



Netherlands Enterprise Agency

**SDE+ sustainability requirements
for
co-firing and large scale heat production**

1. Classification of types of biomass and application criteria

Various biomass feedstocks can be used for co-firing and for other forms of bioenergy production involving combustion or gasification. The seven main categories are listed below. Table 1 indicates which of the sustainability criteria set out in Chapter 2 are applicable to these biomass categories.

1. Woody biomass sourced from large forest management units. With effect from 1 January 2015, a "large forest management unit" has been defined as a forest management unit with an area greater than, or equal to, 500 hectares.
2. Woody biomass sourced from small forest management units. With effect from 1 January 2015, a "small forest management unit" has been defined as a forest management unit with an area of less than 500 hectares.
3. Residual products sourced from multi-functional forests without clearcut or rejuvenation areas larger than five hectares.¹
4. Agricultural residual products. These are primary residual products sourced directly from agriculture (e.g. grass, straw or husks).
5. Residual products from the agri-food or wood processing industries. These are secondary residues from the wood processing industry (such as sawdust and bark) and residual products from the agri-food processing industry.
6. Biogenic waste materials. These are wood waste (tertiary residues), organic household waste and organic industrial waste or other organic waste materials.
7. Biomass waste products generated during the management of urban green spaces, landscape or natural sites other than forest, in the context of conserving, restoring or enhancing specific natural, recreational or scenic services. This also includes biomass waste products generated during the regular maintenance of public green spaces and parks.

The use of biomass that competes with food (or food production) for the production of bioenergy is prohibited.

Table 1 summarises the biomass categories and the applicable sustainability criteria. The numbering of the criteria refers to the sustainability criteria described in Chapter 2. The core criteria are those relating to sustainable forest management (SFM). Where necessary, the SFM criteria are modified or extended to cover biomass that is not sourced from forestry.

¹For definitions of residual products from forests and multi-functional forests, see Chapter 4, Annex: definitions.

Table 1: Biomass categories and related sustainability criteria. An X means that the criteria apply to the category in question. N/A means that criteria are not relevant or that the risks involved are small, such that the criteria do not apply to this category.

Biomass categories	Sustainability criteria						
	SFM criteria	GHG balance	Carbon debt	ILUC	Soil quality	Compliance with legislation	Chain of Custody
	II.P2-II.P7	I.P1 III.P4	I.P2	I.P4	II.C 3.1 ³	II.P1 ⁴ III.C1.3b	III.P1-III.P3
1. Woody biomass from large forest management units	X	X ¹	X ¹	X ^{1,2}	X ¹	X ¹	X ¹
2. Woody biomass from small forest management units	X	X	X	N/A	X	X	X
3. Residual products from multi-functional forests	N/A	X	N/A	N/A	X	X	X
4. Agricultural residual products	N/A	X	N/A	N/A	X	X	X
5. Residual agri-food products and timber industry products	N/A	X	N/A	N/A	N/A	X	X
6. Biogenic waste materials	N/A	X	N/A	N/A	N/A	X	X
7. Residual products from natural site and landscape management	N/A	X	N/A	N/A	N/A	X	X

¹ These criteria are part of the full set of criteria for sustainable forest management (SFM).

² Applies only to new cultivation systems with short rotation periods, which dedicated to the production of biomass for bioenergy.

³ C3.1a applies to categories 1 and 2. C3.1b applies to categories 3-7.

⁴ P1 (SFM) applies to categories 1 and 2.

Woody biomass sourced from forests (and production forests)

All criteria apply to woody biomass from forests, regardless of the size of the management unit in question. In the case of biomass from small forest management units, sustainability can be temporarily demonstrated at the level of a larger coherent region within which the small forest management unit is located. In the case of certification, for this situation the first party that has to be certified is the pellet mill. This exception is made because the administrative burden of certification at forest level is often still too large for small forest owners.

Residual products from multi-functional forests without clearcut or rejuvenation areas larger than five hectares.

Residual products from multi-functional forests in which no clearcut or rejuvenation areas larger than five hectares have been (or will be) created are subject to limited sustainability criteria. In fact, the generated biomass is seen as a residual product that is generated by forest management focused on a range of functions. Here too, the Chain of Custody begins with the first legal owner of the material, from the moment that the biomass is transported. In the case of clearcut or rejuvenation areas larger than five hectares, all criteria apply.

Category 4 to 7 biogenic waste and residual products

Category 4 to 7 biomass contains residues that are subject to fewer sustainability criteria. This is because the sustainability risks associated with residual products and waste are lower than those associated with biomass produced solely for the purpose of power generation. The Chain of Custody begins with the first legal owner of the material, from the moment that the biomass is transported. Some examples of agricultural residual products are grass, straw, husks or garden waste. Some examples of residual products from the agri-food processing industry are membranes, seeds or pulp. Some examples of residual products from the wood processing industry are secondary residues such as sawdust or bark. Woody waste streams (tertiary residues), are also known as A, B and C wood.

2. Sustainability criteria table

	Standards
I	Criteria for climate and bioenergy
II	Criteria for sustainable forest management
III	Criteria for the Chain of Custody

Principle	Criterion
I. Criteria for climate and bioenergy	
Reducing GHG emissions	I.P1. The use of biomass leads to agreed reductions in greenhouse gas emissions, calculated across the entire chain.
	<p>C1.1 The calculated maximum CO₂eq emission is based on a 70% reduction (relative to EU reference values) in GHG emissions for electricity (a maximum of 56 g CO₂eq/MJ) and heat (a maximum of 24 g CO₂eq/MJ). This limit is an annual average. It is subject to the condition that no individual consignment of biomass feedstock will exceed the emission value of 74 g CO₂eq/MJ for electricity and 32 g CO₂eq/MJ for heat (equivalent to a 60% reduction in GHG emissions relative to EU reference values).</p> <p><i>Guidance: The calculated maximum CO₂eq emissions should be based on the most recent European Commission publication on sustainability criteria for solid biomass and on the reference values provided for fossil fuels. The Staff Working Document: State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU (SWD (2014) 259) cites the following reference values for fossil fuels: 186 g CO₂eq/MJ for electricity and 80 g CO₂eq/MJ for heat.</i></p>
Conserving carbon reservoirs	I.P2. Biomass production shall not lead to a significant risk of long-term carbon debt.
	<p>C2.1 Only those types of biomass that comply with the carbon debt requirements in Annex 3 may be used. In addition, for all forest biomass, the organisation must be in possession of documentary evidence showing that the forest management unit from which the wood is sourced is being managed with a view to the long-term conservation or expansion of carbon stocks. This evidence can take the form of a forest management plan or similar documentary evidence, as described in the sustainability criteria for sustainable forest management (II.P6).</p>
ILUC (Indirect Land Use Changes)	I.P3. Biomass sourced from new cultivation systems with short rotation periods dedicated to the production of biomass for bioenergy, and which were brought into use after 1 January 2015 must involve only a 'small risk of ILUC'. Small forest management units are exempt from this requirement.
	<p>C3.1. ILUC risks should be determined on the basis of the methodology and requirements of the LIIB methodology (LIIB = Low Indirect Impact Biofuels) or those of an equivalent method. Only biomass that can be demonstrated to involve a 'small risk of ILUC' is acceptable.</p> <p><i>Guidance: if there is reason to do so, the methodology will be evaluated once every three years, and modified if an improved methodology becomes available.</i></p>

II. Criteria for sustainable forest management	
Legislation and regulations	
Legislation and regulations	II.P1. All applicable regional/local, national, and international laws and regulations shall be observed.
Requirements for forest managers	<p>C 1.1. The forest manager has the legal right to use the forest.</p> <p>C 1.2. The forest manager complies with all obligations relating to the payment of taxes and royalties.</p> <p>C 1.3. All international agreements relating to the forest management unit and ratified by the biomass's country of origin shall be met.</p> <p><i>Guidance: The term 'international agreements' mainly refers to the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Labour Organisation (ILO) conventions and the UN Declaration on the Rights of Indigenous Peoples (UNDRIP).</i></p>
Legality ²	<p>C1.4. The timber is harvested in accordance with the applicable legislation in the country of harvest covering the following matters</p> <ul style="list-style-type: none"> • rights to harvest timber within legally gazetted boundaries; • payments for harvest rights and timber including duties related to timber harvesting; • timber harvesting, including environmental and forest legislation, including forest management and biodiversity conservation where directly related to timber harvesting; • any third party legal rights concerning use and tenure that are affected by timber harvesting; and • trade and customs, in so far as the forestry sector is concerned.
Anti-corruption	C1.5. Anti-corruption legislation, where it exists, is respected. In the absence of anti-corruption legislation, the (forest) manager is required to implement other anti-corruption measures that are proportionate to the scale and intensity of the management activities in question, and to the risk of corruption.
Ecological aspects	
Biodiversity	II.P2. Biodiversity shall be maintained and, where possible, enhanced.
Species and ecosystems	<p>C 2.1. Any sites of high conservation value – (HCV) or equivalent – and representative areas of forest types that occur within the forest management unit shall be identified, inventoried and protected, and – where possible – enhanced.</p> <p>C 2.2. Protected and endangered plant and animal species are not exploited for commercial purposes. Where necessary, measures have been taken for their protection and, where relevant, to increase their population.</p> <p><i>Guidance: Plant species also include tree species.</i></p>
Conversion	<p>C 2.3. The conversion of forests within the forest management unit to other types of land use, including timber plantations, shall not occur, except in justified exceptional circumstances.</p> <p><i>Guidance: The term 'exceptional circumstances' refers to natural disasters, for example. In addition, conversion is permitted, provided that it leads to clear long-term conservation benefits. Conversion, in the form of switching to other land uses, can take place if the area to be converted is insignificant. This is the case if it involves no more than 0.5% of the total area of the forest management unit in the current year, or a future year, and the total area converted does not exceed 5% of the surface area of the forest management unit.</i></p> <p><i>Guidance: The forest manager of a plantation should aspire to make clear how the plantation helps in relieving pressure on natural forests; for instance if the plantation is established on degraded land instead of being created by conversion. Conversion may not take place in an HCV area or equivalent</i></p>

² This criterion is in accordance with the European Timber Regulation article 2 (EUTR 995/2010)

Plantations	<p>C 2.4. In the case of plantations, there is a preference for native species, and a relevant part of the plantation must be allowed to regenerate to natural forest.</p> <p><i>Guidance: A 'relevant part' is considered to be 5% of the total plantation.</i></p> <p>C 2.5. Plantations shall not be established through the conversion of natural forests after [1997]</p>
Non-timber forest products, hunting and fishing	<p>C 2.6. The commercial exploitation of non-timber forest products, including hunting and fishing products, is regulated, monitored and controlled. Where relevant, the expertise of the local population, indigenous peoples, and locally active environmental organisations is used to monitor commercial exploitation.</p>
Regulatory functions	<p>II.P3. The regulatory function, as well as the quality, health and vitality of the forest, shall be maintained and, where possible, enhanced.</p>
Soil	<p>C 3.1a. The quality of the soil in the forest management unit shall be maintained and, if necessary, improved. In this connection, particular attention should be paid to shores, riverbanks, erosion-prone sites and slopes.</p> <p><i>Guidance: Threshold values for maximum allowable height and slope are relevant indicators for the prevention of soil erosion.</i></p>
Soil condition in the cases of agricultural residual products and residual products from areas of natural habitat	<p>C 3.1b. The production and conversion of biomass based on agricultural residual products and residual products from areas of natural habitat are founded on best practices for the conservation or improvement of the soil and soil quality. The use of residual products should not conflict with other local functions related to soil conservation.</p> <p><i>Guidance: This criterion applies to agricultural residual products and residual products from areas of natural habitat when activities in the context of the biomass harvest are aimed at the conservation or enhancement of specific features of the area, such as natural features or recreational services.</i></p>
Water	<p>C 3.2. The water balance and water quality of ground-water and surface water in the forest management unit, as well as downstream (outside the forest management unit) shall be maintained, at the very least, and, where necessary, improved.</p> <p><i>Guidance: The conservation and, if necessary, improvement of ground-water and surface water includes the protection or restoration of natural watercourses, bodies of water, riparian zones and of the links between them.</i></p>
Ecological cycles	<p>C 3.3. Important ecological cycles, including carbon cycles and nutrient cycles, that occur in the forest management unit shall be at least maintained.</p> <p><i>Guidance: For example, avoiding lowering ground-water levels in peat soil, preventing turbidity in streams, and measures to prevent the wide scale leakage of nutrients after timber harvesting.</i></p>
Reduced-impact logging (RIL)	<p>C 3.4. Avoidable damage to the ecosystem is prevented through the use of those methods and techniques for timber harvesting and road construction that are best suited to the local conditions.</p>
Forest fires	<p>C 3.5. Lighting forest fires is only permitted where this is necessary to achieve the management objectives for the forest management unit in question, and where adequate safety measures are taken.</p> <p><i>Guidance: Small-scale, traditional, sustainable "slash and burn" practices within a forest management unit are not constrained by this criterion.</i></p>

Diseases and pest infestations	C 3.6. Forest management focuses on the prevention and control of diseases and pest infestations, insofar as they constitute a threat to timber production.
Chemicals	C 3.7. The use of chemicals is only permitted if the maximum possible use of ecological processes and sustainable alternatives proves to be inadequate. The use of pesticides classified by the World Health Organization as Type 1A and 1B is prohibited, as is the use of chlorinated hydrocarbons.
Waste and litter	C 3.8. The creation of inorganic waste and litter is prevented by collecting such materials, storing them at the designated locations, and disposing of them in an environmentally sound manner.
Economic aspects	
Production function	II.P4. The production capacity of timber and other relevant non-timber forest products shall be maintained.
Production capacity	C 4.1. The production capacity of each forest type within the forest management unit shall be maintained. <i>Guidance: The over-exploitation of individual commercial tree species should be avoided.</i>
Illegal activities	C 4.2. The forest management unit is sufficiently protected against all forms of illegal exploitation, illegal establishment of settlements, illegal land use, illegally initiated fires, and other illegal activities.
Contribution to the local economy	II.P5. Forest management contributes to the local economy and to employment.
Employment	C 5.1. Forest management shall provide reasonable employment opportunities for the local population, including indigenous peoples, and provides opportunities for the local processing of timber and non-timber forest products. <i>Guidance: Measures such as training activities must be introduced, to boost employment for the local population, including indigenous peoples.</i>
Infrastructure	C 5.2. The forest manager shall implement additional activities, helping to develop the local physical infrastructure, social services, and programmes for the local population, including indigenous peoples. All such contributions are made in consultation with the local population. <i>Guidance: The forest manager is exempt from this requirement if local and/or national authorities provide sufficient additional activities, with the consent of the local population.</i>
Management aspects	
Management system	II.P6. Sustainable forest management shall be realised through a management system. <i>Guidance: in the case of biomass from small forest management units, sustainability can be temporarily demonstrated at the level of a larger coherent region within which the small forest management unit is located. In that case, the requirement for a forest management system or forest management plan is interpreted (in the light of the criteria set out below) as a requirement for a management system at the pellet mill, which ensures compliance with the sustainability criteria.</i>
Management cycle	C 6.1. Forest management is aimed at achieving the objectives set out in a forest management plan. It involves the cycle of inventory and analysis, planning, implementation, monitoring, assessment and updating.

Forest management plan	<p>C 6.2. There is a forest management plan that, at the very least, consists of:</p> <ul style="list-style-type: none"> • a description of the current state of the forest management unit; • long-term objectives; • average annual allowable cut per forest type and, if applicable, the annual allowable commercial exploitation of non-timber forest products, based on reliable and timely data; • measures aimed at the long-term conservation or expansion of carbon stocks; • budget for the implementation of the forest management plan. <p><i>Guidance: Budgets must be realistic, to facilitate the implementation of the forest management plan.</i></p> <p><i>Guidance: In describing the current state of the forest management unit, the plan must focus on relevant economic, social and ecological (ecosystems, species, functions) elements and issues.</i></p> <p><i>Guidance: in systems that demonstrate sustainability at the level of a larger coherent region (as described in Principle II.P6), this criterion should be interpreted as a requirement for a pellet mill management system which provides a description of the status of the forest in the recharge area and demonstrates the long-term conservation or growth of carbon stocks.</i></p>
Maps	C 6.3. All of the elements that are essential for forest management (including HCV areas or equivalent) shall be indicated on maps.
Monitoring	C 6.4. The implementation of the forest management plan must be periodically monitored, based on adequate data, as should the environmental, social and economic impacts of forest management on the forest (or forest management unit) and its environment. These can be extensive areas of regional, national or global significance.
Knowledge and expertise	C 6.5. Forest management is based on scientific research and, if needed, information on comparable forests types.
	C 6.6. Forest management is carried out by skilled staff and forest workers. Their professional competence and knowledge is maintained by means of adequate, periodic training.
Management group or regional association	II.P7. In the case of group certification, forest management by a group or regional association should involve safeguards for sustainable forest management. In such cases, the certification system sets the following requirements:
Group or regional association	C 7.1. A group or regional association is managed and supervised by an independent legal entity.
	C 7.2. The management system used by a group or regional association shall provide adequate guarantees of compliance with criterion C 7.3.
Information regarding sustainable forest management	C 7.3. A group or regional association shall comply with the requirements for sustainable forest management. In addition, every member of a group or regional association shall comply with these requirements, insofar as they are applicable to the activities of the member in question.

III. Criteria for the Chain of Custody (CoC)	
Principle	Criterion
CoC requirements arising from sustainable forest management	
Chain-of-Custody system	<p>III.P1a. There must be a Chain of Custody, from the forest unit of origin to the bio-energy producer, that provides a link between the material in the product or product line, and the original forest units.</p> <p>III.P1b. For biomass residues that are not sourced from forests, the Chain of Custody begins at the first collection point, i.e. the first legal owner of the material, from the moment that the residual flow is disposed of.</p> <p><i>Note: see Table 1 for details of those biomass categories that are classified as biomass waste products.</i></p>
Organisation	<p>C 1.1. Each individual organisation in the Chain of Custody must have an operational Chain-of-Custody system.</p> <p>C 1.2. The management system of each organisation in the CoC shall guarantee that the requirements of the CoC standard are being met.</p> <p><i>Guidance: Any organisations wishing to include outsourcing within the scope of the certificate must ensure that the contractor (or subcontractor) in question only uses the system's labels on those products that fall within the scope of the outsourcing agreement.</i></p> <p>C 1.3. Each individual organisation in the Chain of Custody must register the quantities, names and certificate numbers of those organisations from whom they purchase biomass and to whom they sell biomass.</p> <ul style="list-style-type: none"> • C1.3a. When using certificates, end-users can only lay a claim in accordance with the system if all organisations in the supply chain (such as producers, processors, traders, end-users) possess a valid CoC certificate and are the legal owner of the product, as referred to by the system. • C1.3b. The organisations in the supply chain, from the unit of origin to the bio-energy producer, must comply with all applicable national and regional legislation and regulations, and must commit themselves to the social requirements and health and safety requirements set out in the standard for sustainable management (and sustainable forest management). • C1.3c. The system owner must demonstrate which information, in the context of the system, is passed along the supply chain, in addition to the requirements described here in C1.3 (III.P1). • C1.3d. Documents, reports and notes are drawn up and maintained as evidence of compliance with requirements and provisions, as the basis of information provided for the usual third party reports and as evidence of the effective implementation of measures, procedures and schedules. • Businesses are obliged to retain all documentary evidence for a period of at least five years.
Legal sources	<p>C 1.4. It is permissible to mix materials that comply with all relevant criteria for sustainable forest management (II.P1-II.P8) with other material, provided that the latter is routinely tracked by a verifiable system that can be used to determine that the material in question has indeed been sourced from legal sources. This applies to new material and to pre-consumer recycled material.</p> <p><i>Guidance: In the case of post-consumer recycled material, all that is required is confirmation of its status as post-consumer recycled material by a verifiable system, the legality of the origin of the wood in question is disregarded. However, the legality of the origin of pre-consumer recycled material must be determined by a verifiable system.</i></p>

	C1.5. Wood (products) that complies with the criteria for sustainable forest management, wood from other verified legal sources, and wood from unverified legal sources, is separated for administrative purposes. Wood from unverified legal sources is also physically separated from wood derived from the other two sources.
Mixed wood and composite products	C1.6a. If materials with different sustainability claims are mixed, then one or all of the following approaches should be followed: Mass balance claim: <ul style="list-style-type: none"> • Details of the sustainability characteristics and scope of materials with differing sustainability characteristics remain allocated to the mixture. • The sum of all supplies withdrawn from the mixture has the same sustainability characteristics, in the same quantities, as the sum of all supplies that are added to the mixture. Percentage-based claim: <ul style="list-style-type: none"> • Details are given of the percentage of material in a product or product line that complies with the criteria for sustainable forest management. <p><i>Guidance: The percentage-based claim may be used only for biomass sourced from forestry.</i></p>
Mixed raw materials not sourced from forestry	C1.6b. If material that is not sourced from forestry but which does comply with the set sustainability criteria is mixed with other material, the following approach should be taken: Mass balance claim: <ul style="list-style-type: none"> • Details of the sustainability characteristics and scope of materials with differing sustainability characteristics remain allocated to the mixture. • The sum of all supplies withdrawn from the mixture has the same sustainability characteristics, in the same quantities, as the sum of all supplies that are added to the mixture.
Legal sources of timber: mixed claim	C1.7. If, as defined in criterion C 1.4 (III.P1), material that complies with all the relevant criteria for sustainable forest management is mixed with other material, the following requirements apply: <ul style="list-style-type: none"> • Up to 30 percent by volume of the material used in the products consists of other material. For products based on wood chips and fibres, a combination in which 50% consists of other material is temporarily permitted. This "50% exemption" applies until 31 December 2015. • The 30% (or 50%) that consists of other material may not contain any illegally harvested wood, no wood harvested in violation of people's civil rights, no wood harvested in forests where high conservation values are threatened by management activities, and no wood harvested in forests that are being converted to plantations or that will otherwise be lost as forests.
Chain-of-Custody group certification	III.P2. In cases of group certification of the CoC, the standard must prescribe that the group as a whole needs to comply with the same requirements as those imposed on individual companies. In this context, the system proposes the following requirements:
Legal entity	C 2.1. A group is headed by a legal entity that is responsible for the group as a whole.
Group leaders	C 2.2. The group has a management system that offers sufficient guarantees to ensure compliance with C 2.3 (III.P2). C 2.3. The group operates in accordance with principle 1. In addition, every member of the group must comply with these requirements, insofar as they are applicable to the activities of the member in question.
Registration	C 2.4. The group leaders possess a registration system that contains the following data: <ul style="list-style-type: none"> • the names and addresses of group members; • a declaration from each member stating that they are in compliance with the CoC's certification requirements. • the incoming and outgoing biomass streams of each individual member of the group.

Logos and labels	III.P3. Logos and labels that belong to a certification system and that are placed on products and documents must have an unambiguous significance and must be used in accordance with the rules established by the certification system. In this context, the system imposes the following requirements:
Design and use of logos and labels	C 3.1. The system manager applies rules for the use of logos and labels and for ensuring compliance. These rules include at least: <ul style="list-style-type: none"> • a description of logos and labels; • an unambiguous description of the claim that the logos and labels represent, including the requirement of specifying the actual or minimum percentages of certified and recycled post-consumer material contained in the product or product line; • rights to use logos and labels; • instructions relating to the use of logos or labels, and the informational text they bear.
Copyright	C 3.2. The logo is copyrighted and registered as a trademark.
Clear and correct claims	C 3.3. There is a clearly defined mechanism for checking all claims made concerning the characteristics of certified products, which ensures that claims are clear and accurate, and that action is taken to prevent false or misleading claims being made.

Climate and bioenergy issues relating to the Chain of Custody

Reducing GHG emissions	III.P4. GHG emission data is available for each individual process step in the Chain of Custody.
Mass balance	III.P5. If a mass balance claim is used, then – in addition to C1.6 (III.P1) – the following requirements apply: <ul style="list-style-type: none"> • it must be used at the level of a site, at least; • it must be possible to trace the sustainability characteristics of a mixture back to the individual streams; • details of the sustainability characteristics and scope of the stream continue to be linked to the mixture. • the sum of all streams withdrawn from the mixture has the same sustainability characteristics, in the same quantities, as the sum of all streams that are added to the mixture, allowing for appropriate conversion factors.
Legal sources of timber: mixed claim	III.P6. If, as defined in criterion C 1.4 (III.P1), material that complies with all the relevant criteria for sustainable forest management is mixed with other material, the following requirements apply: <ul style="list-style-type: none"> • The 30% (or 50%) share of other material must comply with the requirements in respect of carbon debt, ILUC and a reduction in GHG emissions.

3. ASSESSMENT TABLE FOR BIOMASS FROM THE VIEWPOINT OF CARBON DEBT

The table below indicates whether the types of biomass in question do or do not comply with the carbon debt criterion. The assessment made in the table only relates to risks concerning carbon debt, and not to other sustainability criteria.

	Biomass	Assessment
1.	Land on which the cultivation and/or harvesting of biomass is prohibited	
	Structurally drained land that was peat land in January 2008, unless it can be demonstrated that the cultivation and harvesting of these raw materials do not entail the drainage of previously undrained soil.	Non-compliant
	Land that has been converted from wetland to other, drier, ecosystems since January 2008.	Non-compliant
2.	Wood from forests that complies with the relevant Dutch sustainability requirements in Chapter 2	
2.1	General requirement	
2.1.1	There is documented evidence showing that the forest management unit from which the wood is sourced is being managed with a view to the long-term conservation or expansion of carbon stocks. This evidence can take the form of a forest management plan or similar documentary evidence, as described in the criteria for sustainable forest management (under II.P6).	
2.2	Sustainably managed production forests with a rotation period of 40 years or less	
2.2.1	Wood from production forests that were first established or that developed prior to 1 January 2008.	Compliant
2.2.2	Wood from production forests established since 1 January 2008 by the conversion of natural (and semi-natural) forests.	Non-compliant
2.2.3	Wood from production forests first established since 1 January 2008 on agricultural land or grassland.	Compliant (the ILUC criterion is applicable)
2.3	Sustainably managed forests other than those specified under 2.2	
2.3.1	Tops and branches - general	Compliant
2.3.2	Stumps	Non-compliant
2.3.3	Stumps that have to be removed for other reasons (e.g. for road construction).	Compliant
2.3.4	Roundwood from a forest with a rotation period of over 40 years is only acceptable as a raw material for bioenergy if the following additional condition is met: There is documented evidence to show that only a small proportion of the value of the harvested wood is used for the production of bio-energy (excluding thinnings). This is intended to ensure that forest management remains focused on generating a diversity of products, and that forest is not harvested primarily for bioenergy. Volume is the indicator used for this purpose. When harvesting wood (excluding thinnings), less than half (on average) of the roundwood can be used for wood pellets. The wood pellet mill must ensure that this is, in fact, the case. <i>Guidance: the indicator uses volume rather than economic value because, in practice, it is difficult to reliably establish the percentage of the value that is converted into wood pellets. This is because local market prices differ and they may fluctuate significantly over time, which would generate unacceptable uncertainties for a value indicator. Over the past 10 years, the ratio between pulpwood prices and sawnwood prices for standing timber in the southern US, for example, ranged from 2.5 to 5. Accordingly, the above volume indicator limits the fraction of the</i>	Compliant

	<i>economic value of a timber harvest that goes to wood pellets to an average of 23%. The feasibility of this indicator will be tested in practice, focusing particularly on whether the requisite data for this indicator can be collected and verified in the various wood-pellet-producing regions. If it emerges that the indicator cannot be implemented, another indicator will be sought. In the meantime, the indicator is not testable and will, therefore, be inoperative.</i>	
3	Wood from forests that do not comply with the relevant Dutch sustainability requirements in Chapter 2	
	All forest types not specified in subsections 2.1-2.3 .	Non-compliant
4	Primary biomass streams that are not sourced from natural forest or production forest	
4.1	Wood sourced from maintenance work on landscape elements, parks, avenues, etc.	Compliant
4.2	Biomass waste products generated during the management of areas of natural habitat other than forest areas, when activities in the context of the biomass harvest are aimed at the conservation or enhancement of specific functions of the area, such as natural features or recreational services.	Compliant
5.	Secondary biomass streams	
5.1	Residual products from wood processing (sawdust, bark, etc.)	Compliant
6.	Tertiary biomass streams (wood waste)	
6.1	A-quality waste wood	Compliant
562	B-quality waste wood	Compliant
6.3	C-quality waste wood	Compliant

4. DEFINITIONS

Annual Allowable Cut (AAC) The volume of timber harvest permitted per year from a specified area of land, usually expressed as cubic meters of wood per year. The AAC must be calculated considering landscape, forest types, ecological protection areas and infrastructure and shall not exceed the net annual increment on the long run. (TPAS)

Biodiversity The variability among living organisms of all origins, including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this also includes diversity within species, between species and of ecosystems. (TPAS)

Branch A shoot emerging from a stem or stalk or a secondary stem or stalk arising from the main stem or main stalk of a plant. (JRC) – as a reference for carbon debt criterion.

Certification system (for biomass) The system of rules that results in a written statement (the certificate) by an independent external body that it has carried out an audit, during which it verified whether the system (or management system) complies with the requirements specified in a standard. A standard can vary from a single criterion to a complete set of principles and criteria for the entire chain, from source to consumer. The ability to track products through the supply chain is an essential prerequisite for a certification system.

Certification System (for timber) A legally registered system that aims to promote sustainable forest management through the certification of forest management and the associated Chain of Custody. (TPAS)

Certification The issuing of documentary evidence (the certificate) by an independent external body, showing that the latter has inspected a forest management unit, biomass production unit, or company from the Chain of Custody, and has found that it complies with the requirements included in the standard. (TPAS)

Chain of Custody (CoC) (general) The chain of evidence within which products are manufactured and distributed, from their point of origin to the bioenergy producer.

Chain of Custody for timber (CoC) All the succeeding custodianships of forest based products during harvesting, processing and the distribution chain from the forest to the end-user. (TPAS)

Chemicals All types of fertilisers, biocides and hormones. (TPAS)

CoC system A set of regulations, procedures and documents at company level, that ensures the traceability of certified material. (TPAS)

Conversion (of a natural forest) A human activity through which a natural forest is transformed into another type of land use (TPAS), forest type or plantation.

Deforestation The direct human-induced conversion of wooded areas to non-wooded areas. (JRC) – as a reference for carbon debt criterion.

Ecological cycles Natural processes in which elements are continuously cycled in various forms between different compartments of the ecosystem. These include nutrient cycles, carbon cycles, and water cycles. (TPAS)

Ecological functions Ecological processes which are in a material way beneficial for society. (TPAS)

Forest Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agriculture or urban use. (FAO) – as a reference for carbon debt criterion.

Forest management The processes of planning and implementing practices for the management and use of forests and other wooded land, aimed at achieving specific economic, environmental, social and /or cultural objectives. (TPAS)

Forest Management Unit One or more forest plots – either natural forest, planted forest or other type of forest – which is managed as a single entity.

Forest manager The owner, concessionaire or individual who, in another capacity, is responsible for the management and commercial exploitation of a forest management unit. (TPAS)

Genetically modified organism An organism that has been transformed by the insertion of one or more transgenes. (TPAS)

Group (or regional association) Legal entity uniting forestry enterprises in a certain area; or companies active in a specific part of the Chain of Custody. (TPAS)

Group certification Certification of a group, or regional association, where certification applies to the group as a whole. This includes both group and multi-site CoC certification. It allows certification bodies to evaluate participating group members – by means of spot checks – to establish that they possess common, centrally administered and monitored control and reporting systems.

Habitat The place or type of site where an organism or population naturally occurs.

Legal usage right (of the forest manager) The right to undertake forestry operations in a specific area, granted by the duly authorised government body. (TPAS)

Meta-system Organisation that does not operate a certification system itself, but instead assesses national or regional certification systems to determine whether they comply with its general standard. (TPAS)

Multi-functional forest A forest whose management focuses on the conservation and/or enhancement of several coexisting functions such as nature, landscape, recreation and the production of wood and biomass. In general, no single dominant feature stands in the way of the conservation and/or enhancement of the other functions (for instance, forest management must not focus exclusively on

optimum timber production). In practice, the multi-functionality of the forest can be seen in the consistency of the management measures implemented: measures to strengthen specific species (flora and fauna), conservation of the recreational infrastructure (footpaths), logging operations.

Non-timber forest products All products derived from the forest that are not wood, including materials obtained from trees such as resins and foliage, and any other plant, animal, or plant/animal products. (TPAS)

Plantation forest Forest stands established by planting and/or seeding in the process of afforestation or reforestation which are either of introduced species (all planted stands) or intensively managed stands of indigenous species, which comply with all the following criteria: one or two species per plantation, even aged, regular spacing. (TPAS)

Production forest Forest area designated primarily for the production of wood, fibre, bioenergy and/or non-timber forest products. (FAO) – as a reference for carbon debt criterion.

Residual products from forests Tops and branches, bark, unusable trunks and other parts of trees that are generated as by-products during the routine logging of trunks for sawnwood, wood pulp or in the context of forest management for the benefit of other services, as in multi-purpose forests – as a reference for carbon debt criterion.

Residual products from natural sites and landscape management Residual products generated during the management of urban green spaces, landscape or natural sites other than forest, in the context of conserving, restoring or enhancing specific natural, recreational or scenic features. This also includes biomass waste products generated during the regular maintenance of public green spaces and parks.

Rotation period of production forest The time between the seeding or planting of a stand of (even aged) trees, and the final harvest of that stand of trees – as reference for carbon debt criterion.

Roundwood Wood from the main part of a tree; not from the branches, stump, or root – as reference for carbon debt criterion.

Salvage logging wood Damaged, dying or dead trees that are removed due to the effects of injurious agents, such as wind or ice storms or the spread of invasive epidemic forest pathogens, insects and diseases or other epidemic biological risks to the forest, but not as a result of competition. Forest salvage also includes wood that is removed to mitigate a fire hazard. (JRC) – as a reference for carbon debt criterion.

Stump The part of a plant, in particular a tree, that remains attached to the roots after the trunk has been felled. (JRC) – as a reference for carbon debt criterion.

Sustainable forest management The management and use of forests and forest lands in a way and at a rate, that maintains their productivity, biodiversity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant economic, ecological and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems. (TPAS)

System Manager Individual acting as a representative (or legal representative) of the certification system. (TPAS)

Tenure and usage rights Tenure and usage rights refer to the rights to own, use, develop and control the lands, territories, and resources in areas traditionally occupied by indigenous peoples and local populations. (TPAS)

Thinnings Trees removed in the course of a thinning operation, for the purpose of reducing the density of stands and of improving growth in diameter and volume among the remaining stands. Standing stock of unacceptable quality wood, defined as trees that are considered structurally weak or of low vigour, which do not have the ability to develop a 12-foot (366 cm) sawnwood trunk or to survive for at least another 10 years. This also includes trees that are removed to mitigate a fire hazard. (JRC) – as a reference for carbon debt criterion.

Threatened species Plant and animal species that are classified as “endangered”, at least, in the global IUCN Red List and the IUCN guidelines for the regional application of the IUCN Red List of Threatened Species. (TPAS)

Timber harvest Volume (measured over bark) of all trees (living or dead) with a diameter of more than 10 cm at breast height, which are felled annually in forests or wooded areas. It includes the volume of all felled trees whether or not they are removed. (JRC) – as a reference for carbon debt criterion.

Verifiable system (for non-certified material) A set of regulations, processes and documents designed to ascertain that uncertified material in a product or product line does originate from non-disputed, at least legal sources. (TPAS)

Verification The verification of data and sustainability claims is an organisation’s ability to demonstrate compliance with sustainability requirements through the reporting of data and sustainability claims to the relevant body. This information must be accompanied by a verification statement, in which an independent verifier confirms that they have checked the data and have found it to be free of inaccuracies, and that the systems used for this purpose are also in order.

Wetlands Land that is covered with – or saturated by – water, either permanently or for a significant part of the year. (EU-RED) - as a reference for carbon debt criterion.

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Source: [Staatscourant, nr. 9096: Wijziging algemene uitvoeringsregeling SDE en aanwijzingsregeling SDE-categorieën - 30-03-2015 \(Government Gazette, nr. 9096 - Dutch\)](#)

Stimulation of Sustainable Energy Production (SDE+)

With [SDE+](#) the ministry of Economic Affairs aims to encourage the production of renewable energy in the Netherlands. Renewable energy is better for the environment, makes the Netherlands less dependent on fossil fuels and is beneficial to the economy.