

Green Gold Label Standard GGLS1 Chain of Custody criteria

Requirements, background and templates
for the GGL Chain of Custody (COC)



Standard GGLS1

Chain of Custody criteria

Version 4-1

Valid from 2 March 2026 (Adoption date)

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Document navigation

This document is part of the GGL Standards, which are included in the Overall documents. It concerns Standard GGLS1 of the GGL scheme and applies to all regulatory frameworks.

The Overall documents comprise the GGL Setup and Governance, GGL Standards and GGL Operating documents. Additionally, the GGL scheme offers Instructions and Guidances for specific regulatory frameworks (RED, FIT/FIP, SDE+/++), which can supersede clauses in the Overall documents. This applies only when explicitly stated in the relevant Instructions and Guidances.

Refer to the **GGL Document Structure** (as part of the GGL Setup and Governance documents) for more detailed information on navigating and interpreting GGL documentation.

GGL Setup and Governance <ul style="list-style-type: none"> Articles of association GGL foundation GGL Document structure GGL Regulation GGL Scope definitions GGL CB agreements GGL Partner Code of Conduct GGL Operating Agreement 	GGL Standards <ul style="list-style-type: none"> GGLS1 – Chain of custody criteria GGLS2 – Agricultural source criteria GGLS4 – Transaction and Product Certificate GGLS5 – Forest management criteria GGLS6 – Power company criteria 	RED – Instructions <ul style="list-style-type: none"> Instruction A.0 – RED Module Instruction A.1 – RED Reporting duties Instruction A.2 – RED Internal monitoring Instruction A.3 – RED Auditor requirements Instruction A.4 – RED GHG emissions Instruction A.5 – RED Additional Agricultural source and Forest management criteria Instruction A.6 – RED Supplier verification programme for biogenic residues and waste 	RED – Guidances <ul style="list-style-type: none"> Guidance A.0.i – RED Raw materials statement template Guidance A.0.ii – RED Transaction certificate template Guidance A.0.iii – RED Audit template Guidance A.4.iv – RED GHG default values Guidance A.5.v – RED Level A Risk assessments Guidance A.6.vi – RED Supplier verification checklist for biogenic residues and waste 	GHG Guidance <ul style="list-style-type: none"> Guidance ABC.1 – GHG calculator
	GGL Operating documents <ul style="list-style-type: none"> GGL Participant fees GGL Logo and tradename use GGL List of prohibited materials 	FIT / FIP – Instructions <ul style="list-style-type: none"> Instruction B.0 – FIT/FIP Module Instruction B.1 – FIT/FIP Endorsed schemes Instruction B.2 – FIT/FIP GHG emissions Instruction B.3 – FIT/FIP Additional power company criteria 	FIT / FIP – Guidances <ul style="list-style-type: none"> Guidance B.0.i – FIT/FIP Raw materials statement template Guidance B.0.ii – FIT/FIP Transaction certificate template Guidance B.0.iii – FIT/FIP Audit template Guidance B.0.iv – FIT/FIP Supplier verification checklist for biogenic residues and waste Guidance B.2.v – FIT/FIP LCGHG default values 	
		SDE++ – Instructions <ul style="list-style-type: none"> Instruction C.1 – SDE++ Endorsed schemes Instruction C.2 – SDE++ GHG emissions 	SDE++ – Guidances <ul style="list-style-type: none"> Guidance C.0.i – SDE++ Raw materials statement template Guidance C.0.ii – SDE++ Transaction certificate template 	

The GGL standards are applicable as per the indicative Illustration i below.

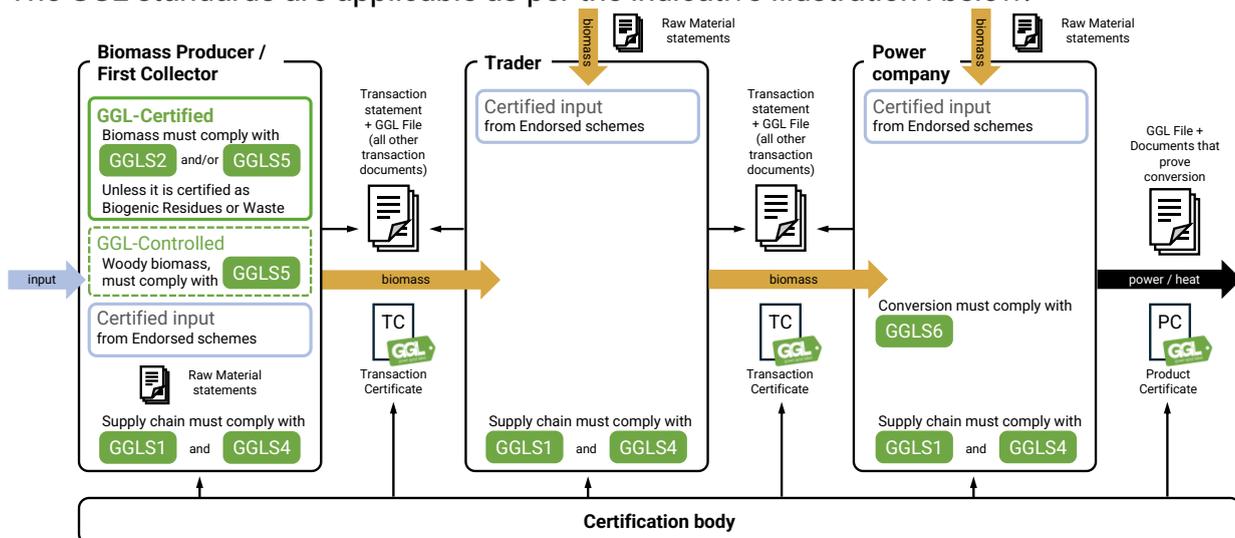


Illustration i – Applicability of GGL Standards



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Changes and transitioning

This section lists the key changes in this version v4-1 from version **GGLS1 COC criteria v3-1 (May 2018)**.

No.	Change type	Section reference	Details of change
1	Content	N/A	Removed risk-based approach for GGL-Controlled biomass under GGL (no longer valid)
2	Content	Principle 1	Included allocation logic for GGL Categories of biomass
3	Content	Principle 2	Included GGL Scope and GGL Modules to strengthen the structure of the GGL Scheme
4	Content	Principle 2	EUDR-compliance included when applicable
5	Content	Principles	Principles regrouped for simplified structure (GGL Categorisation of biomass to Principle 1)
6	Content	Principle 2 and Principle 4	Included prohibited locations of GGL Participants and prohibited Points of origins
7	Content	Principle 5	Clarified the requirement that each batch of incoming raw material shall be homogeneous and have a signed Raw Material Statement
8	Content	Principle 5	Clarified the difference between GGL-Certified and GGL-Controlled woody biomass; Strengthened requirements for GGL-Controlled woody biomass; Redefined applicable standards for GGL Category 3 biomass
9	Content	Principle 8	Added requirements for physically mixing batches of GGL Biomass with different characteristics
10	Content	Principle 9	Added staff wellbeing requirements for GGL Participants
11	Content	Principle 10	Included the upstream verification mechanism for GHG deployed across the GGL scheme
12	Content	Document navigation	Included document navigation and updated illustration for clarity
13	Text feature	Changes and transitioning	Included the changelog and the transitioning procedure between the previous and the current version
14	Text feature	Glossary	Included glossary
15	Formatting	All	Changed and edited formatting, text and wording for clarity and readability
16	Formatting	All	Converted layout to new templates for GGL Documents



In transitioning to this current version of this document, the following applies to Certification Bodies, Participants and Certificates:

Publication date	7 November 2025
Adoption date	For all GGL Modules <u>except</u> the SDE+ Module : <ul style="list-style-type: none">• 2 March 2026
Effective date	For all GGL Modules <u>except</u> the SDE+ Module : <ul style="list-style-type: none">• 1 March 2027
End of Transition period	For all GGL Modules <u>except</u> the SDE+ Module : <ul style="list-style-type: none">• 1 March 2028

To clarify: For GGL Scopes with the **SDE+ Module**, only the previous version of this document can be used and remains effective until further notice.

Glossary

Term	Definition
Adoption date	New (versions of) GGL documents include an Adoption date in the transitioning section. This date indicates when certification against the GGL Scheme and the specific document becomes possible. Certifications based on previous versions will remain valid until the Effective date of the new document.
Amount of GGL Biomass	This is the amount of GGL Biomass in metric ton (MT).
Audit	Formal examination and inspection by a GGL-approved Certification Body of an organization's processes and activities to verify compliance in accordance with ISO-19011. In contrast, an audit differs from an internal audit.
Batch	A quantity or consignment of biomass originating at one Point of origin and covered by one Raw Material Statement.
Biomass producer	The first participant in the GGL supply chain for woody and agricultural biomass (covering GGL categories 1, 2, 3, and 4) is known as a Biomass Producer. This entity produces raw materials through harvesting or farming activities and is responsible for delivering Raw Materials Statements. Biomass Producers are similar to First Collectors in that they represent the initial participants in the GGL supply chain.
Biomass	Biomass refers to the biodegradable portion of products, waste, and residues derived from biological sources in agriculture, which includes both plant and animal materials. It also encompasses materials from forestry and related industries, such as fisheries and aquaculture. Additionally, biomass includes the biodegradable fraction of waste, including industrial and municipal waste of biological origin.
By-product	A by-product is a secondary product derived from a production, manufacturing or chemical process, not a waste or residue. A by-product may not be the primary aim of such a process but has significant economic value beyond its use as biomass.
Certification Body / CB	An independent third party evaluates and certifies the certification process. Certification bodies approved by GGL for one or more GGL scopes are listed on the GGL website.
Conversion factor	The ratio of the mass of the output intended for biofuel production to the mass of the raw material entering the process.
Co-product	A useful product produced alongside the main product, not a waste or residue. As such, the co-product shares in the greenhouse gas emissions burden.
Credit system / volume credit system	The volume credit system is a method for tracking the flow of sustainable materials through a supply chain, using a chain of custody approach along with a mass balance system. This system ensures accurate accounting of sustainable materials as they move within the supply chain and allows for the proper allocation of these materials to finished goods based on verifiable bookkeeping. However, GGL does not permit the application of the volume credit system for all types of biomass or for all GGL Scopes. The specific system implemented by GGL to facilitate mass balance management is outlined in GGLS1 - Chain of custody criteria .



Term	Definition
Direct origination / [...] originate directly	Biomass in GGL Categories 1, 2, 3, and 4 originates directly from harvesting and farming activities. This means that this biomass is produced at the same time and location as the primary products, such as wood or agricultural goods. In contrast, biomass in GGL Category 5 comes from biogenic residues or waste that are generated when primary products, co- or by-products are separated.
Effective date	New (versions of) GGL documents specify an Effective Date. This is the date after which certification can only be granted according to the GGL Scheme and the specific document that has the Effective Date. Certification based on previous versions of the document is no longer considered valid.
EORI number	The Economic Operators Registration and Identification (EORI) number is a unique identifier assigned to businesses and individuals involved in customs activities within the European Union, particularly to comply with EUDR regulations.
First Collector	The first participant in the GGL supply chain for residues and wastes (GGL category 5) is known as the First Collector. This entity collects raw materials from suppliers who provide Raw Materials Statements. First Collectors are similar to Biomass Producers in that they are the initial GGL Participants within the GGL supply chain.
FMU / Forest Management Unit	A well-defined land area that is predominantly (>50%) forested, incorporating planned human intervention within a forest ecosystem to meet specific goals and objectives.
Foundation / GGL Foundation	The Green Gold Label Foundation owns the Green Gold Label (GGL) scheme, including all technical documents, promotional materials, logos, websites, and other intellectual properties related to GGL.
GGL Biomass	Biomass certified with a GGL-Certified or GGL-Controlled claim.
GGL Categories	Biomass is classified into one of five categories recognized by GGL: 1) Woody biomass from large FMU's (> 500 hectares) 2) Woody biomass from small FMU's (< 500 hectares) 3) Residues from natural site and landscape management 4) Agricultural biomass 5) Biogenic residues and waste
GGL File	[From GGLS4 - Transaction and product certificate] The records and documents used to ensure compliance with relevant regulations, including but not limited to transaction statements, compliance records, verification procedures, supply chain documentation, and transport documents.
GGL Module	These Instructions and Guidance documents outline how GGL has been approved and recognized as a Certification scheme under various legal and voluntary frameworks (e.g., Renewable Energy Directive (RED) in Europe and FIT/FIP in Japan).
GGL Scope	Each GGL Participant and each Certification Body (CB) is restricted to performing activities under the GGL Scheme based on the specific GGL Scope for which they are recognized. GGL Biomass has a specific GGL Scope. The GGL Scope is a combination of (a) applicable regulatory GGL Modules and (b) the GGL Categories of biomass. Detailed definitions of GGL Scopes can be found in the GGL Scope definitions document.



Term	Definition
GGL-Certified	Biomass that has been certified against all applicable GGL criteria, or against a certification scheme other than GGL, which has been endorsed and approved by the relevant authorities (e.g., EU for RED, METI for FIT/FIP) and holds equivalent status. GGL-Certified biomass meets all criteria for sustainability and legality.
GGL-Controlled	Woody biomass that has been certified against some of the applicable GGL criteria, or against a certification scheme other than GGL that has been endorsed and approved by the relevant authorities (e.g., the EU for RED or METI for FIT/FIP) holding equivalent status. GGL-Controlled biomass can only come from GGL categories 1, 2, or 3 for woody biomass and must meet specific key sustainability criteria. Therefore, the sustainability of GGL-Controlled woody biomass is certified to a lesser extent than that of GGL-Certified woody biomass.
GGLedger	GGL provides an IT platform designed to serve as a current and secure register for all types of Data, including both confidential and public information. Certification bodies (CBs) are responsible for ensuring that all data within GGLedger is accurate, up-to-date, and secure.
GHG (Greenhouse Gas) Emissions	Greenhouse gases are a group of gases that contribute to global warming and climate change. According to the Kyoto Protocol, they include seven gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, and nitrogen trifluoride. Converting them to carbon dioxide equivalents (CO ₂ eq) makes it possible to compare them and to determine their individual and total contributions to global warming.
HCV / High conservation value	Natural habitats or landscapes that have significant environmental, social, or cultural importance. These areas include ecosystems, populations of species, or ecological functions that are crucial at local, regional, or global levels.
Mass balance	Mass balance is a chain-of-custody approach that enables the net amount of sustainable materials to be tracked as they move through a system or supply chain, and ensures an appropriate allocation of these materials to the finished goods, based on auditable bookkeeping.
Normative	Normative elements are prescriptive guidelines that must be followed to comply with scheme requirements.
Participant / GGL Participant	An economic operator that has been certified under the GGL Regulation Section G, or under another certification scheme endorsed and approved by the relevant authorities (e.g., EU for RED or METI for FIT/FIP), holds equivalent status. This includes forest and agricultural biomass producers, waste and residue producers, first gathering points, collectors, suppliers, traders, processing plants, and conversion plants (end-users).
PC / Product certificate	A certified statement confirming the final conversion of GGL Biomass by GGL Participants that meets the requirements of GGLS4 - Transaction and product certificate .
Point of origin	The location where the raw material directly originates, before its classification as GGL Biomass.



Term	Definition
Processing	Conducting processes that alter the physical or chemical properties of biomass. For example, chipping, drying, and pelletization change the density or heating value, whereas digestion and pyrolysis modify its chemical characteristics.
Producer	Producer of raw material at a Point of origin for a First Collector or Biomass Producer, who may or may not be certified as a GGL Participant.
Prohibited material	Material listed under GGL List of prohibited materials at the GGL Website
Publication date	New (versions of) GGL documents include their Publication date, which indicates when that version is published. Certification against a new version cannot occur until after its Adoption date.
Raw material	The batch of biomass from a single Point of origin before it is classified as GGL Biomass, for which a single Raw Material Statement is verified and that falls within a single GGL Category of biomass.
RED	EU Renewable Energy Directive (EU) 2018/2001 of the EU Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (REDII) amended by Directive (EU) Directive 2023/2413 (REDIII), its most recent consolidated version including amendments and corrigenda in its most recent consolidated version as published on https://eur-lex.europa.eu .
Residue	A substance that is not the primary, co- or by-product of a production process. It is not a primary goal of that process, and the process has not been intentionally adjusted to create it.
RMS / Raw Material Statement	A certified statement describing the batch of raw materials brought into GGL supply chains by a GGL Participant that meets the requirements of GGLS1 - Chain of Custody criteria and applicable GGL Modules.
Site	Site refers to a specific geographical location, including logistical facilities and transmission or distribution infrastructures, characterized by defined boundaries within which products can be mixed.
Supplier	Supplier of raw material from a Point of origin to a First Collector or Biomass Producer. A supplier may or may not be certified as a GGL Participant.
TC / Transaction certificate	A certified statement of a transaction between GGL Participants that meets requirements of GGLS4 - Transaction and product certificate .
Transition period	The new versions of the GGL documents specify the end of a Transition Period. This is the time until which (re-)certification decisions made before the Effective Date (based on the previous version of the document) remain valid. During the Transition Period, audits conducted by a Certification Body must be based solely on the valid (new) version of the GGL Scheme documents.



Term	Definition
Union database / UDB	This database aims to enhance the traceability of gaseous and liquid fuels in the transport sector. Its main objectives are to prevent double counting and to mitigate the risks of irregularities and fraud. As mandated under Article 28(2) of the Renewable Energy Directive II (RED II), the Union database focuses on tracking consignments of liquid and gaseous fuels used in transportation. Therefore, this requirement does not apply to certification of solid biomass.
USI number	The unique identification number for GGL participants, Certification Bodies (CBs), and Users in GGLedger (consisting of 19 digits) is comparable to a certificate number.
Waste	Any substance or object that the holder discards, intends to discard, or is required to discard. It is not classified as a co- or by-product and does not include substances that have been intentionally altered or contaminated to fit this definition.



A. Introduction & scope

A.1

Green Gold Label biomass consists of (residual) products of agricultural or forestry origin and related industries that are compliant with requirements for sustainable biomass in various national and international legal frameworks.

A.2

The geographical scope is global, covering the entire supply chain from initial biomass sourcing to the final user. GGL biomass consists of natural material from responsibly managed forestry, agricultural production and plantations in accordance with the Green Gold Label standards (GGLS). The GGL standards and applicable modular documents cover all transactions for products produced, processed, and sourced by GGL Participants to demonstrate the responsible, sustainable origin of the materials.

A.3

GGL Participants shall comply with the **GGLS1 – Chain of Custody criteria** as set out by the Principles and Criteria below. Generally, the original biomass producer is the first step in the GGL chain of custody. Participants trade and/or convert the material sold as GGL certified (biomass). In case the Participant is partially or fully outsourcing the production of GGL products and (raw) materials, the involved production units must comply with the **GGLS1 – Chain of Custody criteria** in full. This standard applies to each Participant.

A.4

To sell (claim) GGL-Certified or GGL-Controlled biomass, a Participant must meet all relevant requirements from **GGLS4 - Transaction and product certificate**.

A.5

GGL certifies compliance with several regulatory frameworks through different GGL Modules (for example, EU RED, Japanese FIT/FIP and Dutch SDE++). Specific requirements per regulatory framework are set out in the Instructions and Guidances for each GGL Module. To meet all requirements of the **GGLS1 – Chain of Custody criteria** standards, the Participant therefore shall also comply in full with all Instruction and Guidance documents for the respective GGL Module.

A.6

All GGL Standards are normative unless stated otherwise.

B. Principles

Principle 1. Each Certification Body, Participant and batch of Biomass shall share one (1) or more GGL Scopes within GGL supply chains

- 1.01 The GGL Scope attribute is defined in **GGL Scope Definitions**, and its shared understanding is crucial for how the GGL Scheme works across its different Modules.
- 1.02 All input material shall be categorised according to its origin and composition based on the following material categories:
- Category 1: Woody biomass from large FMUs (>500ha)
 - Category 2: Woody biomass from small FMUs (<500ha)
 - Category 3: Residual biomass from natural site and landscape management
 - Category 4: Agricultural biomass
 - Category 5: Biogenic wastes and residues
- 1.03 Allocation of inputs follows the decision process outlined in Illustration ii below to classify material into one (1) of the GGL Categories.

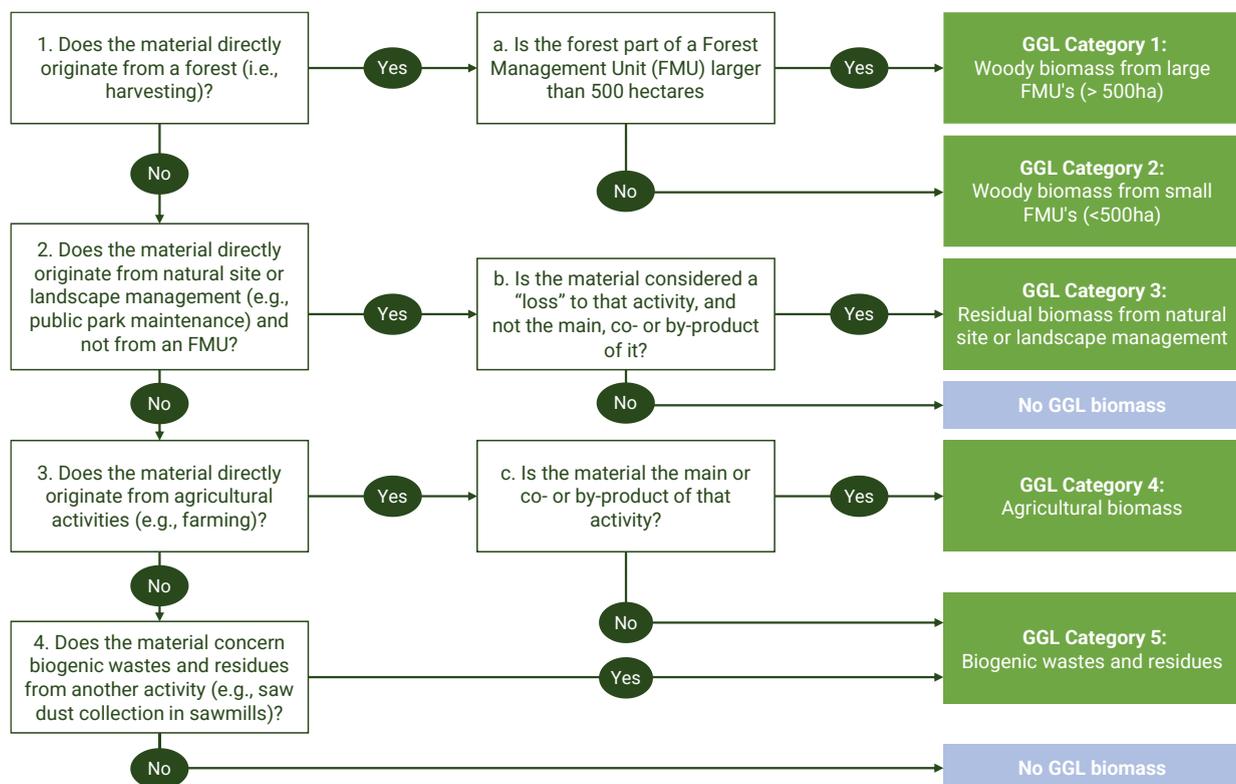


Illustration ii – Allocation of biomass to GGL Categories

Note - If inputs and outputs cannot be correctly identified as meeting any of the above categories, previous (sub-)supplier(s) shall be contacted and requested to provide further evidence. Material(s) that do not meet the definition and criteria of the biomass categories shall not be used within the GGL scheme.

- 1.04 When input material is classified in one (1) GGL Category, it does not mean this material is certified as GGL Biomass. Certification requires compliance with all



- applicable requirements from GGL Standards and Modules.
- 1.05 Once certified, all GGL Biomass batches have at least one GGL Scope listed as an attribute. The different scopes valid under the GGL Scheme are defined in **GGL Scope definitions**.
 - 1.06 GGL Participants can perform activities within the scope of their GGL certification, in accordance with the GGL Standards for which they have been certified.
 - 1.07 All GGL Participants are required to be certified against:
 - **GGLS1 – Chain of custody criteria**
 - **GGLS4 – Transaction and product certificate**
- Note - The above also applies to:
- A First Collector bringing GGL Category 5 biomass (Biogenic wastes and residues) into a GGL supply chain.
 - Any Participant bringing certified material from Endorsed schemes in any GGL Category into a GGL supply chain.
- 1.08 A GGL Participant also certified for:
 - **GGLS2 – Agricultural source criteria** may also produce, farm or harvest material in GGL Category 4 (Agricultural biomass) as Biomass Producer,
 - **GGLS5 - Forest management criteria** may produce or harvest material in GGL Category 1, 2 or 3 (Woody biomass from large FMUs (>500ha), from small FMUs (<500ha) or from nature or landscape management) as Biomass Producer,
 - **GGLS6 – Power company criteria**, may convert GGL Biomass into power or heat as an End-user.

This is detailed in Illustration iii below:

1 All GGL Participants and GGL Biomass shall, at all times, comply with the following GGL Standards:

- **GGLS1**
- **GGLS4**

2 For each specific regulation (e.g., RED, FIT/FIP) a GGL module with **additional documents** apply to all GGL Participants and GGL Biomass

3 Depending on the GGL Category of biomass and the type of GGL Participant, the following **additional GGL Standards** apply:

	GGL Category 1: Woody biomass from large FMU's (>500ha)	GGL Category 2: Woody biomass from small FMU's (<500ha)	GGL Category 3: Woody biomass from nature or landscape management	GGL Category 4: Agricultural biomass	GGL Category 5: Biogenic wastes and residues
Biomass Producer / First Collector	GGLS5	GGLS5	GGLS5	GGLS2	-
Trader	-	-	-	-	-
End-user	GGLS6	GGLS6	GGLS6	GGLS6	GGLS6

GGL Modules:

- RED: Module A
- FIT/FIP: Module B
- SDE+: Module C

Illustration iii – Applicability of GGL Modules and GGL Standards.



- 1.09 When a GGL Participant buys or sells GGL Biomass with a GGL Scope in which that Participant has not been certified at the same time, the GGL Biomass will lose that GGL Scope attribute as a result.

Principle 2. Each GGL Participant shall have a good Quality Management System

- 2.01 Each Participant shall have a quality management system to ensure that the amount of GGL biomass material included in the GGL product flows is measured and recorded.
- 2.02 The location of a Participant shall not be listed as a prohibited location in the ***GGL List of prohibited materials***.
- 2.03 The quality management system shall contain documented procedures and methods covering all relevant aspects of the GGL Standards as these apply to the GGL Scope of the Participant's GGL certificate.
- 2.04 To enable adequate tracking and tracing of inputs and outputs, the Participant shall describe the main processing steps in sufficient detail, including the processes, information flows, and physical biomass movement within the organisation. Procedures and instructions shall be available for the monitoring of critical control points.
- 2.05 All process documentation and procedures shall be kept up to date.
- 2.06 An internal audit shall be carried out at least annually, covering all applicable requirements from this standard and shall be carried out by personnel who are independent from those directly responsible for the activity on which the internal audit is to be carried out, and may be performed by subcontractors
- 2.07 The results of the internal audit shall be recorded and brought to the attention of the personnel responsible for the area in which the internal audit is conducted. Regarding any shortcomings observed during the internal audit, corrective measures must be taken promptly. The implementation and effectiveness of the measures taken shall be verified and recorded.
- 2.08 Documented quality management system procedures shall include:
- Storage, transportation and handling of raw materials and final (biomass) products;
 - Receipt of incoming raw materials, including biomass;
 - Definition of GGL Biomass categories and product groups;
 - Registration of quality and amount of GGL-Certified and GGL-Controlled biomass and raw materials;
 - Utilising biomass or fuels for the production of energy/heat;
 - Safety procedures;
 - Mass balance and traceability;
 - Volume credit system (see Principle 8);
 - Records and registrations;
 - Purchase of biomass/materials;
 - Registration and documentation of evidence and figures used in the GHG calculations and data gathering;
 - Rightful GGL claims;
 - Outsourcing/sub-contracting;



- Planning and carrying out internal audits.
- 2.09 If applicable, agreements with service providers relating to compliance with the GGL criteria must be in place.
- 2.10 A procedure to establish, document, and implement corrective and preventive measures shall be maintained to avoid the recurrence of identified non-conformities and shortcomings. Changes arising from corrective and preventive measures must be implemented and recorded.
- 2.11 Any changes to the GGL standards and applicable modular documents, Principles, and Criteria shall be incorporated into the Participants' (quality) management system.
- 2.12 In the event of any incorrect claims, use of labels, logos, or statements by the Participant, the following procedure shall be followed. The Participant shall:
- a) Inform any involved parties of the identified non-conformity, including clients and the Certification Body, within 5 working days;
 - b) Analyse the root cause of the identified non-conformity, ensuring sufficient follow-up to avoid recurrence;
 - c) Cooperate with the Certification Body to resolve the identified non-conformity.
- 2.13 Participants shall meet all applicable legal requirements, including those of the EUTR, EUDR and the Lacey Act. To demonstrate that EUDR requirements are being met when these apply, a Participant shall:
- 2.13(a) have a valid EORI (Economic Operators Registration and Identification) number; and,
- 2.13(b) have evidence available for verification by the Certification body that its import-and/or export-activities are validly administered in the Union Database.

Note - The EU Deforestation Regulation places requirements on companies that place, amongst others, timber, soy, cocoa, coffee, oil palm, rubber and their derived products (including biomass) on the EU market. The due diligence system must include procedures, access to information, risk assessment, and risk mitigation to meet all requirements. More information can be found here:
https://environment.ec.europa.eu/topics/forests/deforestation_en

- 2.14 Participants shall provide buyers with access to relevant information if required to meet legal requirements.

Principle 3. Authorisations and responsibilities of all personnel involved in activities related to GGL shall be recorded

- 3.01 The responsibilities, authorisations and qualifications of all personnel who manage and carry out work related to the GGL standard requirements shall be recorded in writing. The Participant shall record the responsibility structure in an organisation chart. This also applies to temporary personnel.
- 3.02 The Participant shall establish, implement, and maintain procedures and/or work instructions that cover all applicable requirements of this standard, in accordance with its scale and complexity.
- 3.03 Appropriate records shall be maintained of the experience, expertise and



- (required) training of the employees concerned.
- 3.04 A document-management procedure must be in place to identify the applicable revision status of documents to prevent the use of invalid and/or obsolete documents. A reference list or similar document may be used. A system must be available for updating and managing documents.
- 3.05 Management shall appoint a (management) representative who, irrespective of other responsibilities, shall have a clearly defined authority:
- To ensure that the quality management system, complying with the requirements of this standard, is implemented and maintained, and
 - To report to management on the results of the quality management system, resulting in improvements of this system.
- 3.06 Top-level management shall define and document its commitment to complying with the GGL requirements. This will include (reference to) the following:
- Ensuring that all relevant staff demonstrate awareness of the Participants procedures and competence in implementing the GGL requirements;
 - Conducting Management reviews;
 - Providing availability of necessary resources;
 - Performing internal audits.
- 3.07 A publicly available statement on its commitment shall be available.

Principle 4. Specific provisions relating to transport apply

- 4.01 Raw material entering the GGL system (i.e. raw, half-finished and finished materials and products) may only be transported in a manner that prevents substitution or mixing of the contents.
- 4.02 Raw material entering the GGL system may not originate from prohibited Points of origin listed in the ***GGL List of prohibited materials***.
- 4.03 GGL Biomass transported between GGL Participants shall be:
- transported in a manner that prevents substitution of contents with different characteristics. For instance, chips and sawdust should not be mixed during transport or storage and they shall be kept separately in the mass balance documentation (note that they could be mixed during processing, for instance, to produce pellets);
 - accompanied with all relevant documents for the (GGL) chain of custody (e.g. transport documents of the actual shipment, Raw Material Statement, Transaction Certificate), proof of cleanliness for the means of transport and documents and information ensuring legal compliance in both the country of origin and its destination (e.g. EUTR, EUDR, Lacey Act, see 2.13).
- 4.04 Transport documents must be available for every transport within the chain from the supplier of the raw material to the final user. The transport documents shall state at least the following:
- Name and address of the Participant and the sender or receiver;
 - Name and amount of the shipped product;
 - Date of the shipment.
- 4.05 Proof of cleanliness shall be laid down, for example, with a certificate of cleanliness, for every cargo hold that is designated to contain GGL-Certified or GGL-Controlled material, such as (but not restricted to):



- trucks;
- rail wagons;
- inland waterway barges;
- sea-going vessels;
- containers;
- land-based storage facilities.

When dedicated transport is used (i.e., transport equipment that transports only GGL biomass), a written declaration from the transport company is sufficient. The declaration shall state that the trucks and vessels are used solely for the transport of material of natural origin. The trucks must be checked randomly. Reports of the checks have to be available upon request.

4.06 If applicable, proof of legal compliance (e.g. Lacey Act, EUTR, EUDR) shall be maintained for each transported GGL biomass.

4.07 A Transaction Certificate complying with **GGLS4 – Transaction and product certificate** is issued by an approved Certification Body for every transaction between GGL Participants with GGL Biomass, on behalf of the GGL Foundation.

Principle 5. Products entering GGL supply chains shall meet specific requirements and undergo specific procedures.

5.01 Upon receipt of raw materials, the Participant shall check:

- a) Whether the accompanying documents are correct (e.g. invoices and delivery documents);
- b) Whether the formal GGL claims used are valid and applicable;
- c) Whether the particulars referred to in Principle 4 have been provided;
- d) Whether the general condition of the product meets requirements;
- e) To what extent the quantity of the raw material meets declared quantities, including amounts lost due to drying, processing and/or handling before collection; and
- f) Whether the product is contaminated with prohibited materials listed in the **GGL List of prohibited materials**.

If this inspection raises doubts about whether the product involved complies with the above, then it must be segregated and not further processed. The product may not be sold or processed as GGL Biomass until conformity has been proven. Records of the above shall be maintained.

5.02 Each batch of raw material shall be described in a Raw Material Statement as per the applicable GGL Module. Each batch shall consist only of raw material with the same product characteristics, the same Point of origin, and the same GGL Category of biomass. Raw Material Statements shall be fully completed and signed by the supplier for verification by the Certification Body.

5.03 If materials are covered by a GGL Endorsed scheme or supplied by a GGL Participant as a supplier, the following information shall be checked and recorded in a Raw material statement:

- a) The name and address of the Participant;
- b) The certificate / USI number and, if applicable, the GGL Endorsed scheme name, claim and certificate number;
- c) Validity and scope of Participant's certificate; and



- d) If applicable, any checks of online databases regarding the Participant's certificate.
- 5.04 All incoming materials covered by the Participant's GGL system shall comply with, and be registered as, the following two formal GGL claims:
- **GGL-Certified;**
 - **GGL-Controlled.**
- 5.05 **GGL-Certified** input is material:
- Sourced under a GGL Endorsed scheme which qualifies as GGL-Certified equivalent and corresponding claim(s) as defined in the specific GGL Module, and received with a Raw Material Statement. Note: requirement 2.13 from this standard also applies;
 - Non-endorsed wood sourced from FMU's (GGL Category 1 or 2; see 1.01 above), received with a Raw Material Statement and meeting all requirements of **GGLS5 – Forest management criteria**; or,
 - Agricultural residual material (GGL Category 4; see 1.01 above) received with a Raw Material Statement and meeting all requirements of **GGLS2 – Agricultural source criteria**; or,
 - Biogenic/recycled wastes and residues (GGL Category 5; see 1.01 above) received with a Raw Material Statement.
- 5.06 **GGL-Controlled** input is material:
- Sourced under a GGL Endorsed scheme which qualifies as GGL-Controlled equivalent and corresponding claim(s) as defined in the specific GGL Module, and received with a Raw Material Statement; or,
 - Non-endorsed wood sourced from FMU's (GGL Category 1 or 2; see 5.08 above), received with a Raw Material Statement that complies with this standard as well as specific principles from **GGLS5 – Forest management criteria**, being:
 - Principle 2.01 on sites with High conservation value;
 - Principle 2.03 on conversion of natural forests;
 - Principle 7 on land with high biodiversity value;
 - Principle 8 on land with high carbon stock;
 - Principle 9 on mitigation of long-term carbon debt;
 - Principle 10 on labour rights; and,
 - Principle 11 on health and safety.The supplier(s) shall sign a Raw Material Statement as well as the receiving GGL Participant; or,
 - Residual products from natural site and landscape management (GGL Category 3; see 5.08 above) received with a Raw Material Statement that complies with this standard, as well as specific principles from **GGLS5 – Forest management criteria**, being:
 - Principle 2.01 on sites with High conservation value;
 - Principle 2.03 on conversion of natural forests;
 - Principle 7 on land with high biodiversity value;
 - Principle 8 on land with high carbon stock;
 - Principle 9 on mitigation of long-term carbon debt;
 - Principle 10 on labour rights; and,



- Principle 11 on health and safety.
The supplier(s) shall sign a Raw Material Statement as well as the receiving GGL Participant.

Note - For clarity: GGL-Controlled biomass can only be from GGL Categories 1, 2 or 3. GGL Categories 1 or 2 biomass can be GGL-Certified woody biomass. GGL Category 3 biomass can only have the GGL-Controlled claim.

- 5.07 The Participant shall identify GGL material that meets the criteria in 5.05 as **GGL-Certified**.
- 5.08 The Participant shall identify GGL material that meets the criteria in 5.06 as **GGL-Controlled**.
- 5.09 The Participant shall monitor and register the volumes of GGL material supplied (incoming). In the event that the amounts of material supplied deviates from the amounts stated in the statement and invoices, the Participant shall verify the deviation with the supplier and record it.
- 5.10 All material delivered to a Participant shall be provided with a Raw Material Statement as per the applicable GGL Module, describing the material by:
 - One of the GGL Categories 1 through 5,
 - Its certification under an Endorsed scheme and certificate number, when applicable,
 - Its name and species,
 - Its country of origin and geolocation, and
 - Other applicable attributes per GGL Module

Note 1 - All suppliers of residues and wastes shall sign the Raw Material Statement to identify the original producer of the (residual) materials and ensure that the GGL definitions and requirements are met.

The following requirements 5.11 through 5.14 apply only when certification against **GGLS5 – Forest management criteria** for biomass in GGL Categories 1, 2, or 3, and **GGLS2 – Agricultural source criteria** for biomass in GGL Category 4, is conducted by a GGL Participant.

- 5.11 The Raw Material Statement shall be used to verify compliance against the relevant requirements from the **GGLS5 – Forest management criteria** and **GGLS2 – agricultural source criteria** by both the Participant and the Certification Body. Any legal owners (including sub-suppliers) of the material shall sign the Raw Material Statement (or separate statements) to identify the full supply chain and to prove/ensure that materials covered by the Raw Material Statement meet the GGL criteria. All relevant evidence shall be requested from suppliers if there is any doubt whether the material meets the applicable GGL criteria.
- 5.12 Verification by the Participant against **GGLS5 – Forest management criteria** and **GGLS2 – Agricultural source criteria** requirements shall take place before selling the material as GGL-Certified or GGL-Controlled (as the case may be) and must meet the following requirements:
 - a) Verification shall be conducted for each location, warehouse, supplier and/or producer involved in the supply chain, from the Point of origin through

- delivery to the Biomass Producer's site;
- b) Verification shall be reported and documented adequately with findings and evidence for each criterion, to allow its results to be reproduced by third parties;
 - c) The scope of verification shall be clearly defined in relation to the applicable deliveries and Points of origin;
 - d) The results of the verification by the Biomass Producer shall be registered in a Raw Material Statement for all (batches of) raw materials collected from suppliers and/or producers, declaring compliance with the requirements of this instruction;
 - e) Verification results and evidence shall be available to the Certification Body of the Biomass Producer upon request and included in the GGL File;
 - f) Verification shall be carried out by qualified and experienced personnel, relevant to the scope of the verification and adapted to the local language, customs and conditions of the country or region where the supplier and/or producer is based. This also applies if any part of the verification against the GGL Standards is outsourced to a third party. Evidence of relevant qualifications and experience by either the Participants' personnel or a subcontractor shall be documented and be available upon request;
 - g) The Biomass Producer shall consult relevant stakeholders (e.g., third-party subcontractors, complainants) within a sufficient time before the verification takes place;
 - h) Verification must be carried out covering the full supply chain, including the forest management unit and/or agricultural supply unit of origin; and
 - i) Identified non-conformities, risk mitigation and corrective actions resulting from the verification shall be clearly recorded and documented.
- 5.13 Verification against the **GGLS5 – Forest management criteria** and **GGLS2 – Agricultural source criteria** by the Participant shall be repeated every 12 months for continued or repeated deliveries from the same forest management unit or agricultural supply unit.
- 5.14 Any non-conformity or well-funded complaint/allegation regarding the forest management unit or any part of the supply chain shall be investigated within 2 months of identifying the non-conformity or receiving the complaint/allegation. The Certification Body shall be informed within this deadline.

Principle 6. GGL supply chains shall meet administrative requirements regarding their outputs

- 6.01 Each Participant shall ensure that:
- a) (Raw) material source, Points of origin, nature and quantities supplied to the Participant, lost due to drying, processing or handling and delivered product that has left the unit/facility is traceable;
 - b) All raw material mentioned under 6.01a) is checked for additives and substances before conversion to GGL biomass; and
 - c) The status of GGL-Certified or GGL-Controlled biomass of incoming and outgoing material/product is tracked.
- 6.02 The Participant shall keep records of the nature, quantities, origins and/or destinations (including the names, addresses and certificate numbers of the



- buyers concerned, and the dates of delivery) of all products received, delivered and sold.
- 6.03 The Participant shall maintain records of GGL-related information for shipments. This includes the Transaction Certificate and also the Raw Material Statements (when applicable).
- 6.04 There are two formal GGL claims: GGL-Certified and GGL-Controlled, as defined in 5.05 and 5.06 above, respectively. These claims shall be used when communicating the claim to third parties (i.e. clients).
- 6.05 The Participants' invoices for GGL biomass shall contain at least:
- a) The formal GGL claim(s) per identified product/material are: either GGL-Certified, or GGL-Controlled
 - b) Reference to a GGL Transaction Certificate and the regulatory module that applies per GGL Scope
 - c) Name and contact details of the Participant
 - d) Information necessary to identify the buyer, including name and address
 - e) Document date
 - f) Amounts of biomass
- 6.06 Results of checks, measurements, sampling and inspections shall be recorded and filed. The records must clearly show who has performed the inspections and tests, and their accreditation. Inspections must be performed by independent third-party inspection companies unless stated otherwise. An ISO 17025-accredited laboratory must perform analyses unless approval for a different laboratory is obtained from the GGL Board.
- 6.07 Records and documents relating to all aspects of the GGL system (including all GGL standards as well as the GGL File) must be maintained for at least 5 years, including but not limited to:
- Sales
 - Purchase
 - Production
 - Deliveries (incoming and outgoing)
 - Transaction Certificates
 - GGL Scope
 - GHG data
 - Annual summaries
 - Complaints and non-conforming products
 - Suppliers
 - Outsourcing/sub-contracting
 - Verification evidence against **GGLS5 – Forest management criteria** and **GGLS2 – Agricultural source criteria** as applicable

Principle 7. Raw material or GGL biomass shall be controlled in a manner that meets specific requirements during its processing

- 7.01 All raw materials and all products, before, during, and after processing, must be traceable to their Point of origin and identified. Where a risk of pollution with foreign material (or non- GGL-Certified / -Controlled material) or mixing with products polluted with foreign materials is identified, this risk shall be specified



and documented.

- 7.02 No additives may be used that are prohibited by GGL, as defined in the **GGL List of prohibited materials**.
- 7.03 Different batches of GGL Biomass with different regulatory Modules within their GGL Scope, as defined in **GGL Scope definitions**, cannot be mixed.
- 7.04 Different batches of GGL Biomass with different Categories of Biomass but using the same Module, as defined in **GGL Scope definitions**, can be mixed, and their Categories accumulate.

Note 1 - For example, GGL Biomass with Scope "FIT/FIP – Category 5" cannot be mixed with GGL Biomass with Scope "SDE+ - Category 5". If these are still mixed, both batches will lose their certification.

Note 2 - For example, GGL Biomass with Scope "FIT/FIP – Category 5" can be mixed with GGL Biomass with Scope "FIT/FIP - Category 1". When combined, the new mix will have the Scope "FIT/FIP – Category 1, 5".

- 7.05 When (semi-finished) products or raw materials are processed, handled or stored that contain prohibited contents:
 - a) These non-compliant materials must be stored separately (before and after processing);
 - b) A batch of non-compliant materials must be processed at once and without interruption, and physically or timewise separated from equivalent treatments for non-certified (polluted) and non-eligible products;
 - c) Measures must be taken to ensure the identification of the batch and to avoid contamination by products that have not been obtained in accordance with the GGL standards; and
 - d) Processing and storage must be organised and executed so that pollution from non-vegetable or other prohibited materials is prevented.
- 7.06 Transport used for GGL-Certified or GGL-Controlled material shall be clean to avoid mixture or contamination with products that have not been obtained in accordance with the GGL standards.
- 7.07 Specifications of raw materials or (semi-finished) products that undergo processing shall be recorded and made available to relevant personnel.
- 7.08 Any external storage shall be considered a part of the facility, and procedures and requirements applicable to the facility shall also apply to the storage. In case a Participant makes use of an external storage facility, the Participant shall demonstrably ensure that the external storage facility complies in full with all applicable requirements of criteria 7.02, 7.06 and Principle 9. The Participant shall, in such cases, include the requirements in an agreement with the facility manager or their legal representative, for example, in a contract.
- 7.09 Any outsourced activities shall be covered by an outsourcing agreement to ensure that the sub-contractor is aware of all responsibilities and procedures regarding GGL-Certified or GGL-Controlled materials, and must cover:
 - a) mutual responsibilities
 - b) segregation requirements for GGL-Certified and GGL-Controlled materials, and for materials with non-overlapping GGL Scopes



- c) verification and checks of incoming materials covered by the agreement
- d) the right for the Certification Body to conduct audits if deemed necessary
- e) any procedures and training required to carry out the outsourced activities as defined in this standard
- f) the obligation that GGL claims, labels and logos are not to be applied in any way by the sub-contractor who is not a GGL Participant himself
- g) all other requirements that would apply to the GGL Participant as per **GGLS1 – Chain of Custody criteria**, himself, in case he would not have outsourced any activity.

Principle 8. The GGL Volume credit system ensures mass balance across GGL supply chains.

- 8.01 GGL-Certified materials may only be mixed with GGL- Controlled materials from GGL Categories 1, 2 or 3 if these materials comply with criterion 2.13, Principle 7, Principle 8, Principle 9 and Principle 10 of this standard. After mixing, the materials can only carry the GGL-Controlled claim.
- 8.02 Only when GGL Biomass is physically mixed can it be included in a single mass balance for which the Volume credit system can be used. The Volume credit system allows trading from the mass balance using characteristics from some of the GGL Biomass mixed into the mass balance, ensuring that, in no case, the sum of the characteristics of all GGL Biomass in the mass balance is changed.
- 8.03 GGL Biomass with different, non-overlapping regulatory Modules amongst its GGL Scopes can never be mixed. After mixing, the mass balance of GGL Biomass will lose all GGL Scopes with regulations that do not match across all inputs to the mix.
- 8.04 GGL Biomass can never be physically mixed with non-certified material.
- 8.05 A physical mix of different categories of GGL Biomass shall be identifiable with a single descriptive name of the product mix.

Note - For example: if batch #1 of GGL Biomass with more than one regulation in its GGL Scopes (e.g., RED and also FIT/FIP) is mixed with batch #2 GGL Biomass that has one regulation in its GGL Scope (e.g., FIT/FIP) that matches batch #1, batch #1 will lose the other (RED) GGL Scopes after mixing.

- 8.06 The Volume credit system allows allocation of the following characteristics across mass balance:
 - GHG emissions data,
 - GGL claims, and
 - GGL Category of biomass
- 8.07 Specific GGL Modules set more stringent requirements on mixing of biomass and the Volume credit system (e.g., **Instruction A.0 – RED Module** in Section J).
- 8.08 The corresponding characteristics, claims and quantities of the material shall be the same after application of the conversion factor. It shall be ensured that mixed outputs can be traced to individual inputs.
- 8.09 The claim period shall be specified with a maximum of 12 months. During this period, all inputs and outputs are recorded.



- 8.10 It shall be ensured that within the specified claim period, the quantities of the material having the same characteristics of inputs, after application of the conversion factor, correspond to the output products.
- 8.11 For each product group, a GGL credit account shall be maintained, in which added and deducted credit volumes are recorded based on the supplied claims, according to criteria **Error! Reference source not found.**
- 8.12 Added credits shall meet the requirements of criteria 5.05 and 5.06. The applicable output claim shall be GGL-Certified and/or GGL-Controlled based on the proportion of input claims.
- 8.13 The Participant shall ensure that credits in the account are never overdrawn.
- 8.14 The volume credit system shall be applied at the level of a single physical site.
- 8.15 The volume credit system shall be audited annually by the Certification Body, and the Participant shall make all relevant data, records, and documents readily available at the annual audit. Physical stock still present at the end of a period with GGL-Certified or GGL-Controlled status may be carried over to the next period with the same status.

Principle 9. Staff employed by GGL Participants, and the facilities and equipment used by GGL Participants, shall meet wellbeing, health, safety, and cleanliness standards.

- 9.01 A procedure for HR processes, such as recruitment, training, retirement and contract termination, is in place.
- 9.02 Wages shall meet or exceed minimum industry or national standards or other recognised wage agreements, such as those agreed by the local community.
- 9.03 Participants are committed to supporting and promoting the principles and rights at work, as set out in the “Fundamental Principles and Rights at Work (1998) and its Follow-up (2022)”, issued by the International Labour Organisation (ILO). Participants shall comply with applicable national labour laws in their countries of operation. In addition, Participants shall document in their Management system (as referred to in Principle 6) the criteria and measures implemented to:
 - Comply fully with ILO standards regarding minimum working age and the prohibition of child labour, and
 - Further support rights at work:
 - Respecting employees’ freedom of association and the right to collective bargaining;
 - Avoiding the use of forced or compulsory labour; and
 - Promoting equal opportunity and seeking to prevent discrimination in employment and occupation.
- 9.04 Participants shall establish, implement and maintain occupational health and safety measures in their quality management system (referred to in Principle 2) appropriate to the scale and risk profile of their operations. Operations shall be conducted in a manner consistent with the principles of the “ILO Health and Safety in Agriculture Convention” (2001) and the “ILO Working Environment (Air Pollution, Noise and Vibration) Convention” (1977). These measures shall include at least:



- a) Risk identification and assessment;
 - b) Preventive and corrective measures;
 - c) Safety programs to mitigate identified risks;
 - d) Regular worker training; and
 - e) Provision and enforcement of appropriate personal protective equipment (PPE).
- 9.05 The facility and its equipment must be designed and operated to ensure full compliance with applicable legislation on environmental principles, practices, and safety.
- 9.06 Measures must be taken in the processing facilities and their equipment to avoid injuries to personnel (including contractors). Dust and hazardous fumes must be extracted from the working space and filtered before release.
- 9.07 Occupational health and safety shall be a demonstrable concern of the Participant, and regular evaluation shall be performed.
- 9.08 Health and safety procedures shall be documented, maintained and implemented. Personnel shall be trained, and appropriate safety measures shall be taken.
- 9.09 A safety plan shall be documented, monitored and implemented. The plan shall include safety considerations and feasible implementation deadlines.
- 9.10 The Participant shall make personal protective equipment available to all personnel, and the registration of issued safety equipment shall be kept up to date.

Principle 10. Transaction Certificates shall report energy and GHG data

- 10.01 All material received with a GGL claim (GGL-Certified or GGL-Controlled) must be accompanied by a valid GGL Transaction Certificate or GGL Product Certificate per **GGSL 4 – Transaction and product certificate**.
- 10.02 For all material covered by a GGL Transaction Certificate, the Trader or End-user of GGL- Certified and GGL-Controlled material shall register at least:
- a) the name, address, location, GGL Scope and legal representative of the Trader, Biomass Producer or First Collector delivering the shipment;
 - b) the name, address, location, GGL Scope and legal status of the Biomass Producer or First Collector;
 - c) any information relating to the requirement under 2.13 above;
 - d) the certificate number of the trader delivering the material;
 - e) the Transaction Certificate number of the batch;
 - f) the GGL Scope(s) of the biomass;
 - g) the amount of GGL Biomass (or its equivalent calorific content) as stated on the Transaction Certificate;
 - h) total emissions associated with the GGL Biomass (E) as stated on the Transaction Certificate reflecting all emissions (E) incurred until the moment that the Trader or End-user assumes ownership of the GGL biomass (e.g., as defined in the sales documents' Incoterms);
 - i) the transport documents of the shipment; and
 - j) the Load Compartment Inspection (LCI) report belongs to the shipment.
- 10.03 For outputs, at least the following information shall be registered:
- a) the name, address, location, GGL Scope and legal representative of the



- Biomass Producer, First Collector or Trader who has supplied the GGL biomass;
- b) the name, address, location, GGL Scope and legal representative of the Trader or End-user to whom they have supplied the biomass;
 - c) the **GGSL4 – Transaction and product certificate** number under which the batch is sold;
 - d) the GGL Scope(s) of the material;
 - e) the amount of GGL Biomass (or its equivalent calorific content) as stated on the Transaction Certificate;
 - f) the amount of GGL Biomass lost due to drying, processing, handling or other cause since the preceding step in the GGL supply chain;
 - g) total emissions associated with the GGL Biomass (E) as stated on the incoming Transaction Certificate, as well as all emissions associated with the GGL Biomass under his ownership and control, reflecting all emissions (E) up until and including the moment of his next sale of the GGL biomass to a subsequent buyer; and
 - h) the Transaction Certificate numbers of the batches that are part of the outgoing batch.
- 10.04 An outgoing batch may contain material from several batches covered by a GGL Transaction Certificate, but may not contain any material that a GGL Transaction Certificate does not cover. An outgoing batch under a GGL Transaction Certificate may not contain any material that does not comply with clause 2.13 of this standard when applicable.
- 10.05 The amount of outgoing GGL Biomass may not exceed the accumulated amounts of the batch(es) of raw material declared on the(ir) Raw Material Statement(s) or GGL Biomass registered on the(ir) prior Transaction Certificates, except for changes in moisture content or measurement inaccuracies that fall within acceptable, industry-specific tolerance levels.
- 10.06 Similarly, the accumulated calculated total emissions of the GGL Biomass (E) in outgoing material originating from a batch as covered by an incoming Transaction Certificate number may not be less than the total emissions of the GGL Biomass (E) as registered on that Transaction or Product Certificate.
- 10.07 The GGL scheme uses upstream GHG verification. This means that GGL Participants receiving biomass are responsible for administering and reporting GHG emissions for all upstream supply chain activities that occurred before their receipt and ownership of GGL biomass.
- Note 1 - This upstream administration requirement for GHG emissions places responsibility on the recipient of GGL Biomass. It incentivises the recipient to collect all GHG emission data from any previous supplier or seller.
- Note 2 – The precise moment of change in ownership of GGL Biomass is dictated by the terms of the sales agreement, e.g., the Incoterms of a transaction involving shipment overseas.
- 10.08 The value for E to be claimed on an outgoing Transaction or Product Certificate is the cumulative value of all prior transactions. It shall be calculated as follows, unless defined differently in the specific GGL Module:



$$E_b = (R.E_1 \times A_1) + (R.E_2 \times A_2) + \dots + (R.E_n \times A_n)$$

Where:

- E_b = calculated emissions from the use of the fuel in this batch
- $R.E_1$ = emissions value E per MT or MJ calculated as E stated on the preceding Transaction Certificate, divided by its net mass in MT or MJ as stated on the preceding Transaction Certificate of batch 1
- A_1 = amount of material used from batch 1 in MT or MJ
- $R.E_2$ = emissions value E per MT or MJ calculated as E stated on the preceding Transaction Certificate, divided by its net mass in MT or MJ as stated on the preceding Transaction Certificate of batch 2
- A_2 = amount of material used from batch 2 in MT or MJ
- $R.E_n$ = emissions value E per MT or MJ calculated as E stated on the preceding Transaction Certificate, divided by its net mass in MT or MJ as stated on the preceding Transaction Certificate of batch n
- A_n = amount of material used from batch n in MT or MJ

Note 1 - GHG emission values are to be calculated and listed in units as per the applicable GGL Module. For the avoidance of doubt, and for example, RED requires calculations as per **Instruction A.4 – RED GHG Emissions**.

- 10.09 The Participant shall collect all necessary information to calculate the accumulated total greenhouse gas emissions (E) of the product, from the growing of the crop and relevant forest management activities through to the energy used in the production and storage of the product.
- 10.10 Every following Participant in the GGL supply-chain is obliged to calculate the accumulated total greenhouse gas emission (E) at the point of delivery, by taking the accumulated total greenhouse gas emissions (E) of the received product and, as stated on the Transaction Certificate, increased with the greenhouse gas emissions (E) since receipt (e.g. energy from storage, transport).
- 10.11 Each batch of GGL-Certified or GGL-Controlled material shall be provided with all relevant GHG and energy data required to carry out the GHG calculations and shall be based on a reference period of 12 months before production of that specific batch. Every step in the supply chain must be included when relevant to the specific batches sourced and/or sold as GGL-Certified and GGL-Controlled.