

Audit Guidance for Reporting Direct Emissions of Purchased Clean Fuels

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CEAP | CLEAN ENERGY ACCOUNTING PROJECT

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CRS's **Clean Energy Accounting Project (CEAP)** develops consensus-based, stakeholder-reviewed clean energy and greenhouse gas (GHG) emissions accounting guidance addressing outstanding gaps in voluntary and regulatory markets. Launched in 2020, CEAP resolves areas of uncertainty in the measurement, tracking, and reporting of clean energy and GHG emissions.

CEAP's **Clean Fuels Series** is designed to accelerate the development of accounting frameworks, attribution methodologies, and credible claims guidance for clean fuels across voluntary and compliance-aligned markets. The Clean Fuels Series is an 18-month program designed to close key guidance and collaboration gaps in clean fuels tracking, procurement, and GHG emissions accounting. This initiative brings together a founding cohort of market leaders to build the tools, frameworks, and thought leadership the clean fuels industry urgently needs.



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Executive Summary

This guidance provides criteria for evaluating whether contractual instruments may support market-based reporting of direct emissions from purchased clean fuels. It applies to purchased fuels and to contractual instruments that convey the specified attributes necessary to characterize direct emissions associated with fuels delivered through shared distribution systems, including circumstances in which physical tracing is impossible or impracticable.

When fuels are delivered using shared infrastructure that mixes fuels from different sources, contractual instruments may provide the basis for attributing specified fuel characteristics to the reporting entity. To support market-based reporting, an instrument must convey the exclusive right to claim the relevant attributes, be matched to the relevant fuel-consuming activity, and be permanently retired or canceled by (or on behalf of) the reporting entity. Claims and calculations must remain limited to the rights conveyed and should not imply physical delivery, avoided emissions, lifecycle performance, or broader system effects, unless separately substantiated.

The nine quality criteria in this guidance address conveyance, aggregation, market boundaries, vintage, equivalency, attribute allocation, input instrument retirement, default attributes, and tracking and retirement. Each criterion contains an operative rule, criteria for evaluation, illustrative evidence, and consequences of nonconformance.

Where an instrument or supporting evidence does not conform, the affected fuel quantity is treated as unmatched. If the relevant attributes remained bundled with physically traceable fuel, the market-based inventory may reflect those attributes. If the attributes are separately conveyed, or their continued attachment cannot be demonstrated, the quantity is assigned the applicable adjusted residual mix—or, where none is available, the prescribed default attributes.

While this document provides guidance for auditing conformance with *Market-Based Accounting for Clean Fuels* and suitable criteria, it does not establish an assurance standard, prescribe an assurance level, determine materiality, or mandate particular sampling procedures.

1. Purpose and Application

This guidance is intended to provide a consistent basis for evaluating whether contractual instruments and the resulting market-based direct-emissions calculations are precise, transparent, auditable, and protected against double counting or conflicting assertions of ownership.

It applies to reporting entities that purchase or use clean fuels, auditors and assurance providers evaluating market-based direct-emissions reporting, program administrators and registry operators supporting contractual instruments, and stakeholders interpreting related disclosures.

It is intended for greenhouse gas inventory reporting, related disclosures, and assurance of market-based direct emissions. It is not intended for consequential emissions assessment, lifecycle emissions analysis, avoided-emissions quantification, or fuel certification outside the reporting context addressed by the Direct Emissions Reporting Framework for Purchased Clean Fuels.

2. Subject Matter Evaluated

Market-based direct emissions reflect the direct-emissions attributes of fuel that the reporting entity has purchased, or that has been purchased on its behalf, through contractual instruments. The subject matter evaluated under this guidance includes the contractual instrument and the specified attributes it purports to convey, the represented quantity of fuel, the relationship of the contractual instrument to the relevant fuel-consuming activity, the chain of custody ending in retirement, and application of the conveyed attributes in the reported inventory.

Market-based direct emissions and physical direct emissions are complementary views of the same underlying fuel use. They should remain linked by the same fuel-use data. Any difference should be traceable to the attributes conveyed through qualifying retired instruments, matched fuel quantities, applicable conversion or loss factors, and the treatment of unmatched or null-fuel quantities.

This guidance concerns attribution of direct emissions from fuel use. It does not determine lifecycle emissions, intervention outcomes, avoided emissions, or broader system-wide climate impacts. Where the same transaction supports another type of claim, the reporting entity should disclose the relationship between the claims and demonstrate that the same conveyed attribute is not used to support inconsistent or duplicative claims.

3. Suitability of the Criteria for Assurance

The International Auditing and Assurance Standards Board (IAASB) adopted the International Standard on Assurance Engagements (ISAE) 3000 (Revised) as the international standard for assurance engagements other than audits or reviews of historical financial information.

Market-based direct emissions reporting for purchased clean fuels is a form of non-financial reporting that may be subject to external assurance. In that setting, the credibility of reported information depends not only on the quality of the underlying evidence, but also on whether the subject matter is evaluated against criteria that are suitable for assurance. ISAE 3000 commonly frames suitability by reference to five characteristics: relevance, completeness, reliability, neutrality, and understandability.

This framework is intended to provide such criteria for evaluating whether contractual instruments may support credible use claims and market-based direct emissions calculations for purchased clean fuels.

Relevance

The framework is tightly drawn around a specific reporting problem: how to determine whether contractual instruments may be used to support credible use claims and more accurate attribution of direct emissions from purchased clean fuels. It speaks directly to the attribution of emissions to the reporting entity, establishes the role of contractual instruments within that system, and sets the conditions under which those instruments may affect market-based direct emissions reporting.

Completeness

The framework achieves coherence by following the evidence supporting a claim from conveyance of production attributes through tracking and retirement and prevents duplication through input instrument retirement. Taken together, the elements of the core reporting framework form a complete set of conditions for evaluating whether a market-based direct emissions claim is supportable.

Reliability

Each criterion of the framework is organized around the same internal structure, which gives assurance providers a repeatable basis for evaluation. Substantively, the framework relies on controls that can produce consistent outcomes across similar facts, requiring documentary support capable of independent review throughout.

Neutrality

The framework does not assume that a clean-fuel claim should prevail. Where the evidentiary conditions are satisfied, the framework permits a market-based claim. Where they are not, it directs the claimant back to more conservative outcomes. In this respect, the framework guides the development of instruments that support credible claims but does not dictate the conclusion.

Understandability

The framework is designed to be navigable. Each criterion follows the same structure and creates a clear path for application of the standard: what the rule requires, how it should be understood, what an auditor should test, what evidence may suffice, and what follows from nonconformance.

Viewed against the characteristics identified in ISAE 3000, this framework provides suitable criteria for evaluating market-based direct emissions reporting and associated use claims for purchased clean fuels.

4. Differentiated Responsibilities for Data Disclosure

The quality criteria for contractual instruments under this framework require that upstream fuel producers and suppliers of inputs to the process that produced the claimed fuel convey specific information that the claimant needs to accurately characterize the attributes associated with the consumed fuel and calculate its combustion emissions.

Generally, all data relevant to accurately characterizing the attributes of the purchased fuel, particularly data needed to accurately calculate its combustion emissions, are required to be conveyed by the contractual instrument conveying the attributes. In practice, this means that responsibility for ascertaining the relevant data falls to the entity most likely to possess the information, while responsibility for transmitting that information to other actors within the fuel's value chain falls to the instrument tracking systems that account for transactions of the fuel's attributes. In the lifecycle of the fuel, therefore, the relevant data required to accurately characterize its combustion emissions accumulate through the production process and are delivered to holders of the instrument each time it is transacted. The accumulated information ultimately is conveyed to the final purchaser of the instrument, whose exclusive right to claim the attributes conveyed by the instrument also creates a responsibility for others in the chain of custody of the fuel to convey with the instrument any information necessary for the final purchaser to make that claim.

Fuel producers, therefore, have the responsibility of obtaining and conveying with the instrument all information regarding the origins and composition of any inputs to the fuel production process that are relevant to characterizing the combustion emissions of the produced fuel. To preserve the exclusivity of the claim, they also have the responsibility of characterizing fuel whose attributes have been separately conveyed as "null" fuel and conveying an emissions factor for the fuel that is derived from an accurate calculation of the residual mix of fuel remaining in the shared distribution system after all voluntary purchases of specified fuel have been subtracted.

The instrument tracking system has the responsibility of storing this information securely and conveying it accurately to each successive holder of contractual instruments conveying attributes of claimed and unclaimed fuels and retiring the instruments upon consumption of the fuel by end users.

Verifiers have the responsibility for substantiating the accuracy of the conveyed information, while auditors and assurance providers are required to confirm that the proper protocols were followed when conveying any information characterizing the fuel's attributes.

Purchasers of contractual instruments staking claims to the combustion emissions of the claimed fuel also have responsibilities—to use the information conveyed to accurately characterize the combustion emissions of the fuel upon consumption, to securely maintain the data used to make the characterization, and to preserve exclusivity of the claim by avoiding double counting or other threats to exclusivity.

Table 1: Differentiated Data Disclosure by Responsible Parties

Responsible Party	Primary Responsibilities
Fuel producer	Fuel identity, represented quantity, relevant production inputs, direct-emissions attributes, conversion losses, output allocation, null fuel designation
Registry, recognized sustainability program, or instrument issuer	Unique issuance, ownership transfers, linked instruments, upstream cancellations, market eligibility, aggregate issuance limits, retirement record
Residual mix administrator or system operator	Residual mix calculation and publication
Reporting entity	Fuel-use data, procurement records, fuel-matching processes, end-use factors, emissions calculation, inventory reconciliation
Assurance provider	Evaluation that evidence matches audit criteria, assurance that criteria are suitable for measuring the desired outcome



5. General Evidence Guidance

Documentation should be precise, accurate, transparent, and capable of independent evaluation. Evidence should relate to the applicable instrument, fuel, quantity, activity, location, reporting period, or specified attributes. Listed evidence is illustrative rather than exhaustive, and possession of a listed document does not by itself establish conformance.

5.1 Data Hierarchy

This framework provides a hierarchy of data spanning all calculation variables including fuel quantity, energy content, biogenic carbon content, emissions factors, and other material inputs.

A data source qualifies for reporting only if it

- represents the relevant fuel, conversion process, or end use;
- corresponds to the direct-emissions boundary used under this framework;
- distinguishes fossil carbon dioxide, biogenic carbon dioxide, methane, nitrous oxide, or other reported gases as applicable;
- uses—or can be converted to—the required units, heating value, or global warming potential;
- is sufficiently current and geographically applicable;
- is sourced from an authoritative publication, calculation methodology, or official record;
- and represents attributes of the fuel that were conveyed to the reporting entity or the applicable residual mix of fuel within the relevant shared distribution system.

For purposes of market-based direct emissions reporting, reporters should apply the highest-ranked data from the following hierarchy that are reasonably available, or when lower-ranked data would materially affect the reported emissions inventory or undermine a supported claim;[1]

1. **Source-, facility-, batch-, supplier-, product-, or instrument-specific data** calculated using a recognized methodology are given priority. This framework requires that these priority data be conveyed with the contractual instrument used to transact specified attributes of clean fuel and recognizes differentiated responsibilities of various stakeholders to disclose the information to effectuate the emissions claim of the instrument holder. These primary data reflect the specific source and activity represented by the instrument.

2. **Where source-, facility-, batch-, supplier-, product-, or instrument-specific data are unavailable, reporters shall apply fuel- or use-specific defaults** published by the applicable jurisdictional authority, regulatory body, or recognized market program. These data reflect fuel specifications, technologies, and regulatory conventions more precisely than regional or national averages but describe a class of fuel or sources rather than the specific fuel or activity reported.

3. **Regional or national defaults published by a competent government or technical authority** may be used if fuel- or use-specific defaults are not available. These data reflect generalized fuel characteristics and operating conditions, but aggregate wider and more heterogeneous

1 Where data or calculation methods are required under an applicable regulatory or compliance program, reporters shall apply the relevant data for compliance purposes and may apply the same compliance-based data to voluntary transactions if they are consistent with this data hierarchy.

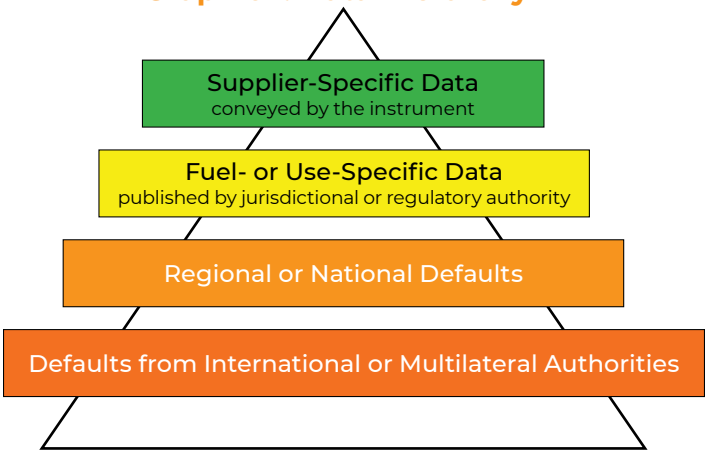
fuel sources and may include attributes that are owned by other purchasers, who have the exclusive right to claim them.

4. **Default data published by international or multilateral institutions** or other recognized international technical authorities if none of the above sources are available. These data provide a transparent and methodologically credible fallback when more representative data are unavailable, but their broad applicability reduces their precision.

When reasonably available, reporters shall apply the highest-ranked data tier. Where lower-ranked data are applied, the reporter should explain why the priority data tier was not used. The unavailability of one input from a higher-ranked data tier does not require the entire calculation to rely on lower-ranked data.

Reasonably available data are obtainable through the reporting entity's ordinary compliance records, operational systems, suppliers, contractual counterparties, or recognized data sources, without commissioning new measurements or purchasing a bespoke study. A reporting entity need not develop higher-ranked data when the expected difference would be immaterial. However, more specific data must be obtained when reliance on lower-ranked data could materially affect the inventory or impact a supported use claim.

Graphic 1: Data Hierarchy



5.2 Alternative Evidence and Attestations

Where documentation identified in this framework as acceptable evidence is not reasonably attainable, the reporting entity may rely on alternative evidence, including a claimant attestation, to support conformance with any quality criterion, provided the attestation satisfies the requirements of this section.

An attestation may substitute for unavailable evidence only where the reporting entity demonstrates that

a. the primary evidence is unavailable or impracticable to obtain for reasons outside the reporting entity's reasonable control;

b. the reporting entity made reasonable efforts to obtain the primary evidence from relevant producers, suppliers, registries, certification bodies, transaction counterparties, or other responsible parties;

c. the attestation identifies the specific missing evidence and explains why it is unavailable;

d. the attestation is made by an authorized officer or responsible representative of the reporting entity and identifies the basis for the attestor's knowledge, including whether the statement is based on direct knowledge, ordinary-course business records, counterparty representations, certification records, registry extracts, supplier documentation, or other controls;

e. the attestation is supported by all reasonably available corroborating evidence;

f. the attestation is not contradicted by other available evidence;

g. the attestation does not alter the substantive requirements of the applicable criterion;

h. and the assurance provider determines that the attestation, together with supporting

evidence, provides a reasonable basis to evaluate conformance with the applicable criterion.

Where an attestation is used, the reporting entity shall disclose the criterion affected, the evidence unavailable, the reason for unavailability, the basis for the attestation, and any limitation this substitution may place on the reported use claim or market-based direct emissions calculation.

Alternative evidence may be used to demonstrate conformance with a criterion, but may not be used to waive, modify, or deem satisfied a substantive requirement of that criterion.

Where a reporting entity relies on alternative evidence or attestation-based evidence and the evidence is incomplete, generic, unsupported, contradicted by available records, or insufficient to allow an assurance provider to evaluate conformance with the applicable criterion, the contractual instrument shall be treated as nonconforming for the unsupported attributes, volumes, reporting periods, or claims.

5.3 Confidential and Proprietary Information

Assured reporting of direct emissions for purchased clean fuels does not require publicizing trade secrets or distributing proprietary information to competitors. Evidence demonstrating conformance with this standard must be made available to the assurance provider when necessary and its disclosure may be subject to appropriate confidentiality protections.

5.4 Reliance on Programs, Registries, and Prior Assurance

Where an instrument is issued or tracked under an independently administered and periodically assured program whose rules establish conformance with one or more criteria of this framework, the reporting entity may rely on the program's determination for those criteria. The reporting entity need only demonstrate the transaction-specific matters not established by the program, including its ownership, eligible use, matching, and retirement of the instrument. Prior program assurance or certification may reduce assessed risk or the amount of additional evidence needed to demonstrate conformance but does not automatically establish conformance for the reporting entity's transaction or inventory.



6. Applying the Quality Criteria

The following quality criteria for contractual instruments for clean fuels have been determined through a stakeholder-driven process to represent the minimum necessary for the instrument to support a credible use claim by the holder of the instrument:

1. **Conveyance**. The instrument must convey certain attributes and information necessary to substantiate an exclusive claim to the attributes.

2. **Aggregation**. The instrument must aggregate all attributes in a single instrument or linked instruments.

3. **Market Boundaries**. The attributes must derive from fuel delivered through shared distribution systems that are physically and commercially connected.

4. **Vintage**. Instruments must be retired or canceled within a period that reasonably ensures data integrity.

5. **Equivalency**. The instrument may support the credible use of fuel with the same attributes and fit for the same purpose as the claimed fuel.

6. **Attribute Allocation**. Attributes conveyed by the instrument may be allocated to any co-products, by-products, or derivatives following mass-balance rules.

7. **Input Instrument Retirement**. The attributes conveyed by the instrument are substantiated by retiring instruments issued for any inputs to the production process and transferring the associated attributes to a new instrument.

8. **Default Attributes**. Fuel whose attributes have been separately conveyed by a contractual instrument must be characterized using the residual mix or the fossil fuel typically employed for the same purpose.

9. **Tracking and Retirement**. The instrument is tracked and permanently retired, redeemed, or canceled by or on behalf of the claimant.

Below are operative rules, criteria for evaluation, illustrative evidence, and consequences of nonconformance for each of the quality criteria. The listed evidence does not create a safe harbor. Equivalent evidence may support conformance where it substantiates the same matters and is sufficient under the applicable assurance engagement.

6.1 Criterion 1 – Conveyance

Rule

Contractual instruments must exclusively convey ownership of all production attributes characterizing the direct greenhouse gas emissions associated with a unit of produced fuel. All specified attributes—including the date and location the fuel was produced, and the origin, mass fraction, and other specified attributes of each input in the production process—must be disclosed to the owner of the contractual instrument.

Criteria for Evaluation

1. **Unique Identity**. The claimant must establish that any contractual instrument conveying the specified attributes of a unit of produced fuel is assigned a distinct numeric or alphanumeric string to differentiate it from all other units. Typically, this assignment is part of the services provided by a certificate tracking system but use of a formal tracking system—while encouraged—is not required.

2. **Explicit Attributes**. The contractual instrument conveying specified attributes must detail the legal transfer of attribute ownership and clearly define the specified attributes the instrument conveys. Refer to *Market-Based Accounting for Clean Fuels*, Criterion 2 to ensure that specified attributes are properly disaggregated. Generally, proper disaggregation requires linked instruments transacted between parties associated with the same activity.

3. **Production Disclosed**. While proper reporting of GHG inventories does not require disclosure of trade secrets, where data are reasonably robust, at the very least the following data should be conveyed with the instrument by the responsible party that possesses the information:

    a. Type of fuel and certification

    b. Functional unit

    c. Any chemical characteristics, including heat value, gas quality, Wobbe index, etc., obtained by the issuer of the instrument

    d. Production inputs and associated attributes needed to properly characterize combustion emissions

    e. Origin and mass fraction of production inputs

    f. Vintage and creation dates

    g. Date the instrument was transacted and the transacting parties

    h. Emissions factor of supplied fuel (and/or carbon intensity values from which an emissions factor may be derived)

    i. Any other information needed to establish an exclusive claim to the corresponding attributes

4. **Cross-Registry Check**. The claimant must demonstrate a complete and validated chain of custody for the attributes, which can be verified by auditors through documentation, including documentation of the issuance and retirement of any contractual instruments conveying attributes of the claimed fuel.

Illustrative Evidence

Self-reporting conformance with the criterion through attestations or otherwise is insufficient unless the attestations meet the conditions under the General Alternative Evidence and Attestation Rule. Acceptable documentation demonstrating conformance with the criterion includes the following:

- Records from official fuel registries
- Production batch records
- Contracts for the transfer or sale of eligible fuel
- Certification of sales

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criteria for Evaluation 1 (Unique Identity) may not be used in market-based emissions accounting and do not support credible use claims.

6.2 Criterion 2 – Aggregation

Rule

All production attributes must be conveyed by a single instrument, or by multiple instruments transacted and retired together for parties associated with the same activity.

Criteria for Evaluation

1. **Disaggregation Prevented**. Verified documentation should demonstrate that all production attributes of the claimed fuel were conveyed by a single instrument (or multiple linked instruments) and that there is no residual claim to attributes not otherwise conveyed by the instrument.

2. **Instruments Linked and Retired Together**. Where multiple instruments convey associated attributes (for instance, where instruments associated with a single use of fuel convey direct emissions attributes separate from indirect emissions attributes), the claimant has the burden of proving

    a. that any associated instruments are linked within a recognized instrument tracking system;

    b. that all production attributes are conveyed by the aggregate of linked instruments;

    c. and that linked instruments were retired together on behalf of parties to the same fuel-using activity.

3. **"Null" Fuel Identified**. Where attributes of a claimed fuel were transacted separately from the underlying commodity, the party conveying specified attributes is obligated to demonstrate that it characterized the commodity from which the attributes derived as "null" fuel to any purchasers and that its emissions factor derives from a residual-mix emissions factor, or the default emissions factor for the fossil fuel typically used for the fuel-consuming activity.

Illustrative Evidence

Acceptable documentation demonstrating conformance with this criterion includes the following:

- Official records from a recognized fuel registry, including records from parties to the transaction substantiating responsibility of the seller to characterize the residual commodity

- Official certificate retirement confirmations or retirement reports

- Attestations of attribute mapping documentation, but only when official documents are unavailable and provided the attestations include an explanation of why official documents were not submitted

Consequences of Nonconformance

Contractual instruments that do not meet Criterion 2 support use claims only where the emissions profile reflects the residual mix of fuels in the shared distribution system by which the fuel was delivered or the emissions profile of the default fossil fuel typically used in the fuel-consuming activity. Otherwise, the instrument may not be used to support credible direct emissions reporting.

6.3 Criterion 3 – Market Boundaries

Rule

Contractual instruments must be sourced from shared distribution systems that constitute a single market.

To establish that shared distribution systems constitute a single market, all of the following conditions must be met:

a. The fuel represented by the instrument and the fuel used derive from shared distribution systems wherein different fuels and/or fuels from different sources are mixed.

b. Fuel with the same or equivalent physical properties is present within the distribution system

in which fuel with the claimed attributes was injected and the distribution system serving the fuel-consuming activity.

c. The specified attributes claimed do not exceed the sum of those specified attributes associated with the volume of fuel present within both distribution systems.

d. A volume of claimed fuel equal to the volume covered by the use claim must be consumed within the defined market.

e. The instrument is contractually enforceable both where the fuel is introduced and where the fuel-consuming activity occurs.

f. At least one of the following conditions applies:

   i. The claimant's operational footprint[2] physically touches the distribution system where the fuel with the conveyed attributes was injected.

   ii. There is a plausible pathway for fuel from that distribution system to enter the distribution system serving the fuel-consuming activity.

Criteria for Evaluation

1. **Shared Distribution Demonstrated**. The claimant must establish that the fuel represented by the contractual instrument and the fuel used in the fuel-consuming activity are delivered through shared distribution systems in which different fuels or fuels from different sources are mixed.

2. **Attribute Volume Bounded**. The claimant must demonstrate that the volume of specified attributes claimed does not exceed the total specified attributes associated with the volume of fuel within the relevant market boundary at the time of consumption. Conformance may be demonstrated by a system of instrument tracking consistent with this framework's applicable equivalency, attribute allocation, and tracking-and-retirement criteria.

3. **Equal Consumption Verified**. The claimant must confirm that a volume of fuel equivalent to the volume consumed for the fuel-consuming activity was consumed from the distribution system where the fuel with the claimed attributes was injected. Conformance may be demonstrated by a system of instrument tracking consistent with this framework's applicable equivalency, attribute allocation, and tracking-and-retirement criteria.

4. **Fuel Presence Verified**. The claimant must prove the presence of the specified attribute both in the distribution system in which the specified fuel was injected and the distribution system serving the fuel-consuming activity.

5. **Mutual Recognition Established**. The claimant must either

   a. establish that contractual instruments like that employed to convey the relevant attributes are recognized as enforceable in the legal and regulatory jurisdictions comprising the market;

   b. or demonstrate that a good-faith effort did not reveal any evidence that a jurisdictional or regulatory authority that may exercise control within the market boundaries disputes the legitimacy of the instrument as a mechanism for conveying the relevant attributes across the market.

2 Whether the claimant has fuel-consuming operations served by the relevant distribution system should be determined using the organizational boundary established for its Scope 1 reporting under the GHG Protocol, based on its selected consolidation approach: equity share, financial control, or operational control. See World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD), The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, rev. ed. (2004), ch. 3, pp. 17–18. https://ghgprotocol.org/sites/default/files/ghgp/standards/ghg-protocol-revised.pdf#page=18.

6. **Physical Connection Proven**. The claimant must sufficiently demonstrate either

    a. that it has operations that contact the distribution system where the fuel with the relevant attributes was injected;

    b. or that a good-faith effort did not reveal any evidence that a jurisdictional or regulatory authority that may exercise control within the market boundaries disputes the legitimacy of the instrument as a mechanism for conveying the relevant attributes across the market.

Illustrative Evidence

Except as described below, self-reporting conformance with the criterion through attestations or other self-created documentation is insufficient unless such attestations and documentation meet the conditions under the General Alternative Evidence and Attestation Rule. Eligibility analyses conducted by the claimant, however, when verified by an independent auditor or assurance provider may support conformance with the criterion.

Other acceptable documentation demonstrating conformance includes the following:

- Official records from recognized fuel registries or attribute tracking systems that apply or verify fuel eligibility criteria and can confirm the presence of the specified fuel within a particular pipeline system
- Pipeline, bunkering, storage, terminal, or other distribution system records indicating that a referenced distribution system mixes different kinds of fuels and/or fuels from different producers
- Engineering, operational, or market documentation sufficient to establish that claimed attributes do not exceed those attributes associated with the available volume of specified fuel within the entire market at the time of consumption
- Legal opinions, regulatory determinations, or program rules demonstrating mutual recognition of the contractual instrument or the attestation by the claimant that a good-faith effort did not reveal evidence that the legitimacy of the contractual instrument as a mechanism for transacting attributes across the market was disputed by any jurisdictional or regulatory body that may exercise institutional authority within the relevant market boundary
- Ownership records, operational data, or independently drawn operational schematics establishing that the operational footprint of the claimant physically touches the pipeline system where the fuel with the claimed attributes was injected
- Pipeline, storage, terminal, or other engineering records demonstrating that fuel could plausibly flow from the distribution system where the claimed fuel was injected to the distribution system serving the fuel-consuming activity

Consequences of Nonconformance

Contractual instruments that do not meet Criterion 3 may not be used to support a credible use claim across the asserted market boundary. In such cases, the claimant may calculate emissions only using the most accurate directly evidenced fuel attributes available at the point of consumption, the applicable residual mix, or the default emissions factor for the conventional fossil fuel typically used for the same fuel-consuming purpose, as appropriate. Instruments failing this criterion may not be used in market-based emissions accounting for clean fuels.

6.4 Criterion 4 – Vintage

Rule

Contractual instruments must record a vintage date and be canceled or retired within a period that reasonably secures the integrity of the audit trail prior to use of the corresponding fuel.

Criteria for Evaluation

1. **Vintage Date Recorded**. The claimant must establish that the contractual instrument records at least the year in which the represented fuel was produced, and that the vintage date or year is distinguishable from any issuance, transfer, or retirement date associated with the instrument.

2. **Applicable Vintage Window Defined**. The claimant must identify the applicable expiration, cancellation, or retirement window governing the instrument and demonstrate that the claimed use falls within that period. Where no formal program rule applies, the claimant should demonstrate that the selected vintage window is reasonable considering data integrity risks and the design of the relevant tracking and recordkeeping system.

3. **Timely Retirement or Cancellation**. The claimant must demonstrate that the instrument was canceled or retired prior to or in conjunction with its use to substantiate the corresponding fuel claim.

4. **Audit Trail Integrity Maintained**. The claimant must demonstrate that records associated with the instrument—including production date, issuance date, transfers, and retirement—were maintained in a manner sufficient to preserve the integrity, traceability, and verifiability of the conveyed attributes over the life of the instrument.

5. **No Indefinite Claim Support**. The claimant must demonstrate that the instrument was not used to support a credible use claim indefinitely or outside a period that an independent source has determined is reasonably suited to the integrity of the underlying data storage and tracking system.

Illustrative Evidence

Acceptable documentation demonstrating conformance with the criterion includes the following:

- Official registry records showing the fuel production and issuance dates (or relevant production and issuance window), transfer history, and retirement or cancellation date of the instrument
- Production batch records or certification records identifying the period the represented fuel was produced
- Program rules, registry protocols, or contractual terms establishing the applicable expiration or retirement window
- Audit logs or tracking system records demonstrating that the instrument remained valid and traceable until retirement
- Supporting documentation describing relevant data storage, record-retention, or control protocols demonstrating the viability of the vintage window

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criterion 4 may not be used to support a market-based emissions calculation where the age of the instrument or weakness of the underlying audit trail undermines confidence in the conveyed data.

In such cases, the claimant should calculate emissions using the most accurate directly evidenced fuel data available, the applicable residual mix, or the default emissions factor for the conventional fossil fuel typically used for the same purpose, as appropriate.

6.5 Criterion 5 – Equivalency

Rule

Contractual instruments may support the credible use of a fuel, its precursors, or its derivatives with the same production attributes and fit for the same purpose, accounting for any conversion loss factors.

Criteria for Evaluation

1. **Material Equivalence Established**. The claimant must demonstrate that the fuel claimed to be used is:

    a. physically or chemically identical to the fuel represented by the instrument;

    b. a precursor containing the relevant attributes of the represented fuel, or a derivative containing the same relevant attributes as the represented fuel;

    c. and in each case, that the represented and claimed fuels are fit for the purpose(s) for which the claimed fuel was used.

2. **Relevant Attributes Fully Contained**. Where the represented fuel and the claimed fuel are not physically and chemically identical, the claimant must demonstrate that the specified attributes conveyed by the instrument are fully contained within the precursor or derivative to which the claim is applied.

3. **Conversion Losses Accounted For**. The claimant must demonstrate that any conversion loss factors affecting the quantity or characteristics of the used fuel, or the attributes associated with it, were identified and reflected in the quantity of fuel or attributes claimed.

4. **No Overstatement of Equivalent Volume or Attributes**. The claimant must demonstrate that the instrument was not applied to a greater volume of fuel, or to a greater quantity of specified attributes, than could credibly remain in the used fuel after accounting for the relevant conversion pathway and any losses.

5. **Same-Purpose Functional Fit**. The claimant must demonstrate that the fuel, precursor, or derivative to which the contractual instrument is applied is fit for the same purpose as the fuel use being claimed, including that it is suitable for the relevant fuel-consuming activity either directly or through an established conversion pathway. Documentation should be sufficient to show that the claimed use is reasonably specific and not based on the emissions profile of the fuels.

Illustrative Evidence

Acceptable documentation demonstrating conformance with the criterion includes the following:

- Records from official fuel registries or recognized tracking systems identifying the represented fuel and any associated transfers or conversions
- Production batch records, engineering specifications, or product content documentation sufficient to establish the chemical identity of the represented and claimed fuels
- Process records or technical documentation showing the conversion pathway between the represented fuel and the claimed precursor or derivative
- Calculations, mass-balance records, or other verified documentation showing any applicable conversion loss factors and their treatment
- Contracts or certification records showing whether the original instrument remained attached to the fuel or whether a replacement instrument was issued for the downstream fuel form

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criterion 5 may not be used to support a credible use claim for a precursor or derivative fuel where equivalency has not been established. In such cases, the claimant should calculate emissions using the most accurate directly evidenced attributes of the fuel actually used, the applicable residual mix, or the default emissions factor for the conventional fossil fuel typically used for the same purpose, as appropriate. Instruments that fail to account for material differences or conversion losses may not be used in market-based emissions accounting and do not support a credible use claim.

6.6 Criterion 6 – Attribute Allocation

Rule

Contractual instruments may convey specified attributes allocated to any outputs of a production pathway provided the total attributes conveyed do not exceed the total attributes input to the production pathway.

Criteria for Evaluation

1. **Total Input Attributes Quantified**. The claimant must calculate the total quantity of specified attributes associated with the inputs to the production pathway, including any relevant production inputs whose characteristics contribute to the claimed output attributes.

2. **Allocation Method Documented**. The claimant must document the method by which specified attributes were allocated among the outputs of the production pathway, including any decision to concentrate attributes in particular output volumes rather than distribute them evenly or proportionately.

3. **Aggregate Attributes Do Not Exceed Inputs**. The claimant must demonstrate that the total specified attributes conveyed across all contractual instruments issued for outputs of the production pathway do not exceed the total specified attributes associated with the inputs to that pathway, accounting for any conversion losses.

4. **Remaining Outputs Characterized Consistently**. Where specified attributes are concentrated in one or more outputs, the claimant must demonstrate that all remaining outputs are characterized in a manner consistent with the residual attributes remaining after the allocation.

5. **Emissions Claims Aligned with Allocation**. The claimant must demonstrate that any use claims or emissions factors associated with the allocated outputs are consistent with the specified attributes conveyed by the relevant contractual instruments and do not imply greater clean or biogenic content than the allocation supports.

Illustrative Evidence

Acceptable documentation demonstrating conformance with the criterion includes the following:

- Production batch records identifying relevant inputs and outputs of the production pathway for the fuel represented by the contractual instrument
- Engineering calculations, mass-balance records, or other process documentation quantifying the specified attributes remaining at the close of the production pathway
- Allocation methodologies, internal accounting records, or attribute-mapping documentation showing how specified attributes were assigned among outputs of the production pathway
- Records from official fuel registries or recognized tracking systems showing the attributes conveyed by instruments issued for each output

- Product specifications, sales records, or related documents sufficient to establish the characterization of outputs receiving residual or non-allocated attributes

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criterion 6 may not be used to support a credible use claim or market-based emissions calculation where the claimed output attributes cannot be reconciled with the total specified attributes associated with the production pathway inputs. In such cases, the claimant should calculate emissions using the most accurate directly evidenced attributes of the fuel actually used, the applicable residual mix, or the default emissions factor for the conventional fossil fuel typically used for the same purpose, as appropriate. Instruments that over-allocate or inconsistently allocate specified attributes do not support credible use claims.

6.7 Criterion 7 – Input Instrument Retirement

Rule

Any contractual instruments conveying attributes of inputs to the production pathway of a fuel must be retired to substantiate a contractual instrument issued for the produced fuel.

Criteria for Evaluation

1. **Attributed Inputs Identified**. The claimant must demonstrate whether any feedstock or other production input to the produced fuel carried contractual instruments conveying specified attributes prior to entering the production pathway.

2. **Prior Conveyance Evaluated**. Where an input fuel or feedstock carried specified attributes, the claimant must demonstrate whether those attributes had already been sold, transferred, or otherwise conveyed prior to the production of the downstream fuel.

3. **Upstream Instruments Retired Before New Issuance**. Where a new contractual instrument is issued for the produced fuel, the claimant must demonstrate that any contractual instruments conveying attributed inputs to the production pathway were canceled or retired before or as part of the issuance of the new instrument for the produced fuel.

4. **Attribute Transfer and Conversion Losses Documented**. The claimant must demonstrate that any attributes transferred from the input instrument to the new instrument for the produced fuel were transferred consistently and that any applicable conversion losses were accounted for in the volume or characterization of the new claim.

5. **No Duplicate Downstream Claim**. The claimant must demonstrate that the same specified attributes were not simultaneously used to support the claimant's downstream produced-fuel claim. Where prior conveyance of the input attributes was not retired or replaced, the claimant must demonstrate that it treated the fuel as null fuel or otherwise characterized it without those attributes.

6. **Exception Applied for Chemically Identical Produced Fuel**. Where the claimant relies on the identical chemical structure of a produced fuel to its inputs, the claimant must demonstrate both that the fuel and inputs are chemically identical and that any conversion losses were accounted for, such that retirement and reissuance were not required under the criterion.

Illustrative Evidence

Acceptable documentation demonstrating conformance with this criterion includes the following:

- Official records from recognized fuel registries or certificate tracking systems showing issuance, transfer, cancellation, and retirement of both input and output instruments
- Production batch records and process documentation identifying the feedstocks and other attributed inputs to the downstream fuel pathway
- Contracts or sales records showing whether input attributes were bundled, transferred, or previously conveyed before production of the downstream fuel
- Attribute-mapping records or registry documentation showing how retired input attributes were transferred to the newly issued instrument for the produced fuel
- Engineering calculations or process records demonstrating any applicable conversion losses and, where relevant, the chemical identity of the input and produced fuel

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criterion 7 may not be used to support a credible use claim or market-based emissions calculation for the produced fuel where the claimed attributes cannot be shown to derive exclusively from retired or otherwise properly transferred input instruments. In such cases, the produced fuel should be characterized as null fuel, assigned the most accurate residual or default attributes available, or otherwise reported without the duplicated specified attributes. Instruments that fail to extinguish upstream claims before creating downstream claims are not supported by credible market-based accounting.

6.8 Criterion 8 – Default Attributes

Rule

Fuels for which the attributes have been sold or transacted shall be assigned the attributes of the most accurate residual mix that can be calculated from available data or the attributes of the fossil fuel typically used for the same purpose.

Criteria for Evaluation

1. **Separated Attributes Identified**. The claimant must demonstrate whether the specified attributes associated with the fuel used in the fuel-consuming activity were previously sold, transferred, or otherwise transacted separately from the physical fuel.

2. **“Null” Fuel Designation Contracted**. Where the specified attributes of the fuel were conveyed separately and not replaced, the claimant should establish through contract terms that the supplier will characterize the remaining physical fuel as “null” fuel, assign to it an emissions factor derived from an accurate calculation of the residual mix (or the fossil default factor), and refrain from describing the fuel as clean, biogenic, carbon-free, or as otherwise possessing the transacted attributes.

3. **Replacement Attributes, If Any, Were Sufficient and Retired**. Where the claimant asserts that separated attributes were replaced, the claimant must demonstrate that contractual instruments conveying an equal or greater amount of the same specified attributes were procured and retired in accordance with the framework.

Illustrative Evidence

Acceptable documentation demonstrating conformance with this criterion includes the following:

- Official records from recognized fuel registries or tracking systems showing the conveyance, transfer, and retirement of specified attributes
- Contracts, invoices, or sales records demonstrating whether fuel was sold bundled with attributes or as separated null fuel
- Contract terms obligating the supplier to designate fuel whose attributes have been conveyed as "null" and assign the null fuel an appropriate emissions factor
- Identification of the conventional fossil fuel typically used for the same purpose where residual-mix data are unavailable
- Retirement confirmations or attribute-mapping documentation showing any replacement attributes procured and retired to characterize the fuel

Consequences of Nonconformance

Nonconformance with Criterion 8 nullifies any use claim or emissions calculation based on the misattributed fuel.

6.9 Criterion 9 – Tracking and Retirement

Rule

Contractual instruments must be tracked and permanently redeemed, retired, or canceled by or on behalf of the reporting entity.

Criteria for Evaluation

1. **Instrument Uniquely Identified and Traceable**. The claimant must demonstrate that the contractual instrument is uniquely identifiable and can be traced from issuance through each transfer, allocation, and final redemption, retirement, or cancellation.
2. **Complete Chain of Custody Established**. The claimant must demonstrate a complete and validated chain of custody for the specified attributes conveyed by the instrument, including issuance, transfer history, account ownership, and final retirement or cancellation on behalf of the reporting entity. Chains of custody that fall outside the transaction record of the claimant may be inferred from records issued by a recognized registry or tracking system.
3. **Retirement by or for the Reporting Entity**. The claimant must demonstrate that the instrument was permanently redeemed, retired, or canceled by the reporting entity or by an authorized registry, program administrator, supplier, or other intermediary acting on its behalf for the relevant fuel-using activity.
4. **Linked Instruments Retired Consistently Where Applicable**. Where more than one contractual instrument is required to convey the relevant specified attributes, the claimant must demonstrate that the linked instruments were tracked together and retired or canceled together on behalf of the same entity and activity.
5. **Tracking System or Equivalent Controls Are Reliable**. The claimant must demonstrate that the tracking system, registry, or equivalent documentation controls used to manage the instrument provide sufficient assurance of security, veracity, and auditability, including where relevant through independent audit, recognized certification, disclosure registries, or compliance-program implementation.

Illustrative Evidence

Acceptable documentation demonstrating conformance with this criterion includes the following:

- Official records from recognized fuel registries, certificate tracking systems, or disclosure registries showing instrument issuance, transfer, account assignment, and retirement or cancellation
- Retirement confirmations, retirement reports, or equivalent permanent redemption records identifying the reporting entity or the entity on whose behalf the retirement occurred
- Contracts, account records, or transaction logs demonstrating the transfer of instrument ownership over the life of the instrument
- Documentation from recognized and accredited auditors or relevant compliance systems supporting the integrity of the chain of custody
- Where linked instruments are used, registry records or attribute-mapping documentation showing that the associated instruments were linked and retired together

Consequences of Nonconformance

Contractual instruments that are found not to conform with Criterion 9 may not be used to support a credible use claim or market-based emissions calculation where the claimant cannot demonstrate exclusive ownership of the conveyed attributes through a complete and auditable chain of custody ending in permanent redemption, retirement, or cancellation.

In such cases, the associated emissions should be reported using the most accurate directly evidenced attributes available, the applicable residual mix, or the default emissions factor for the conventional fossil fuel typically used for the same purpose, as appropriate. Instruments that remain active, insufficiently tracked, or not demonstrably retired do not support credible market-based accounting.

6.10 Documentation and Consideration of Criterion-Level Findings

For each applicable criterion, the practitioner should document whether the criterion is satisfied, is not satisfied, is not applicable, or cannot be evaluated because sufficient appropriate evidence was not available. Documentation should identify the instruments, quantities, activities, and reporting periods evaluated; the evidence considered; exceptions identified; corrective accounting treatment; and any remaining limitation.

Criterion-level findings should be considered together when evaluating whether the instrument population qualifies, whether reported matched quantities are supported, whether unmatched quantities receive appropriate treatment, and whether the market-based direct-emissions calculation is presented in accordance with the reporting framework.

7. Dual Reporting

This framework applies an attributional accounting approach to direct emissions associated with purchased clean fuels. Under this approach, a reporting entity accounts for direct emissions in two complementary ways: emissions from the fuel physically combusted or otherwise consumed by the reporter's operations, and emissions attributed to contractual instruments purchased by the reporting entity that meet the applicable quality criteria.

Reporting entities that want to calculate and present market-based direct emissions for purchased clean fuels under this framework should use the following procedures. Market-based direct emissions and physical-fuel direct emissions should remain linked by the same underlying fuel-use data, with any difference between them traceable to retired instruments, matched volumes, and the treatment of unmatched or null fuel.

7.1 Physical Direct Emissions

Physical direct emissions reflect the GHG emissions released to the atmosphere from fuel combusted or otherwise used in the fuel-consuming activity. These emissions are based on the characteristics of the physically delivered fuel. Where fuel is delivered through a dedicated system, or where no qualifying contractual instrument is used, reported direct emissions should be determined using directly measured emissions, fuel characteristics, or appropriate default emissions factors, consistent with the existing corporate accounting framework.

7.2 Market-Based Direct Emissions

Market-based direct emissions reflect the direct emissions attributes of fuel that the reporting entity purchased (or was purchased on its behalf) through contractual instruments to support a credible use claim. Where the physical fuel used is drawn from a shared distribution system and cannot be traced to a specific producer, contractual instruments are the only mechanism to attribute certain specified fuel characteristics (such as the fuel's biological origins and relevant emissions factors) to the reporting entity. In these circumstances, the attributes conveyed by instruments, rather than the attributes of undifferentiated physical fuel, determine the characteristics of emissions.

Where an instrument is absent or nonconforming, the affected volume should be treated as unmatched. If the relevant attributes remained bundled with physically traceable fuel, the market-based inventory should reflect those attributes. If the attributes were separately conveyed, or their continued attachment to the fuel cannot be demonstrated, that volume of fuel should be assigned an applicable adjusted residual mix or, if none is available, the prescribed default attributes of the fossil fuel typically used in the fuel-consuming activity.

7.2.1 Calculating Market-Based Direct Emissions

Market-based direct emissions may be calculated using the same fuel-use data and end-use specification used to calculate the fuel's physical direct emissions, except where a qualifying contractual instrument conveys a substantiated basis for changing a particular fuel-specific parameter. Parameters not affected by the conveyed attributes should remain unchanged.

A credible calculation of market-based direct emissions should identify

a. the total volume of fuel consumed in the relevant fuel-consuming activity during the reporting period;

b. the portion of that fuel consumption matched to retired contractual instruments;

c. the emissions factor or factors associated with those instruments;

d. any conversion, distribution, or transformation losses affecting the matched volume of consumed fuel or conveyed attributes;

e. and the treatment applied to any unmatched or null-fuel volumes.

Where specified attributes associated with physically consumed fuel have been separately conveyed, those attributes should remain excluded from the reporting entity's market-based inventory unless the reporting entity procures and retires qualifying contractual instruments conveying equivalent attributes.

Reported emissions should remain consistent with the specified attributes conveyed by the relevant contractual instruments and with the framework's requirements on conveyance, aggregation, market boundaries, equivalency, attribute allocation, input instrument retirement, default attributes, and tracking and retirement.

Calculations should reflect the most granular level of data reasonably available for the relevant fuel-consuming activity. If the certificate, registry record, product content label, supplier documentation, or linked evidence conveys the emissions profile by gas (e.g., fossil/anthropogenic CO_2, biogenic CO_2, CH_4, N_2O, or other relevant GHGs), the reporter should use that gas-level information and not aggregate gas-specific data into a single CO_2e carbon-intensity figure unless that is genuinely the most specific defensible data available. Disaggregation of gas-specific emissions is particularly important where reporting treatment differs across gases or where separate presentation of certain emissions categories is required.

7.3 Reconciling Physical and Market-Based Emissions

The physical and market-based direct emissions inventories should be understood as complementary views of the same underlying fuel use. Reporting both the physical and market-based values provides transparency as to the difference between physical delivery and attributed fuel use, especially where fuels are delivered through shared distribution systems.

The physical inventory should continue to reflect the characteristics of the fuel physically consumed but does not substitute for the market-based inventory.

Where fuel is delivered through shared distribution systems that mix different types of fuels and/or fuels from different sources such that it is impossible or impracticable to physically trace attributes from their source to where they are consumed, contractual instruments are the best and only mechanism for accurately tracking attributes. Under these conditions, the market-based approach is more accurate, while improving transparency, ensuring exclusive ownership, and avoiding double counting.

Reconciling the physical and market-based inventories should be explicit. Where the reporting entity uses a qualifying contractual instrument, any difference between the physical value and the market-based value should be traceable to the conveyed attributes of retired instruments and to the treatment of any remaining fuel as residual or default, as applicable. In this way, the two inventories remain linked by the same fuel-use data, differing only in the emissions attributes that may credibly be assigned under the specific use case.

7.3.1 Matching Fuel Consumption to Instruments

Reporting entities should match fuel consumption to retired contractual instruments based on the functional unit and volume represented by the instrument, adjusted where necessary for conversion, transformation, or distribution losses. Matching should occur only for volumes and uses that satisfy the framework's requirements on market boundaries, equivalency, attribute allocation, and input instrument retirement. Where conveyed attributes derive from precursor fuels or downstream products, any losses associated with

conversion or distribution should reduce the volume to which the conveyed emissions factor may be applied.

Where more than one contractual instrument is needed to support a single use claim, the linked instruments should be matched and retired together for the same fuel-using activity under a single registry or tracking system. Conversely, where a portion of fuel consumption remains unmatched, the reporting entity should not blend instrumented and non-instrumented volumes into a single favorable factor unless such averaging is independently justified under this framework's attribute-allocation rules.

7.3.2 Treatment of Unmatched Volumes

Fuel volumes for which the reporting entity does not hold qualifying retired instruments should be treated as unmatched. If those volumes derive from fuel whose attributes have been sold or transferred, they should be treated as null fuel and assigned the attributes of the most accurate available residual mix or, where none is available, the default emissions factor for the conventional fossil fuel typically used for the same purpose, consistent with Criterion 8 (Section 6.8). This treatment should apply not only where no instrument was purchased, but also where an instrument was purchased but fails to satisfy the framework's criteria, where matching cannot be demonstrated, or where the conveyed attributes cannot be shown to remain available after prior transfer, allocation, or conversion. In such circumstances, the reporting entity should revert to the most accurate direct evidence of fuel attributes, the applicable residual mix, or the conventional fossil equivalent, as appropriate.

7.3.3 Presenting Reconciled Inventory

Reporting entities should present a clear reconciliation between physical-fuel direct emissions and market-based direct emissions. At a minimum, that reconciliation should identify

a. the total fuel consumption for the reporting period;

b. the portion matched to retired contractual instruments;

c. the emissions factor or factors applied to matched volumes;

d. the treatment of unmatched or null-fuel volumes;

e. and the reason for any difference between the physical-fuel and market-based totals.

This framework treats the two inventory views as complementary perspectives on the same underlying fuel use. Reconciliation between the two reported values should be sufficiently detailed that an auditor can trace the market-based result back to fuel-use data, retired instruments, and the applicable emissions-factor hierarchy.

Where the reporting entity relies on a compliance-market emissions factor, the reconciliation should identify the relevant compliance program and show how that factor was applied in the voluntary inventory.

Where the reporting entity uses a different factor, it should disclose the basis for that decision. In all cases, inventory presentation should preserve transparency, prevent double counting, and make clear which portion of reported direct emissions reflects conveyed clean-fuel attributes and which portion reflects residual or conventional fuel treatment.

Table 2: Mapping Accounting to CEAP Quality Criteria for Contractual Instruments

CEAP Criterion	Accounting Rule	Audit Test	Key Evidence	Disclosure
Conveyance	Instrument conveys attributes and production details	Confirm exclusive conveyance and required metadata	Registry records, contracts	Instrument identification
Aggregation	Attributes conveyed together	Verify bundle integrity	Linked instruments	Attribute bundle disclosure
Market Boundaries	Claim within valid market	Verify entity and production location eligibility	Market eligibility analysis	Market boundary statement
Vintage	Instrument within matching period	Check production date against reporting period	Registry timestamps	Vintage disclosure
Equivalency	Attributes match fuel use	Verify technical equivalency	Engineering documentation	Fuel equivalency statement
Attribute Allocation	Attributes not overallocated	Confirm allocation math	Production balance records	Allocation methodology
Input Instrument Retirement	Inputs retired before outputs	Verify upstream retirement	Registry retirement logs	Upstream instrument disclosure
Default Attributes	Fallback attributes assigned when needed	Confirm unmatched volume treatment	Default factor sources	Unmatched fuel disclosure
Tracking and Retirement	Instruments uniquely tracked	Confirm retirement and no duplicates	Registry records	Instrument retirement confirmation

8. Evaluation of Associated Claims and Disclosures

Claims should reflect the specific rights conveyed by retired contractual instruments, the relevant reporting boundary, and the character of the inventory to which they relate. A supported use claim under this framework is a claim about attribution of direct emissions to fuel use; it is not, without additional basis, a claim about system-wide emissions reductions, avoided emissions, exclusive physical delivery, or consequential climate effects.

8.1 Supported Claims

A reporting entity may make a supported use claim only where the underlying contractual instrument conveys the exclusive right to claim the relevant fuel attributes, where the instrument has been validly matched and retired for the relevant fuel-using activity, and the following conditions are met:

- The reporting entity holds qualifying contractual instruments that convey the specified attributes necessary to characterize the claimed fuel use.
- The conveyed attributes have been aggregated into a single claim, whether through one instrument or multiple linked instruments retired together for the same activity.
- The claim falls within a valid market boundary and does not exceed the volume or type of attributes supported within that boundary.
- The claimed fuel, precursor, or derivative is equivalent to the represented fuel and fit for the same purpose, accounting for any conversion losses.
- Any allocation of attributes across outputs or transfer of attributes from upstream inputs has been performed consistently and without overstatement.
- Any instruments required to support the claim have been permanently redeemed, retired, or canceled by or on behalf of the reporting entity.
- The claim is presented in a manner consistent with the market-based inventory and does not attribute clean-fuel characteristics to unmatched or null-fuel volumes.

These conditions should be understood as cumulative. Failure to satisfy any one of them may be sufficient to invalidate the claim, require fallback treatment using residual-mix or default fossil attributes, or limit the claim to physical-fuel reporting only.

Where these conditions are not met, the entity may still report physical-fuel direct emissions but may not make a market-based use claim for the specified clean-fuel attributes.

8.2 Unsupported Claims

Claims must not exceed the rights conveyed by the relevant contractual instruments. This principle applies to volume, fuel type, geographic scope, reporting period, and emissions characterization. A reporting entity may not extend a claim from matched volumes to unmatched volumes, from one fuel-consuming activity to another, from one reporting period to another, or from direct emissions attributes to avoided-emissions or broader lifecycle claims unless those additional rights have been separately conveyed and substantiated. Similarly, where attributes have been disaggregated, allocated, replaced, or transferred from upstream inputs, the claim must reflect only the portion and type of attributes actually conveyed after those steps have been completed consistently with this framework.

9. Conclusion

This framework establishes a reporting structure for purchased clean fuels that preserves the integrity of physical-fuel direct emissions reporting while allowing qualifying contractual instruments to support credible market-based direct emissions claims. Its purpose is not to create a preferential outcome for clean-fuel claims, but to define the conditions under which such claims may be recognized in a corporate greenhouse gas inventory.

The framework rests on the principle that conveyed attributes may affect reported direct emissions when they are exclusive, specific, traceable, retired, and supported by auditable evidence. Where those conditions are satisfied, reporting entities may use contractual instruments to characterize direct emissions from purchased clean fuels using market-based accounting.

By requiring dual inventory presentation, transparent reconciliation, and consistent treatment of unmatched or null fuel, the framework provides reporting entities with a pathway for substantiating clean-fuel use claims, gives assurance providers criteria against which to evaluate those claims, and supports the development of clean-fuel markets without weakening core greenhouse gas accounting principles.



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