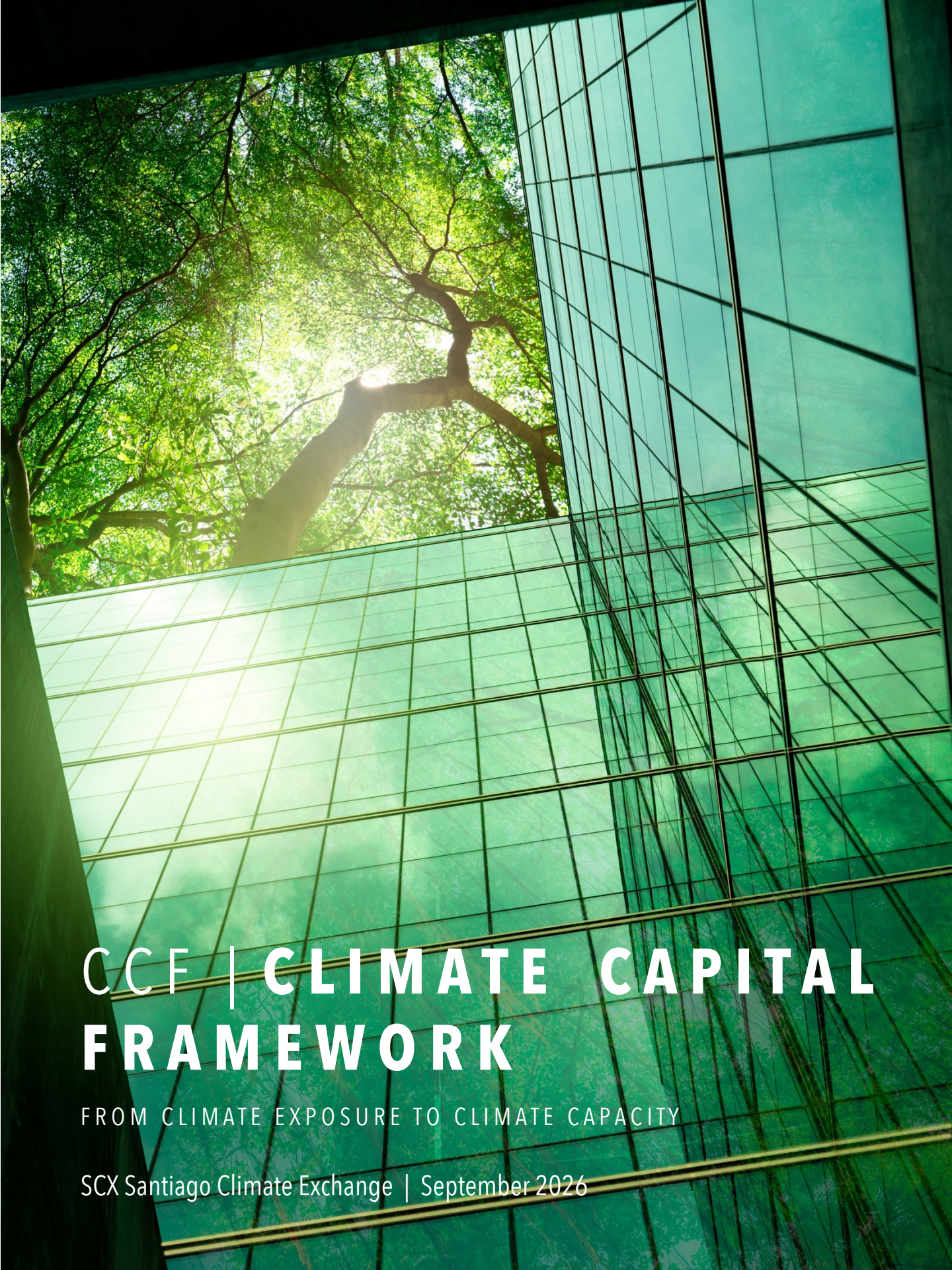




CCF | CLIMATE CAPITAL FRAMEWORK

FROM CLIMATE EXPOSURE TO CLIMATE CAPACITY

SCX Santiago Climate Exchange | September 2026



ACKNOWLEDGEMENTS AND DISCLAIMER

We would like to express our sincere appreciation to the sustainability, climate change and environmental teams of Empresas Copec and its subsidiaries for their valuable feedback and support throughout the design and operationalization of the Climate Capital Framework (CCF).

Their insights, expertise, and practical experience were instrumental in helping shape the conceptual foundations and implementation approach of the CCF. While the framework has greatly benefited from their contributions, the analyses, conclusions, and recommendations presented in this document remain the sole responsibility of SCX Santiago Climate Exchange.



GOVERNANCE NOTE

This framework was developed by SCX Santiago Climate Exchange with technical input from Empresas Copec and its subsidiaries, as disclosed above. Where the framework references third-party standards for illustrative purposes, it does so alongside – not in place of – other recognized market standards, to avoid any appearance of preferential treatment.

SCX has no ownership interest in, or commercial arrangement tied to, the volume of any specific mitigation instrument disclosed under this framework.

EXECUTIVE SUMMARY

This document establishes a structured approach for organizations to disclose the mitigation actions and mitigation-related assets they deploy, separately from – and alongside – their greenhouse gas emissions inventory. It responds to a gap in current climate reporting: inventories describe what an organization emits, but provide limited visibility into what an organization is doing, building, or acquiring to support decarbonization.

The framework does not replace existing GHG accounting standards (GHG Protocol, ISO 14064, IFRS S2) and does not require any mitigation instrument to be netted against reported emissions. It introduces a taxonomy of eight mitigation categories, a disclosure statement (the Climate Mitigation Statement) that reports gross emissions and gross mitigation outcomes side by side, and a set of integrity and disclosure attributes intended to make mitigation claims traceable, verifiable and comparable across organizations.

Part V illustrates how a diversified group such as Empresas Copec could apply the taxonomy across its businesses. Part VI sets out the integrity attributes required for any mitigation asset disclosed under the framework, including an explicit requirement to flag overlap with the organization's own emissions inventory, addressing a gap identified during external technical review of this framework.

The Craft of Making Markets

Aldo Cerda

CEO

SCX Santiago Climate Exchange

What follows does not, on its own, settle a matter of opinion. The corporate climate agenda already has enough frameworks, standards, and commentators willing to say what should count as climate mitigation. The problem this document tries to solve is a different one: how to make that mitigation tradable – verifiable, comparable, priced, and able to find capital willing to finance it – with the same discipline used today to trade equities, bonds, or commodities.

That distinction is not semantic. At SCX Santiago Climate Exchange, we are not a research institute that publishes about the carbon market; we are, literally, the ones who make it work. A market maker does not have the luxury of theorizing: every day there is a transaction that has to close, a counterparty that has to trust the instrument, a buyer who needs to know – before paying – whether what they are acquiring is what it claims to be. The Climate Capital Framework (CCF) was not born from a literature review. It was born from watching, transaction by transaction, where the plumbing broke: certificates that could not be compared across categories, real mitigation actions with no place in existing accounting, legitimate assets that ended up illiquid because no one on the other side of the market had any way to trust them.

That is also the difference between commenting on reality and operating within it. A commentator can – rightly – point out that the additionality of a certain type of renewable certificate remains disputed in the academic literature, and leave it there; that debate, incidentally, is legitimate, and we take it seriously rather than settle it by decree. A market maker does not have that option: it has to build a structure where that disagreement can coexist with liquidity, not block it. That is why this framework does not dictate which instrument is "the right one." It requires that each be disclosed with the same discipline – quantification, traceability, verification, declared additionality, permanence, reversal risk – so that the market, armed with that information, is the one that prices the risk. This is not neutrality as abstention. It is neutrality as a craft: our job is not to

have the final word on what counts as mitigation; it is to ensure that, once the world defines it, capital can find it, compare it, and scale it.

That same logic explains why the pages that follow do not favor one technology, geography, or asset type over another. Biological removals, environmental attributes, value-chain insetting, regulatory compensation – each raises different integrity questions, and each must resolve them against its own standards, not one imposed by SCX. A market maker that starts recommending what to buy stops being trusted infrastructure and becomes just another interested party. We would rather build the plumbing and let each organization's own convictions – and the market's scrutiny – do the rest.

This framework was not written in the abstract, either. It was developed together with Empresas Copec, and tested against a real, diversified balance sheet, with all the tensions that implies: Arauco's forest estate, the environmental attributes Copec trades, the regulatory obligations Terpel and Nutrisco face in two different countries. A framework that only works on a whiteboard is of no use to us. The value of having built it alongside a real operator – with assets, liabilities, and decisions that actually have to be made – is that it arrives on these pages already tested against reality, not before encountering it.

Measuring a company's emissions took two decades of collective work to become standard. The next decade of the corporate climate agenda will not be defined by who comments best on that figure, but by who builds the infrastructure that lets climate capital – the capital every organization is already generating, financing, or deploying – circulate with the same speed, transparency, and discipline as any other asset. That, for us, is the work. Not commenting on the market. Making it. What follows in these pages is that craft, applied.

From Inventory to Climate Capital

Marianne Haramoto

Chief Sustainability and Corporate Affairs Officer
Empresas Copec

Corporate climate strategy is entering a new phase. Measuring emissions remains indispensable, but an increasingly relevant question has emerged: does that measurement actually capture everything a company is doing in response to climate change?

As Chile advances in adopting IFRS S1 and S2, an additional realization has taken hold: the inventory, on its own, tells only part of the story. The other part is the climate capacity each organization builds. While an inventory seeks to identify where emissions occur, it does not necessarily reflect the effort, resources, and processes through which a company mobilizes capital, technology, supply chains, and innovation to reduce them, within and beyond its own boundaries. Two companies with similar inventories, for instance, can have radically different mitigation capacities. That difference – determined by the levers available and how effectively they are deployed – is important to make visible for investors, regulators, and future generations.

It is in this context that the Climate Capital Framework (CCF), developed by SCX Santiago Climate Exchange in response to a challenge posed by Empresas Copec and applied to concrete cases across its subsidiaries – Arauco, Copec, Terpel, Abastible, and Nutrisco – becomes particularly relevant.

The framework introduces a notion that, in our view, is worth considering and incorporating into how companies measure their climate performance: mitigation assets, which the CCF proposes to read as climate capital. In a deliberate echo of financial language, it sets against climate liabilities – associated primarily with emissions – a portfolio of assets that generate, enable, or finance quantifiable mitigation outcomes: biological and technological carbon removals, value-chain interventions, environmental attribute certificates, emissions avoided through various products and services, as well as regulatory and voluntary compensation.

The conceptual shift is significant: under this lens, these actions come to be understood as a constructive capacity – a strategic capital that can be developed, financed, and deployed. Along these lines, the CCF proposes that each asset be disclosed against a set of integrity attributes, among them quantification, traceability, verification, additionality, permanence, reversal risk, and control over double counting – all of them auditable.

For a diversified economic group like ours, operating across forestry, energy, mining, and food, among other sectors, the exercise proves especially revealing. Arauco's forest estate generates large-scale biological removals; Copec's electric charging infrastructure and renewable fuels help avoid emissions already reported within our value chain; and the fiber-based packaging that substitutes other materials, along with the use of wood in certain applications, can generate climate benefits beyond our operational boundaries. Under the traditional logic, much of that effort remains invisible or, at best, scattered. Under the CCF framework, it becomes possible to organize it, classify it, and compare it. In practice, the exercise allows for a deeper understanding of the management underlying these outcomes. The key lies in its design: by strictly separating the inventory from mitigation, and by requiring disclosure of portfolio composition rather than magnitude alone, transparency is strengthened.

The durability of outcomes, the technologies deployed, the degree of organizational control, and exposure to regulatory change all become visible. In short, it delivers traceability. That value plays out on two levels: inward, because it forces us to understand in depth how each of our mitigation assets actually works; and outward, because clearer disclosure facilitates comparison, learning, and a better reading of these capabilities by others.

With respect to IFRS S2, the CCF's role is complementary. IFRS S2 helps identify the climate-related risks and opportunities that may affect a company's prospects, and how these are integrated into its strategy, management, and decisions.

The CCF adds another lens: it seeks to organize and make visible the mitigation capacity an organization has developed. From that vantage point, the progression is from liability to capital. Together, both perspectives allow companies to move from regulatory compliance toward strategic climate management: climate action is no longer read solely through the lens of exposure and compliance, but also understood as a capacity that can be managed, measured, and communicated as a source of value. And once that language intersects with an internal carbon price, mitigation assets enter directly into capital allocation decisions – which is where convictions become verifiable.

At Empresas Copec, we define our purpose with future generations in mind. They are the ones who will inherit the decisions, resources, and challenges we face today. Knowing how much we emitted will not be enough for them. They will want to know what we did about it, with what capacity, and with how much transparency. Making corporate climate mitigation visible – in a way that is understandable, comparable, and auditable – is a concrete way of answering that question. That is the proposition this framework invites us to embrace.

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GLOSSARY

Additionality

The principle that a mitigation outcome would not have occurred in the absence of the intervention, incentive, investment, or activity being reported.

Avoided Emissions

Emission reductions occurring outside an organization's reporting boundary as a consequence of products, services, technologies, or interventions that displace more greenhouse gas-intensive alternatives.

Biological Removal

The removal and storage of atmospheric carbon dioxide through biological processes such as afforestation, reforestation, improved forest management, agroforestry, soil carbon enhancement, or ecosystem restoration.

Carbon Neutral Procurement

The acquisition of goods or services whose life-cycle greenhouse gas emissions have been compensated, balanced, or neutralized through independently verified climate mitigation mechanisms.

Carbon Removal

The process of removing carbon dioxide from the atmosphere and storing it in biological, geological, oceanic, or durable product reservoirs.

Climate Capacity

The ability of an organization to generate, enable, finance, acquire, or deploy mitigation outcomes through mitigation assets.

Climate Exposure

The greenhouse gas emissions attributable to an organization as represented through its emissions inventory.

Climate Mitigation Statement (CMS)

The disclosure framework established by the CCF that presents physical emissions and mitigation outcomes in parallel to provide a comprehensive view of corporate climate performance.

Climate Capital Framework

A structured system for classifying, disclosing, and evaluating mitigation actions and mitigation outcomes independently from greenhouse gas inventories.

Climate Neutral Product

A product whose greenhouse gas emissions have been quantified and compensated or neutralized through recognized climate mitigation mechanisms.

Direct Scope 4 Mitigation

Avoided emissions associated with products or services that reduce emissions already represented within the reporting organization's own value chain emissions inventory.

Double Claiming

A situation in which multiple entities communicate overlapping claims regarding the same mitigation outcome.

Double Counting

A situation in which the same mitigation outcome is counted more than once by different parties or accounting systems.

Environmental Attribute Instrument (EAI)

A contractual instrument that conveys verified environmental attributes independently from the associated physical energy or fuel commodity.

Examples include renewable electricity certificates, renewable gas certificates, sustainable aviation fuel certificates, and similar book-and-claim instruments.

Gross Emissions

Total greenhouse gas emissions reported before consideration of any mitigation actions, mitigation outcomes, removals, or compensation mechanisms.

Gross Mitigation Outcomes

The total quantity of mitigation outcomes disclosed by an organization prior to any net climate calculations.

Gross-to-Net Transparency

A CCF principle requiring organizations to disclose emissions and mitigation outcomes separately before presenting any net climate metric.

Indirect Scope 4 Mitigation

Avoided emissions generated outside the reporting organization's inventory boundaries and not directly linked to emissions reported by the organization.

Insetting

Mitigation activities occurring within assets, operations, value chains, or systems that are owned, controlled, financed, or directly influenced by the reporting organization.

Mitigation Action

A specific activity undertaken to reduce, remove, avoid, substitute, or compensate greenhouse gas emissions.

Mitigation Asset

Any asset, contractual right, intervention, organizational capability, project, or instrument that generates, enables, finances, or supports climate mitigation outcomes.

Mitigation Asset Intensity (MAI)

A CCF indicator representing the relationship between total mitigation outcomes and total organizational emissions.

Mitigation Outcome

A quantified climate benefit resulting from a mitigation action. Examples include tonnes of carbon dioxide removed, avoided, reduced, substituted, or compensated.

Mitigation Portfolio

The collection of mitigation assets and mitigation actions deployed by an organization.

Net Climate Position

A derived indicator representing the relationship between an organization's emissions and eligible mitigation outcomes.

Organizational Control

The degree of ownership, influence, contractual authority, or operational responsibility exercised by an organization over a mitigation asset.

Permanence

The duration over which a mitigation outcome remains effective and is not reversed.

GLOSSARY

Compliance Climate Compensation

Mitigation outcomes used to satisfy obligations established under regulatory carbon pricing, taxation, emissions trading, or compliance mechanisms.

Reversal Risk

The risk that a mitigation outcome may be partially or fully lost over time.

Supply Chain Mitigation

Mitigation actions implemented within upstream or downstream value chains that reduce emissions beyond the reporting organization's direct operational boundaries.

Technological Removal

The removal of atmospheric carbon dioxide through engineered technologies such as Direct Air Carbon Capture and Storage (DACCS), Bioenergy with Carbon Capture and Storage (BECCS), biochar, mineralization, or enhanced weathering.

Traceability

The ability to link mitigation outcomes to identifiable projects, assets, certificates, contracts, activities, or data sources.

Value Chain Mitigation

A category of mitigation actions targeting emissions reductions within supplier, customer, logistics, distribution, or broader value-chain activities.

Voluntary Climate Compensation

Mitigation outcomes acquired voluntarily by an organization to support climate objectives beyond regulatory requirements.

ACRONYMS

BECCS

Bioenergy with Carbon Capture and Storage

CCS

Carbon Capture and Storage

CCF

Climate Capital Framework

CMS

Climate Mitigation Statement

DACCS

Direct Air Carbon Capture and Storage

EAC

Environmental Attribute Certificate

EAI

Environmental Attribute Instrument

GHG

Greenhouse Gas

GO

Guarantee of Origin

ICVCM

Integrity Council for the Voluntary Carbon Market

IEA

International Energy Agency

IFRS

International Financial Reporting Standards

IPCC

Intergovernmental Panel on Climate Change

ISO

International Organization for Standardization

MAI

Mitigation Asset Intensity

NBS

Nature-based Solutions

NCS

Natural Climate Solutions

REC

Renewable Energy Certificate

SAF

Sustainable Aviation Fuel

SBTi

Science Based Targets initiative

Scope 1

Direct greenhouse gas emissions from owned or controlled sources

Scope 2

Indirect emissions from purchased electricity, steam, heating, or cooling

Scope 3

All other indirect emissions occurring within the value chain

Scope 4

Avoided emissions generated through products, services, or interventions

TCAT

Task Force for Corporate Action Transparency

TCFD

Task Force on Climate-related Financial Disclosures

TPT

Transition Plan Taskforce

UNFCCC

United Nations Framework Convention on Climate Change

VCM

Voluntary Carbon Market

VCMI

Voluntary Carbon Markets Integrity Initiative

WBCSD

World Business Council for Sustainable Development

WRI

World Resources Institute



Part I

The Evolution of Corporate Climate Accounting and the Need for a Mitigation Framework

1. Introduction

Over the past two decades, corporate climate reporting has been built around a central question:

What greenhouse gas emissions should be attributed to an organization?

The development of greenhouse gas inventories represented a major advance in corporate climate governance. Frameworks such as the Greenhouse Gas Protocol, ISO 14064, and more recently IFRS S2, have provided organizations with a consistent methodology to identify, quantify, and disclose emissions associated with their operations, energy consumption, and value chains.

This inventory-based approach has become the foundation of climate target setting, investor disclosure, regulatory compliance, and corporate accountability.

Yet as corporate climate strategies have evolved, a second and increasingly important question has emerged:

How should organizations account for the actions they undertake to mitigate climate change?

The answer has proven considerably more difficult. Organizations now deploy a broad portfolio of mitigation instruments that extend far beyond direct emissions reductions within their operational boundaries. These include:

- Biological carbon removals;
- Technological carbon removals;
- Supply chain interventions;
- Renewable electricity certificates;
- Renewable gas certificates;
- Sustainable aviation fuel certificates;
- Low-carbon material procurement;
- Avoided emissions associated with products and services;
- Regulatory compensation mechanisms;
- Voluntary carbon market instruments.

While these actions can generate significant climate benefits, there is no universally accepted framework for reporting them consistently.

As a result, climate reporting has increasingly become dominated by debates regarding whether a particular mitigation action should or should not modify an organization's reported emissions inventory.

2. The Growing Tension Within Climate Accounting

Many of the most important debates in corporate climate accounting today can be traced to a common underlying challenge:

the attempt to integrate mitigation actions into emissions inventories.

Examples include:

- The treatment of renewable electricity certificates under Scope 2 accounting;
- The treatment of renewable gas and biomethane certificates;
- The role of carbon offsets in net-zero claims;
- The treatment of carbon removals;
- The emergence of Scope 4 or avoided emissions reporting;
- The accounting treatment of supply-chain interventions;
- The use of low-carbon products and environmental attributes.

Although each debate concerns a different mitigation instrument, they all ultimately revolve around the same question:

Should mitigation outcomes alter reported emissions?

This question has become increasingly difficult to answer because inventories and mitigation actions serve fundamentally different purposes.

An emissions inventory seeks to describe physical greenhouse gas emissions attributable to an organization.

Mitigation actions seek to describe how an organization contributes to reducing, removing, or avoiding greenhouse gas emissions within the broader economy.

These are related but distinct dimensions of climate performance. Attempts to merge them into a single accounting construct often create complexity, reduce transparency, and generate confusion among stakeholders.

3. Lessons from Scope 2

The evolution of Scope 2 accounting illustrates both the value and the limitations of integrating mitigation instruments into inventories.

The introduction of market-based accounting enabled organizations to reflect contractual purchases of renewable electricity through Environmental Attribute Certificates (EACs) like renewable energy certificates (RECs), Guarantees of Origin (GOs) and I-RECs.

This represented a significant and bold innovation because it recognized that electricity procurement decisions can influence investment signals and market demand for renewable generation.

However, the Scope 2 debate also demonstrated the challenges associated with integrating contractual instruments into physical emissions inventories.

Questions regarding temporal matching, geographic boundaries, additionality, residual mixes, market liquidity, and attribute quality continue to generate significant controversy.

Many of the current debates surrounding renewable fuels, biomethane, hydrogen certificates, sustainable aviation fuel certificates, carbon removals, and avoided emissions replicate the same conceptual tensions first observed in Scope 2 accounting.

This suggests that the challenge may not lie in the specific mitigation instruments themselves, but rather in the accounting architecture used to represent them.

4. From Inventory Accounting to Climate Capital Management

Organizations do not manage climate change solely through emissions inventories. They manage climate change through mitigation actions.

An emissions inventory can identify where emissions occur. It cannot fully describe how organizations mobilize capital, technology, supply chains, land assets, procurement decisions, product innovation, or market mechanisms to reduce emissions across the economy.

Consequently, there is a growing need for a complementary reporting framework capable of capturing the full spectrum of mitigation actions undertaken by organizations.

Such a framework should not replace emissions inventories. Instead, it should operate alongside them.

The objective is not to redefine emissions. The objective is to transparently disclose mitigation.

5. The Climate Capital Framework

The Climate Capital Framework (CCF) is built upon a simple principle:

Physical emissions and mitigation actions should be reported separately but assessed together.

Under this approach:

- Emissions inventories continue to report physical greenhouse gas emissions.
- Mitigation actions are disclosed through a parallel mitigation framework.
- Organizations are no longer required to force mitigation actions into inventory boundaries.
- Stakeholders gain greater transparency regarding both emissions exposure and mitigation performance.

The result is a reporting architecture that preserves the integrity of emissions accounting while providing a comprehensive view of corporate climate action.

Rather than asking whether a mitigation action should be added to or deducted from an emissions inventory, the CCF asks a different question:

What mitigation levers are available to the organization, and how effectively are they being deployed?

This shift represents a transition from carbon accounting toward climate mitigation management. It reflects the growing recognition that achieving global climate goals will depend not only on measuring emissions, but also on understanding and scaling the diverse mitigation actions available to organizations across the economy.

Part II

Principles of the Climate Capital Framework



6. Foundational Principles

The Climate Capital Framework (CCF) is founded on the recognition that greenhouse gas emissions inventories and mitigation actions serve distinct but complementary functions.

Emissions inventories quantify an organization's contribution to atmospheric greenhouse gas concentrations.

Mitigation actions describe the measures undertaken by an organization to reduce, remove, substitute, or avoid greenhouse gas emissions within and beyond its operational and value chain boundaries.

The purpose of the CCF is not to replace existing emissions accounting frameworks, but to provide a transparent structure through which mitigation actions can be consistently disclosed, evaluated, and compared.

The following principles provide the foundation for this framework.

PRINCIPLE 1

Physical Emissions Integrity

Rationale

The credibility of corporate climate reporting depends on the integrity of emissions inventories.

Inventories should continue to represent the best available estimate of physical greenhouse gas emissions attributable to an organization according to established accounting standards.

Mitigation actions should not compromise the transparency or interpretability of these inventories.

The CCF therefore recognizes emissions inventories as the primary source of information regarding an organization's physical emissions profile.

Implications

Organizations shall continue to disclose:

- Scope 1 emissions;
- Scope 2 emissions;
- Scope 3 emissions;
- Biogenic emissions where applicable;
- Gross emissions before mitigation actions

Mitigation actions should be reported separately.

PRINCIPLE 2

Inventory-Mitigation Separation

Rationale

Emissions and mitigation represent different dimensions of climate performance. Emissions describe climate impact. Mitigation describes climate action. Although related, they are not interchangeable.

Attempts to merge mitigation actions directly into emissions inventories often create disputes regarding eligibility, boundaries, ownership, permanence, additionality, temporal alignment, and claim integrity.

The CCF therefore treats emissions inventories and mitigation portfolios as complementary reporting structures.

Implications

Organizations should disclose:

Inventory Statement

(What emissions occur)

Mitigation Statement

(What actions are undertaken to mitigate those emissions)

Both statements should be presented together but remain analytically distinct.

Organizations shall explicitly disclose whether any reported mitigation outcome reflects a reduction already captured within the organization's own emissions inventory. Categories with elevated overlap risk are identified in Part III and, for disclosure purposes, in Part VI, Attribute 11 (Inventory Overlap).

PRINCIPLE 3 Transparency Before Netting

Rationale

Many contemporary climate accounting debates arise from efforts to determine whether a mitigation action should be deducted from reported emissions. This creates a binary accounting logic in which mitigation actions are either accepted or rejected as inventory adjustments. Such an approach fails to recognize the diversity of climate mitigation mechanisms available to organizations.

The CCF avoids this problem by eliminating the need to force mitigation actions into a narrow net emissions calculation. Instead, mitigation actions are disclosed transparently and independently. Netting (if desired) is a final outcome.

Implications

The framework does not require:

- offsets to be deducted from emissions;
- removals to be deducted from emissions;

- EACs to be deducted from emissions;
- avoided emissions to be deducted from emissions.

Organizations may still calculate net metrics where required by specific standards or claims, but these calculations remain secondary disclosures.

The primary reporting structure remains gross emissions and mitigation actions. Netting comes as a secondary indicator.

PRINCIPLE 4 Mitigation Transparency

Rationale

Climate stakeholders increasingly seek information regarding the actions organizations undertake to support decarbonization.

Transparency requires more than reporting the quantity of emissions. It requires disclosure of the mechanisms used to reduce, remove, avoid, or compensate emissions.

The CCF therefore prioritizes visibility of mitigation actions rather than their integration into inventories.

Implications

Organizations should disclose:

- mitigation category;
- mitigation volume;
- implementation mechanism;
- geographic location;
- duration;
- verification status;
- ownership and claim structure.

Stakeholders should be able to understand how mitigation outcomes are generated and how they relate to organizational climate strategies.

PRINCIPLE 5

Technology Neutrality

Rationale

Climate mitigation can be achieved through a diverse range of technologies, ecosystems, business models, and interventions. A robust framework should not prejudice which mitigation pathways will ultimately prove most effective. The CCF therefore adopts a technology-neutral approach.

Biological and technological mitigation mechanisms are both eligible for disclosure, provided they satisfy applicable integrity requirements.

Implications

Eligible mitigation activities may include:

- forest carbon removals;
- soil carbon sequestration;
- biochar;
- direct air capture;
- geological storage;
- renewable electricity procurement;
- renewable fuels;
- industrial process innovation;
- avoided emissions;
- supply-chain interventions.

The framework does not establish a hierarchy between technologies unless explicitly disclosed by the reporting organization.

PRINCIPLE 6

Mitigation Additionality Disclosure

Rationale

The climate value of mitigation actions often depends upon whether the reported outcomes would have occurred in the absence of the intervention.

However, additionality requirements vary substantially across mitigation categories. Applying a single additionality standard across all mitigation mechanisms may obscure meaningful differences between interventions.

The CCF therefore requires transparency regarding additionality rather than imposing a universal additionality test.

Implications

Organizations should disclose whether mitigation outcomes are:

- regulatory;
- business-as-usual;
- market-driven;
- incentive-dependent;
- independently verified as additional.

The objective is transparency rather than exclusion.

The Climate Mitigation Statement (Section 11) shall disaggregate the Total Mitigation Outcomes figure by additionality basis (regulatory, business-as-usual, market-driven, incentive-dependent, independently verified), so that the additionality profile of the portfolio remains visible at the aggregate level and is not lost once outcomes are summed.

PRINCIPLE 7

Mitigation Hierarchy Disclosure

Rationale

Not all mitigation actions serve the same purpose. Some reduce emissions within an organization's own operations. Others remove emissions from the atmosphere. Others support reductions elsewhere in the economy.

Rather than prescribing a universal hierarchy, the CCF encourages organizations to disclose how mitigation actions align with their climate strategy.

Implications

Organizations should identify whether mitigation actions are intended to:

- reduce operational emissions;
- reduce value-chain emissions;
- remove atmospheric carbon;
- enable third-party emissions reductions;
- compensate residual emissions;
- satisfy regulatory obligations.

This disclosure provides stakeholders with a clearer understanding of mitigation priorities.

While the CCF does not prescribe a mandatory ranking among mitigation mechanisms for eligibility purposes, it recognizes a logical strategic sequence – reducing operational and value-chain emissions before relying on removals or on compensation for residual emissions. This sequence informs how organizations are encouraged to sequence their mitigation strategy; it does not restrict disclosure eligibility under any category of the taxonomy.

PRINCIPLE 8 Traceability and Auditability

Rationale

The credibility of mitigation disclosures depends upon the ability of stakeholders to verify underlying claims. Mitigation actions should therefore be traceable to identifiable assets, projects, certificates, interventions, contracts, or datasets.

The same principles of transparency and verifiability that apply to emissions inventories should apply to mitigation reporting.

Implications

Organizations should maintain sufficient documentation to demonstrate:

- ownership or contractual rights;
- issuance records;
- retirement records;
- project documentation;
- monitoring reports;
- verification reports;
- chain-of-custody records where applicable.

Mitigation disclosures should be capable of independent assurance.

PRINCIPLE 9 Climate Action Completeness

Rationale

Corporate climate performance cannot be fully understood through emissions inventories alone. Organizations increasingly influence emissions outcomes through procurement decisions, product innovation, financing, land management, supply-chain engagement, and environmental attribute markets.

A complete picture of climate action requires visibility across all these dimensions.

Implications

The CCF seeks to capture the full portfolio of mitigation actions available to organizations, regardless of whether those actions occur inside or outside traditional inventory boundaries. The objective is not to redefine emissions responsibility. The objective is to improve visibility into climate mitigation performance.

PRINCIPLE 10

Decision-Usefulness

Rationale

Climate reporting should support decision-making. Investors, regulators, customers, employees, and corporate managers require information that helps them understand both emissions exposure and mitigation capacity.

The CCF is designed to improve the usefulness of climate disclosures by providing a comprehensive representation of the mitigation tools deployed by organizations.

Implications

The framework supports:

- capital allocation decisions;
- transition planning;
- climate target setting;
- risk management;
- stakeholder communication;
- policy engagement.

The ultimate purpose of mitigation disclosure is not accounting compliance, but improved climate decision-making.

Part III
Corporate Climate
Mitigation Taxonomy



7. Purpose of the Taxonomy

The Climate Capital Framework (CCF) recognizes that organizations deploy a growing variety of mechanisms to support decarbonization. These mechanisms differ significantly in terms of:

- physical outcomes;
- accounting treatment;
- geographic location;
- permanence;
- ownership structure;
- contractual arrangements;
- verification requirements.

Despite these differences, all seek to contribute to one or more of the following objectives:

- 1) reducing greenhouse gas emissions;
- 2) removing greenhouse gases from the atmosphere;
- 3) substituting high-emission products or energy sources;
- 4) enabling emissions reductions elsewhere in the economy;
- 5) compensating residual emissions.

The purpose of the CCF Taxonomy is to establish a consistent structure through which these mitigation actions can be classified, disclosed, and compared. The taxonomy is intended for disclosure purposes and does not imply equivalence between categories. Each category represents a distinct mitigation pathway and should be assessed according to its own characteristics.

Note on overlap: several categories below are not mutually exclusive and may overlap with each other or with the organization's own emissions inventory. In particular: Category 3 (Environmental Attribute Instruments) may overlap with Category 7 (Regulatory Compliance Instruments) where an attribute is used to satisfy a regulatory obligation;

Category 2 (Value Chain Insetting) may overlap with Scope 3 of the inventory when the intervention is already reflected there; and Category 4 (Direct Scope 4) may overlap with Scope 3 downstream emissions. Organizations must disclose these overlaps explicitly rather than presenting each category as fully additive (see Principle 2).

Category 1: Carbon Removals (Insetting)

Definition

Carbon removals are activities that physically remove carbon dioxide from the atmosphere and store it in biological, geological, oceanic, or durable product reservoirs. Within the CCF, removals generated by assets owned, controlled, financed, or contractually linked to the reporting organization are classified as Insetting Removals.

Rationale

Many organizations possess unique opportunities to generate carbon removals through assets under their direct influence. These removals constitute an important mitigation lever regardless of whether they are used for compliance purposes, climate targets, net-zero claims, or internal transition strategies. The CCF therefore recognizes removals as a distinct category of mitigation action rather than as an adjustment to reported emissions.

Subcategory 1A: Biological Removals

Examples include:

- afforestation / reforestation;
- improved forest management;
- agroforestry;
- ecosystem restoration;
- blue carbon ecosystems;
- soil carbon enhancement.

Subcategory 1B: Technological Removals

Examples include: Direct Air Carbon Capture and Storage (DACCS); Bioenergy w/Carbon Capture & Storage (BECCS); Biochar; Enhanced Weathering; and Mineralization.

Category 2: Value Chain Insetting*Definition*

Value Chain Insetting refers to emissions reductions generated through interventions within upstream or downstream value chains that are influenced by the reporting organization.

These actions reduce emissions associated with suppliers, customers, distributors, contractors, or other value chain actors.

Rationale

Many of the largest mitigation opportunities available to organizations occur outside direct operational boundaries. The CCF recognizes these interventions as a distinct mitigation category.

Examples:

- regenerative agriculture;
- methane reduction programs;
- fuel switching by suppliers;
- logistics optimization;
- energy efficiency improvements;
- industrial process improvements.

This category is subject to the inventory-overlap disclosure requirement set out in Part VI, Attribute 11: where a value chain intervention is already reflected in the Organization's Scope 3 inventory, it must be labeled accordingly and may not be claimed as an additional, stand-alone mitigation outcome.

Category 3: Environmental Attribute Instruments*Definition*

EAls are contractual mechanisms that transfer environmental attributes independently from the underlying physical energy or fuel commodity. Examples include book-and-claim systems, certificates and attribute tracking systems.

Rationale

Environmental attribute markets have scaled rapidly making them one of the most accessible instruments available to organizations seeking to influence low-carbon energy demand. Whether that growth translates into additional, real-world emission reductions is currently debated, and the CCF does not take a position in that discussion. Instead, it requires every EAI disclosed under this framework to state its additionality basis (see Principle 6).

Subcategory 3A: Renewable Electricity Attributes

Examples include:

- I-RECs;
- Renewable Energy Certificates (RECs);
- Guarantees of Origin (GOs).

Subcategory 3B: Renewable Gas Attributes

Examples include:

- biomethane certificates;
- renewable gas certificates;
- green hydrogen certificates.

Subcategory 3C: Sustainable Fuel Attributes

Examples include:

- Sustainable Aviation Fuel certificates;
- renewable diesel certificates;
- biofuel certificates.

Category 4: Direct Scope 4 Mitigation*Definition*

Direct Scope 4 Mitigation refers to avoided emissions generated through products or services that reduce emissions directly associated with sources already reported within the organization's own value chain emissions inventory.

Rationale

In these cases, a clear linkage exists between reported emissions and avoided emissions. The mitigation outcome directly addresses emissions that are already recognized within the reporting boundary. This category is subject to the inventory-overlap disclosure requirement set out in Part VI, Attribute 11: outcomes already reflected in the Scope 3 downstream inventory must be labeled accordingly and may not be claimed as an additional, stand-alone mitigation outcome.

Category 5: Indirect Scope 4 Mitigation*Definition*

Indirect Scope 4 Mitigation refers to avoided emissions generated outside the reporting organization's inventory boundaries.

These reductions occur elsewhere in the economy and are not directly linked to reported emissions.

Rationale

Many products create climate benefits without offsetting emissions reported by the producer. The CCF recognizes these benefits while maintaining clear separation from inventory accounting.

Category 6: Carbon Neutral Procurement*Definition*

Carbon Neutral Procurement refers to the acquisition of goods and services that possess verified climate attributes such as full GHG compensation of their life-cycle emissions.

Rationale

Procurement decisions increasingly influence emissions across entire value chains. Organizations should therefore disclose climate benefits associated with carbon neutral purchasing strategies.

Examples:

- carbon-neutral fuels;
- carbon-neutral logistics;
- carbon-neutral packaging

This category is subject to the inventory-overlap disclosure requirement set out in Part VI, Attribute 11, given its frequent overlap with life-cycle inventories reported by either the supplier or the buyer.

Category 7: Compliance Climate Compensation*Definition*

Compliance Climate Compensation refers to verified mitigation instruments – such as offsets, compliance carbon credits, or regulated compensation units – retired by a reporting organization to satisfy a legal obligation established under a regulatory carbon pricing, taxation, or emissions trading scheme.

Rationale

Where a regulatory price or tax is set below the estimated social cost of carbon, direct payment of that price or tax internalizes only part of the externality.

An instrument retired under this category, by contrast, represents an actual reduction, removal, or avoidance of emissions elsewhere, applied against the organization's regulated emissions – and where that instrument is additional, verified, permanent and free of double counting, the social cost of the regulated emissions is substantially avoided, not merely partially priced.

This category is accordingly subject to the same integrity attributes required for Category 8 (Voluntary Climate Compensation): see Part VI, Attribute 3 (Verification), Attribute 4 (Additionality), Attribute 5 (Permanence and Durability), and Attribute 7 (Double Counting Risk).

Where an instrument does not meet these attributes, it should not be presented as a mitigation outcome, regardless of its use to satisfy a regulatory obligation. This category does not cover direct payment of a carbon tax or compliance fee where no instrument is retired; such payments are a cost of the underlying obligation and are not disclosed under this taxonomy as a mitigation outcome.

Countries' Examples:

Chile: Compensation units used to satisfy obligations under Chile's Green Tax framework.

Colombia: Compensation instruments recognized under the Colombian carbon tax regime.

Category 8: Voluntary Climate Compensation*Definition*

Voluntary Climate Compensation refers to mitigation outcomes acquired beyond regulatory requirements to support voluntary climate objectives.

Rationale

Voluntary carbon markets remain an important source of finance for climate mitigation activities worldwide. The CCF recognizes these instruments as part of the corporate mitigation portfolio while maintaining separation from emissions inventories.

Examples:

- carbon credits;
- removal credits;
- nature-based mitigation units;
- engineered removal units.

8. Mitigation Assets: A New Perspective on Corporate Climate Action

The eight categories described within the CCF Taxonomy share a common characteristic. Each represents a resource, capability, contractual instrument, intervention, or asset that can be deployed by an organization to generate climate mitigation outcomes.

Historically, corporate climate accounting has focused primarily on emissions liabilities. Organizations measure the greenhouse gases emitted by their operations, purchased energy, and value chains. The resulting inventory provides a representation of climate exposure and responsibility.

However, organizations increasingly possess a second and equally important set of climate-related resources: their capacity to generate mitigation outcomes.

These capacities may arise from:

- biological assets;
- technological assets;
- supply chain interventions;
- procurement strategies;
- environmental attribute instruments;
- product innovation;
- compensation mechanisms.

The CCF collectively refers to these resources as Mitigation Assets. A Mitigation Asset is any asset, activity, contractual right, intervention, or organizational capability that generates, enables, or finances measurable climate mitigation outcomes.

This perspective represents a shift in emphasis.

Rather than viewing mitigation instruments solely as potential adjustments to emissions inventories, the CCF recognizes them as strategic climate assets that can be developed, acquired, managed, and deployed over time.

Under this approach, organizations are understood to possess both:

Climate Liabilities: represented by physical greenhouse gas emissions; and

Climate Mitigation Assets: represented by the portfolio of mitigation actions available to the organization.

Neither dimension alone provides a complete picture of climate performance. Organizations with similar emissions inventories may possess dramatically different mitigation capacities.

Likewise, organizations with substantial mitigation portfolios may continue to report significant emissions.

Meaningful assessment of climate performance therefore requires visibility into both dimensions. The Climate Capital Framework is designed to provide that visibility.

The Climate Mitigation Statement presented in the next section translates this concept into a practical disclosure framework capable of reporting both emissions and mitigation assets in a transparent and comparable manner.

Part IV

The Climate Mitigation Statement



9. Purpose of the Climate Mitigation Statement

The Climate Capital Framework (CCF) recognizes that meaningful assessment of climate performance requires visibility into two complementary dimensions:

- 1. The greenhouse gas emissions generated by an organization.
- 2. The mitigation actions deployed by an organization.

Existing climate disclosures primarily focus on the first dimension. As a result, stakeholders often obtain a detailed understanding of an organization's emissions profile but only a fragmented view of its mitigation capabilities.

The Climate Mitigation Statement (CMS) is designed to address this gap. The purpose of the CMS is not to replace greenhouse gas inventories. Nor is it intended to create a new net emissions metric.

Instead, the CMS provides a structured disclosure that presents emissions and mitigation actions side by side, allowing stakeholders to understand both climate exposure and climate mitigation capacity.

10. Structure of the Climate Mitigation Statement

The Climate Mitigation Statement consists of two complementary sections.

Section A: Physical Emissions Inventory

This section summarizes the organization's physical greenhouse gas emissions. The inventory should be prepared using established accounting frameworks such as:

- GHG Protocol;
- ISO 14064;
- regulatory reporting requirements;
- other recognized emissions accounting standards

The objective is to provide a transparent representation of emissions attributable to the reporting organization.

Illustrative disclosure:

Physical Emissions Inventory	tCO ₂ e
Scope 1	xxx
Scope 2	xxx
Scope 3 upstream	xxx
Scope 3 downstream	xxx
Gross Emissions	xxx

Section B: Mitigation Portfolio

This section summarizes the mitigation actions deployed by the organization.

Mitigation outcomes are disclosed according to the CCF Taxonomy.

The objective is to provide visibility into the organization's mitigation capabilities and activities.

Illustrative disclosure:

Mitigation Portfolio	tCO ₂ e
Biological removals	xxx
Technological removals	xxx
Value Chain Mitigation	xxx
Environmental Attributes Certificates	xxx
Direct Scope 4 Mitigation	xxx
Indirect Scope 4 Mitigation	xxx
Climate Neutral Procurement	xxx
Compliance Compensation	xxx
Voluntary Compensation	xxx
Total Mitigation Outcomes	xxx

11. Gross Emissions and Gross Mitigation

Rationale

The CCF deliberately avoids combining emissions and mitigation outcomes into a single net figure (until the very end). Although net metrics may be useful for specific purposes, they often obscure important information regarding the nature, quality, and composition of mitigation actions.

A single net number may conceal significant differences between organizations. For example, two companies reporting identical net emissions may rely on entirely different mitigation strategies.

- One may depend primarily on removals
- Another may rely on avoided emissions
- Another may use environmental attributes
- Another may utilize compliance compensation mechanisms

These differences are material and should remain visible. The CCF therefore prioritizes disclosure of Gross Emissions and Gross Mitigation Outcomes, as separate metrics.

Revising the Role of Net Metrics

The CCF does not reject the use of net emissions metrics. Net metrics can provide useful information regarding the relationship between emissions and mitigation activities and may support target setting, transition planning, regulatory compliance, or corporate climate claims.

However, the framework recognizes that net metrics are most informative when derived from transparent disclosure of both gross emissions and mitigation outcomes. Accordingly, the CCF adopts a principle of Gross-to-Net Transparency.

Organizations should first disclose:

- physical emissions;
- mitigation outcomes;
- mitigation portfolio composition.

Net metrics may then be calculated as supplementary indicators. Under this approach, net figures are not eliminated. Rather, they become more meaningful because stakeholders can clearly understand the underlying emissions profile and mitigation strategy that produced them.

The objective is therefore not to replace net reporting, but to improve its transparency and interpretability.

Consistent with Principle 6, the Mitigation Portfolio table below must be accompanied by a breakdown of the Total Mitigation Outcomes figure by additionality basis (regulatory, business-as-usual, market-driven, incentive-dependent, independently verified).

12. Mitigation Portfolio Composition

Rationale

The composition of a mitigation portfolio can be as important as its magnitude.

Stakeholders increasingly seek to understand:

- the durability of mitigation outcomes;
- the technologies deployed;
- the degree of organizational control;
- exposure to policy changes;
- long-term scalability.

The CMS therefore encourages organizations to disclose the composition of mitigation portfolios by category.

Mitigation Category	Share
Biological Removals	40%
Technological Removals	5%
Value Chain Mitigation	20%
Use of EACs	20%
Direct Scope 4	10%
Other Categories	5%
Total Mitigation Outcomes	100%

13. Mitigation Asset Intensity

Rationale

Organizations vary significantly in the mitigation capacity available to them.

A forestry company may possess extensive biological removal assets. An energy company may possess renewable energy attribute portfolios. A manufacturing company may possess substantial supply-chain intervention opportunities.

The CCF therefore introduces a disclosure concept referred to as Mitigation Asset Intensity (MAI). MAI describes the scale of mitigation outcomes relative to organizational emissions.

The objective is not to create a performance score but rather to provide stakeholders with insight into the organization's mitigation capacity.

Illustrative Metric:

Mitigation Asset Intensity (MAI) =
Total Mitigation Outcomes ÷ Gross Emissions

- A value greater than 1 indicates that mitigation outcomes exceed annual emissions.
- A value below 1 indicates that mitigation outcomes are smaller than annual emissions.

Organizations should disclose the methodology used to calculate this metric.

The MAI shall always be disclosed together with the mitigation portfolio composition (Section 12) in the same table or exhibit; it must never be presented as a standalone figure. Organizations should note that the MAI is a scale indicator and does not, on its own, reflect the quality, permanence, or additionality of the underlying mitigation outcomes.

14. Climate Transition Narratives

Rationale

Quantitative disclosures alone cannot fully explain how mitigation actions support long-term transition strategies.

Organizations shall accompany the CMS with qualitative explanations describing:

- strategic objectives;
- deployment priorities;
- expected future developments;
- interactions between mitigation categories.

This narrative must present the trend of the organization's gross emissions over the reporting period alongside the mitigation portfolio, so that stakeholders can assess whether reported mitigation capacity is accompanied by a real reduction in absolute emissions, rather than being presented in isolation. Examples:

A forestry company may explain how biological removals support long-term residual emissions management.

An energy company may describe how renewable fuel attributes contribute to transportation decarbonization.

A consumer products company may explain how avoided emissions arise through product innovation.

15. Relationship with Existing Climate Reporting Frameworks

The Climate Mitigation Statement is intended to complement –not replace– existing reporting standards. Organizations may continue to disclose emissions, targets, transition plans, and climate-related financial risks through existing frameworks.

The CMS provides an additional layer of transparency focused specifically on mitigation actions.

The CCF is designed to be read alongside – not as an equivalent of – the following frameworks, each of which addresses a different dimension of climate reporting: the GHG Protocol and ISO 14064 (physical emissions accounting, unchanged by this framework); IFRS S2 (financial disclosure of climate-related risks and opportunities, a different objective than mitigation-outcome disclosure); the Transition Plan Taskforce (TPT) framework (forward-looking transition planning, which this framework can inform but does not replace); TCAT (climate action transparency, the closest conceptual relative of this framework); and ISO 14068 (net-zero transition management).

Organizations should not describe the CCF as "aligned" with these frameworks in general terms; specific points of convergence and divergence should be stated explicitly where claims of alignment are made.

16. From Carbon Accounting to Climate Management

The original objective of greenhouse gas accounting was to improve understanding of emissions. The next challenge is improving understanding of mitigation.

As organizations gain access to an increasingly diverse range of mitigation tools, climate performance can no longer be evaluated solely through emissions inventories.

A comprehensive assessment requires visibility into both:

- the emissions organizations generate; and
- the mitigation assets they deploy.

The Climate Mitigation Statement provides a structured mechanism for disclosing both dimensions simultaneously.

By separating emissions from mitigation while preserving transparency for each, the CCF seeks to shift corporate climate reporting from a narrow focus on carbon accounting toward a broader focus on climate mitigation management.

Part V
Illustrative Application:
Empresas Copec



17. Why Empresas Copec Provides a Relevant Test Case

The Climate Capital Framework (CCF) was designed to accommodate the increasingly diverse portfolio of mitigation actions available to modern organizations.

Few corporate groups illustrate this diversity more clearly than Empresas Copec. Through its subsidiaries and business units, Empresas Copec participates in sectors including:

- energy;
- fuels distribution;
- forestry;
- mining;
- food production;
- logistics;
- infrastructure;
- mobility solutions.

As a result, the group possesses exposure to both significant greenhouse gas emissions and a broad range of mitigation opportunities. This combination makes Empresas Copec a useful illustrative example of how the CCF can be applied in practice.

The purpose of this section is not to evaluate the climate performance of Empresas Copec. Rather, it demonstrates how a diversified organization can disclose mitigation actions across multiple categories of the CCF Taxonomy while preserving the integrity of its emissions inventory.

18. Physical Emissions Profile

Like many diversified industrial groups, Empresas Copec reports greenhouse gas emissions arising from multiple sources. These may include:

- fuel combustion;
- electricity consumption;
- transportation activities;

- industrial processes;
- logistics;
- purchased goods and services;
- downstream use of sold products.

Under the CCF, all such emissions continue to be disclosed through conventional Scope 1, Scope 2, and Scope 3 inventories.

No mitigation category alters the visibility of these physical emissions. This preserves transparency regarding the group's climate exposure.

19. Category 1: Carbon Removals (Insetting)

Arauco

The most significant mitigation asset available within Empresas Copec is the forest estate managed by Arauco. These assets have the potential to generate large-scale biological carbon removals through:

- forest growth;
- afforestation;
- reforestation;
- restoration activities;
- improved forest management;
- long-lived wood products.

Under traditional reporting frameworks, the treatment of these removals frequently becomes intertwined with discussions regarding carbon neutrality or net emissions accounting. Under the CCF, these removals are disclosed directly as mitigation assets.

Their climate contribution remains visible regardless of whether they are used for target achievement, internal balancing, regulatory purposes, or voluntary claims.

20. Category 2: Value Chain Mitigation

Nutrisco

Food production and distribution create opportunities for emissions reductions throughout upstream supply chains.

Potential interventions include:

- fuel efficiency improvements;
- low-emission fishing fleets;
- optimized logistics;
- regenerative agricultural practices;
- improved refrigeration systems.

Were Nutrisco to pursue such interventions, the resulting reductions would occur outside its direct operational boundaries, yet could nevertheless generate measurable mitigation outcomes.

Arauco

Arauco's contractor networks, transportation providers, and forestry suppliers may also become important sources of supply-chain mitigation.

Examples include:

- low-carbon transportation programs;
- renewable fuels;
- sustainable harvesting practices;
- electrification of forestry equipment.

21. Category 3: Environmental Attribute Instruments

Copec

Copec participates in energy markets that increasingly incorporate environmental attribute mechanisms. Examples include:

- renewable electricity certificates;
- I-RECs;
- renewable fuel certificates;
- sustainable aviation fuel attributes;
- renewable gas certificates.

These instruments represent contractual claims associated with verified environmental attributes. Under the CCF, they are disclosed as mitigation assets independently of emissions inventories.

Terpel

Terpel may deploy similar instruments across multiple Latin American jurisdictions. As environmental attribute markets expand beyond electricity into fuels and gases, this category is expected to become increasingly important.

Abastible

Abastible is particularly well positioned to participate in emerging biomethane and renewable gas attribute markets.

Book-and-claim systems may enable customers to access renewable gas attributes even where physical infrastructure limitations prevent direct molecule delivery.

22. Category 4: Direct Scope 4 Mitigation

Copec Electromobility

One of the most significant examples of Direct Scope 4 Mitigation within the group is the deployment of electric vehicle charging infrastructure.

Copec reports downstream emissions associated with transportation fuels sold to customers.

Electrification solutions contribute to reducing emissions arising from the same transportation activities. This creates a direct relationship between reported emissions and avoided emissions. The resulting mitigation outcomes can therefore be disclosed as Direct Scope 4 Mitigation.

Renewable Fuels

The deployment of sustainable fuels that displace fossil fuel consumption among existing customers may also generate Direct Scope 4 Mitigation outcomes. Examples include:

- renewable diesel;
- sustainable aviation fuel;
- renewable marine fuels;
- renewable gas.

23. Category 5: Indirect Scope 4 Mitigation

Arauco

Arauco's product portfolio provides several examples of indirect avoided emissions.

Fiber-Based Packaging

Substitution of plastic packaging with fiber-based alternatives may reduce emissions across customer value chains. Were such substitution pursued at scale, the resulting reductions would occur outside Arauco's reported inventory boundaries, yet could represent measurable climate benefits enabled by the company's products.

Mass Timber

Wood construction products may displace more emissions-intensive materials such as steel and concrete. Any resulting avoided emissions would occur within downstream construction value chains.

Under the CCF, these outcomes are reported as Indirect Scope 4 Mitigation.

Alxar

Mining projects supplying critical minerals for electrification, renewable energy systems, and energy storage technologies may enable substantial emissions reductions elsewhere in the economy.

These benefits are similarly disclosed as Indirect Scope 4 Mitigation.

24. Category 6: Carbon Neutral Procurement

Several Empresas Copec subsidiaries may procure goods and services accompanied by independently verified carbon neutrality claims. Examples include:

- carbon neutral logistics services;
- carbon neutral maritime transportation;
- carbon neutral construction materials;
- carbon neutral industrial products.

The CCF recognizes that such procurement decisions mobilize financial support for climate mitigation activities even when the associated physical emissions remain reflected within life-cycle inventories.

This category therefore captures the climate mitigation attributes embedded within purchased goods and services rather than the emissions profile of the products themselves.

25. Category 7: Compliance Climate Compensation

Chile (Nutrisco)

Certain facilities within the group may be subject to regulatory carbon pricing mechanisms.

Where regulations permit the use of verified mitigation outcomes to satisfy compliance obligations, these actions may be disclosed as Compliance Climate Compensation.

Examples include compensation instruments recognized under Chile's Green Tax framework. Nutrisco has compensated part of their regulated emissions and deducted a fraction of their carbon tax liabilities.

Colombia (Terpel)

Terpel's operations have similarly participated in compensation mechanisms recognized under Colombian carbon pricing regulations.

Both examples above are subject to the integrity attributes referenced in Part III, Category 7 – verification, additionality, permanence, and double counting risk – consistent with the treatment of Category 8.

26. Category 8: Voluntary Climate Compensation

The group may also choose to acquire mitigation outcomes voluntarily to support climate objectives beyond regulatory requirements. These may include:

- nature-based mitigation outcomes;
- engineered removals;
- jurisdictional programs;
- high-integrity carbon market instruments

Copec's program "Compensa tu Huella", where retail emissions are offsetted in a 1+1 scheme is an example of voluntary climate compensation. The CCF treats these activities as a distinct mitigation category and maintains transparency regarding their role within the broader mitigation portfolio.

27. An Integrated Mitigation Portfolio

The principal insight arising from the Empresas Copec example is that climate mitigation does not occur through a single mechanism. Rather, organizations deploy multiple mitigation assets simultaneously.

- Some generate removals.
- Some reduce emissions.
- Some substitute high-emission products.
- Some enable reductions elsewhere in the economy.
- Some provide compensation mechanisms.

Traditional emissions inventories provide limited visibility into this diversity. The CCF makes these mitigation assets visible.

This allows stakeholders to understand not only the emissions generated by an organization, but also the full range of mitigation capabilities available to support its climate transition.

For diversified organizations such as Empresas Copec, this broader perspective may provide a more complete representation of climate performance than emissions inventories alone.

Part VI
Integrity and Disclosure
Requirements for
Mitigation Assets

28. Purpose

The Climate Capital Framework (CCF) recognizes that mitigation assets differ significantly in their characteristics, risks, durability, and climate impacts.

A biological removal project, a renewable electricity certificate, a supply-chain intervention, and an avoided-emissions product may all contribute to climate mitigation, yet they do so through fundamentally different mechanisms.

The objective of the CCF is not to establish a universal ranking of mitigation assets. Rather, it seeks to ensure that mitigation assets are disclosed consistently and transparently.

To achieve this objective, all mitigation assets reported under the CCF should be accompanied by a common set of integrity and disclosure attributes. These attributes allow stakeholders to evaluate mitigation outcomes while preserving comparability across categories.

29. Core Integrity Attributes

Every mitigation asset disclosed under the CCF should be evaluated according to the following attributes.

Attribute 1: Quantification

Objective

To ensure that mitigation outcomes are measurable and reported using transparent methodologies.

Disclosure Requirements

Organizations should disclose:

- quantity of mitigation outcomes;
- units of measurement;

- accounting period;
- methodology applied;
- baseline assumptions where relevant.

Examples:

- tonnes of CO₂ removed;
- tonnes of CO₂ avoided;
- MWh of renewable attributes retired;
- tonnes of CO₂ compensated.

Attribute 2: Traceability

Objective

To ensure that mitigation outcomes can be linked to identifiable activities, projects, assets, contracts, or certificates.

Disclosure Requirements

Organizations should disclose:

- project identifiers;
- certificate identifiers;
- registry references;
- contractual arrangements;
- asset ownership structures.

Rationale

Mitigation outcomes that cannot be traced cannot be independently verified.

Attribute 3: Verification

Objective

To disclose the degree of independent assurance associated with mitigation outcomes.

Disclosure Requirements

Organizations should indicate whether mitigation outcomes are:

- internally quantified;
- third-party verified;
- certified under recognized standards;
- subject to regulatory oversight.

Attribute 4: Additionality

Objective

To disclose whether mitigation outcomes depend on the intervention being reported.

Disclosure Requirements

Organizations should disclose the basis on which additionality is assessed. Examples may include:

- financial additionality;
- regulatory additionality;
- technological additionality;
- market additionality;
- programmatic additionality.

Rationale

The CCF does not impose a universal additionality threshold. Instead, it requires transparency regarding how additionality is evaluated.

Attribute 5: Permanence and Durability

Objective

To disclose the expected duration of mitigation outcomes.

Disclosure Requirements

Organizations should identify whether mitigation outcomes are:

- temporary;
- medium-term;
- long-term;
- permanent.

Expected storage duration should be disclosed where applicable.

Organizations may reference recognized third-party standards for guidance on disclosure of temporary biological assets, such as the ICVCM Core Carbon Principles, Verra, Gold Standard, or the SCX Insetting Standard, among others.

Attribute 6: Reversal Risk

Objective

To disclose the risk that mitigation outcomes may be partially or fully reversed over time.

Disclosure Requirements

Organizations should disclose:

- principal reversal risks;
- mitigation measures;
- insurance mechanisms;
- buffer arrangements where applicable.

Examples include:

- wildfire;
- pest outbreaks;
- land-use change;
- technology failure.

As with Attribute 5, organizations may reference recognized third-party standards – including but not limited to the ICVCM Core Carbon Principles, Verra, Gold Standard, or the SCX Insetting Standard – for further guidance.

Attribute 7: Double Counting Risk*Objective*

To identify the potential for multiple entities to claim the same mitigation outcome.

Disclosure Requirements

Organizations should disclose mechanisms used to prevent:

- double issuance;
- double use;
- double retirement.

Attribute 8: Double Claim Risk*Objective*

To identify situations in which multiple parties may communicate overlapping claims regarding the same mitigation outcome.

Examples:

- supplier and customer claims;
- producer and consumer claims;
- host-country and buyer claims.

Rationale

Double claiming is often distinct from double counting and should be evaluated separately.

Attribute 9: Organizational Control*Objective*

To disclose the degree of influence exercised by the reporting organization.

Disclosure Requirements

Mitigation assets should be classified according to whether they are:

- owned;
- operated;
- financed;
- contracted;
- purchased.

Examples: Arauco forest assets represent owned mitigation assets; I-RECs represent purchased mitigation assets; Supply-chain interventions may represent influenced mitigation assets.

Attribute 10: Regulatory Recognition*Objective*

To disclose whether mitigation outcomes are recognized under regulatory frameworks.

Disclosure Requirements

Organizations should indicate whether mitigation outcomes are:

- voluntary;
- compliance eligible;
- tax eligible;
- recognized under mandatory reporting systems.

Attribute 11: Inventory Overlap*Objective*

To disclose whether a reported mitigation outcome overlaps with a reduction already captured within the organization's own Scope 1, 2 or 3 emissions inventory, so that inventory reductions are not additionally claimed as stand-alone mitigation impact (see Principle 2). This attribute applies with particular relevance to Category 2 (Value Chain Insetting), Category 4 (Direct Scope 4) and Category 6 (Carbon Neutral Procurement).

Disclosure Requirements: Organizations should indicate, for each mitigation outcome, whether it is (i) fully reflected in the organization's own inventory ("Inventory-Reflected"), (ii) partially reflected, or (iii) not reflected in the inventory. Outcomes labeled "Inventory-Reflected", in full or in part, may not be presented as an additional, stand-alone mitigation impact beyond the corresponding inventory reduction.

30. Mitigation Asset Profiles

The CCF recommends that organizations disclose mitigation assets through standardized asset profiles. An illustrative profile may include:

Attribute	Disclosure
Category	Biological Removal
Quantity	3,000,000 tCO ₂ e
Geography	Conservation of natural forests in Chile
Verification	Third-party verified
Additionality	SCX Insetting Standard
Permanence	100+ years
Reversal Risk	Buffer / VERRA Toolkit
Double Claim Control	EAC/NCA Registry
Organizational Control	Owned
Regulatory Recognition	Voluntary

31. Portfolio-Level Disclosure

In addition to individual asset profiles, organizations should disclose aggregate information regarding their mitigation portfolios. Examples include: mitigation portfolio composition; mitigation outcomes by category; geographic distribution; permanence distribution; verification status; ownership structure. This enables stakeholders to understand both individual mitigation assets and the overall resilience of the mitigation portfolio.

32. Assurance and Auditability

Mitigation disclosures should be capable of independent assurance. Organizations should maintain documentation sufficient to demonstrate:

- ownership rights;
- contractual claims;
- registry transactions;
- monitoring data;
- verification records;
- retirement records where applicable.

The level of assurance should be disclosed alongside mitigation outcomes.

33. Integrity Through Transparency

The CCF does not attempt to determine a single hierarchy of mitigation actions. Different organizations possess different mitigation opportunities, technologies, geographies, and transition pathways. The framework therefore adopts a principle of integrity through transparency.

Stakeholders are provided with sufficient information to evaluate mitigation assets according to their own objectives and decision-making needs. The role of the CCF is not to prescribe outcomes. Its role is to make climate mitigation visible, understandable, and comparable.

Part VII
Implications for the Future
of Corporate Climate
Reporting

34. A Changing Climate Reporting Landscape

Corporate climate reporting is entering a new phase of development. Over the past two decades, substantial progress has been made in establishing robust methodologies for quantifying and disclosing greenhouse gas emissions.

Frameworks such as the Greenhouse Gas Protocol, ISO 14064, and IFRS S2 have significantly improved transparency regarding corporate emissions and climate-related risks.

As discussed in Part I (Sections 1–2), climate action itself has evolved more rapidly than the reporting systems designed to describe it, across the same range of mitigation strategies introduced there. This emerging gap is what the remainder of this Part addresses at the level of reporting policy, rather than mechanism-by-mechanism.

This emerging gap suggests that climate reporting may be approaching a new stage of evolution.

35. From Emissions Accounting to Mitigation Accounting

Historically, corporate climate reporting has focused on a single question:

What emissions should be attributed to an organization?

This question remains important and will continue to form the foundation of climate disclosure. However, organizations increasingly face a second question:

What mitigation outcomes are generated, enabled, financed, or supported by the organization?

The two questions are related but fundamentally different. The first concerns responsibility for emissions. The second concerns contribution to mitigation.

The CCF does not seek to replace the first question. Instead, it provides a framework for systematically addressing the second. In this sense, the framework represents a shift from emissions accounting toward mitigation accounting.

36. The Limits of Inventory-Centered Climate Management

Emissions inventories remain indispensable tools for climate governance. They provide a consistent representation of greenhouse gas emissions and support target setting, regulatory compliance, and risk management.

However, inventories alone provide only a partial view of organizational climate performance. Organizations increasingly influence climate outcomes through mechanisms that extend beyond inventory boundaries.

Examples include:

- forest carbon removals;
- renewable electricity procurement;
- renewable gas systems;
- sustainable fuels;
- product substitution;
- supply-chain transformation;
- avoided emissions.

Many of these activities create measurable climate benefits but remain difficult to represent within conventional inventory structures. Attempts to integrate such actions into emissions accounting have often generated controversy regarding:

- boundaries;
- ownership;
- additionality;
- permanence;
- temporal matching;
- double counting;
- claim integrity.

The CCF offers an alternative approach. Rather than expanding inventory boundaries indefinitely, the framework introduces a complementary disclosure architecture focused on mitigation outcomes.

37. A Framework for Climate Transition Management

The transition to a low-carbon economy requires more than emissions measurement. It requires active management of mitigation opportunities. Organizations increasingly need to understand where mitigation opportunities exist; how mitigation portfolios evolve over time; which mitigation assets support transition plans; how mitigation investments contribute to climate objectives.

The CCF provides a framework through which mitigation activities can be managed as strategic organizational resources.

In this respect, mitigation assets become analogous to other forms of strategic capital. Organizations may develop them, acquire them, finance them, deploy them, and report on them.

This perspective aligns climate reporting more closely with the realities of transition planning and capital allocation.

38. Alignment with Emerging Reporting Initiatives

The CCF is intended to complement existing reporting frameworks rather than compete with them. Potential areas of alignment include:

GHG Protocol

The framework preserves the integrity of emissions inventories while creating a dedicated structure for mitigation disclosures. This may be particularly relevant to ongoing work related to Actions and Interventions. The CCF is offered as a contribution to such initiative rather than as a substitute for its eventual output; where the GHG Protocol's Actions and Market Instruments standard is finalized, organizations should follow it and treat this framework's taxonomy as a complementary tool.

Task Force for Corporate Action Transparency

The CCF builds upon the recognition that climate action should be disclosed alongside emissions. It provides a practical taxonomy and disclosure architecture capable of operationalizing that objective.

IFRS S2

Investors increasingly seek information regarding transition strategies and climate-related opportunities. Mitigation portfolios may provide valuable insight into how organizations intend to manage transition risks and achieve climate objectives.

IFRS S2 is a financial disclosure standard addressing climate-related risks and opportunities; it is not a greenhouse gas accounting standard, and this framework does not claim alignment with it on GHG accounting matters.

Transition Plan Taskforce (TPT)

The framework supports enhanced disclosure of transition levers and implementation pathways.

ISO Standards

The CCF can operate alongside existing greenhouse gas accounting and carbon neutrality standards without modifying their underlying accounting rules.

39. Gross-to-Net Transparency

One of the central innovations of the CCF is the principle of Gross-to-Net Transparency. The framework recognizes that net metrics can provide useful information.

Organizations may legitimately calculate: net emissions; net climate positions; carbon neutrality balances; residual emissions indicators. However, such metrics become significantly more meaningful when stakeholders can observe the underlying emissions inventory and mitigation portfolio from which they are derived.

The CCF therefore promotes a three-step disclosure sequence: 1) Gross Emissions; 2) Gross Mitigation Outcomes, and 3) Net Climate Position.

This approach preserves transparency while maintaining flexibility for organizations that choose to communicate net outcomes.

40. Climate Exposure and Climate Capacity

Traditional climate reporting focuses primarily on climate exposure. Emissions inventories describe the greenhouse gases associated with an organization and therefore provide insight into climate-related liabilities, transition risks, and regulatory exposure.

The CCF introduces a complementary perspective: Climate Capacity. Climate capacity represents the ability of an organization to generate, enable, finance, or deploy mitigation outcomes.

Organizations with similar emissions profiles may possess different mitigation capacities. Likewise, organizations with extensive mitigation portfolios may still report substantial emissions. Understanding both dimensions is essential for evaluating long-term transition readiness.

The CCF therefore encourages stakeholders to assess climate exposure; and climate mitigation capacity; as complementary dimensions of corporate climate performance.

41. The Future of Corporate Climate Reporting

The development of greenhouse gas inventories represented a critical first stage in the evolution of corporate climate reporting. The next stage may require equal attention to mitigation.

As climate strategies become increasingly diversified, stakeholders require greater visibility into the full range of mitigation actions available to organizations.

The future of climate reporting may therefore depend not only on measuring emissions more accurately, but also on understanding mitigation more transparently.

The Climate Capital Framework is proposed as one possible contribution to that evolution. Its objective is simple:

*to make corporate climate
mitigation visible*

By preserving the integrity of emissions inventories while creating a dedicated framework for mitigation disclosures, the CCF seeks to provide a more complete representation of how organizations contribute to the transition toward a low-carbon economy.

In doing so, it aims to move corporate climate reporting beyond the question of what emissions belong to an organization and toward a broader understanding of how organizations participate in climate mitigation itself.



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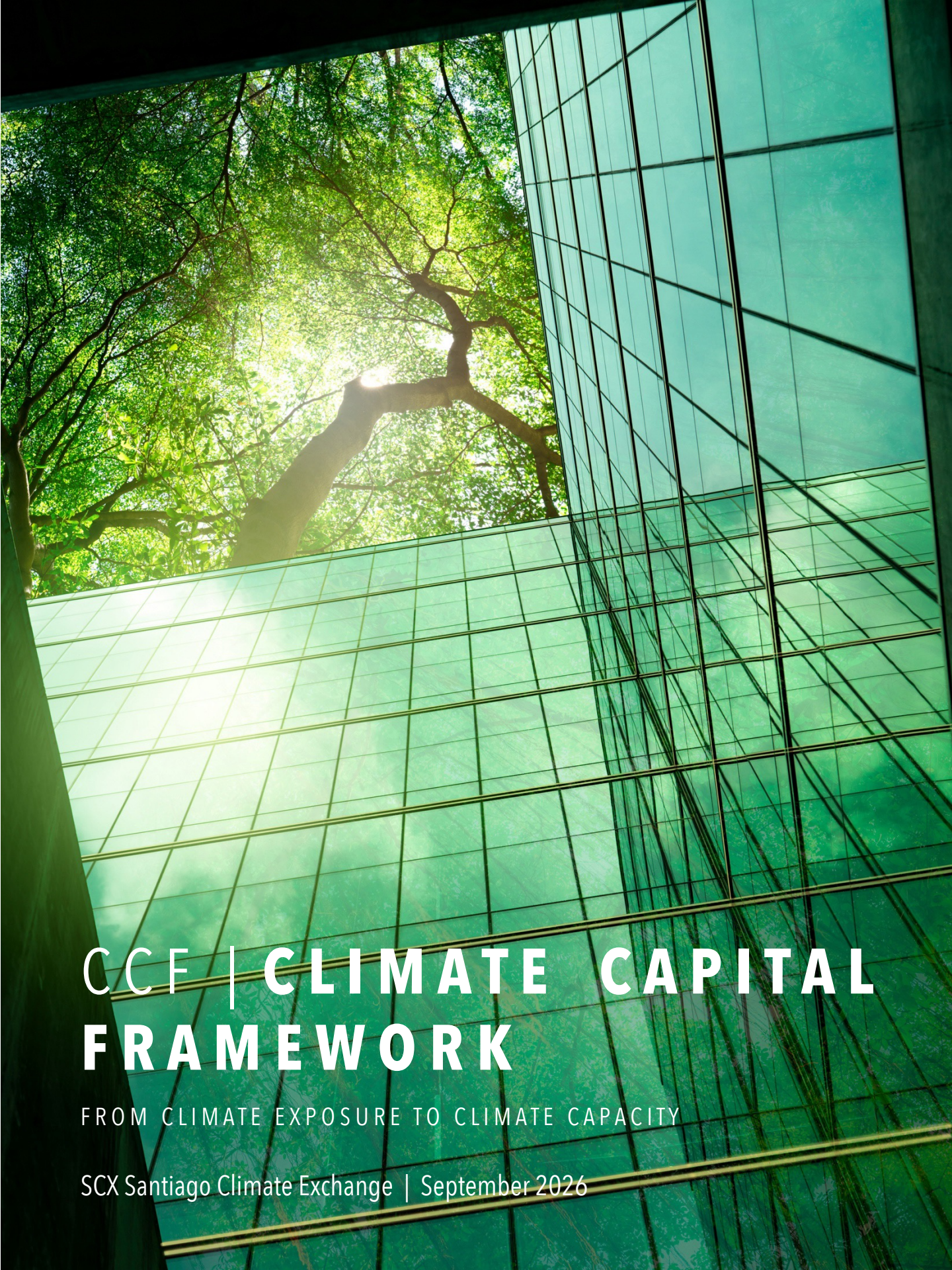
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