate measures cause unintended harm or where statutory duties are not performed. Procedural fairness will be essential to maintaining trust and limiting political backlash.
- 30.13 Embed a proactive communications and engagement strategy

- 30.14 Government should communicate early and consistently how carbon revenues are used, who benefits, and how safeguards operate, using clear and practical messaging linked to household budgets, employment and local economic conditions. Early engagement with affected communities, trade unions and industry associations will be critical to sustaining legitimacy throughout the transition.

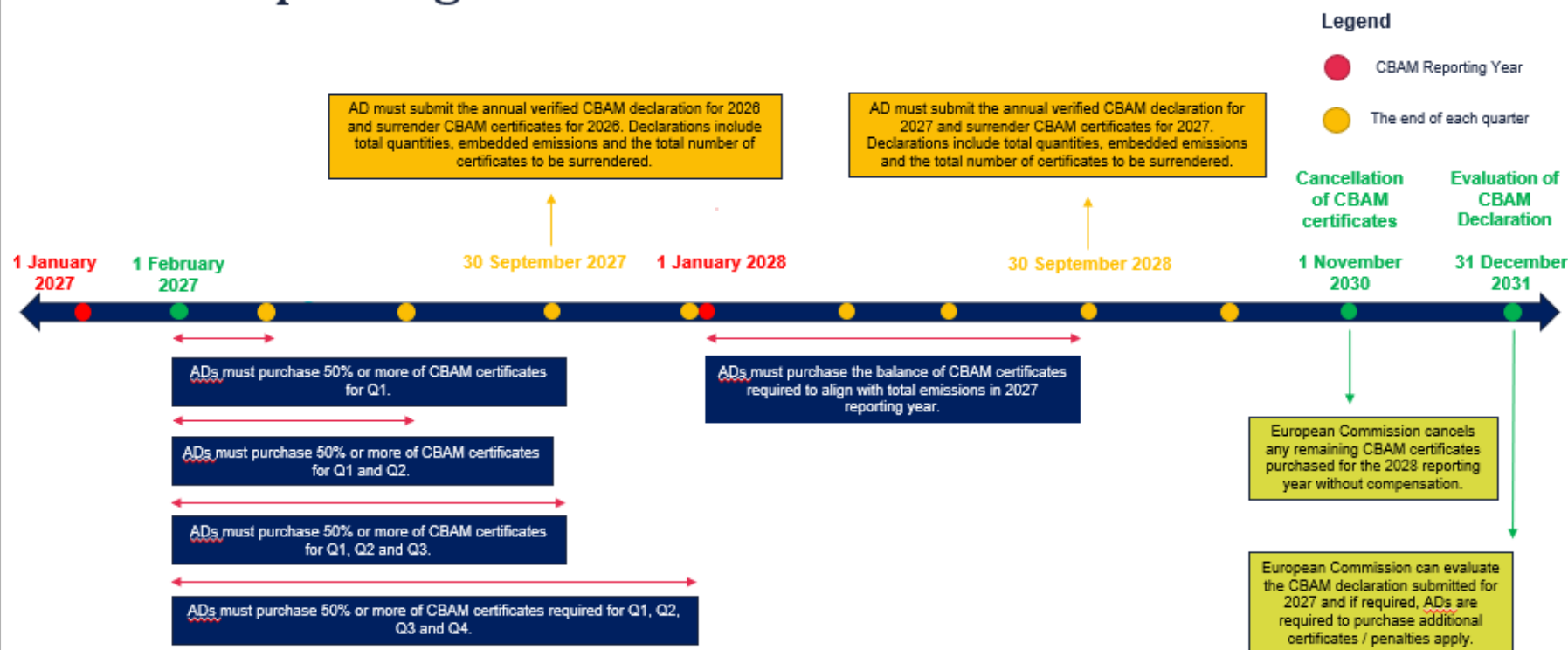


Practical CBAM Compliance Handbook for Thai Exporters

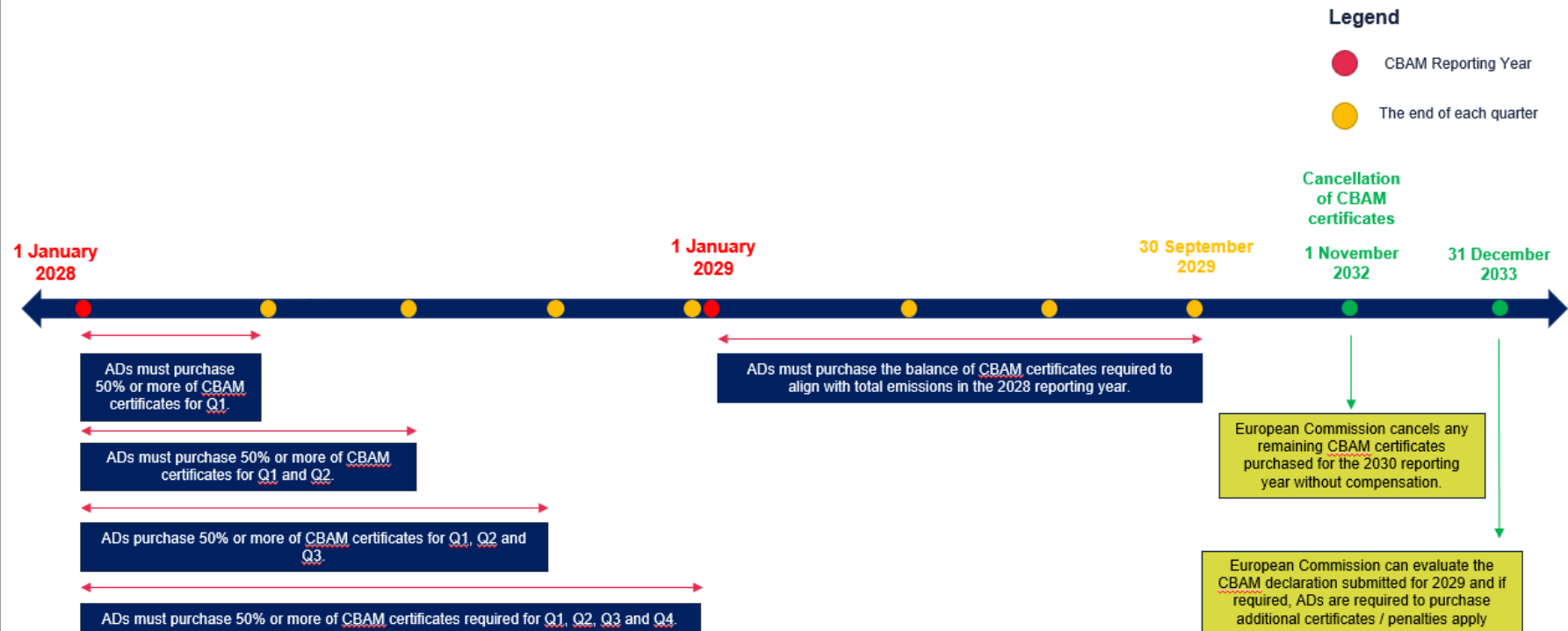
To support implementation, Schedule 1 sets out a Practical CBAM Compliance Handbook for Thai exporters. The handbook is designed to present the CBAM compliance cycle in a clear and accessible format, including key timelines, reporting requirements and certificate obligations.



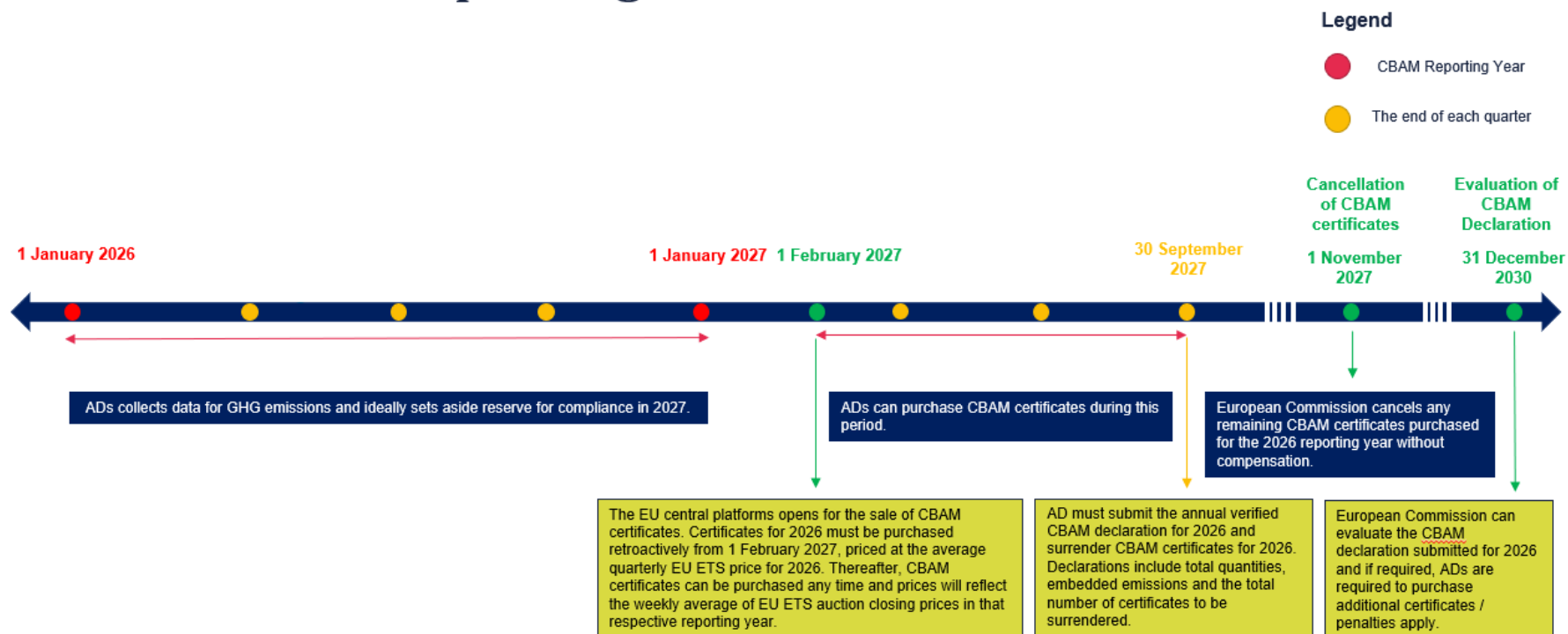
2027 Reporting Year



2028 Reporting Year



2026 – 2030 Reporting Year



Schedule 1 Compliance checklist for CBAM covered industries

➤ Map Your Exposure

- Determine whether goods enter the EU customs territory and Identify all importing EU countries and
- Confirm whether your products fall within CBAM covered sectors (e.g., steel, aluminium, cement, fertilisers, hydrogen, electricity).

➤ Register and Obtain Authorisation

- Register with the relevant EU Member State authority to become an Authorised CBAM Declarant.
- Ensure internal teams understand the obligations that come with authorised status.

➤ Assess Shipment Eligibility

- Determine whether any imports qualify for the de minimis threshold (small shipments exemption).
- Review supply chains to identify where CBAM applies and where exemptions may reduce reporting or cost burdens.

➤ Determine Embedded Emissions

- Identify whether you can use:
 - Default values (where permitted), or
 - Actual emissions data (preferred and increasingly required).
- Engage with upstream producers to obtain verified emissions data aligned with EU MRV standards.

➤ Build MRV and Data Systems

- Begin collecting emissions data now to ensure readiness for next year's CBAM submission.
- Establish internal processes for:
 - Data collection
 - Verification
 - Record-keeping
 - Reporting
- Train staff on CBAM rules, timelines, and documentation requirements.

➤ Prepare for Financial Obligations

- Estimate the number of CBAM certificates you will need based on projected imports.

- Build cash reserves to purchase CBAM certificates once the definitive phase begins.
- Monitor CBAM certificate prices and EU ETS trends to anticipate cost exposure.

➤ Establish Internal Compliance Governance

- Designate a CBAM compliance lead or team.
- Develop internal workflows for:
 - Quarterly reporting
 - Annual surrender of certificates
 - Supplier engagement
 - Audit readiness
- Integrate CBAM compliance into broader ESG, carbon management, and export strategies.

➤ Engage Suppliers and Export Partners

- Communicate CBAM requirements to upstream producers.
- Encourage suppliers to adopt EU-aligned MRV practices to avoid reliance on default values.
- Explore opportunities for low-carbon production, energy efficiency, and cleaner inputs.

➤ Monitor Regulatory Developments

- Track updates from:
 - The European Commission
 - EU Member State CBAM authorities
 - Thailand's DCCE and emerging domestic carbon pricing rules
- Adjust compliance processes as CBAM rules evolve toward full implementation.

Schedule 2 Draft Climate Change Act B.E.

DRAFT CLIMATE CHANGE ACT B.E. ... (UPDATED VERSION
FOLLOWING A JOINT CONSULTATION WITH
THE COMPTROLLER GENERAL'S DEPARTMENT ON 27 MARCH
2025)

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PRINCIPLES AND RATIONALE

for the Draft Climate Change Act B.E.

Principles:

To establish a law on climate change.

Rationale:

Due to the increasing severity of global climate change caused by the accumulation of greenhouse gases in the atmosphere, Thailand faces and copes with economic, social, and environmental challenges such as seasonal changes, natural disasters, biodiversity loss, and shifts in international trade and investment patterns. Thailand ratified the Paris Agreement under the UN Framework Convention on Climate Change on September 21, 2016, and committed to driving a sustainable economy by achieving carbon neutrality and net-zero greenhouse gas emissions. To proactively manage impacts and risks effectively, utilise opportunities for sustainable resource management, enhance trade and investment competitiveness, and fulfill international obligations, it is necessary to have effective mandatory and promotional mechanisms to create an enabling environment for reducing greenhouse gas emissions to meet targets, enhance adaptation, recovery, and resilience in relation to climate change for the country, and promote a just transition to a balanced and sustainable economy, society, and environment in a comprehensive manner. However, current laws are insufficient to cover these actions, necessitating the establishment of climate change action goals in fulfilment of the obligations, as well as a committee system for determining climate change policies and action approaches to ensure integration in the performance of functions among the relevant agencies, greenhouse gas emission reporting measures, and carbon pricing mechanisms to achieve emission reduction targets. This will lead to effective climate change management in Thailand and international cooperation to reduce global atmospheric greenhouse gas accumulation. Additionally, cross-border carbon pricing mechanisms will prevent carbon leakage, and financial support mechanisms will drive the country's transition, build resilience, and enhance adaptation to increasingly severe natural disasters caused by climate change. Appropriate penalties will ensure Thailand's effective climate change control under mandatory mechanisms, making this Act necessary.

DRAFT CLIMATE CHANGE ACT B.E.

Whereas it is expedient to have a law on climate change; and

Whereas this Act contains provisions that limit individual rights and freedoms, which Sections 26, 32, 33, 37, and 40 of the Constitution of the Kingdom of Thailand allow by virtue of the provisions of law; and

Whereas the reasons and necessity for limiting individual rights and freedoms are to implement measures for collecting activity data to create the national greenhouse gas inventory and reporting greenhouse gas emissions of legal entities to drive carbon pricing mechanisms for reducing greenhouse gas emissions to meet set targets, and cross-border carbon pricing mechanisms will prevent carbon leakage, and financial promotion mechanisms will support effective climate change adaptation and create an enabling environment for climate change management; and the enactment of this law aligns with the conditions stipulated in Section 26 of the Constitution of the Kingdom of Thailand;

Section 1: This Act is called the "Climate Change Act B.E."

Section 2: This Act shall come into force from the day following its publication in the Government Gazette, except that the provisions in Chapter 4 (Climate Fund) shall come into force two years after this Act comes into force.

Section 3: The provisions of this Act aim to address Thailand's climate change issues by transitioning to a low-carbon economy and society, enhancing adaptation capacity to make Thailand resilient to climate change, and creating an enabling environment for climate change management, which will lead to preventing and mitigating the severity of global climate change issues through cooperation with other countries, aligning with international obligations to maintain the quality and sustainability of Thailand's natural resources and environment, and ensuring the safety and quality of life for the people, future generations, and humanity. The goal is to achieve carbon-neutral economic development and net-zero greenhouse gas emissions, considering equality, fairness, and national competitiveness.

Consider amending as follows: *"The goal is to achieve carbon-neutral economic development while addressing adverse socio-economic impacts of the transition on the most affected regions and sectors. This shall be pursued through a bottom-up, human rights-based approach to adaptation and mitigation, ensuring equality, non-discrimination, participation, and accountability. Systematic stakeholder engagement and inclusive decision-making shall be central to this process, with a specific emphasis on the participation of*

women affected by climate change. These principles shall be upheld alongside maintaining national competitiveness in the global economy"

Section 4: In this Act:

Verification agencies and verification are not defined in Section 4. Consider inserting:

«Verification agency means the Validation and Verification Body (VVB) under the Greenhouse Gas Management Organization"

Consider inserting a definition of verification:

"'verification' means the process of establishing the accuracy and validity of reports, including key assumptions and methodologies, on:

- greenhouse gas emissions and removals by sinks;*
- emissions reductions (or enhancement of removals by sinks) associated with mitigation actions compared to a baseline scenario;*
- progress in achieving climate change mitigation and adaptation, the achievement of sustainable development goals and co-benefits;*
- support received, including but not limited to, finance, technology and capacity-building support; and*
- progress in the implementation of mitigation actions."*

We also suggest that the Government insert a generic definition of "verification agency" to allow for multiple verifiers in the future and/or subcontractors.

"Climate change" means long-term changes in weather patterns and variability due to human activities that directly or indirectly alter the composition of the global atmosphere, beyond natural weather variability observed over the same period.

"Greenhouse gas" means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, nitrogen trifluoride, and other gases as specified in Ministerial Regulations approved by the Committee.

"Greenhouse gas reduction" means human actions that reduce or sequester greenhouse gas emissions from sources or increase greenhouse gas sinks, and other human actions that reduce greenhouse gases in the global atmosphere.

"Climate change adaptation" means actions to reduce risks or prevent losses and damages, and other impacts, actual or expected, from long-term climate change, aiming to enable people, economic systems, society, and the environment to appropriately cope with current and future climate change risks and impacts, including actions to develop economic and social activities to survive or benefit from climate change.

"Climate change management" means setting rules, policies, plans, or measures or mechanisms for greenhouse gas reduction, climate change adaptation, and creating an enabling environment to achieve the objectives of this Act.

"Committee" means the National Climate Change Policy Committee.

"Fund" means the Climate Fund.

"Fund Committee" means the Climate Fund Committee.

"Office" means the Climate Fund Office.

"Director" means the Director of the Climate Fund Office.

"Evaluation Committee" means the Fund Performance Evaluation Committee.

"State agency" means ministries, departments, or other government agencies with departmental status, provincial government, local government, State

enterprises, public organisations, and other State agencies.

"Activity data" means data that can be used to assess or calculate the amount of greenhouse gas emissions or reductions from human activities over a specific period.

"Climate information" means data about the past, present, and future of the climate system necessary for greenhouse gas reduction, climate change adaptation, and other climate change management, created with the needs of data users in mind.

"Climate Information Center" means a place or system that efficiently and reliably collects, stores, manages, and disseminates climate information and climate change management data according to relevant principles and standards.

"Master plan" means the national master plan for climate change adaptation.

"Greenhouse gas reduction plan" means the national action plan for reducing greenhouse gases.

"Adaptation plan" means the national plan for climate change adaptation.

"Greenhouse gas emission rights" means the rights indicating the amount of greenhouse gases allocated by the State to legal entities to control and ensure that emissions do not exceed the rights and to achieve the national greenhouse gas reduction targets.

"Reserve rights" means the reserved greenhouse gas emission rights under this Act.

"Controlled legal entity" means a legal entity declared by the Department as a controlled legal entity under Section 79, including voluntarily controlled legal entities and newly controlled legal entities.

"Voluntarily controlled legal entity" means a legal entity declared by the Department as a controlled legal entity under Section 80.

"Newly controlled legal entity" means a legal entity declared by the Department as a controlled legal entity under Section 81.

"Operational year" means each year of the allocation period as specified in the rights allocation plan.

"Rights allocation plan" means the plan for allocating greenhouse gas emission rights.

"Allocation period" means the total period of any rights allocation plan.

"Cross-border carbon pricing" means setting a carbon price based on the assessment of greenhouse gas emissions in the production of goods imported into Thailand.

"Carbon pricing certificate" means a certificate indicating the direct and indirect greenhouse gas emissions from the production of imported goods, with one unit of the certificate representing one ton of carbon dioxide equivalent emissions.

"Carbon price legally paid in the producing country" means the amount paid in the producing country under greenhouse gas reduction mechanisms in the form of taxes, fees, or charges, or in the form of greenhouse gas emission rights under an emission trading system, calculated from the greenhouse gas emissions in the production of goods subject to such measures.

"Carbon leakage" means the relocation of production and greenhouse gas emissions abroad or the importation of goods produced abroad to replace similar goods produced in Thailand due to differing stringency of climate change policies or laws.

"Tax" means the carbon tax levied on goods under this Act.

"Goods" means items produced or imported and listed in the tariff schedule annexed to this Act.

"Produce" means to make, assemble, improve, process, or transform goods or to perform any action to create goods by any means, but does not include inventions not made for sale.

"Import" means bringing goods into the Kingdom under the customs law applicable to goods under this Act.

"Industrial plant" means a place used for producing goods, including the entire area of such a place.

"Industrial operator" means the owner of an industrial plant, and includes the manager or other persons responsible for the operation of the industrial plant.

"Importer" means the person who imports goods under the customs law.

"Carbon credit" means the amount of greenhouse gases reduced by a greenhouse gas reduction project, certified and recorded in the registry system of the carbon credit certification standard owner, measured in tonnes of carbon dioxide equivalent.

Consider amending the definition as follows:
"Carbon credit" means the amount of greenhouse gases reduced by a greenhouse gas reduction project, certified and recorded in the registry system of the carbon credit certification standard owner, measured in tons of carbon dioxide equivalent, and which is real, additional, measurable, verifiable, permanent, and not subject to double-counting"

"Domestic carbon credit use" means using carbon credits to receive benefits or perform other actions under measures or mechanisms under this Act, including other measures or mechanisms specified by State agencies with conditions or criteria related to greenhouse gas management, and other purposes specified by the Minister based on the Committee's recommendations.

"International carbon credit use" means using carbon credits from greenhouse gas reduction projects located in Thailand to demonstrate performance or achieve greenhouse gas reduction targets of the country or other parties under international agreements, or non-State actors under international organisation requirements or agreements to which Thailand is a party, and other purposes specified by the Committee as international purposes under this Act.

"International standard" means the carbon credit certification standard of mechanisms established under international agreements to which Thailand is a party.

"Independent standard" means carbon credit certification standards other than international standards and standards set by the Organisation.

"Carbon credit business" means conducting business in the following types:

- (a) Carbon credit certification service providers under independent standards.
- (b) Other carbon credit-related businesses specified by the Minister based on the Committee's recommendations.

"Competent official" means a person appointed by the Minister to perform duties under this Act.

"Department" means the Department of Climate Change and Environment.

"Director-General" means the Director-General of the Department of Climate Change and Environment.

"Organisation's Board" means the Board of Directors of the Greenhouse Gas Management Organisation.

"Organisation" means the Greenhouse Gas Management Organisation (Public Organisation).

"Minister" means the Minister responsible for enforcing this Act.

Section 5: The Minister of Natural Resources and Environment and the Minister of Finance shall be responsible for enforcing this Act and have the authority to appoint competent officials and issue Ministerial Regulations and announcements to implement this Act within their respective duties and powers.

Such Ministerial Regulations and announcements shall come into force upon publication in the Government Gazette.

Chapter 1 General Provisions

Section 6: Individuals and communities have:

To fully align with Article 12 of the Paris Agreement and the Aarhus Convention, consider adding:

«the right to meaningful public participation in decision-making processes»

«the right to seek legal remedies for breaches of rights or non-compliance with Climate obligations».

- (1) the right to be informed and supported by the State to prepare for impacts from climate and climate change, both sudden and gradual;
- (2) the right to access national greenhouse gas data, climate forecasts and climate change data, climate and climate change risk and impact assessment data, and data about State actions under this Act;
- (3) the right to express opinions on climate change management; and
- (4) the right to receive promotion for climate change actions under Chapter 4;

as stipulated by this Act or related laws.

Section 7: In preparing the master plan, greenhouse gas reduction plan, and adaptation plan, the Department shall gather

opinions from stakeholders, relevant State agencies, and the public, and incorporate these opinions into the plans.

State agencies may prepare action plans within their duties and powers to facilitate the implementation of the master plan, greenhouse gas reduction plan, adaptation plan, or other provisions of this Act, but must also gather opinions from stakeholders, relevant State agencies, and the public, and incorporate these opinions into the plans.

If there are existing laws on gathering opinions as mentioned in paragraph one, the criteria, methods, and conditions applicable to gathering opinions under those laws shall also apply, unless otherwise specified by this Act.

Chapter 2 Thailand's Climate Change Action Goals

Consider adding a section on climate financing mechanisms (as outlined in subsequent Chapters of the Bill) to support implementation, as follows: *"The implementation of these goals shall be supported by mobilising climate finance through domestic and international sources, including cooperation under mechanisms such as the Green Climate Fund and carbon market instruments as outlined in Chapters 8, 9, 10 and 11"*

Section 8: The Department shall set short-term, medium-term, and long-term climate change action goals for Thailand that align with international obligations and ensure effective and efficient climate change-related implementation within the specified timeframe, as follows:

- (1) Thailand shall reduce greenhouse gas emissions within the timeframe and targets set by the country's contributions.
- (2) Thailand shall achieve carbon neutrality by 2050.
- (3) Thailand shall achieve net-zero greenhouse gas emissions by 2065.
- (4) Thailand shall adapt to build resilience to climate change.

Section 9: Under Section 8, Thailand's climate change action goals shall be part of the mission of all State agencies, and each agency shall set goals, action plans, and climate change measures in their respective sectors to align with national goals, integrate national goals with other related missions, and

achieve the goals within the specified timeframe.

To achieve Thailand's climate change action goals as mentioned in paragraph one, State agencies shall prepare sufficient annual budgets that align with their missions and duties under the master plan, greenhouse gas reduction plan, adaptation plan, action plans, and climate change measures.

Chapter 3 National Climate Change Policy Committee

To ensure accountability and participation by members of the public in climate change initiatives, consider establishing a complaint mechanism within the institutional framework to provide redress in instances where there is a failure by a responsible State agency to perform its duty and the said failure has not been penalised or otherwise acted upon.

Section 10: There shall be a committee called the "National Climate Change Policy Committee," consisting of:

The Bill prescribes a highly centralised governance structure. While provincial perspectives may be reflected indirectly through representation of the Ministry of Interior and civil society organisations, there is no explicit provision for direct subnational participation in national-level climate decision-making or planning. In this context, consideration could be given to whether subnational engagement should be more formally institutionalised, for example through representation of Provincial Governors, rotating regional participation, or an advisory mechanism, to strengthen implementation coordination and ensure that local-level considerations are reflected in national policy design.

Likewise, we recommend that a representative of an affected group or community be included on the Committee to ensure meaningful participation.

- (1) The Prime Minister or a Deputy Prime Minister assigned by the Prime Minister as the chairperson.
- (2) The Minister of Natural Resources and Environment as the first vice-chairperson, and the Minister of Foreign Affairs as the second vice-chairperson.

- (3) Ex officio members, including the Permanent Secretary of the Ministry of Finance, the Permanent Secretary of the Ministry of Foreign Affairs, the Permanent Secretary of the Ministry of Tourism and Sports, the Permanent Secretary of the Ministry of Social Development and Human Security, the Permanent Secretary of the Ministry of Higher Education, Science, Research and Innovation, the Permanent Secretary of the Ministry of Agriculture and Cooperatives, the Permanent Secretary of the Ministry of Transport, the Permanent Secretary of the Ministry of Digital Economy and Society, the Permanent Secretary of the Ministry of Energy, the Permanent Secretary of the Ministry of Commerce, the Permanent Secretary of the Ministry of Interior, the Permanent Secretary of the Ministry of Labour, the Permanent Secretary of the Ministry of Education, the Permanent Secretary of the Ministry of Public Health, the Permanent Secretary of the Ministry of Industry, the Director of the Budget Bureau, the Director of the National Land Policy Committee Office, the Secretary-General of the National Economic and Social Development Council, and the Secretary-General of the National Water Resources Office.

- (4) Expert members appointed by the Cabinet from individuals with knowledge, expertise, achievements, and experience in climate change, natural resource and environmental management, greenhouse gas management, science and technology, energy, economics, international relations, agriculture, or environmental law, not exceeding nine persons.

- (5) Expert members from the private sector appointed by the Cabinet from the Thai Chamber of Commerce, the Federation of Thai Industries, and the Thai Bankers' Association, one person from each organisation.

- (6) Expert members from civil society appointed by the Cabinet from registered private organisations involved in environmental protection and natural resource conservation, one person.

The Permanent Secretary of the Ministry of Natural Resources and Environment shall be a member and secretary, and the Director-General of the Department of Climate Change and Environment and the Director of the Greenhouse Gas Management Organisation shall be members and assistant secretaries.

Section 11: Expert members must have the following qualifications and not possess the following disqualifications:

A. Qualifications:

- (1) Thai nationality.
- (2) Age between thirty and seventy years.

B. Disqualifications:

- (1) Being an incompetent person or quasi-incompetent person.
- (2) Having been sentenced to imprisonment by a final judgment, except for offenses committed through negligence or minor offenses.
- (3) Being dismissed, removed, discharged, or terminated by a State agency or private organisation for corruption or serious misconduct.
- (4) Being a civil servant or State official with a permanent position or salary, except for teachers or researchers with permanent positions or salaries in state higher education institutions or state research institutions.
- (5) Being a political official, holder of a political office, member of a local council, local executive, committee member, or office holder responsible for party administration, party advisor, or party official.

Section 12: Expert members shall serve a term of five years and may be reappointed, but shall not serve more than two consecutive terms.

If an expert member vacates the position before the term ends or additional expert members are appointed while previously appointed members are still in office, the newly appointed members shall fill the vacancy or serve as additional expert

members for the remaining term of the previously appointed members.

If an expert member vacates the position at the end of the term and no new expert member has been appointed, the vacated expert member shall continue to perform duties until the newly appointed expert member assumes the position.

Section 13: In addition to vacating the position at the end of the term, expert members vacate the position when:

- (1) They die.
- (2) They resign.
- (3) The Cabinet removes them due to negligence, misconduct, or incompetence.
- (4) They lack qualifications or possess disqualifications as specified in Section 11.

Section 14: The Committee has the following duties and powers:

- (1) Propose policies, goals, and measures for greenhouse gas reduction, climate change adaptation, management, and research and development related to climate change of the country to the Cabinet and relevant State agencies.
- (2) Propose the master plan, greenhouse gas reduction plan, and adaptation plan to the Cabinet for approval, and advocate for appropriate budget allocation to State agencies for climate change actions in Thailand according to these plans.
- (3) Propose guidelines and positions for international negotiations related to climate change, including policies and approaches pertaining to climate change-related cooperation with countries or international organisations that align with Thailand's economic and social conditions and interests, and relevant international agreements, to the Cabinet for approval.
- (4) Propose guidelines, measures, and criteria for domestic carbon credit use and international carbon credit to the Cabinet for approval.
- (5) Propose to the Cabinet and relevant State agencies the enactment or amendment of laws, regulations, rules, or other necessary or desirable

actions to comply with Thailand's international climate change obligations.

- (6) Propose economic measures and any necessary and appropriate measures to implement policies and plans for climate change management to the Cabinet.
- (7) Promote, supervise, monitor, and evaluate the actions of State agencies and all sectors to ensure compliance with the plans, report the results to the Cabinet to ensure proper implementation of the plans, and make the report publicly available.
- (8) Set policies, guidelines, and mechanisms to enhance cooperation and coordination between State agencies and the private sector on climate change actions in Thailand.
- (9) Establish criteria, methods, and conditions for the selection and appointment of the chairperson and expert members of the Fund Committee, as well as establish criteria, conditions, and priorities for the expenditure of the Fund as specified in Chapter 4 of this Act.
- (10) Supervise the greenhouse gas emission trading system as specified in Chapter 8 of this Act.
- (11) Supervise the cross-border carbon pricing mechanism as specified in Chapter 9 of this Act.
- (12) Set standards for grouping economic activities that consider climate change and the environment.
- (13) Review and approve Ministerial Regulations, announcements, rules, and criteria that require committee approval under this Act.
- (14) Perform and exercise other duties and powers of the Committee as specified in this Act or other laws, or as assigned by the Cabinet or Prime Minister.

Section 15: Committee meetings require at least half of the total members to form a quorum.

At a committee meeting, if the chairperson is absent or unable to perform duties, the vice-chairperson shall preside over the meeting. If both the chairperson and vice-chairperson are

absent or unable to perform duties, the meeting shall elect a member to preside.

Decisions of the meeting shall be made by majority vote, with each member having one vote. If votes are tied, the presiding member shall cast a casting vote.

Section 16: The Committee has the authority to appoint subcommittees to perform specific tasks on behalf of the Committee or as assigned by the Committee.

Subcommittees under paragraph one may appoint working groups to consider or perform specific tasks as assigned by the subcommittees.

The provisions of Section 15 shall apply *mutatis mutandis* to subcommittee or working group meetings.

Section 17: In performing duties under this Act, the Committee, subcommittees, or working groups may invite any person to provide facts, opinions, academic advice, or relevant documents for consideration as deemed appropriate.

Section 18: The Department shall serve as the secretariat office of the Committee, responsible for academic work, administration, meetings, data collection, and other activities related to the Committee's work.

Chapter 4 Climate Fund

Part 1: Establishment, Revenue, and Expenditure of the Fund

Section 19: Establish a fund called the "Climate Fund" within the Ministry of Natural Resources and Environment to provide financial resources for enhancing national competitiveness through transitioning to a low-carbon economy, aiming for sustainable, equitable, and fair development, creating an enabling environment for climate change management, and building resilience and capacity for climate change adaptation in Thailand.

Consider inserting language on the Just Transition: «creating an enabling environment for climate change management and building resilience and capacity for climate change adaptation in Thailand, including *ensuring a Just Transition for all*".

The fund under paragraph one shall have legal entity status and be a State agency that is not a government department under the law on government administration or a State enterprise under the law on budget procedures.

Section 20: The Fund's activities are not subject to labor protection laws, labor relations laws, State enterprise labor relations laws, social security laws, and workers' compensation laws. The director, employees, and staff of the Fund shall receive benefits not less than those specified in labor protection laws, social security laws, and workers' compensation laws.

Section 21: The Fund consists of money and assets as follows:

- (1) Revenue from the greenhouse gas emission trading system.
- (2) Revenue from the cross-border carbon pricing mechanism.
- (3) Fees from permitting the international carbon credit use.
- (4) Revenue from measures or mechanisms under this Act.
- (5) Subsidies from the government or allocations from the annual budget.
- (6) Money or other assets received from private sectors, both domestic and international, foreign governments, or international organisations.

Consider making a reference to Article 6 of the Paris Agreement, as follows: *«including those established under Article 6 of the Paris Agreement.»*

- (7) Administrative fines as specified in Chapter 14 of this Act.
- (8) Revenue or assets that are donations or gifts.
- (9) Interest and benefits from the Fund.
- (10) Any other money or assets received by the Fund.

Money and assets of the Fund that are received under paragraph one are not required to be remitted to the treasury as State revenue under the laws on State financial discipline, treasury reserves, and administrative fines.

Section 22: The Fund's money shall be used for the following activities:

- (1) Allocating loans or grants to State agencies, legal entities under private law, registered private organisations for environmental protection and natural resource conservation, educational institutions, or communities as financial tools for investment or operations in the following areas:
 - (i) Acquiring climate data, greenhouse gas data, activity data, or other necessary data for calculating greenhouse gas emissions and data on climate change risks and impacts.
 - (ii) Reducing and utilising greenhouse gases.

Consider inserting additional language on low-carbon technologies: *« Researching and developing processes and technologies to reduce, remove and/or utilise greenhouse gases including but not limited renewable energy technologies, energy efficiency measures, carbon capture and storage, and sustainable industrial practices.»*

- (iii) Adapting to climate change to build resilience.
 - (iv) Research and development of knowledge, technology, and capacity building for climate change actions.
- (2) Covering administrative expenses of the Fund.
- (3) Other activities as announced by the Fund Committee with the approval of the Committee.

The Fund's expenditures under paragraph one shall follow the criteria, methods, and conditions set by the Fund Committee, considering at least Thailand's climate change action goals, national development policies and plans towards a low-carbon and sustainable economy and society, the operational capacity of relevant sectors, and stimulating investment in Thailand's low-carbon or climate-resilient economy.

Section 23: Under the objectives of Section 22, the Fund has the authority to:

- (1) hold ownership, possession, and property rights.

- (2) Establish rights or perform legal acts both within and outside the Kingdom.
- (3) Utilise the Fund's assets.
- (4) Disseminate information and publicise the Fund's activities.
- (5) Perform other actions to achieve the Fund's objectives.

Part 2: Climate Fund Committee

Section 24: There shall be a fund committee consisting of:

- (1) An expert appointed by the Committee as the chairperson.
- (2) Ex officio members, including representatives from the Ministry of Agriculture and Cooperatives, Ministry of Natural Resources and Environment, the Ministry of Energy, the Ministry of Interior, the Ministry of Industry, the Department of Climate Change and Environment, the Comptroller General's Department, the National Economic and Social Development Council, and the Budget Bureau.
- (3) Up to five expert members from the academic, private and civil society sectors appointed by the Committee, including at least one legal expert.

Section 25 provides that expert members must have Thai nationality. It may be appropriate to open membership of the Climate Fund Committee to at least one international expert to enhance global perspectives and cooperation.

Removing technical expertise might not be justified. We suggest leaving it in the Bill and inserting wording such as *including but not limited to*. Expanding the range of technical experts to include specialists in areas such as renewable energy, biodiversity, and sustainable agriculture, could enhance the Committee's ability to address multifaceted climate issues.

- (4) Expert members from the private sector appointed by the Committee from the Thai Chamber of Commerce, the Federation of Thai Industries, and the Thai Bankers' Association, one person from each organisation.

The Director of the Climate Fund Office shall be a member and secretary.

Sections 12 and 15 shall apply *mutatis mutandis* to the terms of office of the chairperson, expert members and the quorum of the Fund Committee.

The selection of the chairperson and expert members shall be in accordance with the criteria, methods, and conditions set by the Committee.

Consider inserting language on gender balance, such as «*gender balance shall be considered in the selection process*»

Section 25: The chairperson and the expert members must have the following qualifications and not possess the following disqualifications:

- A. Qualifications:
 - (1) Thai nationality.
 - (2) Age between thirty and sixty-five years.
 - (3) Knowledge, expertise, achievements, and experience in climate change, financial and investment management, law, economics, accounting, science and technology, or other fields that will facilitate the operation of the Fund.
- B. Disqualifications:
 - (1) Possessing disqualifications under Section 11.
 - (2) Being or having been bankrupt.
 - (3) Having been subject to a final judgment or court order resulting in the forfeiture of assets to the State due to unusual wealth.
 - (4) Having been finally convicted of committing an offense of malfeasance in office, malfeasance in judicial office, or electoral fraud, an offense under the law on offenses of employees in State organisations or agencies, a dishonest property offense under the Penal Code, an offense under the law on fraudulent public loans, an offense under the law on narcotics in the case of being a producer, importer, exporter,

or dealer of narcotics, an offense under the law on gambling in the case of being a bookmaker or gambling house operator, or an offense under the law on anti-money laundering in the case of money laundering.

- (5) Having a conflict of interest in contracts with the Fund or activities conducted for the Fund, or activities conflicting with the Fund's objectives, directly or indirectly.
- (6) Being a shareholder in financial institutions or legal entities under Section 27(6) or in other companies that are shareholders in such financial institutions or legal entities.

Section 26: In addition to vacating the position at the end of the term, the chairperson and expert members vacate the position when:

- (1) They die.
- (2) They resign.
- (3) They lack qualifications or possess disqualifications as specified in Section 25.
- (4) The Committee removes them due to negligence, misconduct, or incompetence.

Section 27: The Fund Committee has the following duties and powers:

- (1) Set policies and issue regulations, rules, announcements, and orders for fund management.
- (2) Propose criteria, conditions, and priorities for fund expenditures under Section 22 for approval by the Committee.
- (3) Consider allocating fund money for use as specified in Section 22, according to the set criteria, conditions, and priorities.
- (4) Set criteria, conditions, regulations, and methods for applying for fund allocations under Section 22(1).

The Bill should stipulate that fund recipients must not only apply for allocations but also report on their usage, which aligns with best practices in financial oversight. Consider inserting wording «*for applying for fund allocations and reporting on their usage*».

- (5) Establish regulations for receiving, keeping, and disbursing fund money.
- (6) Consider assigning financial institutions or other legal entities to manage the Fund's money according to set regulations and methods.
- (7) Consider approving the annual report detailing the Fund's performance and financial statements.
- (8) Issue regulations, orders, and rules on personnel, employee relations, recruitment, appointment, removal, and discipline of fund employees and staff, including salaries and other benefits, as well as welfare and support.
- (9) Perform other actions to achieve the Fund's objectives as specified in this Act.

The issuance of the regulations under (2), (4), and (5) and the operational guidelines under (3) by the Fund Committee must be approved by the National Climate Change Policy Committee.

The Fund Committee may appoint subcommittees or working groups to consider and perform specific tasks as assigned by the Fund Committee.

Part 3: Climate Fund Office

This is a best practice to provide a redress mechanism that is fair, effective, and transparent, and that can enhance the performance of the Fund. We suggest mandating the Climate Fund Committee to establish such a grievance mechanism. This mechanism should ideally operate independently of the Fund Office but report directly to the Committee.

Section 28: The Fund shall have a headquarters called the "Climate Fund Office" at a location specified by the Minister in the Government Gazette. Branches or representatives may be established elsewhere as necessary.

To ensure accessibility and responsiveness to local needs, consider inserting additional language, such as «Branches, *including local and/or regional offices*, or representative [...]»

The Office shall handle administrative and academic tasks for the Fund and support the operations of the Fund Committee, subcommittees, working groups, or individuals appointed by the Fund Committee, and shall have the following duties and powers:

- (1) Implement policies and manage the Fund's investment plan in accordance with the Fund's objectives and priorities for fund expenditure.
- (2) Receive and evaluate support requests by considering financial, technical, risk, and climate change impact factors to make recommendations to the Fund Committee.

The Bill currently omits social, legal and reputational risks, due diligence processes and stakeholder engagement. We suggest the Government amend Section 28(2) as follows:

Receive and evaluate support requests by assessing inter alia the financial viability, undertaking technical assessment and due diligence, considering climate related financial, social, legal, reputational risks, climate change impacts factors and engaging relevant stakeholders to make recommendations to the Fund Committee.

- (3) Prepare, negotiate, and execute funding agreements or contracts, manage disbursements, monitor and evaluate the performance of fund recipients, and oversee compliance with contracts, risk management, and the implementation of projects supported by the Fund, in accordance with the criteria set by the Fund Committee.
- (4) Monitor, evaluate, and report on the impact of projects and activities supported by the Fund on climate change, including the overall effectiveness of the Fund compared to the set goals and indicators.

- (5) Manage finances, accounting, budgeting, assets, and personnel, including preparing annual reports detailing the Fund's performance and financial statements, as well as supporting documents or information, for presentation to and consideration and approval by the Fund Committee.
- (6) Develop and implement systems, formats, methods, services and activities of the Fund, including the collection, compilation, analysis, research, and dissemination of information to support the Fund's operations.
- (7) Coordinate, communicate, and cooperate with government agencies, State agencies, private entities, and organisations both domestically and internationally related to the Fund's operations.
- (8) Perform other tasks or activities as assigned by the Fund Committee or subcommittees.

Section 29: The Director of the Climate Fund Office shall supervise the Office's employees and staff and be responsible for managing the Office's operations according to the Fund's objectives, laws, regulations, rules, and policies set by the Fund Committee.

Section 30: The Fund Committee shall select a person to serve as the Director based on criteria, methods, and conditions set by the Fund Committee from individuals with the following qualifications and without the following disqualifications:

- A. Qualifications:
 - (1) Thai nationality.
 - (2) Age between thirty and sixty-five years.
 - (3) Knowledge, expertise, achievements, and experience to perform the Fund's duties.
- B. Disqualifications:
 - (1) Possessing disqualifications under Section 11.
 - (2) Being or having been bankrupt.
 - (3) Having been subject to a final judgment or court order resulting in the forfeiture of assets to the State due to unusual wealth.

- (4) Having been finally convicted of committing an offense of malfeasance in office, malfeasance in judicial office, or electoral fraud, an offense under the law on offenses of employees in State organisations or agencies, a dishonest property offense under the Penal Code, an offense under the law on fraudulent public loans, an offense under the law on narcotics in the case of being a producer, importer, exporter, or dealer of narcotics, an offense under the law on gambling in the case of being a bookmaker or gambling house operator, or an offense under the law on anti-money laundering in the case of money laundering.
- (5) Having a conflict of interest in contracts with the Fund or activities conducted for the Fund, or activities conflicting with the Fund's objectives, directly or indirectly.
- (6) Being a shareholder in financial institutions or legal entities under Section 27(6) or in other companies that are shareholders in such financial institutions or legal entities.

Section 31: The Director's term, removal, conditions for probation, role, and performance evaluation shall be according to the employment contract set by the Fund Committee, with a term not exceeding four years.

Upon expiration of the contract under paragraph one, the Fund Committee may resolve to renew the Director's contract, but the Director shall not serve more than two consecutive terms.

The Director shall receive salary, compensation, and other money as determined by the Fund Committee.

Section 32: In addition to vacating the position at the end of the contract, the Director vacates the position when:

- (1) They die.
- (2) They resign.

- (3) They lack qualifications or possess disqualifications as specified in Section 30.
- (4) The Fund Committee resolves to terminate the contract due to negligence, misconduct, or incompetence.

Section 33: In the Fund's dealings with external parties, the Director shall represent the Fund. For this purpose, the Director may delegate tasks to others, subject to regulations set by the Fund Committee.

Legal acts performed in violation of the regulations under paragraph one shall not bind the Fund unless ratified by the Fund Committee.

Part 4: Finance, Accounting, and Auditing

Section 34: The Fund shall establish an appropriate accounting system to record accounting transactions and accurately reflect the Fund's performance and financial position according to generally accepted accounting principles. Internal audits shall be conducted, and audit results reported to the Committee at least once a year, according to regulations set by the Committee.

Many jurisdictions adhere to International Financial Reporting Standards (IFRS) to ensure consistency and comparability in financial reporting. We suggest inserting the word "global": «generally accepted global accounting principles (or standards).

Surprise audits are a best practice that can enhance accountability, transparency, and risk management. They may also be effective in detecting and preventing fraud.

Section 35: The Fund shall prepare financial statements, including at least a balance sheet and operating accounts of the Office and the Fund, and submit them to the auditor within 120 days from the end of each fiscal year.

Each year, the Office of the Auditor General or an external auditor appointed by the Fund Committee with the approval of the Office of the Auditor General shall audit and evaluate the use of money and assets of the Office and the Fund, and report the audit results to the Fund Committee.

For the purpose of paragraph two, the auditor shall have the authority to inspect the Fund's books, accounts, and documents, question internal auditors, officers, employees, and persons involved in using the Fund's money, and request additional books, accounts, and documents as necessary.

Section 36: The Fund shall prepare an annual report for the Committee and the Cabinet, and make it publicly available.

The report under paragraph one shall include details of the Fund's performance, financial statements, and the auditor's report.

Section 37: The Fund's fiscal year shall be the same as the fiscal year.

Part 5: Evaluation of Fund Operations

Section 38: Every three years, which constitutes an evaluation cycle, the performance of the Fund shall be evaluated. No less than six months before the end of the three-year period, the Minister of Finance shall propose to the Cabinet the appointment of a Fund Performance Evaluation Committee. The Evaluation Committee shall consist of no fewer than three and no more than five individuals with knowledge and expertise in climate change and experience in finance, regulation, and evaluation. The Evaluation Committee's duties are as follows:

- (1) Evaluate the performance in accordance with the Fund's objectives and goals.
- (2) Report any limitations or obstacles in the Fund's operations.
- (3) Inspect and evaluate the Fund's operations.
- (4) Report the evaluation results along with recommendations to the Fund Committee at the end of each evaluation cycle.

The Evaluation Committee shall report the evaluation results to the Cabinet within 180 days from the end of the evaluation cycle. Once the Cabinet acknowledges the report by resolution, it shall inform the Fund, which shall then promptly disseminate the information to the public through the Fund's information technology system.

Upon completion of their duties, the Evaluation Committee shall be relieved of their responsibilities.

Section 39: In performing their duties under this Act, the Evaluation Committee shall have the following powers and duties:

- (1) Prepare plans and budget estimates, including compensation for the evaluation of the Fund's operations.
- (2) Delegate tasks to individuals or groups as necessary.
- (3) Appoint subcommittees to consider and provide opinions on specific matters or to carry out specific tasks as deemed appropriate.

The plans and budget estimates under (1) must be approved by the Minister of Finance and funded by the Fund's budget.

Chapter 5 National Master Plan for Climate Change

Section 40: The Committee, with the approval of the Cabinet, shall establish a national plan called the "National Master Plan for Climate Change " to serve as the framework for Thailand's climate change actions within the specified timeframe.

It would be beneficial to provide more detail on the process for establishing the Master Plan, including the formation of mitigation and adaptation working groups, regional and CSO consultations, and the various stages of approval.

Once published in the Government Gazette, the master plan under paragraph one shall be enforceable, and the Department shall disseminate the master plan to the public through the Climate Information Center or the Department's information system.

State agencies with missions specified in the master plan shall perform their duties and powers to achieve the goals set in the master plan.

The provisions of the paragraphs one and two shall apply *mutatis mutandis* to amendments or updates to the master plan.

Section 41: The master plan shall include at least the following details:

- (1) The timeframe for enforcement.
- (2) A report on Thailand's situation, including greenhouse gas emission data, climate change forecasts, and climate change impacts.

- (3) National greenhouse gas reduction targets and climate change adaptation targets.
- (4) Guidelines and action plans for implementing the master plan, including at least the responsibilities of State agencies responsible for implementing the master plan, roles, cooperation directions, and support for relevant sectors to implement the master plan.

The provision assigns primary responsibility to State agencies for implementing the plan but lacks integration of regional authorities. Although this may reflect current practice, we recommend that the Act expressly mandate Provincial Governors, where appropriate, to contribute to implementation in order to strengthen coordination, territorial integration, and effective delivery at sub-national level.

- (5) Guidelines for monitoring, evaluating, and reporting on the implementation of the master plan.

Section 42: To monitor the progress of the master plan's implementation, State agencies responsible for implementing the plan shall report their actions to the Department within the timeframe and with the details specified by the Department.

The Department shall have the duty and power to monitor and support the implementation of the master plan by State agencies and prepare a summary report on the master plan's implementation for the Committee at least every two years. The report shall include at least progress, problems, obstacles, and recommendations for problem-solving, and shall be made publicly available through the Climate Information Center or the Department's information system.

Section 43: If the Committee finds that any agency's actions are not aligned with the master plan or progress is not meeting the targets set in the plan, the Committee may instruct the Department to discuss with the agency to resolve the issues or may make recommendations to the Minister responsible for the agency.

If relevant State agencies do not report progress on the master plan's implementation or face significant obstacles to the plan's implementation, or if a conflict arises between the plan's implementation and the implementation of other key State policies, the Committee shall report the issues or conflicts to the Cabinet for action as may be deemed appropriate.

Section 44: The Committee shall review the master plan every five years, unless necessary to review the plan before the scheduled review period.

The Committee shall prepare a report on results of the review conducted under paragraph one for the Cabinet, including a thorough study and analysis of the master plan's implementation, climate change data for Thailand, international obligations, and public opinions, and make the report publicly available through the Climate Information Center or the Department's information system.

Chapter 6 Greenhouse Gas Data

Part 1: National Greenhouse Gas Inventory

Section 45: The Department shall establish a national greenhouse gas database, including at least the following data:

- (1) Greenhouse gas emissions from human activities from sources.
- (2) Greenhouse gases sequestered by natural processes or human activities.
- (3) Net greenhouse gas reductions within the timeframe of the greenhouse gas reduction plan.

Subject to Section 53, the Department shall make the database under paragraph one accessible to the public through the Climate Information Center or the Department's information system.

The data items, presentation, and updates shall be as specified by the Department, including at least greenhouse gas data by sector as specified in the greenhouse gas reduction plan, and the database under paragraph one shall be updated at least once a year.

Section 46: To facilitate the establishment of the national greenhouse gas database under Section 45, paragraph one, the following State agencies shall collect and report activity data to the Department:

- (1) Ministry of Higher Education, Science, Research and Innovation.

- (2) Ministry of Agriculture and Cooperatives.
- (3) Ministry of Transport.
- (4) Ministry of Natural Resources and Environment.
- (5) Ministry of Energy.
- (6) Ministry of Interior.
- (7) Ministry of Public Health.
- (8) Ministry of Industry.
- (9) Other State agencies as specified in an announcement by the Committee with the Cabinet's approval.

The data items to be collected and reported by the State agencies under paragraph one and the reporting timeframe shall be as specified by the Committee.

If necessary, the Committee may require the State agencies under paragraph one to verify the collected or reported data according to specified standards.

Section 47: To obtain greenhouse gas data, State agencies under Section 46 have the authority to request activity data from other State agencies that possess the data or have the authority to request the data under other laws.

Section 48: Subject to Sections 49 and 50, when it is necessary to require private entities to report activity data to State agencies for the purpose of establishing the national greenhouse gas database under Section 45, this shall be done by issuing a Ministerial Regulations. The Ministerial Regulations shall include at least the following items:

- (1) Categories of persons required to report data.
- (2) Activity data to be reported.

We suggest adding sub-sector specificity and technology differentiation to be reported in line with international frameworks such as the IPCC guidelines.

- (3) Methods of reporting data.
- (4) Reporting timeframes.
- (5) State agencies to which data must be reported for each type of data.
- (6) State agencies responsible for data collection, which must be State agencies under Section 46.

The data under (2) must be necessary for calculating the national greenhouse gas emissions or reductions, and the Department and State agencies under Section 46 cannot obtain the data by other means, or if other means are used, it would be an undue burden on the State.

The Ministerial Regulations under paragraph one may specify that technical details or rapidly changing matters follow criteria and methods set by the Minister overseeing the State agency under (6) and announced in the Government Gazette.

Section 49: The activity data that may be requested under Section 47 and the activity data that persons must report under Section 48(2) shall be limited to the following:

- (1) Energy and transportation:
 - (i) Fuel combustion data in electricity generation, manufacturing and construction, transportation, and other sectors, regardless of fuel type.
 - (ii) Fuel leakage data from coal mining and oil and natural gas sectors, regardless of fuel type.
- (2) Industrial processes:
 - (i) Non-metallic industries.
 - (ii) Chemical industries.
 - (iii) Metal industries.
 - (iv) Fuel products not used as energy and solvents.
 - (v) Electronics industries.
 - (vi) Use of ozone-depleting substance substitutes.
 - (vii) Manufacturing of electrical equipment and use of perfluorocarbons, sulfur hexafluoride, and nitrous oxide.
 - (viii) Paper and pulp industries, and food and beverage industries.
- (3) Agriculture:
 - (i) Livestock population data.
 - (ii) Agricultural residue burning data.
 - (iii) Agricultural fertiliser and soil amendment usage data.

- (iv) Crop area, harvested area, and economic crop yield data.
- (4) Forestry and land use:
 - (i) Forest area, forest plantation area, and logging data from forest plantations.
 - (ii) Forest fire area data.
 - (iii) Perennial crop plantation area and logging data from perennial crop plantations.
 - (iv) Data on forest area conversion to agriculture or other uses.
- (5) Waste management:
 - (i) Solid waste quantity and composition data.
 - (ii) Wastewater quantity and composition data.
 - (iii) Data on the quantity and methods of solid waste, wastewater, or waste disposal or treatment.
 - (iv) Methane utilisation data.
 - (v) Industries producing wastewater with organic substances.
- (4) Other data as specified in the Ministerial Regulations with the Committee's approval.

Section 50: The categories of persons required to report data under Section 48(1) shall be limited to the following:

- (1) Energy business operators under the law on energy business operations.
- (2) Factory operators under the law on factories.
- (3) Owners of controlled factories and controlled buildings under the law on energy conservation promotion.
- (4) Other persons as specified in the Ministerial Regulations with the Committee's approval.

Section 51: Once the Ministerial Regulations under Section 48 is in force, persons under Section 48(1) shall collect and report data according to the criteria and methods specified in the Ministerial Regulations.

If the data to be reported under paragraph one is the same as data required to be reported to State agencies under Section 48(5) under other laws, and the persons under Section 48(1) have reported the data under those laws, it shall also be considered as reporting data under this Act.

If persons under Section 48(1) do not collect or report data under paragraph one, the State agency under Section 48(6) shall issue a written warning, specifying the reasons for the warning, the data items to be collected and reported and the collection and reporting timeframes.

Section 52: Activity data obtained or possessed by the Department or State agencies, which is personal or specific data, whether it is trade secret under the law on trade secrets or not, shall be strictly confidential. No one shall disclose it unless the disclosure is in accordance with the data subject's wishes or required by specific laws. In any event, no one shall use the authority or rights under the law on public information to request the disclosure of such data.

The methods for maintaining the confidentiality of government information under the law on public information shall apply *mutatis mutandis* to the storage of activity data under paragraph one.

Section 53: Persons have the right to submit a written request to the Director-General to prevent the disclosure of data under Section 45 if the disclosure would affect or violate trade secret rights under the law on trade secrets. However, data on net greenhouse gas emissions or reductions shall not be considered confidential.

The Director-General shall decide on the request within thirty days from the date of receipt, and the decision shall be final.

Part 2: Greenhouse Gas Emission Reports of Legal Entities

Section 54: To facilitate the greenhouse gas emission trading system under Chapter 8 and greenhouse gas reduction under Chapter 7, private and public legal entities with specified business characteristics or types in the Ministerial Regulations must measure and submit verified greenhouse gas emission reports from their activities, establishments, or operations within three months from the end of each year, according to criteria and methods set by the Department.

In determining the criteria and methods under paragraph one, the Department must ensure the completeness, accuracy, appropriateness, and transparency of the measurement and reporting of greenhouse gas emissions, aligning with international standards. The criteria and methods under paragraph one must include at least the following:

Ensuring that all controlled legal entities consistently apply reporting criteria and methodologies can be challenging. Inconsistent data can undermine system reliability. Best practice includes clear metrics and boundaries, standardised protocols, automated data collection, capacity-building and robust MRV systems as provided for in Section 59 and Chapter 8, Part 5.

Consider issuing clear guidance targeted to specific industries.

- (1) Scope of greenhouse gas emission activities and types of greenhouse gases to be used to assess greenhouse gas emissions or reductions.
- (2) Measurement of greenhouse gas emissions or reductions.
- (3) Preparation of greenhouse gas emission report forms.
- (4) Verification of greenhouse gas emission reports.
- (5) Submission of greenhouse gas emission reports.

Section 55: Greenhouse gas emission reports must follow the format and details specified by the Department, including at least the following:

- (1) General information about the legal entity.
- (2) Data on greenhouse gas emissions or reductions to be reported.
- (3) Measurement plans for greenhouse gas emissions or reductions.
- (4) Action plans for reducing greenhouse gas emissions and actions taken to reduce greenhouse gases in the past year.
- (5) Other data specified in an announcement by the Department.

Section 56: The Organization shall verify the greenhouse gas emission reports, certify the verified greenhouse gas emission reports according to the law on the establishment of the Greenhouse Gas Management Organization (Public Organization), and submit the certified greenhouse gas emission reports to the Department within one month from the date of receipt. The Organization's Board shall set criteria and methods for measuring, preparing, verifying, and submitting greenhouse gas emission reports, including additional technical and academic details necessary to meet the objectives of Section 54, aligning with the criteria and methods set by the Department.

We recommend specifically defining verification and certification. We have suggested a definition of verification in the relevant Section.

If the Organization finds the greenhouse gas emission report or related documents incorrect, incomplete, or lacking necessary documents or evidence, the Organization shall notify the verification agency to correct or provide additional documents or evidence and resubmit the report or related documents within the specified time, stating the reasons and errors.

Section 57: Submission, verification, and certification under Sections 54 and 56 may be done electronically, and such submission, verification, and certification shall be considered lawful.

Section 58: If a legal entity does not submit a greenhouse gas emission report under Section 54, the Organization has the authority to inspect and determine the greenhouse gas emissions or reductions of the legal entity, considering past emissions or reductions and current business performance of the legal entity and emissions or reductions of other legal entities with similar operations or activities. The Organization may charge the legal entity for the inspection costs according to criteria and methods set by the Organization.

Section 59: The Department shall manage the greenhouse gas emission reporting system with the following duties and powers:

- (1) Establish an electronic system or platform for receiving, storing, submitting, and disclosing greenhouse gas emission report data, including security measures for trade secrets

and other confidential data that are marked as confidential by the legal entities submitting the greenhouse gas emission reports, according to criteria and methods specified in an announcement by the Department.

- (2) Study, compile, analyse, verify, and store greenhouse gas emission report data.
- (3) Develop, manage, and oversee the greenhouse gas emission reporting system.
- (4) Establish standards, guidelines, measures, criteria, and methods for managing and submitting greenhouse gas emission reports.
- (5) Exchange data between State agencies regarding greenhouse gas data and manage the confidentiality and disclosure of greenhouse gas data as required by law.
- (6) Provide advice and support to State agencies and legal entities on preparing greenhouse gas emission reports.

Although Section 59.6 provides advice and support to entities in scope for GHG reporting, this Chapter lacks incentives or support mechanisms to encourage compliance and accuracy. The Government may consider providing incentives such as tax credits or deductions, as well as technical assistance, to ensure compliance and accuracy of GHG reporting.

This could be covered by a catch-all provision for secondary legislation

- (7) Coordinate and request State agencies to prepare and submit any data they possess for managing greenhouse gas data.
- (8) Perform other tasks related to managing the greenhouse gas emission reporting system.

Section 60: Legal entities must have their greenhouse gas emission reports verified by verification agencies certified in relevant fields under the law on national standards and registered with the Organization.

We recommend that the Government spell out the process of verification and certification for legal certainty. For clarity, this could be linked to the express tasks of the verification body.

The qualifications and registration of verification agencies shall follow criteria, methods, and conditions set by the Organization with the Committee's approval.

Verification agencies must verify the accuracy of greenhouse gas emission reports according to criteria and methods set by the Department and the Organization under Section 56.

Section 61: Verification agencies and their personnel must not have any conflict of interest with the legal entities required to prepare and submit greenhouse gas emission reports.

Section 62: Legal entities must keep greenhouse gas emission reports, data related to greenhouse gas emission reports, data used for calculating greenhouse gas emissions, and documents required for submitting greenhouse gas emission reports for at least seven years from the date of submission for inspection purposes.

Section 63: The Department may consider disclosing data from greenhouse gas emission reports and data used for calculating greenhouse gas emissions of legal entities to other State agencies upon request, provided it does not harm the legal entity, unless required by law.

Section 64: The Department may consider disclosing general data on greenhouse gas emissions or reductions from greenhouse gas emission reports through the Climate Information Center or the Department's information system for public access.

Section 65: Legal entities have the right to submit a written request to the Director-General to prevent the disclosure of data if the disclosure would affect or violate trade secret rights under the law on trade secrets.

The Director-General shall decide on the request within thirty days from the date of receipt, and the decision shall be final.

Section 66: The following data in greenhouse gas emission reports shall not be considered confidential:

- (1) Net greenhouse gas emissions of activities, establishments, or other operations of entities, including emissions categorised by emission activity scope.
- (2) Net greenhouse gas sequestration from entity operations, including sequestration categorised by area or establishment.
- (3) Other data specified in an announcement by the Department.

Section 67: If the Department needs data on greenhouse gas emissions or reductions and data used for calculating greenhouse gas emissions, or other documents possessed by any State agency, the Department may request the State agency to provide the data.

Upon receipt, the Department must keep the data confidential.

Chapter 7 Greenhouse Gas Reduction

Section 68: The Committee shall prepare an action plan called the "National Greenhouse Gas Reduction Action Plan" to guide State agencies in achieving Thailand's greenhouse gas reduction targets in alignment with the master plan.

Once published in the Government Gazette, the greenhouse gas reduction plan under paragraph one shall be enforceable, and the Department shall disseminate the plan to the public through the Climate Information Center or the Department's information system.

State agencies with missions specified in the greenhouse gas reduction plan shall perform their duties and powers to implement the plan.

The provisions of paragraphs one and two shall apply *mutatis mutandis* to amendments or updates to the greenhouse gas reduction plan.

Section 69: In preparing the greenhouse gas reduction plan, the Committee must consider at least the following:

- (1) National development policies and plans.
- (2) Operational capacity of relevant sectors.
- (3) Potential economic, social, and health impacts on the public and communities, including environmental and ecosystem impacts in Thailand.

- (4) Thai laws, international obligations, and relevant international principles.

Section 70: The greenhouse gas reduction plan must include at least the following details:

- (1) The timeframe for enforcement.
- (2) A report on Thailand's greenhouse gas reduction situation.
- (3) National greenhouse gas reduction targets, including sector-specific targets within the timeframe of the greenhouse gas reduction plan.
- (4) Policies and measures to achieve greenhouse gas reduction targets.
- (5) Budget estimates for implementing the plan.

To reflect the importance of climate finance in supporting the implementation of the Greenhouse Gas Reduction plan, we recommend the Government cross-reference Section 21 and 22 of the Bill.

- (6) The timeframe for implementing policies and measures under (4).
- (7) Guidelines for collaboration with relevant sectors.
- (8) Methods for monitoring, inspecting, and evaluating the plan's implementation.

Section 71: The Department shall have the duty and power to initiate, promote, and coordinate with relevant State agencies under the greenhouse gas reduction plan to develop and amend policies, laws, or regulations to align with the plan's goals.

Section 72: To monitor the progress of the greenhouse gas reduction plan's implementation, State agencies responsible for implementing the plan shall report their actions to the Department within the timeframe and with details specified by the Department.

The Department shall have the duty and power to monitor and support the implementation of the greenhouse gas reduction plan by State agencies and prepare a summary report on the plan's implementation for the Committee at least every two years. The report shall include at least progress, problems, obstacles, and recommendations for problem-solving, and shall be made publicly available through the Climate Information Center or the Department's information system.

Section 73: If the Committee finds that any agency's actions are not aligned with the greenhouse gas reduction plan or progress is not meeting the targets set in the plan, the Committee may instruct the Department to discuss with the agency to resolve the issues or may make recommendations to the Minister responsible for the agency.

If relevant State agencies do not report progress on the greenhouse gas reduction plan's implementation or face significant obstacles to the plan's implementation, or if a conflict arises between the plan's implementation and the implementation of other key State policies, the Committee shall report the issues or conflicts to the Cabinet for action as may be deemed appropriate.

Chapter 8 Greenhouse Gas Emission Trading System

Part 1: Supervision of the Greenhouse Gas Emission Trading System

Section 74: There shall be a system called the "Greenhouse Gas Emission Trading System," with the Department having the following duties and powers:

For clarity regarding the relevant authorities' competencies and for market participants, as well as to ensure proper pricing signals and scheme integrity, we strongly recommend setting clear boundaries between ETS and the carbon tax and clarifying that covered industries will only be subject to one carbon price. The transition between the two should be left to ministerial discretion, without overlap.

- (1) Prepare and update the rights allocation plan draft for the Committee.
- (2) Prepare summary reports on the implementation of the rights allocation plan for the Committee.
- (3) Establish a registry and accounting system to manage data related to the greenhouse gas emission trading system, including accounts for each controlled legal entity for rights allocation and the allocation and trading system.
- (4) Ensure controlled legal entities receive greenhouse gas emission rights according to the rights allocation plan.
- (5) Conduct auctions for greenhouse gas emission rights under this Act.

- (6) Provide knowledge, advice, and consultation to the private sector and State agencies for implementing the greenhouse gas emission trading system, and develop personnel capacity for State officials and the public to promote understanding of the trading system.

Many Annex II jurisdictions also emphasise the importance of international support, assistance, and capacity-building. Where appropriate, consider inserting wording on international support.

- (7) Promote academic cooperation and support compliance with or promotion of the principles of international agreements related to the greenhouse gas emission trading system.
- (8) Report problems and obstacles in implementing the greenhouse gas emission trading system to the Committee.
- (9) Perform actions according to the Committee's resolutions or assignments.

Section 75: The Committee has the following duties and powers:

- (1) Consider approving the rights allocation plan.
- (2) Promote, supervise, monitor, and evaluate the implementation of the greenhouse gas emission trading system.
- (3) Establish measures to promote a plan to link Thailand's greenhouse gas emission trading system with international trading systems.
- (4) Issue announcements, regulations, or perform other actions to supervise the greenhouse gas emission trading system under this Act.

Part 2: Greenhouse Gas Emission Rights Allocation Plan

Section 76: The Department shall prepare a plan called the "Greenhouse Gas Emission Rights Allocation Plan" in alignment with the master plan and the greenhouse gas reduction plan, with a duration not exceeding five years per period. The plan shall be submitted to the Committee for consideration, and upon approval, it shall be published in the Government Gazette at least one year before the start of the allocation period.

The rights allocation plan must include at least the following details:

- (1) Total greenhouse gas emission rights to be allocated under the rights allocation plan.
- (2) Number of rights, duration, criteria, and methods for allocating greenhouse gas emission rights by allocation period and operational year, categorised by business type and kind.
- (3) Types or kinds of controlled greenhouse gases.
- (4) Scope of controlled business activities and greenhouse gas emission activities.
- (5) Greenhouse gas emission rights reserved as reserve rights.
- (6) Maximum number of greenhouse gas emission rights and the period for storing or offsetting greenhouse gas emission rights.
- (7) Number of emission rights allocated by free allocation or auction.
- (8) Other matters related to the greenhouse gas emission trading system for implementing this Act.

Section 77: In preparing or updating the rights allocation plan, opinions from stakeholders and relevant State agencies must be gathered comprehensively.

The Department shall specify the procedures and conduct for gathering opinions under paragraph one in regulations.

Section 78: The Department shall prepare and present to the Committee a summary report on the implementation of the rights allocation plan within ninety days from the end of the allocation period of the rights allocation plan, highlighting problems and obstacles encountered and proposing solutions or preventive measures for future rights allocation plans.

Part 3: Designation of Controlled Legal Entities

Section 79: Controlled legal entities are private or public legal entities that emit direct and indirect greenhouse gases with business characteristics and types specified in the Ministerial Regulations.

The Department shall list legal entities that conduct activities and emit greenhouse gases under paragraph one as controlled legal entities for the allocation period, submit the list to the Committee, and upon approval by the Committee, announce it in the Government Gazette at least ten months before the start of the allocation period.

Controlled legal entities under paragraph two must register according to criteria, methods, and conditions set in the regulations specified in an announcement by the Committee.

Section 80: Legal entities not designated as controlled legal entities under Section 79 may apply to the Department for permission to become controlled legal entities by submitting an application at least eleven months before the start of the operational year. Upon approval by the Department, the Department shall announce the legal entity's name in the Government Gazette at least ten months before the start of the operational year, and the entity shall be considered a controlled legal entity from the start of the operational year until the end of the allocation period.

The qualifications, criteria, methods, and conditions for voluntarily controlled legal entities under paragraph one shall be according to the regulations specified in an announcement by the Committee.

Section 81: The Department may designate legal entities that become legal entities that conduct activities and emit greenhouse gases as specified in Section 84(2) during the allocation period due to the launch of a new establishment, changes, or expansion of activities during the allocation period as controlled legal entities by announcing it in the Government Gazette at least ten months before the start of the operational year, and the entity shall be considered a controlled legal entity from the start of the operational year until the end of the allocation period.

Part 4: Allocation of Greenhouse Gas Emission Rights

Section 82: Controlled legal entities may apply for greenhouse gas emission rights allocation to the Department at least eight months before the start of the allocation period or before the start of the operational year for voluntarily or newly controlled legal entities, according to criteria and methods specified in an announcement by the Committee.

The Department shall allocate greenhouse gas emission rights to controlled legal entities according to the number, criteria, duration, and methods specified in an announcement by the Committee, in alignment with the rights allocation plan.

Section 83: The Department shall notify each controlled legal entity of the greenhouse gas emission rights allocation results under Section 82 at least six months before the start of the allocation period or before the start of the operational year for voluntarily or newly controlled legal entities.

Section 84: The Department may allocate additional greenhouse gas emission rights to controlled legal entities or change the number of rights allocated to controlled legal entities in the following cases:

- (1) The rights allocation plan is updated.
- (2) New establishments, changes, or expansions of controlled legal entities' activities during the allocation period.

In the cases under paragraph one (1) or (1), controlled legal entities may apply to the Department for additional greenhouse gas emission rights or changes to greenhouse gas emission rights within three months from the end of the operational year in which the event occurred.

The Department shall consider the application under paragraph two according to criteria and methods specified in an announcement by the Committee and notify the controlled legal entity of the decision within five months from the end of the operational year.

Section 85: The Department may revoke greenhouse gas emission rights from controlled legal entities, in whole or in part, in the following cases:

- (1) The rights allocation plan is updated.
- (2) The controlled legal entity ceases or suspends operations or cannot operate within the original timeframe.
- (3) The controlled legal entity obtained greenhouse gas emission rights unlawfully.
- (4) The controlled legal entity violates provisions on rights return or other provisions in Chapter 8: Greenhouse Gas Emission Trading System.

In case of events under paragraph one (2), the relevant controlled legal entity must notify the Department of the events with relevant documents within thirty days from the event.

The criteria and methods for revoking rights under this Section shall be as specified in an announcement by the Committee.

Section 86: The Department shall allocate greenhouse gas emission rights by free allocation or auction as specified in the rights allocation plan and announce the criteria, methods, and conditions for auctions in alignment with the rights allocation plan.

Section 87: The Department shall allocate reserve rights from the total greenhouse gas emission rights in the rights allocation plan for new controlled legal entities and changes to rights under Section 84.

Part 5: Verification of Greenhouse Gas Emissions

Section 88: Controlled legal entities must prepare and submit greenhouse gas emission reports according to Chapter 6, Part 2. Chapter 6, Part 2 shall apply *mutatis mutandis* to the criteria and methods for preparing and submitting these reports.

Section 89: Upon receiving the reports certified by the Organization under Section 56, the Department shall review the reports and notify the controlled legal entities of the verified greenhouse gas emissions within five months from the end of each operational year.

A single five-month review period at year-end may delay the detection of issues, potentially impacting the system's integrity. Shorter and more frequent review periods, such as quarterly reporting, could provide a more proactive approach to managing and verifying emissions data.

We recommend not excluding verification during the year, with the final verification report to be submitted within 5 months of the end of the operational year.

If a controlled legal entity fails to prepare or submit the greenhouse gas emission report under Section 54, the Department shall review the report in connection with which the greenhouse gas emissions are inspected and determined by the Organization, considering past emissions of the controlled legal entity and emissions of other legal entities with similar operations under Section 56.

Section 90: Competent officials appointed by the Minister have the power to inspect the premises of controlled legal entities and

request the controlled legal entities to provide any appropriate data to:

- (1) Verify the accuracy of greenhouse gas emission reports under Chapter 6, Part 2.
- (2) Verify greenhouse gas emissions if the controlled legal entity fails to prepare or submit the greenhouse gas emission report under Section 54.
- (3) Allocate, change, offset, and revoke greenhouse gas emission rights.

Part 6: Return, Storage, and Offset of Greenhouse Gas Emission Rights

Section 91: Controlled legal entities must return greenhouse gas emission rights equal to the verified emissions under Section 89 to the Department within six months from the end of each operational year, according to criteria and methods specified in an announcement by the Committee. The greenhouse gas emission rights to be returned under paragraph one must be those allocated for the operational year in which the emissions occurred, unless stored under Section 92.

Greenhouse gas emission rights allocated for any operational year that are not returned under paragraph one or stored under Section 92 shall be canceled the day after the six-month period from the end of the operating year ends.

Section 92: Legal entities holding greenhouse gas emission rights may store them for use in the following operational year by applying to the Department within ten days after the Department notifies the controlled legal entities of the verified emissions under Section 89, according to criteria and methods specified in an announcement by the Committee.

The Department shall consider the application under paragraph one and notify the legal entity of the decision within ten days from the application date.

The maximum number and duration for storing greenhouse gas emission rights shall be as specified in the rights allocation plan.

Section 93: Controlled legal entities may apply to the Department to convert eligible carbon credits into greenhouse gas emission rights, called "offset emission rights," according to criteria and methods specified in an announcement by the Committee.

More generally, we have concerns about the interchangeability between carbon credits (T-VER) and ETS allowances. These are distinct instruments with different purposes and regimes, which could potentially lead to market abuse or fraud and undermine confidence in both systems.

The increased interest in T-VERs to avoid ETS compliance costs may artificially increase the T-VER prices, potentially disincentivising investment in T-VER projects.

The maximum number of offset emission rights that can be used for return under Section 91 shall not exceed 15% of the rights to be returned. The allowable number and duration for using offset emission rights shall be as specified in the rights allocation plan.

Because Thailand's T-VER programme has issued credits since 2014, older units may reflect pre-Paris Agreement baselines and methodologies that are no longer aligned with current targets. Allowing early-vintage credits to satisfy ETS offset limits could undermine environmental integrity and depress demand for higher-quality credits.

Consider inserting guardrails in primary legislation specifying that eligible carbon credits must (i) meet integrity standards not lower than those applied under Article 6 of the Paris Agreement; (ii) be generated under methodologies aligned with Thailand's current NDC baseline; (iii) meet minimum requirements on vintage or crediting-period requirements.

Consider including an express clause stating that any carbon credit already retired for voluntary claims shall not be eligible for conversion into offset emission rights under Section 93, unless the registry confirms, via unique serial-number tagging and reconciliation, that it has not been used elsewhere.

This is to avoid double counting.

In addition to greenhouse gas emission rights, the Act creates offset emission rights but does not specify whether these may be banked under Section 92. If bankable, the 15% annual limit could be circumvented through multi-year accumulation.

Consider clarifying that offset emissions rights may be used only for the operational year for which they are issued and shall not be eligible for storage under Section 92 unless expressly provided in the rights allocation plan.

Section 94: Carbon credits eligible for conversion into greenhouse gas emission rights under Section 93 must come from projects certified by the Organization according to criteria and methods specified in an announcement by the Committee.

The provision does not distinguish between standard and premium T-VER units, despite material differences in additionality tests, permanence of safeguards, and MRV rigor. Allowing low-integrity units for ETS compliance risks undermining the price signal and reducing incentives to develop high-quality projects.

Consider specifying that only credits certified under premium or internationally recognised standards shall be eligible for conversion into offset emission rights.

Section 95: Controlled legal entities may submit proof of carbon price payment under the carbon tax system in Chapter 10 to the Department to reduce the price payable in greenhouse gas emission rights auctions, according to criteria and methods specified in an announcement by the Committee.

Part 7: Trading of Greenhouse Gas Emission Rights

Section 96: Greenhouse gas emission rights are considered assets and can be transferred, received, bought, sold, or otherwise disposed of between controlled legal entities, in whole or in part, in units of carbon dioxide equivalent tons.

The Committee may issue regulations to set criteria, methods, and conditions for other legal entities than controlled legal entities to transfer, receive, buy, sell, or otherwise dispose of greenhouse gas emission rights under paragraph one.

Section 97: Trading of greenhouse gas emission rights under Section 96 shall be conducted as follows:

- (1) Trading of greenhouse gas emission rights under futures in the futures exchange according to the law on futures.
- (2) Transfer, receipt, purchase, sale, or other disposal of greenhouse gas emission rights by other methods and channels specified in the Ministerial Regulations.

Direct transfer, receipt, purchase, sale, or other disposal of greenhouse gas emission rights between controlled legal entities or by direct agreement between buyers and sellers shall not be subject to paragraph one.

Section 98: Transfer, receipt, purchase, sale, or other disposal of greenhouse gas emission rights shall take effect upon registration with the Department according to regulations specified in an announcement by the Department.

Registration of the transfer, receipt, purchase, sale, or other disposal of greenhouse gas emission rights under paragraph one may be done electronically and such registration shall be considered lawful.

Section 99: The Department, with the Committee's approval, may implement measures to stabilise the greenhouse gas emission rights market if the following events occur:

- (1) The average price of greenhouse gas emission rights over six consecutive months exceeds the average price over the previous two years by a ratio specified in an announcement by the Committee.
- (2) The number of greenhouse gas emission rights is excessive, causing the price of the greenhouse gas emission rights to drop by a ratio specified in an announcement by the Committee.
- (3) Significant increases in transactions involving the transfer, receipt, purchase, sale, or other disposal of greenhouse gas emission rights over a short period as specified in an announcement by the Committee.
- (4) Other necessary measures to stabilise the market as specified by the Committee.

Section 100: Measures to stabilise the greenhouse gas emission rights market under Section 99 include:

- (1) Allocating additional greenhouse gas emission rights not exceeding 25% of reserve rights.
- (2) Revoking greenhouse gas emission rights as specified in an announcement by the Committee.
- (3) Setting maximum or minimum limits on holding greenhouse gas emission rights as specified in an announcement by the Committee.
- (4) Amending, modifying, or changing any provisions related to the return, storage, and offset of greenhouse gas emission rights as specified in Part 6 of this chapter.
- (5) Other methods specified in an announcement by the Committee.

Price stabilisation measures such as floors and ceilings are not explicitly provided for. These mechanisms are used in the EU ETS and California to mitigate extreme price fluctuations and have a guaranteed floor price for emissions. The Government may consider inserting a new limb (5) on price floors and ceilings.

Price floors may be governed by secondary law to allow for flexibility and time limits.

Part 8: Appeals

Section 101: Controlled legal entities or any interested parties wishing to dispute to protect their rights may appeal to the Director-General within the specified time as follows:

- (1) For the designation of controlled legal entities under Section 79 or Section 81, appeal within thirty days from the publication in the Government Gazette.
- (2) For rights allocation under Section 82, appeal within thirty days from the receipt of notification of the allocation results.
- (3) For additional or changed rights under Section 84, appeal within thirty days from the receipt of notification of the results.

- (4) For rights revocation under Section 85, appeal within thirty days from the receipt of notification of the results.

The Director-General's decision shall be final.

Chapter 9 Cross-Border Carbon Pricing Mechanism

Part 1: Supervision of the Cross-Border Carbon Pricing Mechanism

Section 102: There shall be a mechanism called the "Cross-Border Carbon Pricing Mechanism" to address carbon leakage and greenhouse gas emissions from the production of imported goods as specified in the Ministerial Regulations. The cross-border carbon pricing must consider the allocation of greenhouse gas emission rights under Section 82.

The Department shall have the following duties and powers:

We recommend including mechanisms for regular stakeholder consultations to gather feedback and improve the system.

- (1) Establish a registry and accounting system to manage data related to the cross-border carbon pricing mechanism, including accounts for each importer to record greenhouse gas emissions of imported goods and payment for cross-border carbon pricing certificates.

To ensure registry independence and transparency, consider inserting language such as: «*The registry and accounting system must operate independently and transparently to build trust among stakeholders.*»

- (2) Ensure importers of specified goods submit greenhouse gas emission reports for imported goods and pay for carbon pricing certificates.
- (3) Provide knowledge, consultation, and capacity building for the private sector, State agencies, State officials, and stakeholders to promote and understand the management of the cross-border carbon pricing mechanism.

- (4) Assess and analyse risk factors related to the cross-border carbon pricing mechanism and report the risk assessment results, problems, and obstacles in relation to the cross-border carbon pricing mechanism to the Committee.
- (5) Perform actions according to the Committee's resolutions or assignments.

Section 103: To supervise the cross-border carbon pricing mechanism, the Committee shall have the following duties and powers:

- (1) Promote, supervise, monitor, and evaluate the cross-border carbon pricing mechanism.
- (2) Establish measures to coordinate with relevant State agencies to promote and develop the cross-border carbon pricing mechanism.
- (3) Issue announcements, regulations, or perform other actions to supervise the cross-border carbon pricing mechanism.

Part 2: Registration and Reporting of Greenhouse Gas Emissions of Imported Goods

Section 104: Importers of specified goods in the Ministerial Regulations must register with the Department according to criteria, methods, and conditions specified in an announcement by the Department.

In the EU CBAM, importation is prohibited unless conducted by a registered declarant. Breach is an offence. This is a softer regime but may allow room to bypass. Consider introducing a similar prohibition on importing CBAM goods unless done through a registered importer.

We would suggest that importers are either incorporated in Thailand or have a local representative.

From a practical perspective, it might be worthwhile implementing a de minimis threshold to avoid unnecessary bureaucracy. In the EU, this is currently set to 50 tonnes per calendar year.

More generally, capacity-building and communication should be clear and transparent; registration should be non-discriminatory; and multilingual submissions should be accommodated.

The Department may revoke the registration of an importer in the following cases:

Consider adding additional grounds for revocation, such as fraudulent activity, through secondary legislation.

- (1) The importer ceases operations.
- (2) The importer fails to pay for carbon pricing certificates under Section 107 or Section 113.

The criteria, methods, and conditions for revoking registration under paragraph two shall be as specified in an announcement by the Committee.

When an importer whose registration is revoked under paragraph two (2) pays the administrative fine under Section 194, the importer shall re-register with the Department according to criteria, methods, and conditions specified in an announcement by the Department.

Section 105: Importers of goods under Section 104 must submit greenhouse gas emission reports for imported goods to the Department within five months from the end of the calendar year, according to criteria, methods, and conditions specified in an announcement by the Department, including at least the following:

- (1) Methods for calculating greenhouse gas emissions from the production of imported goods, considering the production process scope, materials used in the production of imported goods, greenhouse gas emission scope, and emission factors.
- (2) Preparation of greenhouse gas emission report forms for imported goods.
- (3) Verification of greenhouse gas emission reports for imported goods.
- (4) Submission of greenhouse gas emission reports for imported goods.

Section 106: Greenhouse gas emission reports for imported goods must follow the format and details specified in an announcement by the Department, including at least the following:

- (1) Total quantity of imported goods subject to regulation in the previous calendar year.
- (2) Direct and indirect greenhouse gas emissions from the production of imported goods under (1).
- (3) Carbon pricing certificates equal to the greenhouse gas emissions under (2) after deducting the carbon price paid in the producing country under Section 114 and adjusting for the scope of free allocation of greenhouse gas emission rights in the trading system under Section 113.
- (4) Other data specified in an announcement by the Department.

Section 107: If it is found that an importer fails to submit greenhouse gas emission reports under Section 105 or the carbon pricing certificates specified in the reports under Section 106(3) are missing, the Department or the State agency designated by the Department shall have the duty and power to inspect and determine the total carbon pricing certificates payable by the importer within two years from the due date for report submission or within four years from the submission of incorrect reports.

The provision does not specify corrective mechanisms for failure to register, or for incomplete or incorrect reports. We strongly recommend establishing a dispute resolution mechanism to correct good-faith errors.

To inspect and determine the missing carbon pricing certificates under paragraph one, the Department shall notify the verification agency verifying the report to correct or provide additional documents or evidence and resubmit the greenhouse gas emission report or related documents within the specified time, stating the reasons and errors.

The provision currently places the onus on the verifier for incorrect submissions. However, it will be relying on data provided by the importer. Responsibility for providing complete documentation and/or buying additional certificates should lie with the importer. We recommend a correction and penalty regime for verifiers, including revocation of accreditation where appropriate.

Upon determination, the Department shall notify the importer under paragraph one in writing to pay the additional carbon pricing certificates within one month from receipt of the notification.

Section 108: Registration under Section 104 and submission and verification under Section 105 may be done electronically, and such registration submission, and verification shall be considered lawful.

We understand that this is supposed to mean that paper documentation is the main means of submission; however, this is not expressly stated elsewhere in the Act and we presume that given the international scope, electronic submissions will be preferred.

Section 109: Sections 60 and 61 shall apply *mutatis mutandis* to the duties and qualifications of verification agencies.

Section 110: For inspection purposes, importers must keep greenhouse gas emission reports for imported goods, verification reports, or records necessary for calculating greenhouse gas emissions of imported goods for at least seven years from the import date.

Section 111: The Department may disclose data about greenhouse gas emission from the production of imported goods under Section 106 or other related data through the Climate Information Center or the Department's information system for public access.

Section 112: Importers have the right to submit a written request to the Director-General to prevent the disclosure of data if the disclosure would affect or violate trade secret rights under the law on trade secrets. However, data about greenhouse gas emission from the production of imported goods shall not be considered confidential.

The Director-General shall decide on the request within thirty days from the receipt date, and the decision shall be final.

Part 3: Payment and Reduction in Prices of Carbon Pricing Certificates

We suggest introducing an expiry date for CBAM certificates to preserve accurate price signals.

Section 113: Importers must pay for carbon pricing certificates for imported goods equal to the greenhouse gas emissions specified under Section 1046(3) for the previous calendar year to the Department within five months from the end of the calendar year, according to criteria, methods, and conditions specified in an announcement by the Department.

The calculation of the price of the carbon pricing certificates under paragraph one must consider the average price of greenhouse gas emission rights allocated by auction during the operational year and the scope of free allocation of greenhouse gas emission rights in the trading system.

For the calculation of the price of the carbon pricing certificates, the Department shall announce the average price of greenhouse gas emission rights, which shall be effective for the specified period.

Section 114: Importers may submit proof of payment of the carbon price legally paid in the producing country to request a reduction in the price payable for carbon pricing certificates, according to criteria, methods, and conditions specified in an announcement by the Committee.

The provision in paragraph one does not apply if there are refunds, offsets, or compensations in any form in the producing country that may reduce the actual carbon price payable.

Section 115: Importers must keep necessary documents to show that the carbon price for greenhouse gas emissions from production in the producing country has been paid, including documents related to any form of discounts, offsets, or compensations, for at least four years from the import date.

The documents under paragraph one must be legal documents, documents certified by the State agency of the producing country, or documents certified according to criteria, methods, and conditions specified in an announcement by the Committee.

Section 116: If it is found that the carbon pricing certificate price paid exceeds the amount due, the importer has the right to request a refund by submitting an application with supporting documents to the Department within thirty days after paying the certificate price under Section 113, according to criteria, methods, and conditions specified in an announcement by the Department.

Part 4: Importation of Goods

Section 117: The registration of importers under Section 104 is considered to be a condition that must be fully complied with before the specified imported goods can be released from customs custody under the customs law.

Section 118: For the purpose of data verification and carbon pricing, the Customs Department has the duty and power to prepare, send, and link data related to importers, the quantity of imported goods, the producing country, and other necessary data for carbon pricing assessment as specified in an announcement by the Committee, to the Department upon request.

If the data under paragraph one is prepared in digital form, the Department shall link and exchange the data, considering the criteria, methods, conditions, and regulations under the law on digital government administration and services.

Part 5: Appeals

Section 119: Importers wishing to dispute to protect their rights may appeal to the Director-General within the specified time as follows:

- (1) For registration revocation under Section 104, appeal within thirty days from the notification receipt date.
- (2) For the determination of cross-border carbon pricing certificates under Section 107, appeal within thirty days from the notification receipt date.

The Director-General's decision shall be final.

Chapter 10 Carbon Tax

Part 1: Carbon Tax on Goods

Section 120: There shall be a carbon tax levied on goods under this Act.

Section 121: Industrial operators or importers must pay tax based on the quantity of goods according to the tariff rates specified in the Ministerial Regulations, not exceeding the rates listed in the tariff schedule annexed to this Act, in effect at the time the tax liability arises.

The tax payment based on quantity shall be based on the unit, net weight, or net volume of the goods.

Section 122: Tax liability arises as follows:

- (1) For goods produced in the Kingdom, tax liability arises when the goods are removed from the industrial plant, except when removed from the industrial plant to bonded warehouses under the excise tax law, bonded warehouses under the customs law, free zones, or free trade zones. If the industrial operator or any person uses the goods within the industrial plant, it is considered removal from the industrial plant.
- (2) For imported goods, tax liability arises at the same time as customs duty liability for imported goods under the customs law, with the exception that for goods imported into bonded warehouses under the customs law, free zones, or free trade zones, tax liability arises when the goods are removed from the bonded warehouses under the customs law, free zones, or free trade zones. If the importer or any person uses the goods within the bonded warehouses under the customs law, free zones, or free trade zones, it is considered removal from the bonded warehouses under the customs law, free zones, or free trade zones, as applicable.

Part 2: Tax Filing and Payment

Section 123: The Excise Department and the Customs Department shall collect the tax under this Act.

Section 124: Taxpayers under Section 121 must file tax returns and pay taxes as follows:

- (1) For goods produced in the Kingdom, industrial operators must file tax returns in the form specified in an announcement by the Minister with the excise officer at the branch area excise office or the area excise office in the area where the industrial plant is located and pay the tax before the tax liability arises.

- (2) Industrial operators with multiple industrial plants may apply to the Minister to file consolidated tax returns and pay all taxes at one excise office.
- (3) For imported goods, importers must file tax returns in the form specified by the Minister with the customs officer at the location specified in an announcement by the Minister and pay the tax when the customs declaration is issued under the customs law.

For tax payment purposes under this section, the Minister may specify in an announcement other locations or electronic means for filing tax returns and paying taxes to the competent officials.

After paying the tax, the Minister may require industrial operators, importers, or related parties to issue proof and details of tax payment according to criteria, methods, and conditions specified in an announcement by the Minister.

Section 125: If the excise officer or customs officer issues a tax assessment notice to the taxpayer, the taxpayer must pay the tax within the specified time as follows:

- (1) If assessed before the tax liability arises, pay the tax before removing the goods from the industrial plant or bonded warehouse.
- (2) In other cases, pay the tax within thirty days from the notification receipt date.

Section 126: If there is a tax assessment appeal and the decision requires additional tax payment, the appellant must pay the tax within thirty days from the date of receipt of notification of the decision.

Part 3: Tax Assessment and Security Deposit

Section 127: Excise officers and customs officers have the authority to assess taxes, fines, and surcharges under this Act when:

- (1) The taxpayer fails to file a tax return within the legally specified time.
- (2) The taxpayer files an incorrect tax return or a tax return containing errors that cause the tax amount to be incorrect.

Section 128: In carrying out Section 127, excise officers and customs officers have the following powers:

- (1) Prepare entries in the tax return based on evidence deemed correct when no tax return is filed.
- (2) Amend entries in the tax return or other documents submitted with the tax return to correct them.
- (3) Assess taxes based on the evidence available to the competent officials or as deemed correct by the competent officials.

Section 129: Upon assessment, the taxpayer shall be notified of the assessment in writing.

Section 130: Assessments must be made within the following time limits:

- (1) Two years from the last day of the tax return filing period or of the extended period granted by the Director-General of the Excise Department or the Director-General of the Customs Department, as applicable, provided the tax return was filed within the specified time.
- (2) Two years from the tax return filing date, provided the return was filed after the last day of the period specified in (1) but not more than ten years from the last day of the tax return filing period.
- (3) Ten years from the last day of the tax return filing period if no return is filed or if the return understates the value of goods by more than 25% of the declared value.

If there is reason to believe the taxpayer filed an incorrect or incomplete tax return, the competent officials or officers, with the approval of the Director-General of the Excise Department or the Director-General of the Customs Department, as applicable, may assess taxes within five years from the time specified in (1) or within five years from the tax return filing date in (1), as applicable.

Section 131: If a dispute over the tax amount, and the industrial operator wishes to remove goods from the industrial plant or bonded warehouse, or the importer wishes to remove goods from customs custody before the competent official's assessment, the industrial operator or importer must pay the tax amount shown in the tax return and deposit additional

security to cover the potential tax liability for the goods. The industrial operator or importer may request the Director-General of the Excise Department or the Director-General of the Customs Department, as applicable, to accept a bank guarantee instead of the additional security deposit, following criteria, methods, and conditions specified in an announcement by the Director-General of the Excise Department or the Director-General of the Customs Department.

Part 4: Tax Assessment Appeals

Section 132: Taxpayers who disagree with the assessment have the right to appeal to the Minister within thirty days from the assessment notification receipt date, according to criteria and methods specified in an announcement by the Minister.

Section 133: The Minister must finish their review of the appeal within 180 days from the receipt date of the appeal and complete supporting documents. This period may be extended by up to ninety days. If the decision is not made within this period, the appellant has the right to file a lawsuit in court without waiting for the Minister's decision, but must file it within thirty days from the end of the period. Once the lawsuit is filed, the Minister shall cease considering the appeal.

The review of the proposed extension under paragraph one must be completed before the end of the 180-day period and the appellant must be notified in writing within seven days of completion of the review.

The Minister has the authority to reject the appeal, dismiss the appeal, revoke the assessment, or amend the assessment to increase or decrease the tax payable by the appellant. If the appeal is rejected, it is considered dismissed.

The appeal decision must be in writing and notified to the appellant within fifteen days of the decision.

If the appellant is dissatisfied with the Minister's decision, they have the right to file a lawsuit in court within thirty days from the date of receipt of notification of the decision.

Section 134: Appeals to the Minister or lawsuits in court under this Act do not suspend tax payment unless the appellant submits a request to the excise officer or customs officer, as applicable, to suspend tax payment. If the excise officer or customs officer deems it appropriate, they may order a full or partial suspension of tax payment and may require security as deemed appropriate.

Section 135: If the excise officer or customs officer orders a suspension of tax payment under Section 134, and it later appears that actions have been taken to delay tax payment or actions have been taken or attempted to transfer, sell, dispose of, or move assets to avoid seizure or attachment, the excise officer or customs officer has the authority to revoke the suspension order.

Part 5: Tax Exemptions, Reductions, and Refunds

Section 136: Industrial operators have the right to request a tax reduction by deducting the tax already paid on raw materials or components used in the production of goods from the tax payable on those goods.

If the tax already paid on raw materials or components used in the production of goods and subject to reduction under paragraph one exceeds the tax payable, the industrial operator has the right to a tax refund.

Requests for tax reductions under paragraph one and tax refunds under paragraph two must follow criteria, methods, and conditions specified in the Ministerial Regulations.

Section 137: The Minister, with Cabinet approval, has the authority to announce reductions or exemptions of carbon tax under this Act for the benefit of the national economy or public welfare, and may specify criteria and conditions.

Part 6: Accounting and Compliance

Section 138: Industrial operators must maintain daily and monthly accounts in the form specified by the Minister.

Importers must maintain accounts of imported goods in the form specified in an announcement by the Minister.

Daily accounts, accounting documents, monthly accounts, and accounts of imported goods must be kept for at least five years at the industrial plant, importer's establishment, or other accessible locations for inspection.

The Minister may allow other methods for maintaining daily accounts, monthly accounts, and accounts of imported goods.

Part 7: Fines and Surcharges

Section 139: Taxpayers must pay fines in the following cases:

- (1) Failure to file a tax return and pay tax within the specified time results in a fine of twice the tax amount.

- (2) Filing an incorrect tax return or a tax return containing errors that cause the tax amount to be understated results in a fine of the understated tax amount. If the understatement caused by the filing of an incorrect tax return or a tax return containing errors exceeds 25% of the tax amount, the fine is twice the understated tax amount.

Fines may be waived or reduced according to criteria specified in the Ministerial Regulations.

Section 140: Taxpayers who fail to pay tax within the specified time or underpay the tax must pay a surcharge of 1.5% per month or part of a month on the unpaid tax amount, excluding fines. The surcharge calculation shall not compound.

The surcharge under this Section shall not exceed the unpaid tax amount, excluding fines, and may be reduced according to criteria specified in the Ministerial Regulations.

Section 141: Fines and surcharges are considered tax.

Part 8: Enforcement of Overdue Tax Collection

Section 142: To collect overdue taxes, the Minister has the authority to issue a written order to seize and auction the defaulting taxpayer's property without needing court authorisation.

Seizure under paragraph one can only occur after sending a written warning to the taxpayer to pay the overdue taxes within at least thirty days from receiving the notice.

Auctioning the property cannot occur during the appeal period under Section 130 or the period for filing a lawsuit in court under Section 131, and throughout the appeal or court proceedings, except for perishable goods, which the Director-General of the Excise Department or the Director-General of the Customs Department can immediately sell by auction or other appropriate methods, and the net proceeds shall be held in place of the property.

Defaulting taxpayer under paragraph one includes unlimited liability partners in a legal partnership.

Section 143: If the defaulting taxpayer has a claim against a third party for payment or delivery of property, the Director-General of the Excise Department or the Director-General of the Customs Department can issue a written order to attach the claim, instructing the defaulting taxpayer to refrain from disposing of the claim and prohibiting the third party from paying or delivering the property to the defaulting taxpayer, but to pay or deliver it to the competent official within the time specified in the order.

Defaulting taxpayer under paragraph one includes unlimited liability partners in a legal partnership.

Section 144: Seizure, attachment, and auction of property to collect overdue taxes shall follow the provisions of the Civil Procedure Code as far as they do not conflict and is not inconsistent with the provisions of this Act.

Section 145: Once a seizure or attachment order is issued under Sections 142 and 143, no one shall destroy, move, conceal, or transfer the seized or attached property or claim to another person.

Section 146: The proceeds from the auction of property shall first cover the costs of seizure, attachment, and auction, with the remainder used to pay the taxes. Any remaining funds shall be returned to the property owner.

Section 147: If a seizure occurs and the seizure costs and overdue taxes are fully paid before the auction, the Minister shall order withdrawal of the seizure order.

If an attachment occurs and the attachment costs and overdue taxes are fully paid before receiving payment from the third party or before the auction, the Minister shall order withdrawal of the attachment order.

Part 9: Additional Tax Collection for Local Government

Section 148: Taxpayers under this Act must pay additional taxes for local government for goods at rates specified in the Ministerial Regulations, not exceeding 10% of the tax.

If the additional tax under paragraph one has a fraction of one satang, it shall be rounded down.

Section 149: Excise officers or customs officers shall remit the additional taxes collected under Section 146 to the Ministry of Interior, deducting 5% of the additional taxes for expenses.

Chapter 11 Carbon Credits

Part 1: Management and Use of Carbon Credits

Section 150: Carbon credits are considered assets and can be transferred, received, bought, sold, or otherwise disposed of, in whole or in part.

Section 151: The carbon credits subject to domestic carbon credit use or international carbon credit use under this Act must come from greenhouse gas reduction projects within the country and be certified under the law on the establishment of the Greenhouse Gas Management Organization (Public Organization).

This section does not provide any substantial definition of the core attributes that qualify an emissions reduction as creditable (additionality as reduction beyond business as usual; permanence etc). Consider inserting "real, additional, measurable, verifiable and permanent" as seen in Australian primary legislation.

Section 152: The international carbon credit use must align with international agreements to which Thailand is a party and be authorised according to criteria, methods, and conditions specified in an announcement by the Committee.

Consider requiring international carbon credits authorised under this Section to meet integrity standards not lower than those applied under mechanisms established pursuant to Article 6 of the Paris Agreement.

For the purpose of paragraph one, the Department has the following duties and powers:

- (1) Collect fees for authorising the international carbon credit use according to criteria, methods, and conditions specified in the announcement.
- (2) Adjust the national greenhouse gas inventory data to reflect the country's greenhouse gas reduction performance and targets, avoiding double counting of reductions from international carbon credit use, and report data according to international agreement guidelines.

Consider extending the principle of single-use/anti-double counting to domestic carbon credits, particularly those used for ETS offsetting.

- (3) Perform other necessary actions related to the international carbon credit use as specified in the announcement.

Section 153: The Organization shall establish a system for measuring, reporting, and verifying greenhouse gas reductions to certify carbon credits for domestic carbon credit use and international carbon credit use, and a registry system to track the transfer and use of carbon credits for these purposes.

Consider requiring unique serial-number tagging, tracking of issuance and retirement status, and measures to prevent duplicate use or issuance of carbon credits.

Part 2: Carbon Credit Business and Services

Section 154: The transfer, receipt, purchase, sale, or other disposal of carbon credits shall be conducted as follows:

- (1) Trading carbon credits through trading centers shall follow the laws on securities and exchange, futures, or digital asset business, as applicable.
- (2) Direct transfer, receipt, purchase, sale, or other disposal of carbon credits between persons or by direct agreement between buyers and sellers shall follow criteria, methods, and conditions specified in an announcement by the Organization's Board.

Section 155: The transfer, receipt, purchase, sale, or other disposal of carbon credits under Section 154 shall take effect upon registration with the Organization according to regulations specified in an announcement by the Organization.

Registration of the transfer, receipt, purchase, sale, or other disposal of carbon credits under paragraph one may be done electronically and such registration shall be considered lawful

Section 156: Carbon credit business operators must register their carbon credit business with the Organization's Board, according to criteria, methods, and conditions specified in an announcement by the Committee.

Section 157: Carbon credit certification service providers under independent standards for greenhouse gas reduction activities within the country must meet carbon credit certification standards not lower than those set by the Organization and report their operations to the Organization according to criteria and methods specified in an announcement by the Organization.

Chapter 12 Climate Change Adaptation

Part 1: Data and Knowledge Development to Support Planning and Implementation for Climate Change Resilience

Section 158: The Department, in collaboration with or supporting relevant agencies, shall prepare and disseminate national climate information accessible to the public through the Climate Information Center or the Department's information system, including at least the following:

- (1) Climate data, including at least historical climate measurements, climate monitoring, short-term and medium-term weather forecasts, and long-term climate change projections.
- (2) Risk and impact assessments from climate or climate change.
- (3) Guidelines and examples of climate change adaptation.
- (4) Results of climate change adaptation actions.
- (5) Other items specified in an announcement by the Department.

The presentation and updating of data under the paragraphs one and two shall follow the specifications specified in an announcement by the Department.

Section 159: To prepare national climate information, the Department has the authority to access or request relevant data from other State agencies that possess the data or have the authority to request the data under other laws.

Section 160: To support the implementation of this Act, the Meteorological Department shall prepare the national climate database under Section 158(1).

Section 161: The Department, in collaboration with or supporting relevant agencies, shall conduct actual and potential risk and impact assessments from climate change in the areas of water resource management, agriculture and food security, tourism, public health, natural resource management, human settlement and security, or other areas specified by the Committee. Assessments may be conducted by area or sector, considering at least the following:

- (1) National climate forecast data.
- (2) Relevant academic data, such as economic and social statistics, impact and risk assessment methods.
- (3) Potential economic, social, environmental, and health impacts on the public and communities.
- (4) The level of actual or potential impact on specific groups or sectors.

The Department shall submit the risk and impact assessment results under paragraph one to the Committee for review and approval and disseminate the results through the Climate Information Center or the Department's information system under Section 158.

Collaboration under paragraph one shall follow the format and methods specified by the Department.

Section 162: The Department shall notify relevant State agencies of the risk and impact assessment results under Section 161 to establish measures for preventing and addressing risks and impacts, and inform the public according to the agency's legal duties and powers.

If no law grants authority to prevent or mitigate climate change risks or impacts, the Department, with the Committee's approval, shall submit the matter to the Cabinet for further action.

Section 163: For climate change risk and impact assessments, State agencies have the duty and power to provide or link climate change data, climate change risk and impact data, and necessary data for risk and impact assessments, as well as data on measures to prevent and mitigate climate change risks and impacts, in their possession to the Department upon request.

If the State agencies have prepared the data under paragraph one in digital form, the Department shall link and exchange the data with the State agencies having the data in their possession, considering criteria, methods, conditions, and regulations under the law on digital government administration and services.

Section 164: If the Department finds that the data possessed by State agencies is insufficient for national climate change risk and impact assessments, the Department may request relevant State agencies to survey, collect, prepare, and provide additional climate change data and necessary data for climate change risk and impact assessments for the Department.

Surveying, collecting, preparing, and providing climate change data and necessary data for climate change risk and impact assessments under paragraph one shall be considered the duty and power of the State agencies under Section 163.

Section 165: When it is necessary to require private entities to report data for climate change risk and impact assessments under Section 161, this shall be done by issuing a Ministerial Regulations, including at least the following:

- (1) Categories of persons required to report data.
- (2) Data to be reported.
- (3) Methods of reporting data.
- (4) Reporting timeframes.
- (5) State agencies to which data must be reported for each type of data.
- (6) State agencies responsible for data collection.

The data under (2) must be necessary for climate change risk and impact assessments, and the Department and State agencies under Section 163 cannot obtain the data by other means, or if other means are used, it would be an undue burden on the State.

The Ministerial Regulations under paragraph one may specify that technical details or rapidly changing matters follow criteria and methods set by the Minister overseeing the State agency under (6) and announced in the Government Gazette.

Section 166: If conflicts or obstacles arise in implementing Part 1 of Chapter 12, the Department shall discuss with relevant State agencies and report the conflicts or obstacles to the Cabinet for resolution or appropriate action.

Part 2: Development and Implementation of Climate Change Adaptation Plans

Section 167: The Committee shall develop a policy plan called the "National Climate Change Adaptation Plan" to promote, support, and plan the implementation of climate change adaptation actions and reduce losses and damages from climate change to enhance the country's resilience.

The adaptation plan under paragraph one shall be part of the master plan and, once published in the Government Gazette, shall be enforceable. The Department shall disseminate the plan to the public through the Climate Information Center or the Department's information system.

Section 168: In developing the adaptation plan, the Committee must consider at least the following:

- (1) Risk and impact assessment results under Section 161, the severity of impacts, and urgency.
- (2) Evaluation of previous plan implementation and the best current knowledge.
- (3) National policies and plans related to climate change adaptation.
- (4) Thai laws, international obligations, and relevant international principles.
- (5) Economic, social, environmental, and health impacts on the public and communities.
- (6) Readiness and budget of State agencies required to implement the plan.

Section 169: The adaptation plan must include at least the following details:

- (1) Objectives and goals for climate change adaptation to enhance Thailand's resilience, including at least targets for water resource management, agriculture and food security, tourism, public health, natural resource management, human settlement and security, or other areas specified by the Committee.

- (2) Suitable guidelines and measures for climate change adaptation to achieve the set goals, including specifying State agencies responsible for implementing the guidelines or measures.
- (3) Timeframes and indicators for implementing the guidelines and measures for climate change adaptation.
- (4) Methods for monitoring, inspecting, and evaluating the plan's implementation.

Section 170: The Department, with the Committee's approval, shall designate the main responsible agencies for each sector under the adaptation plan and coordinate with them to develop an action plan called the "National Climate Change Adaptation Action Plan" to guide and drive sectoral implementation in alignment with the adaptation plan. The action plan must include at least the following details:

- (1) Timeframe for enforcement.
- (2) Sectoral risk and impact assessment results.
- (3) Sectoral adaptation goals.
- (4) Adaptation policies and measures to achieve the goals.
- (5) Budget estimates for implementing the plan.
- (6) Timeframes for implementing the policies and measures under (4).
- (7) Guidelines for collaboration with relevant sectors.

Once published in the Government Gazette, the action plan under paragraph one shall be enforceable, and the Department shall disseminate the plan to the public through the Climate Information Center or the Department's information system.

Section 171: Under Section 170, if a province or locality is affected or at risk of being affected by climate change according to the actual and potential risk and impact assessment under Section 161, the province or locality, with the Department's support, shall develop a provincial or local action plan.

If a province or locality not at risk of being affected by climate change wishes to initiate a provincial or local action plan, it may request the Department to explore ways to support the development of the provincial or local action plan.

The action plan under paragraphs one and two must be developed with the economic, social, environmental, and ecological conditions and community and public lifestyles in the province or locality, or the specific characteristics of relevant sectors taken into consideration, and in collaboration with other relevant State agencies, stakeholders, and affected or at-risk people in the province or locality.

Section 172: The Department shall have the duty and power to initiate, promote, and coordinate with relevant State agencies under the adaptation plan, adaptation action plan, or provincial or local action plan to develop and amend policies, laws, or regulations to align with the plan's goals.

Section 173: To monitor the progress of the adaptation plan, adaptation action plan, and provincial or local action plan, the Department shall have the duty and power to monitor and support the implementation of the plans by State agencies. State agencies responsible for implementing the plans shall report their actions to the Department within the timeframe and with details announced by the Department.

The Department shall prepare a summary report on the implementation of the adaptation plan, adaptation action plan, and provincial or local action plan for the Committee at least every two years, including at least progress, problems, obstacles, and recommendations for problem-solving, and make the report publicly available through the Climate Information Center or the Department's information system.

Section 174: If the Committee finds that any agency's actions are not aligned with the adaptation plan, adaptation action plan, or provincial or local action plan, or progress is not meeting the targets specified in the plans, the Committee may instruct the Department to discuss with the agency to resolve the issues or make recommendations to the Minister responsible for the agency.

If relevant State agencies do not report progress of the implementation of the adaptation plan, adaptation action plan, or provincial or local action plan or face significant obstacles to such implementation, or if a conflict arises between the plan's implementation and the implementation of other key State policies, the Committee shall report the issues or conflicts to the Cabinet for action as may be deemed appropriate.

Chapter 13 Standards for Grouping Economic Activities Considering Climate Change and Environment

Section 175: The Committee shall establish a central standard for grouping economic activities called the "Standard for Grouping Economic Activities Considering Climate Change and Environment" that is aligned with the country's context and internationally accepted, to ensure all sectors have a common understanding and reference point for assessing climate change actions, strategic planning, policy and action plan development, and standardized allocation and expenditure of funds.

The standard for grouping economic activities considering climate change and environment under paragraph one can be developed in phases according to the country's economic, social, and environmental context and needs, with public and stakeholder participation in providing feedback.

Section 176: The standard for grouping economic activities considering climate change and environment in each phase must include at least the following:

- (1) Scope and environmental objectives of grouping economic activities considering climate change and environment.
- (2) Scope and principles of economic activities significantly impacting climate change and environment.
- (3) Criteria and methods for assessing each economic activity.
- (4) Conditions and indicators for assessing each economic activity.
- (5) Framework for assessing impacts on other environmental objectives.

Section 177: The Committee shall announce criteria and methods for implementing the standard for grouping economic activities considering climate change and environment in the following cases:

- (1) Developing policies, plans, action plans, or measures for greenhouse gas reduction, adaptation, or promoting climate change actions for the country and relevant State agencies.
- (2) Expenditure of fund money under Section 22.
- (3) Reporting data of controlled legal entities under the greenhouse gas emission trading system under Section 86.
- (4) Other cases announced by the Committee.

Chapter 14 Penalties

Please note that in the European context, the decision was made to set nominal penalties initially and increase them over time. In doing so, the European Commission addressed some of the issues raised by market participants and allowed sufficient time to adapt to the introduction of a market price. Similar flexibility could be provided through ministerial decree rather than fixing penalty levels in this Act.

Section 178: Anyone who fails to collect or report activity data under Section 51, paragraph one, within the time specified in the warning letter under Section 51, paragraph three, without reasonable cause, is guilty of an administrative offense and shall be subject to an administrative fine of 10,000 to 100,000 baht and an additional fine of up to 1,000 baht per day until compliance.

Section 179: Anyone who intentionally reports false data or conceals data required to be reported under Section 49, paragraph one, is guilty of an administrative offense and shall be subject to an administrative fine of 30,000 to 300,000 baht and an additional fine of up to 3,000 baht per day until compliance.

Section 180: Anyone who submits a greenhouse gas emission report under Section 54 with intentionally false data or conceals data required to be reported is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 181: Anyone who fails to submit a greenhouse gas emission report or violates the Department's announcement under Section 54 or fails to comply with Section 56, paragraph two, is guilty of an administrative offense and shall be subject to an administrative fine of up to 100,000 baht and an additional fine of up to 10,000 baht per day until compliance.

Section 182: Verification agencies and verifiers who report false verification results under Section 60, paragraph three, or Section 109 or conceal data required to be reported is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 183: Anyone who fails to keep greenhouse gas emission reports under Section 62 is guilty of an administrative offense and shall be subject to an administrative fine of up to 100,000 baht.

Section 184: Anyone who fails to cooperate reasonably with the duties of competent officials under Section 90 is guilty of an administrative offense and shall be subject to an administrative fine of up to 1 million baht and an additional fine of up to 100,000 baht per day until compliance.

Section 185: Anyone who fails to register under Section 79, paragraph three, is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 186: Anyone who causes themselves or any other person to unlawfully obtain or receive the allocation, additional allocation, or change of greenhouse gas emission rights under Section 82 or Section 84 is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 187: Anyone who fails to report data under Section 85, paragraph two, is guilty of an administrative offense and shall be subject to an administrative fine of up to 1 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 188: Any controlled legal entity that fails to return greenhouse gas emission rights or returns incomplete rights under Section 91 is guilty of an administrative offense and shall be subject to an administrative fine of up to three times the average price of greenhouse gas emission rights allocated by auction during the operational year of the emissions for the unreturned or incomplete rights.

Section 189: Anyone returning the greenhouse gas emission rights under Section 91 who unlawfully exercises offset emission rights under Section 93 or requests to exercise the right to reduction under Section 95 is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 190: Anyone who fails to submit greenhouse gas emission reports for imported goods under Section 105 is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht and an additional fine of up to 10,000 baht per day until compliance.

Section 191: Anyone who submits greenhouse gas emission reports for imported goods under Section 105 with intentionally false data or conceals data required to be reported is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 192: Anyone who violates the Department's announcement under Section 105 or fails to comply with Section 105, paragraph two, is guilty of an administrative offense and shall be subject to an administrative fine of up to 100,000 baht and an additional fine of up to 10,000 baht per day until compliance.

Section 193: Anyone who violates or fails to comply with Section 110 and Section 115 is guilty of an administrative offense and shall be subject to an administrative fine of up to 100,000 baht.

Section 194: Anyone who fails to pay for cross-border carbon pricing certificates under Section 107 and Section 113 is guilty of an administrative offense and shall be subject to an administrative fine of up to 5 million baht or three times the value of the benefits gained from the action, whichever is higher.

Section 195: Anyone who violates or fails to comply with Section 138 is guilty of an administrative offense and shall be subject to an administrative fine of up to 100,000 baht.

Section 196: Anyone who violates Section 145 is guilty of an administrative offense and shall be subject to imprisonment for up to three years and a fine of up to 400,000 baht.

Section 197: Anyone who operates a carbon credit business without registering with the Organization under Section 156 is guilty of an administrative offense and shall be subject to an administrative fine of 10,000 to 100,000 baht and an additional fine of up to 1,000 baht per day until compliance.

Section 198: If the offense of a legal entity is due to the orders or actions of directors, managers, or persons responsible for the operation of the legal entity, or if such persons have the duty to issue orders or take actions and they fail to perform the duty, causing the legal entity to commit the offense, they shall also be subject to the penalties provided for the offense.

Section 199: The Minister has the authority to appoint State officials to impose administrative fines. If the maximum fine is not more than 10,000 baht, a single State official may impose the fine. If the maximum fine exceeds 10,000 baht, a committee of at least three State officials, including a head and at least two members, shall impose the fine.

Transitional Provisions

Section 200: Initially, the Committee shall consist of members under Section 10(1), (2), (3), and paragraph two, to perform necessary duties temporarily for no more than ninety days from the date this Act comes into force.

Section 201: Initially, to ensure continuity in climate change policy and planning, the Climate Change Adaptation Master Plan B.E. 2558 – 2593 (2015 – 2050), approved by the Cabinet on July 14, 2015, shall be the master plan under this Act. The second edition of the Nationally Determined Contributions and Thailand's Long-Term Low Greenhouse Gas Emission Development Strategy, approved by the Cabinet on October 18, 2022, shall be the greenhouse gas reduction plan under this Act. The National Climate Change Adaptation Plan, approved by the Cabinet on April 2, 2024, shall be the adaptation plan under this Act. These plans shall be reviewed to align with this Act within five years from the date this Act comes into force.

Section 202: Regulations, orders, or announcements issued under the Prime Minister's Office Regulation on Climate Change Operations B.E. 2550 and its amendments, in force before this Act comes into force, shall continue to be in force as long as they do not conflict and are not inconsistent with this Act, until the regulations, announcements, or orders issued under this Act come into force.

Section 203: The issuance of Ministerial Regulations, regulations, and announcements under Chapter 6, Part 2 of this Act shall be completed within one year from the date this Act comes into force. If this cannot be done, the Minister shall report the reasons to the Cabinet.

Countersigned by:

Prime Minister

Section 204: To alleviate the payment of cross-border carbon pricing certificates under Section 113 in the first two years of implementing the carbon pricing mechanism under this Act, importers shall be exempt from paying for the certificates.

Section 205: Pending effectiveness of Chapter 4 (Climate Fund), any income or other money that this law designates as the Fund's money and assets shall be deposited by the authorised revenue-collecting agency into a separate account. Once Chapter 4 comes into effect, the money shall be transferred to the Fund without being remitted as State revenue.

CARBON TAX TARIFF SCHEDULE

Product Type	Unit	Carbon Tax (Baht/Unit)
1. Octane 91 Gasoline	Liter (fraction of a liter counts as one liter)	80
2. Octane 95 Gasoline	Liter (fraction of a liter counts as one liter)	80
3. Gasohol E10 Octane 91	Liter (fraction of a liter counts as one liter)	72
4. Gasohol E10 Octane 95	Liter (fraction of a liter counts as one liter)	72
5. Gasohol E10 Octane 95 (Special)	Liter (fraction of a liter counts as one liter)	72
6. Gasohol E20	Liter (fraction of a liter counts as one liter)	64
7. Gasohol E85	Liter (fraction of a liter counts as one liter)	12
8. Kerosene	Liter (fraction of a liter counts as one liter)	100
9. Aviation Gasoline 100/130	Liter (fraction of a liter counts as one liter)	100
10. Jet Fuel A1	Liter (fraction of a liter counts as one liter)	100
11. Basic Diesel	Liter (fraction of a liter counts as one liter)	100
12. High-Speed Diesel B7	Liter (fraction of a liter counts as one liter)	93
13. High-Speed Diesel B7 (Special)	Liter (fraction of a liter counts as one liter)	93
14. High-Speed Diesel B7 (Special) Euro 5	Liter (fraction of a liter counts as one liter)	93
15. High-Speed Diesel B10	Liter (fraction of a liter counts as one liter)	90
16. High-Speed Diesel B10 (Special)	Liter (fraction of a liter counts as one liter)	90
17. High-Speed Diesel B20	Liter (fraction of a liter counts as one liter)	80
18. Continuous Diesel	Liter (fraction of a liter counts as one liter)	100
19. High-Sulfur Diesel	Liter (fraction of a liter counts as one liter)	100
20. Fuel Oil	Liter (fraction of a liter counts as one liter)	120
21. LPG	Kilogram (fraction of a kilogram counts as one kilogram)	80
22. Propane	Kilogram (fraction of a kilogram counts as one kilogram)	120
23. Butane	Kilogram (fraction of a kilogram counts as one kilogram)	120

Product Type	Unit	Carbon Tax (Baht/Unit)
24. Asphalt	Kilogram (fraction of a kilogram counts as one kilogram)	120
25. Natural Gas	Kilogram (fraction of a kilogram counts as one kilogram)	80
26. Liquefied Natural Gas	Kilogram (fraction of a kilogram counts as one kilogram)	80
27. Anthracite	Kilogram (fraction of a kilogram counts as one kilogram)	120
28. Bituminous	Kilogram (fraction of a kilogram counts as one kilogram)	120
29. Coke	Kilogram (fraction of a kilogram counts as one kilogram)	120
30. Lignite	Kilogram (fraction of a kilogram counts as one kilogram)	120
31. Briquettes and Others	Kilogram (fraction of a kilogram counts as one kilogram)	120
32. Others as specified in the Ministerial Regulations	Liter or Kilogram as announced by the Minister	120

Schedule 3 – Comparative case studies on distributional impacts of carbon pricing

The following case studies complement the South Africa case study and the distributional impact analysis in Sections 24–26 of this report. Each is framed around specific policy issues and institutional choices that have shaped the outcomes and the perceived legitimacy of carbon pricing instruments in different jurisdictions. Together with the South Africa case study, they cover political support issues linked to compensation design (Australia); community safeguards embedded in primary legislation (Kenya); welfare-integrated carbon tax compensation (Singapore); distributional modelling methodology (New Zealand); and interactions between emissions trading systems and regulated electricity markets (South Korea).

The South African experience described in part 4, par. 27.4, illustrates how a developing country can embed just transition principles into its carbon pricing framework from the outset. Australia's short-lived carbon pricing mechanism addresses a complementary question: the political sustainability of household compensation when it is not adequately communicated and accompanied by community-level transition support.

Case study: Australia

Australia's carbon pricing mechanism, enacted under the Clean Energy Act 2011 (Cth)⁵⁰, commenced on 1 July 2012 as an emissions trading scheme, despite operating as with a fixed-price carbon tax during the initial phase (2012-2014). The carbon price was set at A\$23 per tonne of CO₂e in 2012–13, rising to A\$24.15 in 2013–14, covering more than 350 of the country's largest emitters across power generation, industrial manufacturing, and mining, representing approximately 60% of national emissions⁵¹. Road transport fuels for households were exempted, and emission-intensive trade-exposed (EITE) industries received free permit allocations of up to 94.5% of baseline emissions under the Jobs and Competitiveness Programme (Part 7 of the Act).

The accompanying household assistance package, detailed in the Treasury paper *Securing a Clean Energy Future* (2011)⁵², estimated the carbon price would increase average household costs by approximately A\$9.90 per week and provided average assistance of A\$10.10 per week⁵³ through income tax cuts and increased transfer payments, with lower income households receiving proportionally greater overcompensation.

⁵⁰ Clean Energy Act 2011 (Cth) (No. 131 of 2011): <https://www.legislation.gov.au/C2011A00131/latest/text>

⁵¹ Climate Change Authority, Targets and Progress Review Issues Paper (2013): <https://www.climatechangeauthority.gov.au/targets-and-progress-review-issues-paper>

⁵² Commonwealth of Australia, *Securing a Clean Energy Future: The Australian Government's Climate Change Plan* (2011).

⁵³ <https://www.abc.net.au/news/2011-07-10/how-will-the-carbon-price-affect-you/2789092>

Impact on Affected Populations:

During its two years of operation, the mechanism delivered measurable results: emissions from the National Electricity Market declined, with overall emissions from covered sectors falling by approximately 8% compared to the preceding two-year period⁵⁴. The household compensation package was, in fiscal terms, progressive, in fact, over 50% of revenue was earmarked to it. However, while individual households received generous fiscal transfers, no dedicated mechanism existed to support the collective transition of coal-dependent communities and regions. There was no equivalent of South Africa's Just Transition Framework. This gap left affected communities, particularly in coal regions such as the Hunter Valley (New South Wales), and Latrobe valley (Victoria) without a tangible stake in the transition⁵⁵.

Policy Response and relevance:

The mechanism was repealed on 17 July 2014 under the Clean Energy Legislation (Carbon Tax Repeal) Act 2014⁵⁶, following the election of the Abbott government Australia thereby became the first developed country to dismantle a functioning carbon market⁵⁷. The household compensation measures were largely retained post-repeal.

The government replaced carbon pricing with Direct Action, a voluntary grant-based scheme allocated A\$2.55 billion over four years, which placed no overall cap on emissions⁵⁸. The Australian experience highlights that household compensation, while necessary, is not sufficient on its own to secure the political durability of carbon pricing. Subsequent analyses indicate that, despite the generosity of the relief package, many recipients did not associate tax cuts and transfer increases with the carbon pricing mechanism itself⁵⁹. The failure to clearly and consistently communicate that these benefits were funded by carbon pricing revenues undermined their acceptance and allowed opposition narratives to focus disproportionately on visible price impacts, particularly on energy bills

Furthermore, the absence of visible, place-based transition support for coal-dependent regions meant that carbon pricing revenues were not seen at work either at the household level or in affected communities.

For Thailand, this suggests that the Climate Fund could be strengthened by combining household-level relief with clearly communicated revenue use and targeted, context-specific investment in carbon-exposed regions, anchoring climate policy in both welfare protection and socio-economic development.

Australia's experience illustrates the importance of pairing household compensation with clear communication and community-level transition support. Kenya offers a complementary lesson: rather than leaving community protections to ad hoc arrangements, it has embedded them directly in carbon market legislation, mandating a defined "annual social contribution of the aggregate earnings" for communities whose stewardship underpins environmental projects.

⁵⁴ O'Gorman, M. & Jotzo, F., "Impact of the carbon price on Australia's electricity demand, supply and emissions," CCEP Working Paper 1411, Crawford School, ANU (2014): <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2014/08/OGorman-and-Jotzo-Impact-of-the-carbon-price-on-Australias-electricity-demand-supply-and-emissions.pdf>

⁵⁵ Edwards, G.A.S., Hanmer, C., Park, S., MacNeil, R., Bojovic, M., Kucic-Riker, J., Musil, D. and Viney, G., *Towards a Just Transition from Coal in Australia?*, *British Academy* (June 2022), p. 16: "governments (at multiple scales) need to play a central role in planning for and funding transition. However, interviewees repeatedly stressed that governments are absent from the space, particularly the Federal Government." See also pp. 12–13, documenting how the absence of community-level transition mechanisms left coal workers and communities perceiving carbon pricing as a threat to livelihoods rather than an opportunity for managed transition.

⁵⁶ Clean Energy Legislation (Carbon Tax Repeal) Act 2014 (Cth): <https://www.legislation.gov.au/C2014A00083/latest/text>

⁵⁷ Crowley, K., "Up and down with climate politics 2013–2016: the repeal of carbon pricing in Australia," *WIREs Climate Change* (2017), doi: 10.1002/wcc.458.

⁵⁸ EDF, Australia: An Emissions Trading Case Study (May 2015), p.2 at <https://www.edf.org/sites/default/files/australia-case-study-may2015.pdf>

⁵⁹ Logg-Scarvell, J., "Backlash Against Carbon Pricing in Australia and Canada," Carnegie Endowment for International Peace (September 2025) at <https://carnegieendowment.org/research/2025/09/carbon-pricing-backlash-elite-grassroots-protest-australia-canada>, stated that the Labor government's "failure to explicitly connect such benefits to carbon pricing revenue meant these efforts did not alleviate public concerns." The paper concludes that "in Australia, communication failures, particularly the lack of connection between carbon pricing revenue and compensation, were likely a major factor in its scheme's collapse."

Kenya's experience extends the question of equity in carbon pricing to the governance of carbon markets themselves, addressing the protection of communities affected by carbon credit projects in primary legislation.

Case study: Kenya

Kenya's Climate Change Act, 2016, as substantially amended in September 2023⁶⁰, established a comprehensive regulatory framework governing all forms of carbon market participation, including bilateral cooperation under Article 6 of the Paris Agreement, engagement with private entities, and voluntary carbon markets. Unlike South Africa or Singapore, Kenya has not yet implemented a domestic ETS or carbon tax; its carbon pricing architecture operates through project-based carbon crediting mechanisms. However, the framework applies to all carbon projects "*undertaken pursuant to this Act*" regardless of the market of destination, meaning that community safeguard requirements attach to credits at the point of generation.

This design choice is of interest to Thailand, whose draft Climate Change Act similarly embeds both ETS provisions and T-VER governance within a single piece of primary legislation.

The centrepiece is the statutory benefit-sharing requirement under Section 23E: every carbon project on public or community land must be implemented through a Community Development Agreement (CDA), recorded in the National Carbon Registry, with an annual community contribution of at least 40% of aggregate earnings for land-based projects and 25% for non-land-based projects. The Climate Change (Carbon Markets) Regulations 2024 provide implementing detail, including mandatory environmental and social impact assessments (ESIAs) and penalties for revenue under-reporting⁶¹. In July 2025, Kenya launched Africa's first national REDD+ Registry (supported by UK PACT and Conservation International)⁶².

Impact on Affected Populations:

Despite this progressive framework, implementation has revealed challenges in translating legal provisions into consistent practice. Carbon credit projects in pastoral and forest-dwelling areas have in several instances proceeded without meaningful consultation of affected communities. The African Court on Human and Peoples' Rights found in 2017 and again in 2022 that Kenya had violated the rights of the Ogiek people under the African Charter on Human and Peoples' Rights, including the right to be consulted on the use of ancestral lands⁶³. More recently, the Northern Kenya Rangelands Carbon Project, one of the largest community-based carbon projects in Africa, was suspended by Verra on two occasions, in 2023 and in 2025, following concerns about benefit-sharing arrangements and community consent⁶⁴. These experiences informed the progressive tightening of the carbon pricing system: the above-mentioned Carbon Market Regulations strengthened the requirements for free, prior and informed consent precisely because the earlier failures demonstrated where the original framework had left gaps.

Policy relevance:

For Thailand, Kenya's approach illustrates how embedding community safeguards in primary legislation, at the point of credit generation rather than at the point of trade, can create a durable baseline for community protection that applies regardless of whether credits enter the voluntary market, the compliance market, or an Article 6 transfer. Ensuring that T-VER credits eligible for conversion into ETS offset emission rights under Section 93 meet verifiable community engagement and benefit-sharing requirements, could strengthen both the environmental integrity and the wider public acceptance of the compliance market.

⁶⁰ Climate Change Act, 2016 (No. 11 of 2016), as amended by the Climate Change (Amendment) Act, 2023: <https://new.kenyalaw.org/akn/ke/act/2016/11/eng@2023-09-15>

⁶¹ Climate Change (Carbon Markets) Regulations, 2024 (Legal Notice 84 of 2024): <https://new.kenyalaw.org/akn/ke/act/ln/2024/84/eng@2024-06-07>

⁶² [Kenya Launches Africa's First-Ever REDD+ Registry and National Nesting Guidelines with UK Support - The Blue News](#)

⁶³ African Court, African Commission on Human and Peoples' Rights v. Republic of Kenya, Applications No. 006/2012 and No. 006/2012-Reparations, Judgments of 26 May 2017 and 23 June 2022

⁶⁴ <https://news.mongabay.com/short-article/2025/05/kenyan-soil-carbon-project-suspended-for-a-second-time/>

Singapore demonstrates how carbon tax compensation can be delivered through existing welfare infrastructure, an example potentially relevant for Thailand's State Welfare Card system.

Case study: Singapore

Singapore implemented Southeast Asia's first carbon tax in 2019 under the Carbon Pricing Act 2018⁶⁵, covering approximately 80% of total national GHG emissions at the point of introduction, through a combination of the carbon tax on large direct emitters ($\geq 25,000$ tCO₂e/year) and fuel excise duties on transport fuels. The rate was set at S\$5/tonne from 2019 to 2023, increased to S\$25 in 2024, rising to S\$45 by 2026, with a target range of S\$50–80 by 2030. The tax is broad-based with no sectoral exemptions, though transitional allowances were introduced for EITE firms from 2024⁶⁶.

Impact on Affected Populations:

At the initial S\$5 rate, the impact on households was modest (~S\$1-4 month on electricity bills)⁶⁷. The government offset increases through the U-Save scheme, part of the broader GST Voucher and Assurance Package. In FY2024, more than 950,000 HDB households received U-Save rebates with eligible 1- and 2-room HDB households receiving up to S\$950 per year⁶⁸. The delivery mechanism, automatic crediting to utility accounts, eliminates application barriers and ensures near-universal take-up. MSMEs face indirect cost pass-through and are supported through the Energy Efficiency Fund.

Policy Response and relevance:

Singapore's approach is distinguished by the integration of carbon tax compensation into pre-existing utility billing and welfare infrastructure. The U-Save scheme predated the carbon tax; the carbon tax simply increased the quantum of rebates. This institutional continuity reduced implementation costs and ensured the immediate delivery of the intervention, an approach that Thailand's State Welfare Card system and provincial electricity billing infrastructure could replicate.

⁶⁵ Carbon Pricing Act 2018 (No. 23 of 2018): <https://sso.agc.gov.sg/Act/CPA2018>; Carbon Pricing (Amendment) Act 2022: <https://sso.agc.gov.sg/Acts-Supp/22-2022/Published/20221003>

⁶⁶ National Climate Change Secretariat (NCCS), Carbon Tax Overview: <https://www.nccs.gov.sg/singapores-climate-action/carbon-tax/>

⁶⁷ <https://www.mse.gov.sg/policies/climate-change/carbon-pricing-act/>

⁶⁸ <https://www.mof.gov.sg/news-resources/newsroom/more-than-950-000-singaporean-hdb-households-to-benefit-from-u-save-and-s-cc-rebates-in-april-2024/>

Whereas the Singapore case highlights the practical delivery of carbon tax compensation through established welfare infrastructure, the New Zealand experience shifts the focus upstream, illustrating how rigorous distributional modelling and institutional separation can inform the design of complementary social policies alongside an ETS.

Case study: New Zealand

New Zealand's ETS, established under the Climate Change Response Act 2002 and reformed in 2020⁶⁹, applies in principle to all sectors of the economy, though agriculture's entry has been repeatedly deferred. Carbon prices reached approximately NZD 88/tonne in late 2022 before declining to approximately NZD 45–55/tonne by mid-2024, and falling further below the auction floor price of NZD 68 through 2025⁷⁰.

Impact on Affected Populations:

Before increasing its carbon price, New Zealand's independent Climate Change Commission carried out a detailed assessment of how much more each type of household would pay as a result. They took existing government data on what different households spend on energy, transport, and food, broken down by income level, and calculated how a carbon price increase would flow through to those everyday costs. According to the findings a poorer household would lose approximately three times as large a share of its income as a wealthier household. Specifically, at a carbon price of NZD 150/tonne, the poorest 20% of households would see their costs rise by 1.36% of their disposable income, while the wealthiest 20% would pay only 0.45%⁷¹. The reason is that lower-income households spend a larger proportion of their income on energy and transport and have fewer options to switch to cheaper alternatives.

The Commission also found that Māori families (2018 data) were disproportionately affected. average Māori incomes are significantly lower than for all New Zealanders, with a mean individual net worth of NZD 204,000 compared to NZD 411,000 for all New Zealanders.

At 50 years of age, Māori on average earn nearly NZD 15,000 less per year than non-Māori. These income and wealth gaps mean that it is *"likely to be more difficult for Māori in lower income bands to uptake low emissions technology if not given support to transition"*⁷². The Commission recommended that the Government support a Māori-led approach to understanding and addressing the impacts of the NZ ETS and other climate policies on the Māori economy.

Policy Response and relevance:

Based on its distributional assessment, New Zealand's Climate Change Commission concluded that ETS price-setting, and cost-containment mechanisms are not well suited to addressing domestic distributional impacts. Adjusting or constraining the carbon price to manage cost-of-living effects would weaken the core environmental function of the ETS. Instead, the Commission emphasised the role of separate, targeted policy instruments, such as income support, energy efficiency programmes and transport assistance, to mitigate impacts on lower-income households and disproportionately affected groups.

New Zealand's experience highlights two elements of relevance for Thailand. First, ex-ante distributional modelling, combining household expenditure data by income group with sectoral emissions intensity, can inform policy design before price increases occur. Second, a clear institutional separation between the ETS as a price-setting instrument and complementary social policies as equity tools can help preserve the environmental integrity of carbon pricing while addressing distributional concerns through dedicated mechanisms.

⁶⁹ Climate Change Response Act 2002 (NZ): <https://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html>; Climate Change Response (Emissions Trading Reform) Amendment Act 2020.

⁷⁰ <https://icapcarbonaction.com/en/ets/new-zealand-emissions-trading-scheme>

⁷¹ He Pou a Rangi - Climate Change Commission, Advice on NZ ETS Unit Limits and Price Control Settings for 2023–2027 (July 2022), Table 22, p. 75, drawing on distributional modelling by Te Tai Ōhanga - New Zealand Treasury (2022). The table presents median changes in household expenditure on fuel and food as a percentage of disposable income across five emission price scenarios (NZD 27.5–250/tCO₂e), assuming 100% cost pass-through and no behavioural change. At NZD 150/tCO₂e: Quintile 1 (lowest income) 1.36%, Quintile 5 (highest income) 0.45%. Full report available at <https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/nz-ets/our-advice-on-the-nz-ets/nz-ets-unit-limits-and-price-control-settings-for-2023-2027>

⁷² He Pou a Rangi — Climate Change Commission, Ināia Tonu Nei: A Low Emissions Future for Aotearoa (2021) at [Ināia tonu nei: a low emissions future for Aotearoa](#), p. 333

The South Korea case study illustrates how the interaction between allowance allocation methods and domestic electricity market regulation under a single buyer model system, can materially affect both the visibility and predictability of carbon pricing revenue.

Case study: South Korea

South Korea launched the Korea Emissions Trading System (K-ETS) in 2015 under the Act on the Allocation and Trading of Greenhouse Gas Emission Permits⁷³ making it the first mandatory nationwide ETS in East Asia. The K-ETS now covers 815 entities across power, industry, buildings, transport, waste, domestic aviation, and maritime sectors, approximately 87% of national greenhouse gas emissions⁷⁴. Despite this broad coverage, the carbon price has remained persistently low: the average auction price in 2025 was KRW 9,956 per tonne (approximately USD 6.99), and the average secondary market price was KRW 9,393 (approximately USD 6.60). In Phase 3 (2021–2025), the vast majority of allowances continue to be freely allocated, with emissions-intensive trade-exposed (EITE) sectors receiving 100% free allocation. Only approximately 3% of allowances have been auctioned, generating total cumulative revenue of just KRW 1.55 trillion (approximately USD 1.25 billion) since 2015.

Impact on Affected Populations:

The distributional impact of the K-ETS is distinctive because South Korea operates a single-buyer electricity market, in which the state-owned Korea Electric Power Corporation (KEPCO) purchases electricity from generators and sets regulated retail tariffs. In this institutional setting, carbon costs incurred by generators are not automatically passed through to consumers. This means that the carbon price signal, which in other jurisdictions flows through to household electricity bills, is blocked. Consumers do not see a carbon cost on their bills; instead, the cost accumulates as KEPCO debt.

The consequences of this approach became acute between 2021 and 2023, when KEPCO recorded nine consecutive quarters of operating losses, accumulating approximately KRW 47.8 trillion (USD 35 billion) in operating losses over three years as global fuel prices surged and tariff adjustments were delayed. By end-2024, KEPCO's total debt stood at KRW 205.7 trillion (approximately USD 149 billion⁷⁵). This debt is ultimately a public liability as the Korean government controls KEPCO through a 51% stake (33% via Korea Development Bank, 18% directly), and S&P Global equalises KEPCO's credit rating with the sovereign rating⁷⁶.

The distributional consequence is that the carbon cost, rather than being borne visibly by current consumers (which would enable targeted compensation), is borne invisibly by current and future taxpayers. When tariff adjustments eventually occur, as they did in 2022 and 2023, they arrive as sudden, concentrated price shocks rather than gradual, predictable increases⁷⁷.

Policy Response and relevance:

South Korea's experience suggests that the interaction between carbon pricing and electricity market structure is critical for distributional outcomes. In regulated, single-buyer electricity systems, where retail tariffs are administratively set and state-owned utilities absorb costs, carbon price signals may not reach consumers in a timely or transparent manner.

⁷³ https://elaw.klri.re.kr/kor_service/lawView.do?hseq=49480&lang=ENG

⁷⁴ https://www.ieta.org/uploads/wp-content/Resources/Business-briefs/2025/IETA_Business_Brief-Korea-final.pdf

⁷⁵ <https://en.sedaily.com/news/2026/02/26/kepco-posts-record-96b-operating-profit-debt-remains-at-146b>

⁷⁶ [Ratings On KEPCO And Six Generating Subsidiaries | S&P Global Ratings](#)

⁷⁷ <https://www.koreatimes.co.kr/business/companies/20231019/kepco-to-see-gradual-rise-in-electricity-prices-based-on-production-cost-chief>

While this can temporarily shield households from visible price increases, it fundamentally distorts the carbon price signal. During the third implementation period (2021-2025), a "climate/environment" surcharge was introduced into retail electricity tariffs, partially reflecting generators' ETS allowance costs, renewable portfolio standard (RPS) compliance costs, and coal particulate matter control measures⁷⁸. However, the K-ETS carbon price is only partially pass through to end-users. At the generation level, dirtier power plants are assigned a higher cost in the dispatch order to account for their emission, but this higher wholesale cost is largely absorbed by KEPCO rather than reflected in consumers tariffs, so the price signal that should discourage carbon-intensive consumption never reaches end-users. In other words, this shifts carbon costs into utility balance sheets and public debt, creating hidden fiscal liabilities and increasing the risk of abrupt tariff adjustment when cost recovery becomes unavoidable.

For Thailand, where the electricity market exhibits similar structural features, this highlights the importance of planning explicitly for carbon cost pass-through, including the timing, sequencing and pace of tariff adjustments. Transparent and predictable pass-through, combined with targeted household support delivered through the Climate Fund, may be more effective in managing affordability and public acceptance than delayed adjustments that concentrate impacts over short periods.

Korea's experience also reveals that auctioning allowances is a prerequisite for funding social compensation; extensive free allocation limits the fiscal space for equity measures. Taken together, these lessons suggest that Thailand's ETS design would benefit from early coordination between carbon market rules, electricity tariff regulation and Climate Fund mechanisms, supported by ex-ante distributional analysis before carbon costs materialise.

⁷⁸ The climate/environment surcharge (기후환경요금) was introduced in January 2021 upon MOTIE approval (KEPCO, 2020, 2021). As described in Barlaup, A. and Biedenkopf, K., "Carbon pricing under electricity market constraints: analyzing rent management dynamics in the Republic of Korea," Climate Policy (2024), p. 9-10: "This new tariff system introduced an additional component to the tariff called the climate/environment related charge. The new cost is revised annually and reflects part of generators' ETS allowance costs, renewable portfolio standard costs and cost measures to control particulate matter from coal generation." Experts noted that "labelling the charge as a 'climate/environment' fee was a deliberate attempt to distinguish it from other types of energy taxation which might trigger a more negative reception from the public".

