

Instruction Document 5E:

Collection and Communication of Energy and Carbon Data

Sustainable Biomass Program
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In the case of inconsistency between translations, the official English language version shall always take precedence.

SBP welcomes comments and suggestions for changes, revisions and/or clarifications on all of its Standards documentation. Please contact: info@sbp-cert.org

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1 Scope

Instruction Document 5E: Collection and Communication of Energy and Carbon data is a normative document, which accompanies SBP Standard 5: Collection and Communication of Data. It defines the requirements and options for collecting energy and carbon data that accompany SBP-certified biomass through the supply chain.

This document defines the data that are required for the calculation of potential carbon savings from using biomass in place of fossil fuels, and the means of communication of that data. The methodology for the calculation varies between different regulatory jurisdictions and is not covered by SBP Standard 5. Instead, each Legal Owner provides the data that permits the End-user to complete the carbon calculation according to the relevant regulatory requirements, as well as all data on sustainability characteristics of biomass, including the description of the feedstock.

Biomass Producers (BPs) create biomass with SBP Claims. Traders take legal ownership of biomass, but neither produce nor consume biomass. End-users consume biomass. Any legal entity may take on more than one of these roles.

For BPs the data is collected and communicated using the template “SBP Audit Report on Energy and Carbon data (SAR)” (three separate versions are available for wood pellets, woodchips with stationary chipping, and woodchips with mobile chipping only). The data is static and is defined based on an historic Reporting Period.

Because BPs supply biomass from a range of locations (for example, ex-works, ports, quaysides, delivered-in) and use a range of transport systems to reach the physical point of legal transfer, those differences in energy and carbon data must be captured. Additionally, the energy and carbon data will change between each Reporting Period. SBP uses Static Data Identifiers (SDIs) to enable the correct data to be allocated to all biomass.

BPs wishing to supply biomass outside of the SDI scope must record the relevant energy and carbon data for inland transport in the corresponding template “SBP Report on Energy and Carbon for Supplied Biomass (SREG)”. This requirement also applies to Traders. Additionally, where an End-User requires biomass to be supplied with an SREG, BPs and Traders shall record the relevant energy and carbon data in an SREG, whether that be for inland transport and/or sea transport, by using the latest version of the correct template.

BPs selling biomass with an SBP Claim must define Production Batches. Biomass produced in a single Production Batch is considered identical in terms of energy and carbon data. Each Production Batch is allocated a unique identifier, the Production Batch ID (PBid). The PBid enables all legitimate Legal Owners of the biomass to access relevant energy and carbon data and Dynamic Batch Sustainability Data (DBSD). The PBid is included in all Transaction Claims and DBSD is referenced using a unique number.

Transactions must be recorded in SBP Data Transfer System (DTS) and claims are only valid if transferred through the DTS.

2 Terms and Definitions

2.1 Definitions

See also SBP Glossary of Terms and Definitions.

Actual distance: real distance that is defined on the basis of a single journey of a product. The actual distance can be a record of distance recorded onboard a vehicle or an estimate based on data sources including Google Maps for inland transport or AXSMarine for sea transport.

Biomass: end product from a Biomass Producer.

Biomass Producer (BP): a legal entity which takes legal ownership of feedstock and produces biomass with an SBP Claim. Note that a BP ordinarily processes feedstock for conversion into biomass, such as wood pellets or gathers biomass, such as woodchips.

Biomass production: the process by which feedstock is transformed into biomass by a BP. There may be no physical transformation of the feedstock. A BP must implement the requirements of SBP Standard 2 in order to evaluate compliance of feedstock with SBP sustainability requirements and must implement the requirements of SBP Standard 4 in order to supply biomass with an SBP Claim.

Conventional distance: conservative (maximal) distance that is defined on the basis of recurrent transport of a similar product from the same area to the same end point, with the same type of vehicle, derived from the actual distance of several similar journeys.

Data Transfer System (DTS): the SBP tool used to record each transaction that is accompanied by an SBP Claim. The DTS allows the Claims to be transmitted along the supply chain.

Dynamic Batch Sustainability Data Identifier: is a unique identifier for the Dynamic Batch Sustainability Data for each Production Batch; also referred to as 'AA'.

End of life trees: salvage trees or trees that are removed from a plantation because they have reached the end of their productive lifetime (e.g. rubber trees) or trees that must be removed for the permitted construction of infrastructures (e.g. roads).

End-user: a Certificate Holder that takes final legal ownership of biomass.

Energy and carbon data: the information that is used to determine total energy and carbon values embedded in biomass supply chains. For BPs, the data is static and is reported historically for a single Reporting Period (usually 12 months). For Legal Owners downstream of the BP, it is reported per Transaction Batch.

Feedstock: input material into the biomass production process.

Final harvest: the aggregation of all operations, including pre-harvest planning and post-harvest assessment, related to the felling of trees and the extraction of their stems or other usable parts from the forest for subsequent processing into industrial products; also called timber harvesting.¹

Legal Owner: the legal entity taking ownership of the referenced biomass.

Mass Balance system: the Credit, and Volume Credit systems rules set out in SBP-approved CoC systems, as per SBP Standard 4, section 5.3.2, currently FSC, SFI and PEFC endorsed schemes.

¹ <http://www.fao.org/3/v6530e/v6530e12.htm>

PBid: a unique identifier for a Production Batch. It takes the form 'XX-YY-ZZ-AA', where 'XX-YY-ZZ' is the Static Data Identifier within the scope of the BP's SBP Certificate and 'AA' is a unique Dynamic Batch Sustainability Data Identifier for that Production Batch.

Phytosanitary treatment²: the treatment of feedstock against pests, usually either by fumigation (ISPM N°15) or heat treatment (ISPM N°5). Heat treatment does not lead to significant moisture reduction and is always prescribed as a minimum wood temperature and for a specified duration. That temperature is usually measured at the core of each piece of wood because conventional heat treatment heats the wood from the outer to inner part. Microwave systems may be used for heat treatment leading to some limited electricity use.

Plantation: an area where trees are grown for wood production or non-wood production (such as, rubber, coconuts, etc.), not meant only for energy purposes and with a production cycle that may be above a duration of eight (8) years.

Production Batch: a Production Batch is a defined volume of biomass with identical energy and carbon data. Each Production Batch is allocated a unique identifier, known as a PBid.

Reporting Period: an historical period, defined by the BP, for which the BP reports static energy and carbon data.

Salvage trees: trees that are felled because they have defective stems, are ill or damaged (e.g. pest, insects, fungus, wind, storms, fires, etc.).

Scope End-point: a Scope End-point occurs when biomass is transferred outside the scope of the BP's certificate to another Legal Owner.

SBP Audit Report on Energy and Carbon data (SAR): BPs complete this report based on the requirements specified in this Instruction Document (5E). The data is static and is defined based on an historic Reporting Period, usually 12 months prior to the period in which the biomass was produced. Three separate versions of the SAR are available covering wood pellets, woodchips with stationary chipping, and woodchips with mobile chipping only.

SBP Claim: two claims are possible – SBP-compliant or SBP-controlled.

SBP Report on Energy and Carbon for Supplied Biomass (SREG): the SREG encompasses a part of the SAR data requirement, covering transportation and excluding data related to biomass production. The SREG data is provided separately and additionally to the SAR data to capture energy and carbon data that is not included in a SAR. There are two versions of the SREG: one for inland transport only and one including sea transport.

Short rotation forestry: a plantation meant for energy purposes only and with harvest rotations less than eight (8) years, including agro-forestry (where trees are grown in short rotation around or among crops or pastureland to optimise use of the land).

Static Data Identifier (SDI): each Scope End-point must be allocated an SDI whose purpose is to permit the correct Reporting Period data to be associated with biomass supplied by a BP over multiple Reporting Periods and where a BP has multiple Scope End-points. A Static Data Identifier refers only to a single Reporting Period. A new Static Data Identifier is allocated for each Reporting Period.

² See http://www.favv.be/exportthirdcountries/plants/documents/2017-01-03_Annexe1ispm_15_explanatorydocument_withannexes_2014-04-30.pdf for details

Trader: a Certificate Holder that takes legal ownership of biomass and supplies it to another Legal Owner.

Transaction: an agreement between two Certificate Holders (supplier and customer) to transfer one or more Transaction Claims from supplier to customer, on a specified date. The status of a Transaction may be ONE of the following:

1. Pending - a Transaction has been proposed by one party and is awaiting action from the counterparty;
2. Accepted - a Transaction has been agreed, and the Transaction Claims contained in the Transaction have passed from supplier to customer; or
3. Rejected - a Transaction has been declined or disputed by the counterparty, and Transaction Claims contained in the Transaction have NOT passed from supplier to customer.

Transaction Batch: a fraction of the Production Batch that is supplied and received with an associated Transaction Claim.

Transaction Claim: a Transaction Claim is passed from one Certificate Holder (supplier) to another (customer) by using the Data Transfer System (DTS).

2.2 Abbreviations

BP	Biomass Producer
CB	Certification Body
CHP	Combined Heat and Power
CoC	Chain of Custody
DBSD	Dynamic Batch Sustainability Data
DTS	Data Transfer System
FMU	Forest Management Unit
GHG	Greenhouse Gas
ISPM	FAO IPPC International Standards for Phytosanitary Measures
JRC	Joint Research Centre of the European Commission
MJ	Megajoules or million joules accounting primary energy use
NTA	NTA is a third party agency based in the Netherlands that provides product testing, code evaluation reports, certification, and inspection, engineering and plan review services
PBid	Production Batch ID
RVO	Rijksdienst voor Ondernemend Nederland, Nederlandse regulator Netherlands Enterprise Agency, Dutch regulator
SAR	SBP Audit Report for Energy and Carbon data
SDE+	Stimuleringsregeling voor Duurzame Energieproductie programma zoals bepaald met Energie Akkoord vanaf 2013 in Nederland <i>Incentive scheme for Renewable Energy Production Programme as stipulated in the Energy Agreement from 2013 onwards in the Netherlands, see: https://english.rvo.nl/subsidies-programmes/sde</i>
SDI	Static Data Identifier
SREG	SBP Report on Energy and Carbon for Supplied Biomass

3 General data requirements

3.1 Principles for Legal Owners

3.1.1 Data shall be collected along the supply chain by all Legal Owners of the biomass that are supplying an End-user.

A Legal Owner can be:

- a BP that produces biomass from feedstock;
- a Trader that takes legal ownership of biomass and supplies to another Legal Owner;
- an End-user that takes legal ownership of biomass but does not supply it to another Legal Owner. An End-User is not required to record data.

Note: A single legal entity may be any combination of BP, Trader and End-user.

3.1.2 Each Legal Owner shall record data as specified in this Instruction Document (5E).

3.1.3 Records shall be kept for a period of at least five (5) years.

3.1.4 Each Legal Owner shall operate a Management System to ensure that data recorded are compliant with the requirements specified in this Instruction Document (5E).

3.1.5 Legal Owners shall make data specified in this Instruction Document available to other SBP Certificate Holders which hold or have held legal ownership of biomass supplied by the Legal Owner to which that data relates.

3.1.6 Legal Owners shall make all data available using the Data Transfer System (DTS) and using the templates specified in this Instruction Document.

3.1.7 A SAR may only be made available by the BP to customers and End-users after the document is uploaded to the DTS.

3.1.8 Each BP shall record all data as specified in one of the three 'SBP Audit Report (SAR) for Energy and Carbon data' templates, where production and transportation of feedstock or biomass contributes to energy or carbon balance during the period of legal ownership by the BP:

- BPs producing wood pellets shall complete the 'SBP Audit Report (SAR) for Energy and Carbon data for pellets';
- BPs producing only woodchips and energy logs and no other biomass with an SBP Claim shall complete one of the following templates:
 - o 'SBP Audit Report (SAR) for Energy and Carbon data for pellets' if both stationary chipping and thermal treatment are carried out on a separate processing site. Any specific reference to pelletisation in the document may be ignored;
 - o 'SBP Audit Report (SAR) for Energy and Carbon data for woodchips with stationary chipping' if only stationary chipping is carried out on a separate processing site, with or without phytosanitary treatment (see definition in section 2); or
 - o 'SBP Audit Report (SAR) for Energy and Carbon data for woodchips with mobile chipping' if there is no separate processing site with chipping or thermal treatment, other than a standard phytosanitary treatment (see definition in section 2).

3.1.9 An 'SBP Report on Energy and Carbon (SREG) for Supplied Biomass for inland transport' shall always be completed by BPs and Traders where biomass is supplied using inland transport outside the scope of a Static Data Identifier (SDI).

Examples of when this will be required include:

- a change of legal ownership occurs outside the scope of a BP's Scope End-point;
- a different sea port is used than specified in the SDI;
- a different route or mode of transport to the sea port is used than specified in the SDI; and/or
- the SDI end point is an inland terminal.

3.1.10 If an End-user requests data on sea transport to accompany biomass supplied then BPs and Traders shall complete and supply an 'SBP Report on Energy and Carbon (SREG) for Supplied Biomass for inland and sea transport' covering all required data contributing to the energy and carbon balance during the period of legal ownership by the BP or Trader.

Notes:

The Legal Owner may use actual or conventional distances in the SREG for inland transport. The transport distance shall be indicated as actual or conventional using the relevant tick box in the SREG. See section 2 for the definitions of actual and conventional distances.

Distance can be a record of distance recorded onboard a vehicle or an estimate based on data sources including Google Maps for inland transport or AXSMarine for sea transport (<https://public.axsmarine.com/>).

The use of actual or conventional distances is determined by the BP in agreement with End-users.

SREGs shall be verified by a CB during their surveillance activities.

3.2 Static Data Identifier (SDI)

3.2.1 The BP shall determine the Scope End-points for biomass supplied with an SBP Claim. A Scope End-point occurs after production where biomass is transferred outside the scope of the BP's certificate to another Legal Owner. An example is a port where the transfer of ownership takes place for delivery to an End-user or Trader. There can be more than one Scope End-point for a single biomass production facility.

3.2.2 A BP shall determine a Scope End-point in each SAR representing the end of the production process, prior to the transport of biomass.

3.2.3 Each Scope End-point shall be allocated a Static Data Identifier (SDI), whose purpose is to permit the reported energy and carbon data to be associated with the correct part of the supply chain (Scope End-point) within the current Reporting Period.

3.2.4 Where energy and carbon data vary for a single Scope End-point (for example, because road is used as an alternative to rail for moving biomass to a single port) then two or more SDIs shall be allocated for that Scope End-point to capture the correct energy and carbon data for the biomass.

3.2.5 An SDI shall refer only to one Reporting Period. A new SDI shall be allocated for each Reporting Period.

3.2.6 Static Data Identifiers shall be in the form:

SBP-XX-YY-ZZ

where:

- SBP-XX-YY is the BP certificate number issued by the CB
- XX is a 2-digit number allocated to the CB by SBP
- YY is a 2-digit number allocated to the Certificate Holder by the CB
- ZZ is a unique 2-digit integer unique to the Reporting Period and the Scope End-point for biomass as determined by the BP

Note: The BP may add additional '0' (zero) values in front of the 'XX', 'YY' and 'ZZ' values where this facilitates integration with existing data systems.

Note: The BP may use three digits once ZZ = 99 has been reached, i.e. 'ZZZ' = 100. A preceding '0' may be used such that ZZ = 23 = 023.

3.2.7 ZZ and ZZZ are sequential integers that increase by 1 (one) for sequential Reporting Periods and shall be allocated in ascending linear numerical order.

3.3 Claims and physical biomass

3.3.1 A Transaction Claim must remain consistent with the physical biomass to which it relates. If the biomass is destroyed or is sold to a customer who is not an SBP Certificate Holder, the claim shall be marked as such in the DTS. A Transaction Claim may only be 'detached' from the physical biomass to which it relates when the biomass is consumed by an End-user.

3.3.2 The characteristics of biomass shall be able to be traced back to the characteristics and quantities of incoming feedstock, taking into account the applicable conversion factors.

3.3.3 Feedstock shall retain its original characteristics as processed and characteristics shall not be transferred between transaction batches.

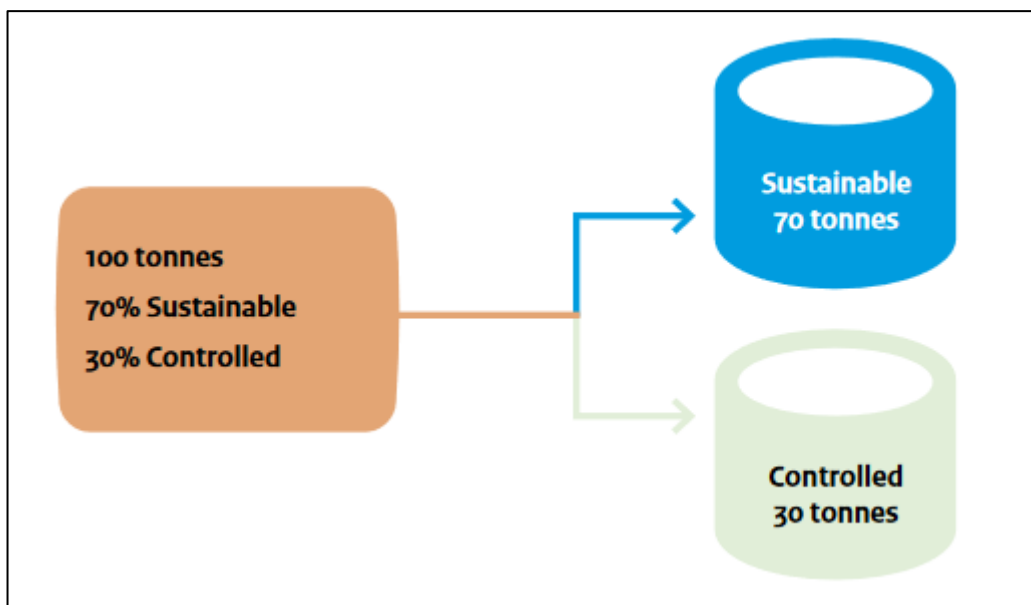
Example:

If SDE+ Compliant Category 1 feedstock is received with an FSC 100% claim

And SDE+ Compliant Category 5 feedstock is received with no claim

Then biomass may not be sold with an SDE+ Compliant Category 5 FSC claim recorded in the DBSD

3.3.4 Where feedstock is received with a partial claim (e.g. FSC 70%) then this may be re-allocated as 30% of the tonnage as controlled feedstock and 70% of the feedstock with a 100% claim. See diagram below.



Reference: [Netherlands Enterprise Agency \(RVO\). Guidance Chain of Custody sustainability criteria for solid biomass for energy applications.](#)

4 Production Batch

4.1 Production Batch requirements

4.1.1 A Production Batch is a unit of production with identical energy and carbon data.

4.1.2 Production Batches are defined by the BP.

4.1.3 Once allocated, the energy and carbon data and DBSD of a Transaction Batch shall not be changed.

Note: A BP may have a single Production Batch for each Reporting Period, or may create separate Production Batches within a Reporting Period, in order to, for example, meet specific customer requirements.

4.1.4 A Transaction Batch may be split and supplied in more than one DTS Transaction by the BP and by subsequent Legal Owners of the Production Batch.

4.1.5 A single DTS Transaction may include more than one Transaction Batch, including batches from more than one BP.

4.1.6 Each Production Batch shall be allocated a unique Production Batch ID.

4.1.7 The Production Batch ID shall be in the form:

SBP-XX-YY-ZZ-AA

where:

- o SBP-XX-YY-ZZ is the Static Data Identifier
- o AA is the DBSD Indicator

4.1.8 BPs approved to communicate DBSD shall use AA “99” if including DBSD.

Note: The BP may add additional ‘0’ (zero) values in front of the ‘AA’ values where this facilitates integration with existing data systems.

4.1.9 For stationary BPs (e.g. Pellet Mills) at least one SDI shall be defined for the end of the BP’s factory gate.

Note: This requirement does not apply in the case of a mobile chipper.

5 Transaction Claims

5.1 Transaction Claim requirements

- 5.1.1 All transactions shall be recorded in the DTS.
- 5.1.2 A SBP Transaction Claim is only valid if it is shared and accepted in the DTS.
- 5.1.3 End-users shall be SBP Chain of Custody certified in order to make claims regarding the use of biomass carrying an SBP Claim.
- 5.1.4 A complete DTS Transaction consists of the following data items
 - a) Transaction Date
 - b) Transaction Reference
 - c) One or more Production Batch ID (PBid)
 - d) One or more mass (of certified Biomass from the referenced PBid)
 - e) One or more SBP Product Type
 - f) One or more SBP Claim
 - g) Originating Legal Owner (supplier)
 - h) Receiving Legal Owner (customer)
 - i) DBSD (if applicable)
 - j) Transaction documents (if applicable)

5.2 Dynamic Batch Sustainability Data (DBSD)

- 5.2.1 Additional requirements apply to those SBP Certificate Holders wishing to supply certain markets, e.g. the Netherlands or Flanders. These additional requirements include transferring additional data about characteristics of the feedstock through the DTS by using DBSD. In order to be able to use the additional functionality of transferring DBSD through the DTS, the Biomass Producer's SBP certificate scope shall include communication of Dynamic Batch Sustainability Data (DBSD). DBSD data allocation must follow the Mass Balance (Credit) systems rules set out in SBP-approved CoC systems, as per SBP Standard 4, section 5.3.2, currently FSC, SFI and PEFC endorsed schemes.
- 5.2.2 For all DBSD reported in the DTS, the organisation shall set up and maintain a Mass Balance account to which additions and deductions of credits shall be recorded.
- 5.2.3 The characteristics of incoming feedstock shall be recorded and allocated to the DTS DBSD section according to the same Mass Balance rules.
- 5.2.4 Where DBSD is recorded in the DTS, the BPs shall use a PBid 'AA' value of '99' to indicate that DBSD is included with the transaction. The latest Dynamic Batch Sustainability Data (DBSD) form available in the Data Transfer System shall be used to record and share this data.
- 5.2.5 All biomass produced within the Reporting Period and delivered with DBSD must be reported in Section 5 of the SAR.

6 SBP Audit Report (SAR)

6.1 Description

- 6.1.1 BPs shall record data in an '*SBP Audit Report (SAR) for Energy and Carbon data*' using the latest version of the SAR appropriate to the production process.
- 6.1.2 The SAR shall be verified by a CB by evaluating compliance against the requirements set out in this Instruction Document (5E). The CB shall insert comments confirming the data recorded by the BP as indicated in the SAR. The CB shall also insert a minimal set of pictures taken during the audit to describe the biomass production process and equipment as indicated in the SAR. The SAR shall be signed by the responsible CB auditor and shall include the contact details as indicated in the SAR.
- 6.1.3 After formal approval, the SAR is uploaded to the BP's company profile in the DTS. This is the official approved version of the SAR and shall be used by customers (Business Relationships).

6.2 Reporting Period

- 6.2.1 The SAR Reporting Period shall meet the following criteria:
- the period should be 12 consecutive months; and
 - the start date shall not exceed 18 months before the audit onsite closing meeting date as indicated in the SAR.

The BP may select a convenient Reporting Period, for example, fiscal year, civil/calendar year or any other 12-month period if it fits those requirements.

Examples:

- 1) The audit onsite closing meeting is conducted on 1 April year Y. The BP may use data from the calendar year Y-1 as the start date of the reporting period is 15 months before the date of the audit onsite closing meeting.
 - 2) The audit onsite closing meeting is conducted on 1 November year Y. The BP may not use the whole calendar year Y-1 as the reporting period as Y-1 exceeds 18 months from the date of the audit onsite closing meeting. The BP could select the period 1 May year Y-1 to the end of April year Y, as the Reporting Period start date then corresponds to 18 months before the date of the audit onsite closing meeting.
- 6.2.2 The BP must inform its CB when a significant change in the operations occurs, resulting in a variation of electricity use or fossil fuel use greater than 25%. Examples may result from a change of production process, a plant refurbishment after an incident, a major change in feedstock used (e.g. use of logs instead of saw mill residues), change of fuel for drying (e.g. fossil fuel instead of biomass) etc. In that case, a new audit shall be required as soon as stable operations have been reached during three (3) consecutive months after the change has occurred.
- 6.2.3 Where a Reporting Period other than 12 months is used the BP shall justify the Reporting Period used in the SAR. Examples of justifications include: a recent commissioning or a significant change as described in 6.2.2. For recently (re-)commissioned plants, engineering values may be used as verifiable evidence and then actual values should be evaluated after start-up when stable operations have been reached for at least three (3) consecutive months.

- 6.2.4 The SAR shall expire 15 months after the audit onsite closing meeting – as indicated in the SAR and shall not be provided to customers or End-users after the expiration date. The BP shall not supply biomass with SDIs from expired SARs.
- 6.2.5 If the total number of days that the data relates to is not exactly the same as the Reporting Period (e.g. because of meter readings, or inventory/invoicing periods) an adjustment to match the data to the Reporting Period shall be made (e.g. using a simple proportional relationship). Whatever method is used it shall be recorded in the SAR.
- 6.2.6 Any missing data and any estimates shall be explicitly reported in the SAR.
- 6.2.7 The Legal Owner shall record the most operationally specific and detailed data that is practically available. Variable data shall never be older than 18 months. The methodology used and the justification for the data selection shall be recorded in the SAR. All mass and energy flows must be evaluated for the complete Reporting Period. Any derogation must be justified and recorded in the SAR.
- 6.2.8 The efforts for the evaluation of data should be proportionate to the relative magnitude of that specific data item to the energy and carbon balance. Where the BP and the CB consider that a data item is too difficult to record, given the relative significance of that specific data item to the energy and carbon balance, then the CB may submit a proposed solution to SBP. In this case, SBP shall review the proposed solution and communicate a determination to the CB.

Note: The data recorded should permit the calculation of the megajoules (MJ) of natural gas used per metric tonne (t) of biomass produced. Usually heating value of the natural gas is evaluated periodically, and the natural gas flow is recorded. Very often those values appear on the natural gas invoices. In that case, average heating value and total volume flow can both be reported. Note: reporting of both data items also allows a consistency check of the data.

6.3 Feedstock Definition

- 6.3.1 Please refer to the definitions of final harvest, thinning, end of life trees, plantation and short rotation forestry in section 2.
- 6.3.2 Hierarchy: in Production group, final harvest may include shares of thinning and end of life trees, while thinning may also include end of life trees.
- 6.3.3 Feedstock definitions, for grouping feedstock in Table 2.1 of the SBP Audit Report on Energy and Carbon Data (SAR):

Production group	Origin	Physical description	Definition
Specify one of the following options: - Final harvest from (semi-)natural forests - Final harvest from plantations when trees are felled in forests in a continuously regenerated forest	High value stemwood (product)	Roundwood	Wood from the main part of a tree (the trunk only, not the branches, stump, or root). That wood is a primary product , not a by-product, meaning salvage logging wood, thinning and landscape care wood are excluded .

<p>Specify one of the following options: - Thinning from (semi-)natural forests - Thinning from plantations</p> <p>when tree are felled in forests or plantations to reduce stand density and enhance diameter growth and volume of the residual stand, as long as this practice does not change the land use status of the area</p>	High value stemwood (product)	Roundwood	Wood from the main part of a tree (the trunk only, not the branches, stump, or root).
<p>Specify one of the following options: - Final harvest from (semi-)natural forests - Final harvest from plantations - Thinning from (semi-)natural forests - Thinning from plantations - End of life trees</p> <p>- Other trees from parks or landscape like urban or domestic tree work, windbreaks, non-forest landscape care or clearance work alongside power lines, roads or railways</p>	Low grade stemwood (by-product)	Roundwood or chips	Whole trees or logs
	Residues with stumps	Roundwood or chips	Tops, branches and bark including stumps
	Residues without stumps	Roundwood or chips	Tops, branches and bark, excluding stumps
<p>Short rotation forestry</p>	Product and by-products	Roundwood or chips	Trees managed for the purpose of energy and originating from plantations with short harvest rotations less than eight (8) years , including agro-forestry (where trees are grown in short rotation around or among crops or pastureland to optimise use of the land).
<p>Processing residues</p>	Sawmill and wood industry residues	Sawdust, shavings	Saw dust produced during the processing of wood at the sawmill/ wood industry.
		Chips, offcuts	Woody material produced during the processing of wood at the sawmill/ wood industry, that may include small offcuts or also bark that has been stripped from the wood.
<p>Post-consumer recycled wood</p>	Clean	Clean chips or dust	Clean wood originating from material that is recycled at end of life after having been used as a product.

	Treated	Treated chips or dust	Wood originating from material that is recycled at end of life after having been used as a product and may contain non-wooden materials such as paint, non-natural heavy metals, metal or plastic.
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6.4 Feedstock Groups

6.4.1 All feedstock processed by the BP in the Reporting Period for making the biomass product shall be grouped. It should be grouped in a way that makes operational sense to the BP. In the case of multiple transport steps for a Feedstock Group record data by adding one line and merging other columns.

6.4.2 It is not required to include feedstock that is ONLY used as biomass fuel, but optionally this can be done if data are available and verifiable.

6.4.3 For each Feedstock Group the following parameters are recorded:

- a) ID
- b) Feedstock Type
- c) Origin
- d) Physical Description
- e) Country of harvest (new row for each country)
- f) Raw mass as received in metric tonnes
- g) Moisture as received (weighted average, single figure)
- h) Weighted average distance (km)
- i) Maximum distance (km)
- j) Type of vehicle used
- k) Fuel or driving force used by the vehicle,
- l) Weighted average truckload,
- m) Any pre-processing (chipping, drying, none)

6.4.4 Parameters b, c and d are defined according to 6.3. If some feedstock groups of different properties cannot be segregated, they can be recorded with some parameters e, f, g, h, i, j, k, l, m, n in common. This shall be justified in the SAR.

6.4.5 For reporting mass f, the total mass of material processed during the Reporting Period for biomass production must be recorded **including the share that is diverted as biomass fuel**. If part (or optionally the totality) of the Feedstock Group is diverted as biomass fuel, then consider the **total** mass as received in f and add also a corresponding line in Table 3.5 of the SAR where the raw tonnage is reported for the share used as biomass fuel (see paragraph 6.9.5).

Example: stemwood producing roundwood for pellets and bark from debarking for biomass fuel.

6.4.6 For each Feedstock Group the ratio between maximal and weighted average transport distances should not be over 1.5 for 90% of the feedstock in that group. In case this cannot be fulfilled, then several Feedstock Groups need to be defined. Any exceptions should be recorded in the SAR.

6.4.7 Feedstock that is prepared or pre-processed on-site and feedstock that is not prepared or pre-processed onsite shall be in separate Feedstock Groups.

Example Table for guidance only

Total mass of feedstock as received: 33,000 metric tonnes

#	Feedstock Group	Origin	Physical Description	Country of harvest (new row for each country)	Raw mass as received in metric tonnes	Moisture as received (weighted average, single figure)	Weighted average distance (km)	Maximum distance (km)	Vehicle	Powered by	Weighted average truckload in metric tonnes	Specify any pre-processing. (chipping, drying, none)*
1	Final harvest from (semi-) natural forests	High value stemwood (product)	Roundwood	Latvia	60610t	45%	65km	100km	Truck	bio-diesel	15t	chipping
2	Thinning from plantations	Low grade stemwood (by-product)	Roundwood	Latvia	6060t	45%	70km	500km	Truck	diesel	15t	chipping
3	End of life trees	Low grade stemwood (by-product)	Chips and offcuts	Estonia	15150t	25%	35km	65km	Rail	electric	15 t	none
4	Processing residues	Sawmill and wood industry residues	Chips and offcuts	Latvia	3030t	25%	35km	65km	Rail	electric	15 t	none
5	Processing residues	Sawmill and wood industry residues	Other residues	Latvia	15150t	24%	35km	65km	Rail	diesel	15 t	none

6.5 Principles for energy use reporting

- 6.5.1 The BP shall operate a management system including logbooks or electronic code/card systems to allocate the use of fossil fuel to processing or transport.
- 6.5.2 Allocation of fossil fuel for production should be based on appropriate metering. The fuel allocation system is especially important where the storage is not dedicated to biomass production and some vehicles or machinery unrelated to the biomass production may also use the fossil fuel from the same storage. In some cases, a practical alternative is to measure and record the specific (hourly) fossil fuel consumption of all the machinery/vehicles used, and the number of operating hours.
- Note: The BP is not responsible for maintaining such metering systems for third parties supplying feedstock.
- 6.5.3 The BP shall justify the data and methodology used for reporting energy and carbon data and this shall be recorded in the SAR and verified by the CB.
- 6.5.4 Processing like chipping or thermal treatment or phytosanitary treatment undertaken outside the forest before delivery to the BP site must be included in the SAR..

6.6 Use of energy and chemicals in forests or plantations (optional)

- 6.6.1 The data collection in this section concern the use of energy and chemicals for soil preparation, planting, harvesting, forest management methods, including mobile chipping operations. Data specified are for primary feedstock only (from forests, plantations and short rotation forestry), for all other cases no specific data should be provided.
- 6.6.2 In the case that the BP opts to record data on upstream use of energy (including mobile chipping) and/or chemicals (fertilisers, pesticides etc.) for relevant feedstock groups as per 6.6.1:
- Data shall be reported in Table 2.2 of the SAR.
 - Data shall be reported in MJ of biodiesel and kg of chemicals used per metric tonne (t) of wood product harvested during the rotation period or per metric tonne of wood as received.
 - Data based on statistics for the relevant region of production can be reported.
 - Data based on field trial records of specific energy use for in-forest chipping can be reported.
 - The methodology and justification shall be recorded in the SAR.

6.7 Total quantity of biomass production

- 6.7.1 The BP shall record the total quantity of biomass leaving the processing plant during the Reporting Period.
- 6.7.2 The quantity shall be evaluated by one or both of the following methods:
- Monitoring by the BP at the plant gate (weighbridge) and/or at the end of the production chain. If the production amount is based on the quantity of biomass leaving the plant, any

significant stock variation between the beginning and end of the production period shall be taken into account. The BP shall justify any changes in stock levels to the CB, and this shall be recorded in the SAR; or

- Invoices to the End-users covering the sales during the period, if the accounting system guarantees that all invoices are taken into consideration. Sales figures and transport documents can be used for verification, and they shall be consistent with the production volume (including adjustments reflecting any stock variation).

Note: It is recommended that both methods are used together.

6.8 Total annual amount of electricity used

6.8.1 The BP shall record the electricity consumed during the Reporting Period, stated as kWh per tonne of biomass output.

6.8.2 The BP shall identify the origin of the electricity used. Power used in biomass production is calculated by the formula:

$C = G + X + P - E - O$ where:

- C is the net electricity consumption that shall include all usage resulting from the existence of the biomass production process;
- G is the power that is imported from the grid;
- X is the power from an external supplier:
 - where the electricity used by the biomass plant is from an external supplier, the amount used during the Reporting Period shall be based on invoices from the supplier, or continuous measurement;
- P is the net electricity that is internally produced by the BP (net means that power consumption of the power plant auxiliaries is subtracted):
 - In the case of on-site electricity generation, the technology and mode (including whether or not it is CHP) shall be recorded in the SAR;
- E is the share of P that is exported to the grid; and
- O is the excluded power consumption on site of the BP, as used by applications other than the biomass production:
 - electricity consumption can be excluded if appropriate metering is in place to enable exclusion of non-biomass related consumption from biomass related consumption. However, if such additional meters are not available, a theoretical approach can be used to allocate the power to the different uses;

- ancillary facilities (for example offices, cafeterias, workshops, site lighting, laboratories, etc.) can be excluded only where this consumption would have occurred in the absence of biomass production.

- 6.8.3 In all cases, the BP shall provide full information on power generation and use to the CB, and this shall be reported in the SAR. The metered values used for reporting shall cover not only the biomass production process but also non-biomass related process lines (for example, sawmill or other production facilities).
- 6.8.4 Where data is not available (such as during the commissioning of the plant), estimates from design values can be used. The BP shall justify the use of those design values to the CB, and this shall be recorded in the SAR.

6.9 Use of primary energy for drying when applicable

- 6.9.1 If feedstock is not dried, then the corresponding Table 3.3.a of the SAR must be completed and justification must be recorded.
- 6.9.2 If feedstock is dried, then the following data shall be recorded in the corresponding Tables 3.3.b of the SAR.

Initial moisture of the feedstock, as received, and method for its evaluation:

- weighted average of moisture measurements performed on all Feedstock Groups;
- typical value based on some measurements (frequency of measurements, supplier / process specifications); or
- default value, e.g. for round wood.

Type of dryer:

- drum dryer;
- belt dryer; or
- other (specify).

Energy carrier:

- steam;
- hot water;
- hot air / flue gases; or
- other (specify)

Heat consumption if a meter is installed

Origin of the heat:

- burner;
- conventional burner; or
- CHP

- 6.9.3 At least one of the following options shall be used for the drying process, where applicable:

Option 1 – Specify energy use of dryer, when applicable.

- If a heat meter is installed, calculate how much heat energy from the boiler is provided to the dryer and provide details of the calculation;
- Specify heat consumption in kWh per metric tonne dried feedstock and the corresponding period for this evaluation.

Option 2 – Specify input moisture content of feedstock.

- The preferred method in 6.9.2 is the weighted average moisture content based on moisture evaluation per shipment for all Feedstock Group.
- When measurement of moisture of incoming feedstock is not determined on receipt of feedstock, the moisture content shall be measured and recorded as soon as possible in the production process. For example, in the case of the receipt of logs, moisture should be measured after debarking and processing to chips.
- In the absence of moisture monitoring as specified above, the methodology used and the values recorded shall be justified to the CB, and the justification shall be recorded in the SAR.

6.9.4 If a conventional boiler is used then the following data must be recorded in Table 3.3.c and validated by the CB:

- Share of fossil fuel used;
- Total heat output that is effectively recuperated and used in an application during reporting period;
- Total heat output that is used in drying during reporting period; and
- How has this data been calculated (e.g. metered data, theoretical calculation based on specific consumption of installed machinery).

6.9.5 If a CHP is used then the following information must be recorded in Table 3.3.d and validated by the CB:

- Share of fossil fuel used;
- CHP efficiency (net conversion efficiency of the input fuels into):
 - 1) Heat;
 - 2) Heat that is effectively recuperated and used in the plant; and
 - 3) Net electricity) / primary energy input;
- Temperature of the energy carrier at the point of use;
- Total heat output from CHP that is effectively recuperated and used in an application during reporting period;
- Total heat output from CHP that is used in drying;
- Total electricity output of CHP;
- Total electricity from CHP exported from site (e.g. to local network); and
- How has this data been calculated (e.g. metered data, theoretical calculation based on specific consumption of installed machinery).

6.9.6 Different types of fuels may be used for drying.

Either fossil fuels, such as:

- natural gas;
- industrial gas;
- diesel oil;
- propane; or
- waste heat fossil boiler.

Or biomass fuels, such as:

- wood pellets – imported or diverted from the biomass product;
- wood residues – imported or diverted from feedstock groups;
- bark – diverted from debarked round wood in feedstock groups, or imported;
- other biomass residues; or
- other (specify).

For every type of fuel used, specify fuel consumption in MJ / metric tonne and in one of these units:

- litres / metric tonne biomass;
- kg / metric tonne biomass; or
- Nm³ / metric tonne biomass.

6.9.7 If the feedstock is submitted to a thermal process other than drying (such as torrefaction or pyrolysis), the process shall be described in the SAR, as well as its energy use using the model of the drying process, as described in 6.9.2.

6.9.8 Natural gas consumption can be reported in terms of energy or in terms of volume when specifying the heating value per unit volume, either in LHV or in UHV. This energy content is stated in terms of:

- Lower Heating Value (LHV) / Net Calorific Value (NCV); or
- High Heating Value³ (HHV) / Gross Calorific Value (GCV).

The data recorded should permit the calculation of the MJ of natural gas used per tonne of biomass produced for the Reporting Period.

6.10 Energy use for transport

6.10.1 For BPs, the SAR shall clearly identify the Static Data Identifiers (SDIs) in accordance with section 3.2 of this document.

6.10.2 When transport is by pipe or conveyor belt (continuous delivery) from a neighbouring location, the conveyed mass should be recorded based on either invoices or, preferably, in-line measurement devices. When BPs have a system for direct measurement of the feedstock with a batch metering system, the total recorded feedstock input for each Feedstock Group can be aggregated throughout the Reporting Period. The energy used to transfer secondary feedstock by a conveying system (such as a pipeline or conveyor belt) from a sawmill is considered to be part of normal sawmill operations and does not need to be recorded if the cost of the corresponding energy use is covered within the sawmill.

6.10.3 To determine the effective load in metric tonnes per vehicle: in the case of trucks, the weight should be measured by a weighbridge, or equivalent, and recorded in a control system.

Note: For transport by truck, train or flatboat the most important parameters are the distance and the capacity of the vehicle. It is usually enough to make a good estimate of the transport energy, based on proposed references by JRC and BioGrace. There is the

³ “Higher Heating Value” also referred to as “Upper Heating Value”

option to record fuel use for transport, but this is not mandatory. For (long distance) sea transport fuel usage data must be provided.

6.10.4 The following data can be recorded only when actual and verifiable data is available:

- Evidence that vehicles are not always returning empty, e.g. bill of lading. This information may be used to justify a back-haulage rate. Note: the JRC default value for backhaul for sea transport is 70%;
- If transport fuels are blended with biofuels, the share of biofuel shall be reported.

6.10.5 Delivery records shall include, as a minimum, the supplier's name, type of material, date of delivery and weight or volume.