Overview of the commodity certificate landscape

June 2026

EXPONENTIAL ROADMAP Initiative

Problem statement

For global climate targets to be achieved, organisations need to use the full range of available instruments, with climate solutions being one of them.

Research shows that market instruments (MIs), such as prepayment contracts or commodity certificates, have the potential to positively influence the investments in and development of climate solutions. Scaling of MIs is critical to accelerating the development of climate solutions, like SAF, green cement, green steel, green hydrogen and sustainable shipping.

On the other hand, at the organisational level these solutions have negligible impact in the short-term on annual GHG emission figures. Furthermore, some are in markets which lack traceability and accounting and reporting standards.

To incentivise corporate investments, clear guidance and standardised approaches for reporting and communicating such investments without greenwashing risk are needed.

While key standards organisations, like GHG Protocol and SBTi, are taking a fairly conservative approach in their revision processes, independent players, like The AIM Platform, Value Change initiative and The GMA Center, are creating comprehensive standards for accounting and reporting the use of MIs as well as elaborate quality criteria. However, it will be months or years before the standards are finalised.

This uncertain landscape makes businesses unsure about whether and under what circumstances purchases of MIs can recognised which further delays the necessary climate action.

Theory of change

1. More money needs to flow towards some system transformations

2. Corporates could provide that money

3. Corporate require an incentive to invest in MIs/commodity certificates

4. GHG reporting and target-setting standards seem unlikely to permit GHG emission reduction claims based on the use of MIs/commodity certificates.

5. However, the corporate climate accountability ecosystem is seeking new ways to give corporates recognition for their investments.

Scope of the report

Purpose: Map and analyse the current landscape of commodity certificates from definitions to available guidance and standards.

Intended outcome: A mapping of current terms and their definitions, landscaping of available guidance on commodity certificates and analysis of existing gaps. The results may be used in future work on investments in climate solutions.

1.

Defining key concepts

Overview of key terminology and definitions central to understanding market-making instruments and commodity certificates

2.

Evaluating existing standards and initiatives

Review of frameworks and guidance for commodity certificates

3.

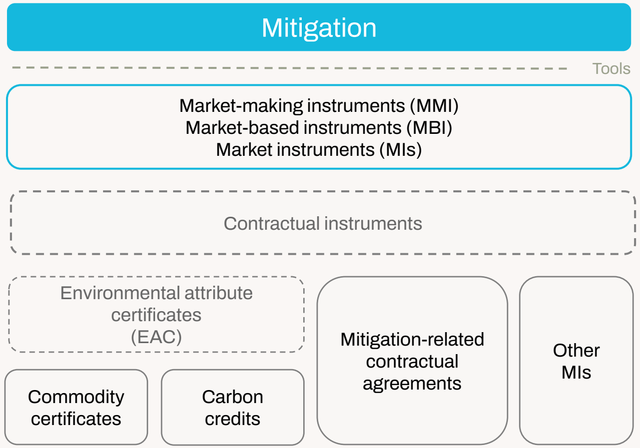
Reviewing commodity-specific guidance

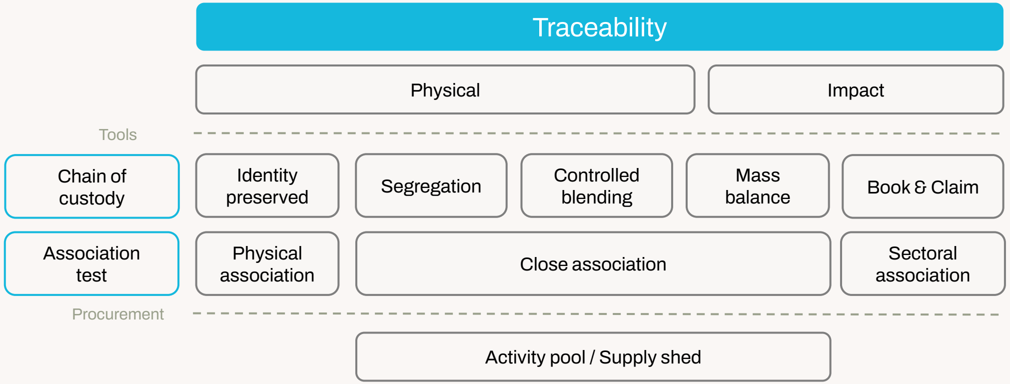
Summary status of available guidance for specific commodities – SAF, sustainable shipping, green cement & concrete, and green steel

Key terminology

Terminology overview

Different organisations use different terms and concepts to describe core concepts related to market instruments and commodity certificates. There are two main families of terms as shown below: “Traceability” and “Mitigation”. In “Mitigation”, the market-making instruments are tools to achieve it, while chain of custody models and association test are tools for ensuring “Traceability” of contractual instruments.





Definitions of mitigation concepts

Mitigation (climate change) – human intervention to reduce greenhouse gas emission or enhance [sinks] GHG removals [IWA 42:2022; ISO 14030-3:2022].

Market instruments – programs which provide indirect incentivise corporate investment in sustainable innovation through market mechanisms.

Contractual instruments – any type of contract between two parties for the sale and purchase of bundled attributes, or for an unbundled attribute claim [ISO/TS 14064-4:2025].

Commodity certificates – MIs that convey sustainability information about the production process of different commodities.

Carbon credits – MIs representing the reduction, avoidance, or enhanced removal of a specified amount of GHG emissions, not necessarily used as an offset.

Environmental attribute certificates (EACs) – MIs representing verified environmental attributes associated with specific commodities, allowing the separation of the attributes from the commodity. Sometimes used to refer to both commodity certificates and carbon credits.

Definitions of traceability concepts

Traceability – property that allows the tracking of the activity of an identity, process, or an element throughout the supply chain [ISO/IEC 27036-3:2023].

Two types of traceability [GHG Protocol]:

- *Physical traceability* – ability to identify, track and collect information on activities related to material flows of goods and services in organisation's value chain, across its upstream and downstream processes and products.
- *Impact traceability* – ability to identify, track and collect information on GHG emission or removal impacts of projects or interventions in the value chain of goods and services purchased or sold by the company, including upstream and downstream processes and products.

Chain of custody – process by which inputs and outputs and associated information are transferred, monitored and controlled as they move through each step in relevant supply chain [ISO 22095:2020].

Chain of custody model – approach taken to control inputs and outputs and associated information in a particular chain of custody system. A Chain of custody model is designed to preserve a set of specified characteristics [ISO 22095:2020]

The chain of custody models use five general approaches and support different type of traceability:

- *Identity preserved* (physical traceability)
- *Segregation* (physical traceability)
- *Controlled blending* (physical traceability)
- *Mass balance* (impact traceability)
- *Book and claim* (impact traceability)

Definitions of traceability concepts (continued)

Association test – a test to verify whether the use market instrument is associated with the value chain of the organisation. It was developed and introduced by the AIM Platform as part of their framework [The AIM Platform].

The value chain interventions can be separated into three association types:

1. *Physical* – interventions targeting own physical emissions
2. *Close* – interventions targeting scope 3 emissions (for known cases)
3. *Sectoral* – interventions targeting emissions from products or services present in scope 3 inventory but not in direct value chain.

NOTE: This is an example of a way how organisations can prove relevance of MIs to their value chain. Similar concepts are currently being discussed in all major standards.

Activity pool / Supply shed – a group of emission sources which may be considered as a reporting entity in situations where granular traceability is not possible [SBTi; The AIM Platform].

Standards, certifications and initiatives

GHG Protocol

The GHGP Scope 2 workstream is updating scope 2 guidance (eg improvements of accounting methods, interactions between Scope 2 and 3 guidance) and is creating new standards related to scope 2 (eg guidance for purchased steam, heat and cooling; transport and distribution losses; technical guidelines for data providers; sector-specific guidance).

The work is divided into two phases with Phase I (ending in Q4 2025), and Phase II (Q4 2025 – Q2 2026) with the final standard delivery by Q4 2027.

The GHGP AMI workstream is (1) *clarifying the structure, purpose and limitations of a corporate GHG report* and (2) *addressing the role of actions and market instruments* to enable claims in the GHG report showing impacts of mitigation actions which are not reflected in the physical inventory. The results of the workstream will be synthesised into relevant GHG standards.

The AMI working group is defining terms and concepts, appropriate roles of "quantified impacts" and various market instruments, providing structure to and guidance on GHG accounting and reporting, and the **typology of market instruments and actions** based on the source of the claim/certificate, type of mitigation measure, accounting approach, and chain of custody model.

GHGP AMI workstream makes a distinction between the *market instruments in the inventory* and *market instruments in the GHG reporting*, depending on location and rules of reporting.

The release of the full draft for AMI Standard/Guidance for public consultation is planned for 2027.

The following two slides present the key outcomes of work from Scope 2 and AMI workstreams.

GHGP Scope 2 workstream outcomes

The GHGP Scope 2 working group has proposed updates to accounting methods, and drafted a "Marginal Emission Impact" metric to incorporate broader grid effects of clean energy procurement and electricity load.

The updates were approved by GHG Protocol Independent Standards Board (ISB) for consultation:

- Location-based method (LBM) – largely supported with some refinements: definition of "accessible" and EF hierarchy
- Market-based method (MBM) – largely supported with some refinements: additional clarification of profiled loads for hourly matching, exemptions, deliverability, standard supply service
- Marginal emission impact metric – largely unsupported unless issues are resolved.

The use of contractual instruments is only permitted within the MBM, with the following updates being relevant:

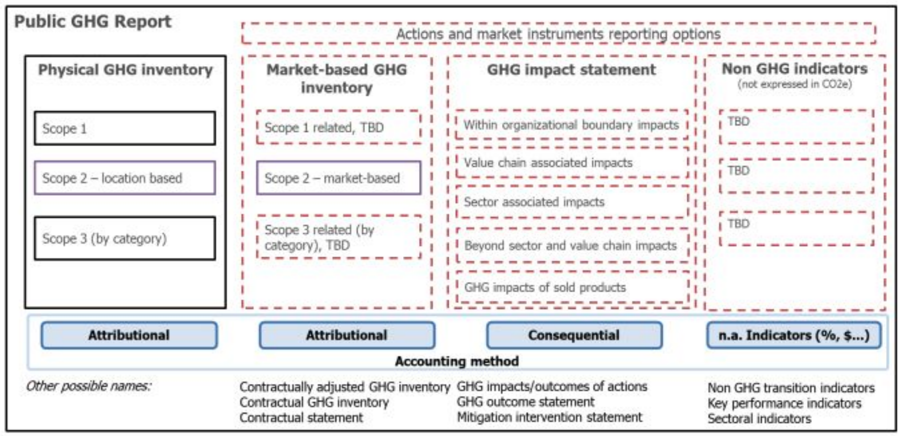
- Definition: The MBM reflects energy consumption matched with generation, using contractual instruments or residual mix, enabling clean energy market development
- Contractual instruments quality criteria:
  - Hourly matching (required above threshold; estimations are allowed)
  - Deliverability (same market boundary or demonstrates deliverability using price- or contract-based methods)

Neither the current version of Scope 2 Guidance, nor the proposed updates allow use of contractual instruments for emission reduction claims in physical GHG inventory.

GHGP AMI workstream outcomes

In March 2026, GHGP published a white paper with the outcomes of AMI workstream for Phase I. The key proposals which were made within the first phase can be summarised as follows:

- **Multi-statement reporting structure**: public GHG report would be separated into four separate statements:
  - *Physical GHG inventory:* contains organisation's emissions without market-based adjustments
  - *Market-based GHG inventory:* contains an account of GHG emissions adjusted with market instruments
  - *GHG impact statement:* contains an account of impacts of actions taken within and outside of the value chain
  - *Non GHG indicators:* contains an account of metrics not expressed in terms of CO_2e.
- **Terms and definitions:** the white paper outlines key terms and definitions for
  - Actions and market instruments
  - Attributional and consequential accounting
  - GHG report elements
  - GHG impact-related terms
  - GHG credit- and certificate-related terms
  - Traceability-related terms
- **Accounting & reporting principles:** the paper outlines how the existing principles from different GHGP standards and guidance apply to actions and market instruments.



SBTi Corporate Net Zero Standard Draft v2.0

The current SBTi Corporate Standard does not include any guidance or rules on commodity certificates or other MIs. SBTi advocates for prioritising direct mitigation over MIs.

Following their call for evidence effectiveness of MIs within corporate climate targets (2023), SBTi published five reports: on carbon credits (July 2024), on energy carriers and commodity certificates, EACs for fuels, electricity, and commodities (March 2025). The evidence was used to inform the updates done to the Corporate Net-Zero Standard in March and November 2025.

SBTi categorises MIs as (1) *carbon credits* and (2) *energy and commodity certificates* issued on *electricity, fuel,* or *commodities*. The certificates can not be used for mitigation purposes since they convey the environmental performance of a commodity.

Carbon credits certify the mitigation outcomes of projects that reduce, avoid or remove carbon emissions.

MIs can be used for setting targets and demonstrating progress against them for both Scope 2 and 3 granted there is proof of association with the supply shed of the organisation.

For MIs in Scope 2 the same set of eligibility criteria as in GHG Protocol Corporate Standard (current and future) is applied. Additionally, reporting on volumes of purchased low-carbon electricity and that matched using certificates has to be done separately. Until 2030 matching of certified electricity can be done on annual basis, from 2030 organisations should apply hourly matching method.

SBTi Corporate Net Zero Standard Draft v2.0

Within Scope 3 MIs can be used for the following purposes:

- Demonstrate progress towards targets
- Support the scale-up of low-carbon technologies.

In both cases, organisations have to ensure that MIs are aligned with the integrity principles for commodity certificates (explained by SBTi in Annex E of the latest CNZS Draft v 2.0). Additionally, organisations have to:

- Source MIs from relevant activity pools which correspond to organisational sourcing pools and match geographically
- Match the volumes of MIs with cumulative volumes of commodities over the target period
  - MIs can cover the remaining volumes after direct action
- Retire certificates within the 24-month period from the production of relevant commodity
- Report on MIs impacts separately from the main GHG inventory
- Provide justification for using MIs by demonstrating unavailability of direct intervention options

SBTi stresses that MIs are a temporary measure, and organisational portfolios have to be designed to reduce reliance on certificates over time in favour of direct actions. Organisations should also always prioritise direct action without relying on MIs.

The AIM Platform

The Advanced and Indirect Mitigation (AIM) Platform was jointly launched by Center for Climate and Energy Solutions (C2ES), Center for Green Market Activation (GMA), and Gold Standard.

The platform ***aims*** to guide companies on how to invest in their value chain and claim resulting mitigation of Scope 3 emissions. To achieve this, the platform develops a suit of tools and guidances to make proper claims about value chain interventions:

- Guiding Principles (launched) guide and regulate the standard and guidance development
- Association Test (pilot) determines the connection between intervention and value chain
- Intervention Quality, Accounting and Reporting Criteria (consultation) sets requirements on value chain interventions, traceability, accounting and reporting.

The tools can be used to address two key challenges: Scope 3 decarbonisation and investments into wider system transformation.

Association test could contribute to the established accounting standards for verification of intervention location as “association” is linked to “traceability” (GHG Protocol) and “direct/indirect mitigation” (SBTi).

TCAT

The Task Force for Corporate Action Transparency (TCAT) is a group of GHG accounting experts, practitioners, and nonprofit organizations working to build a comprehensive set of GHG accounting guidance to enable companies to take high-integrity climate action.

TCAT has produced two guidance documents:

- Mitigation action accounting and reporting guidance (MAARG)(2025) – measuring and reporting on impacts of climate actions (incl. categorisation in the inventory)
- Target accounting and reporting guidance (TARG) (2025) – reporting progress towards and attainment of climate targets.

The MAARG includes provisions for accounting for and reporting on the impacts of mitigation actions including the use of contractual instruments.

Under the guidance, mitigation actions and their outcomes need to pass four tests – mitigation action test, sector association test, inventory alignment test, and physical delivery test – to determine whether and where the outcomes can be reported.

The framework proposes five statements for outcomes reporting – (1) *physical inventory statement*, (2) *contractual inventory statement*, (3) *inventory impact mitigation statement*, (4) *sector impact mitigation statement*, and (5) *global impact mitigation statement*. Contractual instruments and EACs can be reported within any of the statements granted they pass the respective tests and satisfy statement-specific criteria.

Contractual instruments and EACs can be classified as either an *Emission Profile* or *Emission reduction/removal unit* based on the information they are conveying. The guidance sets out requirements for information disclosure about EACs regardless of their classification.

I-TRACK

The **I-TRACK** foundation is a non-profit organisation which provides a framework of standards for developing attribute tracking systems. The main focus is on the energy sector, where I-TRACK is one of the founders of the I-REC system, however the standards cover commodities beyond energy.

Currently, I-TRACK owns the following standards and codes:

- International Attribute Tracking Standard
- Product Codes
    - Biogas and Biomethane
    - Hydrogen
    - Carbon dioxide removal
    - Electricity (I-REC)

The Standard acts as the main framework governing all processes and work done by I-TRACK. The product codes are the “implementation documents” which describe how the standard is applied to specific commodities/products. The foundation emphasises that the Standard is designed “to facilitate the standardised creation of markets, not the standardised use of markets”. As such, the norms and rules described by individual product codes will vary across the commodities.

In addition to the product code for electricity (I-REC), the foundation co-owns with Evident the I-REC registry system for I-REC certificate attribute tracking.

The GMA Center

The Center for Green Market Activation (GMA) a US-based nonprofit organisation launched in 2024 for the purpose of advancing the book-and-claim systems and establishing buyers alliances to support the decarbonisation of hard-to-abate sectors. GMA is running programs targeting aviation, maritime shipping, cement and concrete, heavy-duty trucking, and chemical industries.

The GMA Center established several buyer alliance groups – SABA (aviation), ZEMBA (maritime), SCoBA (concrete and cement), GMA Trucking (freight transportation), and GMA Chemicals (chemical substances) – in partnership with several organisations (RMI, EDF, Aspen Institute, and Smart Freight Centre). Through these programs GMA consolidates work on buyers alliances and procurement of relevant MIs for each of the sectors creating standardised book and claim systems and create common rules for reporting and accounting for commodity certificates.

Each program has their individual outcomes:

- SCoBA: published draft book and claim framework for low-carbon cement and concrete products; RFI to clinker, cement and concrete producers launched to inform the RFP for low-carbon cement and concrete purchase
- GMA Trucking: in December of 2024 launched an RFI for zero-emission trucking service attributes
- GMA Chemicals: core group is formed; discussions on frameworks underway
- ZEMBA: core group is formed, first RFQ has been fulfilled.

SABA will be discussed in a separate section.

SABA

Sustainable Aviation Buyers Alliance (SABA) is an organisation created by the EDF and RMI with support from GMA for the purpose of driving investment in and adoption of SAF and supporting businesses with their climate goals.

To achieve this goal, SABA has three main directions for their work – developing high-integrity sustainability framework, accelerating and aggregating investment in SAF, and building transparent and credible tracking systems.

The outcome of the first one is Sustainability Framework for SAF setting the principles to determine whether a particular type of SAF contributes to the production and use of fuel with high environmental integrity. The framework sets minimum *emission reduction threshold*, prescribes the use of *well-to-wake LCA approach*, defines acceptable *certification schemes* for SAF, ensures *emission reduction impact*, *prevents double counting*, and links all valid reduction claims to a *registry*.

The procurement of SAF is performed through two streams: SAFc Connect Database and SAF Request for Proposal (RFP). The Connect Database is made for spot purchases and is open to compliant SAF suppliers and purchasers. The SAF RFP procurement stream is designed for stimulating investment into novel SAF technologies through pre-commercial long-term contracts (5-10 years).

The main tool for tracking systems in SABA is the SAFc registry launched in collaboration with RMI and EDF. SABA allows the use of other registries as well unless they comply with the sustainability criteria. The Connect Database also serves the purpose of increasing the transparency by collecting certificate metadata.

The Value Change Initiative

The Value Change Initiative (VCI) is a peer-to-peer learning forum which develops solutions to implement and achieve value chain emission reductions and removals. The initiative has more than 500 members and was founded by Gold Standard and SustainCERT to reinforce the ability or corporates to achieve their science based targets. SBTi, WWF, CDP and WRI are among the leading global partners of VCI.

The overall work of VCI is focused on providing practical accounting and reporting guidance for value chain interventions. The work is divided into thematic workstreams which focus on specific areas – value chain intervention guidance (both sector-agnostic and sector-specific), market-based instruments programme (just launched), verification & implementation guidance (focusing on certification schemes and assurance for value chain interventions), and sector-specific working groups (food & agriculture, apparel & footwear sectors).

When it comes down to the work on market-based instruments, VCI has launched a two year workstream in 2025 to design operational rules including allocation methods, measurement rules, and specific guidance on registries and retirements. VCI has also published several document focusing on accounting and reporting for value chain interventions – Accounting & Reporting emissions from Certified Commodities, Value Chain Intervention Guidance as well as several sector-specific addendums, which clarify rules for accounting & reporting of scope 3 interventions in apparel & footwear sector and food & agriculture sector. There is some guidance which focuses on the topics of traceability and tracking systems for interventions on general level.

The roundtable on sustainable biomaterial (RSB)

The roundtable on sustainable biomaterials (RSB) is a non-profit organisation founded in 2013. It creates and manages sustainability standards, certification systems, and guidance for biomaterials, including biomass, fuels, products and recycled feedstocks. RSB is divided into 5 chapters covering organisations from producers to governments, policy actors and NGOs. Members interact with each other through platforms focusing on several areas: fuels (aviation and marine), book-and-claim systems, impact claims, Power-to-X (PtX), and sustainable chemicals & materials.

RSB's work is based on the 12 Principles & Criteria which are complimented by a set of standards, procedure and guidance documents contributing to the RSB sustainability framework. The most significant programme is the *Book & Claim Programme* established for the purpose of improving traceability for sustainable aviation fuel (SAF) certificates.

The programme manages the *RSB Book & Claim System* which includes the Manual (launched), Registry (launched), and Recognition Procedure (under development). RSB has conducted several pilot projects in the aviation industry and is currently working to expand the B&C System's scope to the shipping sector.

Another large part of RSB's work is the Certification which is designed for the purpose of accreditation of commodities against RSB sustainability framework. The certification schemes offered by RSB covers the fuel production (RSB Global Fuels, RSB EU RED, UK RTFO, and CORSIA), products (RSB Global Advanced Products), biomass (RSB Japan FIT, Non-GMO Cultivation, and Low ILUC Risk Module), and Book & Claim Traders.

Verra's Scope 3 Standard

Verra is the global standard-setting organisation founded in 2007. It manages a set of standards and certifications to promote climate action, sustainable development and environmental projects. Their work is divided into programs each managing a specific standard. The core of Verra's work is the *Verified Carbon Standard* (VCS) and *Registry* attached to all standards.

The Scope 3 Standard is part of the *Scope 3 Program* (launched in 2022) and is built on top of the VCS to enable organisations to account for and report value chain interventions. The deliverables include a Scope 3 Standard, GHG quantification methodologies, an auditing and certification system, and a registry. The first version (V1.0) focuses on "intervention proponents" and tools for GHG quantification methodologies, issue of "intervention units" representing benefits, and tools to ensure robust traceability. The second version (V2.0) will address reporting companies and value chain association between the reporting company and intervention.

Scope 3 Standard is in the pilot phase as of 2024. A publicly usable version (V0.9) is expected to be launched in late 2025 with V1.0 and V2.0 launching during 2026. The latest version (V0.1) was launched in March 2025 and includes S3C Standard with overarching rules and requirements, definitions for key terms, guidance for adapting of VCS methodology, and the integration guidance with technical rules for emissions' reporting. A similar package is expected for the public consultation of V0.9 during its launch.

Regulatory landscape summary

Major standards are under revision

The major standards and guidance on the use of market-making instruments is currently being reviewed and updated. There is a sense of uncertainty within the working groups (specifically within SBTi), and the discussion process is not expected to be concluded until few years in the future.

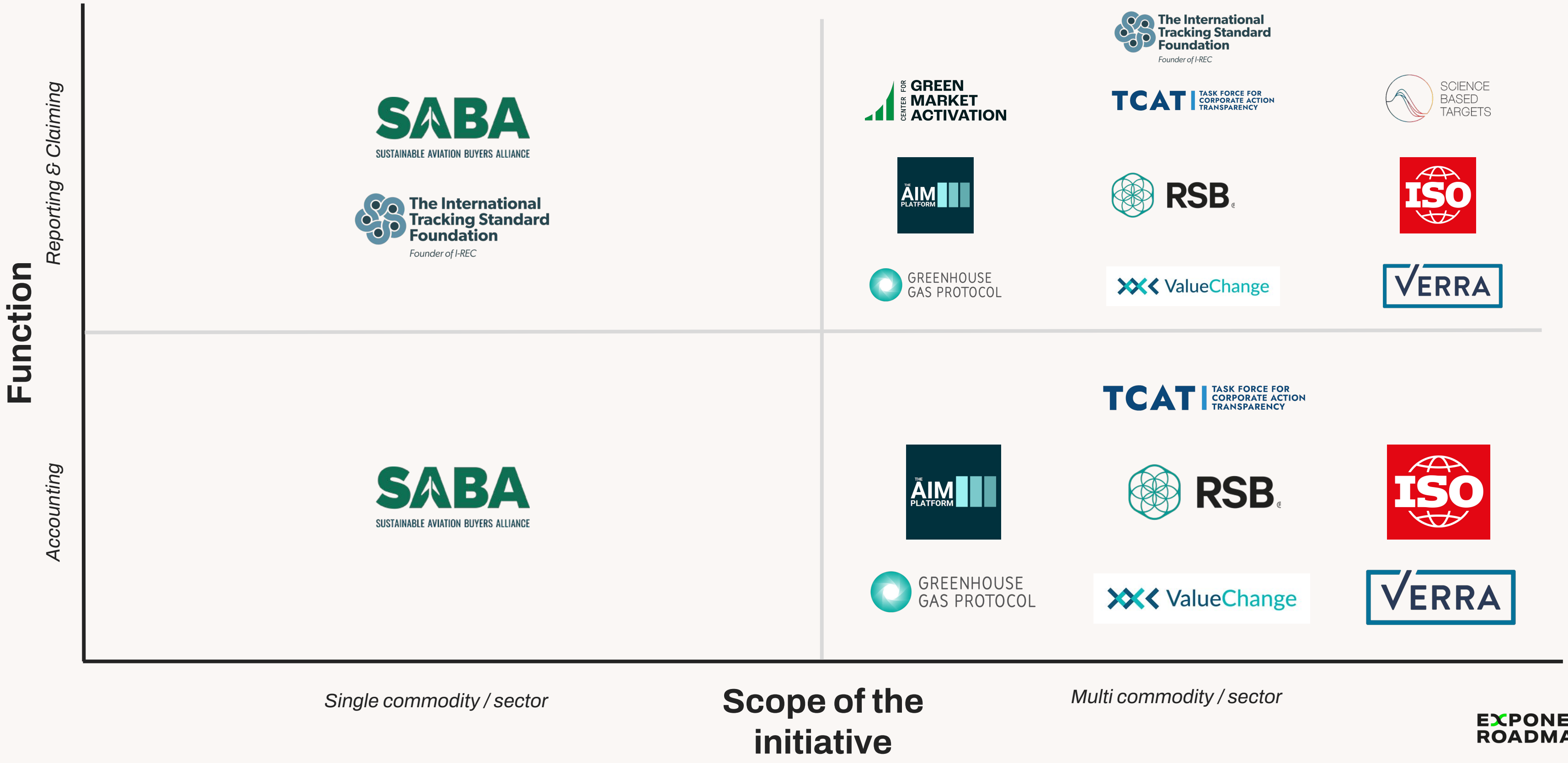
There is significant progress from the independent international standards

The AIM Platform and TCAT are independently preparing a comprehensive guidance designed to streamline the accounting and reporting processes for commodity certificates. Within sector-specific space SABA and Value Change Initiative are creating guidance for aviation, and food & agriculture and textile industries respectively.

Certain organisations, like RSB, I-TRACK and ISO:22095-3, have taken significant steps in the direction of improving traceability and certification schemes for specific commodities and sectors.

There are also organisations which are taking the leading role to enable change in the industry like the GMA Center, or organisations which are only now starting to develop relevant standards, like Verra and their Scope 3 Standard development program.

Regulatory landscape



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Emission intensity as a certificate attribute

There are different requirements for the inclusion of emission intensity across different commodities. They vary based on sector and the regulatory maturity. Below is a summary for the three biggest groups.

1. **Energy certificates**

Within the EU system and globally, renewable energy certificates contents are regulated by local legislations and *do not include emission intensity values*. Within EU it is mandated by the EU RED II/III frameworks.

2. **SAF certificates**

Within global legislation and voluntary standards, SAF certificates are *required to contain the emission intensity* of the particular SAF batch as well as % comparison to the industry benchmark. This is done for compliance purposes in order to demonstrate alignment with regulations and established minimum thresholds for eligibility.

3. **Others**

For the remaining commodities, the regulation is underdeveloped. The general approach that the issuing organisations adopt is to follow the SAF framework – include the emission intensity values as well as current market comparison. For each commodity, the industry average is defined on case-by-case basis or, if applicable, within EU CBAM and ETS systems.

Other attributes commonly included in certificates

In addition to emission intensity, commodity certificates contain other attributes. Below is a list of commonly included attributes, irrespective of the commodity type:

- Issuing organisation
- Production location of a commodity
- Production timeframe of the commodity (start date - end date)
- Feedstock (if material commodity or fuel)
- Energy type (if energy)
- Chain-of-custody model
- Registry
- Retirement and expiry date

The exact combination of attributes depends on the certificate type as well as regulation that the specific commodity is subject to.

Commodity-specific guidance

SAF, sustainable shipping services, green concrete & cement, green steel

Sustainable Aviation Fuel (SAF) landscape

SAF

Feedstock certification

- ISCC — International Sustainability & Carbon Certification
- RSB
- ASTM International — Standards Worldwide

Eligibility

- ICAO CORSIA - CERT
- SABA — Sustainable Aviation Buyers Alliance
- European Commission EU RED

Registry system

- SAF Registry
- RSB
- ISCC — International Sustainability & Carbon Certification

Buyer alliance

- SABA — Sustainable Aviation Buyers Alliance
- IATA
- Clean Skies for Tomorrow

Legislation and international standards

ReFuel EU Aviation sets

→ Blending quotas for producers until 2025
→ Reporting requirements for producers and users
→ Claiming rules under ETS and CORSIA frameworks
→ Penalties for non-compliance
→ Financing stimulation through ETS allowances.

EU RED

→ Defines eligible SAF types
→ Sets minimum life cycle emission reduction threshold of at least 65% compared to fossil fuels for bio-based SAF, and 70% for non-bio-based fuels
→ Sets minimum sustainability criteria for SAF.

CORSIA

→ Voluntary until 2027; mandatory for all states from then
→ Sets accounting and reporting standards for SAF
→ Defines eligible SAF types and certifications
→ Lower ambition level than EU RED.

Sustainable Aviation Fuel (SAF)

How sustainable is SAF?

The emission reductions offered by SAF are on average 60-70% per tonne compared to conventional fuels. Depending on the production pathway, it can be incorporated into circular flows and lead to waste reduction. On the other hand, one of the biggest caveats are the supply constraints and potential to divert supply to SAF instead of other systems.

What is the scale today and in the future?

In 2024, the production volumes of SAF were 1 million tonnes or 1.3 billion liters, which is 0.3% of global aviation fuel demand. This is below the projected pathways of SAF integration (eg ReFuel EU projected demand is 1.2 million tonnes per year only for EU from 2025). In 2025 the volumes are expected to reach 2 million tonnes or 0.7% of the total aviation fuel demand.

What is the current price and premium?

Current price: around 2,400-2,700 USD/t. In 2025 is expected to be at 3,500 USD/t. The exact price depends on the SAF production pathway.

Price premium: around 2,200 USD/t .

Abatement cost: ranges between 136-3680 USD/tCO_2e.

What are the potential links to GHG sources?

Scope 1: Airline companies reduce own emissions by using SAF.

Scope 3: Companies can use SAF to influence Scope 3 emissions from travel.

Sustainable shipping landscape

Sustainable shipping

Feedstock certification

RSB**

ISCC** International Sustainability & Carbon Certification

** Focus on fuel system

Eligibility

IMO International Maritime Organization

Sea Cargo Charter

Poseidon Principles

European Commission** FuelEU Maritime

** Focus on fuel system

Registry system

Katalist

H2C

*

Global Maritime Forum*

Smart Freight Centre*

RSB**

ISCC** International Sustainability & Carbon Certification

* Provides only book-and-claim framework
** Focus on fuel system

Buyer alliance

ZEMBA™

Legislation and international standards

FuelEU Maritime

→ sets limits on annual GHG intensity of maritime energy use
→ sets requirements on emissions of docked vessels by requiring connectivity to onshore power supply
→ supports innovation of technologies by having flexible technology-agnostic policy.

EU MRV Maritime & EU ETS

→ prescribes maritime shipping to be integrated into EU ETS system by 2026.
→ provide economic incentive for decarbonisation of the sector
→ sets MRV requirements for maritime shipping

International Maritime Organisation

→ sets decarbonisation pathways, sustainability targets, and frameworks
→ sets carbon performance indicators for shipping
→ sets maritime accounting frameworks.

Sustainable shipping

How sustainable is this solution?

The potential of sustainable shipping services to decarbonise the maritime industry is high but it depends on the type of intervention which is being claimed, legislative support, and traceability and verification systems in place. The industry is currently still nascent to make a definitive conclusion, and the book-and-claim frameworks have to be further developed and implemented.

What is the scale today and in the future?

As of September 2025, 5.6% of all ships in the world were operating on alternative fuels. In 2024, the number of “green shipping corridors” – routes where the possibility of zero-emission shipping is supported by private and public sector – has increased to 62. However, according to BCG, the market for green shipping is stagnating with less ship-owners willing to pay the premiums for “green” solutions. Another report suggests the market will grow by 6 times between 2024 and 2032.

What is the current price and premium?

Current price: around 350-400 USD/TEU

Price premium: around 250 USD/TEU

Abatement cost: around 150-200 USD/t CO_2e

What are the potential links to GHG sources?

Scope 1: Reduction of own emissions for fleet operators.

Scope 3: Reduction of Scope 3 emissions from T&D for organisations.

Green concrete & cement landscape

Green concrete & cement

Feedstock certification

gcca

Concrete Sustainability Council

ASTM International Standards Worldwide

Eligibility

gcca

Concrete Sustainability Council

Registry system

gcca *

Center for Green Market Activation

RMI Energy. Transformed. **

* Provides a EPD tool
** Provides only book-and-claim framework

Buyer alliance

SCOBA Sustainable Concrete Buyers Alliance

Legislation and international standards

EU ETS

→ allowances on emissions from production
→ indirect stimulation of the industry decarbonisation

EU Industrial Emissions Directive (IED)

→ requirements on emissions from kilns
→ best available technique standards influencing energy use and production

IEA Cement NZ Roadmap

→ roadmap and projections for cement industry in line with net zero
→ policy support

Green concrete & cement

How sustainable is this solution?

The transformation of concrete and cement industry towards alternative sources for clinker and energy as well as efficiency improvement have good potential for sustainability improvements. Additionally, cement and concrete have a high potential for synergies with other methods, like removals, to contribute to climate change mitigation. On the other hand, there are certain concerns regarding resource availability and their diversion from other solutions.

What is the scale today and in the future?

The overall adoption of “green cement” (meaning cement produced using alternative clinker materials, alternative energy and/or improved efficiency) has been relatively low, and influenced by overall trends (changes in energy systems and production processes) rather than targeted action on cement production (alternative clinker use has been declining in recent years). It is, however, expected that the trends will reverse and the adoption of green cement will pick up in the near future.

What is the current price and premium?

Current price: around 65-130 USD/t

Price premium: around 30-50 USD/t

Abatement cost: 30-60 USD/t CO_2e

What are the potential links to GHG sources?

Scope 1: efficiency improvements reduce production emissions

Scope 2: decarbonisation of energy supply used for production

Scope 3: lower emissions from building materials

Green steel landscape

Green steel

Feedstock certification

Responsible Steel standards & certification

LESS LOW EMISSION STEEL STANDARD

Eligibility

Responsible Steel standards & certification

LESS LOW EMISSION STEEL STANDARD

Registry system

worldsteel ASSOCIATION *

RMI ENERGY. TRANSFORMED. *

* Provides only guidance on chain-of-custody models

Buyer alliance

CLIMATE GROUP STEELZERO

SUSTAINABLE STEEL BUYERS PLATFORM

First Movers Coalition

Legislation and international standards

EU ETS

→ indirect incentivisation of investment in green infrastructure through emission allowances

EU IED & BAT

→ set environmental baseline for plant operations
→ sets requirements on claims substantiation beyond CO_2
→ indirect influence on decarbonisation through requirements on energy efficiency and adoption of cleaner processes

Green steel

How sustainable is this solution?

Green steel has a large potential to contribute to the decarbonisation of the sector and become a relatively long-term solution with a high level of synergy with other solutions and levers of decarbonisation. However, in order to achieve this, strong policy support with robust safeguards is needed.

What is the scale today and in the future?

The scale is relatively small – it is estimated that below 100,000 tonnes of green steel were produced in 2023. In 2025, the green steel market was valued at 882.12 million USD with projections to increase to 1,300 million USD by 2034. In contrast, the "regular" steel market is valued at 1.7 trillion USD in 2025.

What is the current price and premium?

Current price: 800-1000 USD/t

Price premium: 100-300 USD/t

Abatement cost: 100-300 USD/t CO_2e

What are the potential links to GHG sources?

Scope 1: Reducing emission by improving process efficiency

Scope 2: Electrification of energy supply during production

Scope 3: Reductions from purchased goods for organisations using steel in production and manufacturing

Commodity summary

Commodity	Sustainability	Infrastructure maturity	Integration in standards	Market-readiness	Cost*
SAF	Medium	High	High	High	136-3,680 USD/tCO_2e Price premium: 2-6 times
Sustainable shipping	Medium	Medium	Medium	Medium	150-200 USD/t CO_2e Price premium: 150-200 USD/TEU
Green cement & concrete	Medium-High	Medium-Low	Medium-Low	Low	30-60 USD/t CO_2e Price premium: 30-50 USD/t
Green Steel	Medium-High	Low	Low	Low	100-300 USD/t CO_2e Price premium: 100-300 USD/t

* Estimated based on cost of the physical commodity, not the certificate