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D4.6 Sustainability scheme

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Foreword

The aim of this document is to present the all working process leading to the implementation of sustainable criteria in the ENplus scheme.

The first part gives an overview of the concept of sustainability implemented to the sourcing and trading of woody biomass.

The second part describes the consultation process organised within PellCert to define and select the sustainability criteria implemented in the ENplus sustainable scheme.

The third part gives a brief overview of the Sustainable Biomass Partnership (SBP), an initiative on sustainability certification.

The fourth, and last part, presents the future development of the sustainability requirements of the ENplus scheme.

1 Sustainability principles for woody biomass

The following table provides an overview of the principles of sustainability that can be applied for the sourcing and trading of woody biomass.

SUSTAINABILITY PRINCIPLES
<p style="text-align: center;">Principle 1: GREENHOUSE GAS BALANCE (GHG)</p> <p>The greenhouse gas (GHG) savings along the entire life-cycle, taking into account the whole supply chain including production, processing, transport and end-use are at least 60% with respect to reference fossil fuels</p>
<p style="text-align: center;">Principle 2: CARBON STOCK</p> <p>Production of woody biomass does not take place at the expense of significant carbon reservoirs in vegetation and soil.</p>
<p style="text-align: center;">Principle 3: BIODIVERSITY</p> <p>Production of woody biomass may not take place in areas with high biodiversity value, unless evidence is provided that the production of that raw material did not negatively interfere with nature protection purposes</p>
<p style="text-align: center;">Principle 4: PROTECTION OF SOIL QUALITY</p> <p>Production and processing of woody biomass should maintain or improve the soil quality.</p>
<p style="text-align: center;">Principle 5: PROTECTION OF WATER QUALITY</p> <p>Production and processing of woody biomass should not exhaust ground and surface water and should avoid or significantly limit negative impacts on water.</p>
<p style="text-align: center;">Principle 6: PROTECTION OF AIR QUALITY</p> <p>Production and processing of woody biomass should avoid negative impact or significantly reduce impact on air quality.</p>
<p style="text-align: center;">Principle 7: COMPETITION WITH LOCAL BIOMASS APPLICATIONS</p> <p>Production of woody biomass should not endanger food, water supply or subsistence means of communities where the use of this specific biomass is essential for the fulfilment of basic needs.</p>
<p style="text-align: center;">Principle 8: LOCAL SOCIO-ECONOMIC PERFORMANCE</p> <p>Production of woody biomass should respect property rights and contribute to local prosperity and to the welfare of the employees and the local population.</p>
<p style="text-align: center;">Principle 9: ETHICS</p> <p>Ethic principle covering at least health & safety, human rights, freedom of association, compulsory labour, child labour, discrimination, environmental responsibility, business integrity, corruption in all its forms</p>

Principles 1 – 3 are derived from criteria recommended by the European Commission in the Renewable Energy Directive RED 2009/28/EC (RED)¹ and its reports on solid biomass². We consider that in order to be considered acceptable, our supply chains must show enough GHG savings with respect to fossil fuels, exclude deforestation and avoid sourcing raw material from sensitive areas like primary forests, peat lands and wetlands.

Principles 4 – 8 cover environmental and socio-economic issues and their clarification refers largely to the NTA 8080 (2009)³. The level of details of investigation and quality of the audit should reflect the supplier and/or country specific risks related to the fulfilment of those principles.

Principle 9 addresses issues that are not unique to biomass sourcing and trading but are applicable for all commodities.

Waste and residues

Biomass produced from processing residues and waste (residues other than agricultural, aquaculture, fisheries and forestry based) need only fulfil the principles 1 (GHG balance) and 9 (CSR). Residues from saw mills are categorized as processing residues and are eligible for that exception.

Forestry residues on the contrary need to fulfil all Principles and must meet the so-called 'land criteria' covering carbon, stock, bio-diversity and soil quality.

On the contrary, wood residues (whether clean or treated) resulting from an industrial process like a saw mill would fall into the category of processing residues and would be exempted. But they may not be the result of an intentional process.

Waste and residues (as from forestry AND saw mills) shall be considered to have zero life-cycle GHG emissions up to the process of collection of those materials.

¹ RED = Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

² Report from the Commission to the Council and the European Parliament on the sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling COM(2010)11 final and related Impact Assessment (SEC (2010)66 – linked to COM(2010)11 final).

³ NTA 8080 (2009) Dutch Technical Agreement, NTA 8080, , Sustainability criteria for biomass for energy purposes

1.1 Principle 1: GHG balance

Basic information for the calculation of the greenhouse gas (GHG) emissions shall be collected for the transport of the raw material and the processing for the production of the wood pellets: this is mainly electricity use and use of fossil fuels like diesel oil for drying and transport.

1.2 Principle 2: Carbon stock change

Production of woody biomass does not take place at the expense of significant carbon reservoirs in vegetation and soil.

Biomass shall not be sourced from raw material obtained from land with high carbon stock, unless evidence is provided that it doesn't impact negatively the carbon storage property of the areas mentioned hereafter. This principle 2 follows the RED requirements, and has been adapted, using some of the clarifications found in the Berlin agreement signed by Vattenfall.

Rationale and explanations

High carbon stock land in general comprises areas which had the following status as of the reference date (1 January 2008) or thereafter and which have lost it as a result of biomass production, harvesting or extraction. The protection of the areas mentioned hereafter is based on their property as carbon-storage mechanisms. For detailed definitions see **Error! Reference source not found.**

- Wetlands

Biomass from wetland will not be used, **unless** evidence is provided that the production, harvesting and extraction of that raw material has no negative impact on the carbon storage property of the wetlands.

- Peat lands

Biomass from peat land will not be used, **unless** evidence is provided that the production, harvesting and extraction of that raw material has no negative impact on carbon storage property of the peat lands (no drainage).

- Forests

Biomass from *primary forest* (as defined in Annex 1) like rainforest and boreal forest will not be used⁴. Material from other naturally regenerated forest might be used, if there is evidence that there is no negative impact on the carbon stocks.

An important concern is the protection of the existence and quality of the forests; whether they are of natural origin or planted. Deforestation must be avoided and the carbon stock must be maintained. Naturally regenerated forest with visible indications of human activities may have a high carbon value, which may be diminished or lost through intense cultivation. Reduction in above- and below-ground carbon stocks (according to FAO definitions) may result, for instance, from an excessive removal of stumps and residues harvest. But on the other side, greater mobilization of existing timber reserves and the development of new forestry systems must remain possible (as stated in the RED page 14 (24)).

To prove that the carbon stocks of naturally regenerated forests (with visible human activities or commercial forests) is not reduced by the production and extraction of the woody raw material, a documented and reliable monitoring system could be put in place for evaluating the carbon stock of the forests used.

Proof must be established that the forest will remain a forest such that at least the status of the forest does not change. For the avoidance of doubt, production of wooded land does not change its

⁴ A commercial forest run in a way close to nature cannot be categorised as a primary forest

status if reforestation or natural regeneration is secured by law, by a forestry certification system or by other evidence.

Carbon stock will be recovered by natural regeneration or by replanting the trees within a reasonable period of time: evidence of this recovery can be brought through appropriate sustainable forestry management practices.

1.3 Principle 3: Biodiversity

Production of woody biomass may not take place in areas with high biodiversity value, unless evidence is provided that the production of that raw material did not negatively interfere with nature protection purposes.

The following clarification of this Principle is based on the RED and was derived from the Berlin agreement signed by Vattenfall.

No woody biomass will be used for bio-energy if it comes from land which, as of the reference date (1 January 2008) or afterwards, has the status of land with a high value for the maintenance of biological diversity, unless evidence is provided that the production of that raw material did not lead to loss of biological diversity. This includes the following lands.

- NOT ACCEPTABLE - Primary forests⁵ like rainforests and boreal forests

Indication that there is no clear sign of human activity (“inviolacy”) depends on how long the forest has been able to resist to disturbances, but despite the absence of “visible signs of human activity” a commercial forest run in a way close to nature cannot be categorized as a primary forest.

- ACCEPTABLE - Commercial forests

The concept of a primary forest is not compatible with the status of a commercial forest. Therefore, despite the possible absence of “visible signs of human activity” due to very long undisturbed stages of development, commercial forests are acceptable and are to be regarded under FAO as “**other naturally regenerated forests**” (incorporating modified natural forests and naturally regenerated semi-natural forests, see definition in Annex 1).

- NOT ACCEPTABLE - Areas designated for nature protection

like areas designated by law or by the competent legal authority (federal, national, regional or local) for nature protection purposes,

known areas of high conservation value, e.g. for the protection of rare, threatened and endangered eco-systems and species, irrespective of their current protective status (recognised in international treaties or registered in lists of intergovernmental organisations or the IUCN⁶).

Those designated areas will not be accepted **unless** it can be proven that cultivation, harvesting and extraction do not conflict with the aims of nature protection purposes.

⁵ See definition in Annex 1

⁶ IUCN = International Union for the Conservation of Nature

Environment

The following three Principles are focused on the environmental media soil, air and water. Biomass production is expected to meet sustainable agriculture and forestry practices. This requires (as a minimum) legal compliance with available permits and applicable environmental laws and regulations as well as the application of suitable measures to maintain (and where deemed feasible, improve) the quality of the environment, particularly with regard to:

Principle 4: soil quality,

Principle 5: water quality and use,

Principle 6: air quality,

Compliance with European and national environmental legislation applies to all parts of the biomass supply chain (incl. biomass production, harvesting, transport, pellet production and power generation).

The organization can demonstrate enforcement of the following requirements based on the applicable European laws, regulations and related permits with regard to:

- waste management,
- the use of agro-chemicals, fertilizers and hazardous substances, and
- environmental impact assessments.

Chemicals and other hazardous materials are to be managed to ensure their safe application, handling, movement, storage, reuse or disposal. The minimisation of hazardous materials and the substitution by other less hazardous alternatives is encouraged.

1.4 Principle 4: Protection of soil quality

Production and processing of woody biomass should maintain or improve the soil quality.

The following clarification of this Principle is based on the NTA8080 (2009).

Rationale and explanations

The organization must take operational measures required to:

- **prevent erosion**, while ensuring the preservation of the nutrient balance and of the soil organic matter (SOM) and prevent soil salination;
- **combat** negative impacts related to the use of chemicals;
- prevent the use of **residual products** be in violation of other local essential operations for the preservation of the soil quality and structure.

1.5 Principle 5: Protection of water quality

Production and processing of woody biomass should not exhaust ground and surface water and should avoid or significantly limit negative impacts on water.

The following clarification of this Principle is based on the NTA8080 (2009).

The organization must take operational measures required to:

- ensure that the practices applied in operational management are aimed at efficient water use;
- prevent use of non-renewable water sources.

1.6 Principle 6: Protection of air quality

Production and processing of woody biomass should avoid negative impact or significantly reduce impact on air quality.

The following clarification of this Principle is based on the NTA8080 (2009).

The organization should to the extent applicable fulfil the requirements described in the common paragraph “Environment” above.

The organization must take (documented) operational measures required to:

- record the emission of substances in the air as a result of the production or processing of biomass at the production unit;
- take measures required to ensure that the practices applied in the operational management are aimed at minimizing emissions of substances in the air;
- avoid the burning of residues or waste material in open air unless it can be proven that it is the desirable choice to conquer pests;
- register any case of burning and ensure the presence of adequate firefighting equipment.

1.7 Principle 7: Competition with local biomass use

Production of woody biomass should not endanger food, water supply or subsistence means of communities where the use of this specific biomass is essential for the fulfilment of basic needs.

The production of woody biomass shall not endanger the essential needs of the local population. The local resources shall not be used for the production of woody biomass in cases where specific biomass resources are essential for the subsistence of the local population for the fulfilment of basic needs such as food, fodder, fuel, fibres or pharmaceuticals.

If the biomass is cultivated (plantations), the organization should mitigate the risks of woody biomass production with regard to competition with *food, water supply or other subsistence means*.

In Europe, this principle is assumed to be covered by the European legislation in place. If the woody biomass is imported, a due diligence must be carried out.

1.8 Principle 8: Local socio-economic performance

Production of woody biomass should respect property rights and contribute to local prosperity and to the welfare of the employees and the local population.

Biomass production must to the extent applicable promote local employment and favours the development of the local prosperity.

In Europe, this principle is assumed to be covered by the European legislation in place and in addition it can be covered by a Supplier Declaration.

1.9 Principle 9: Ethics

Ethical issues that the organization should uphold include:

- health & safety;
- internationally proclaimed human rights;
- freedom of association and the right to collective bargaining;
- elimination all forms of forced and compulsory labour;
- effective abolition of child labour;
- elimination of discrimination in respect of employment and occupation;
- promotion of greater environmental responsibility;
- high standards of business integrity, including the work against corruption in all its forms.

For this principle, we refer to a Code of Conduct or a Supplier Declaration signed by the supplier.

2 ENplus sustainability requirements selection

2.1 Stakeholders' consultation

2.1.1 National stakeholders consultation

PellCert organized national consultation workshops to gather feedback for improving the ENplus handbook, for planning the ENplus industrial pellet certification (though not relevant in most countries) and to improve the sustainability requirements for ENplus. The Belgian workshop took not place as planned. However, Belgian stakeholders were well informed of the ENplus development and were able to give input to the process during frequent contacts with the Belgian partner ValBiom, AEBIOM and Laborelec.

The national associations also discussed ENplus and sustainability issues at their own events and membership assemblies.

Table 1 - Overview of PellCert workshops

Partner	Country	Date	Report	Total participants	Producers	Traders	Equipment Manufacturer	Certification/Inso/test	Other
CB2 - proPellets	Austria	16.05.2012	D5.4a	26	11	6	7	1	1
CB3 - DEPV	Germany	24.05.2012	D5.4b	16	7	6	1	2	
CB4 - Svebio	Sweden	20.03.2012	D5.4c	19	7	2		1	9
CB5 - SPE	Finland	04.04.2012	D5.4d	13	3			1	9
CB6 - AVEBIOM	Spain	16.05.2012	D5.4e	96	15	16	10	9	46
CB7 - propellet	France	22.05.2012	D5.4f	35	11	8	5		11
CB8 - AIEL	Italy	14.05.2011	D5.4g	21	7	4	3	5	2
		24.02.2012	D5.4g	80	15	15	10	10	30
		19.04.2012	D5.4g	14	1	1	10		2
		20.04.2012	D5.4g	12	10	2			
CB9 - HPA	Hungary	24.05.2012	D5.4h	19	10	6		1	2
CB10 - ANPEB	Portugal	29.05.2012	D5.4i	26	14	3		6	3
CB11 - VALBIOM	Belgium	no workshop							
			sum:	377	111	69	46	36	115

PellCert project meetings:

- 25 May 2011, Brussels
- 16 November 2011, Brussels
- 1 June 2012, Stockholm – together with EPC
- 8 October 2012, Berlin – together with EPC

2.1.2 EPC consultation

PellCert partners within EPC and other EPC members from the UK, Switzerland, Ireland, Lithuania, Czech Republic, USA and Canada reported on their national views regarding sustainability in EPC meetings and helped to broaden the view further.

Christian Rakos (PellCert partner proPellets AT; in his capacity as EPC president) presented ENplus (and especially the envisioned industrial pellet certification) at many international conferences in Europe and overseas. He undertook trial audits of US pellet plants to refine the ENplus industrial pellet certification developed by PellCert during summer 2012 (this was not part of the PellCert project). Either EPC or AEBIOM was represented at almost all large bioenergy/pellets events in Europe.

EPC meetings (apart from combined PellCert/EPC meetings):

- 1 July 2011, Brussels
- 3 October 2011, Berlin
- 23 February 2012, Verona

2.1.3 AEBIOM consultation

AEBIOM has members in countries not covered by PellCert or EPC directly. Some of which are important for the pellet business – e.g. Denmark. AEBIOM had dedicated sessions for sustainability at its annual conference and various ways of proofing sustainability of solid biomass were one of the most important topics.

List of AEBIOM meetings:

- 4 May 2011, AEBIOM General Assembly, Cologne, Germany
- 5 May, 2011, Pellets for Bioenergy Conference, Cologne, Germany
- 14 November 2011, AEBIOM General Assembly, Brussels
- 29-30 June, 2011, 2nd AEBIOM European Bioenergy Conference & Renexpo 2011, Brussels, Belgium
- 16 April 2012, AEBIOM General Assembly, Brussels
- 26-27 April, 2012, Teaming up for Renewable Heating and Cooling, Copenhagen, Denmark
- 25-26-27 June, 2012, 3rd AEBIOM European Bioenergy Conference 2012, Brussels, Belgium

Sustainability issues and the implementation in ENplus were also discussed in the AEBIOM Board meetings, taking place approximately 5 times a year.

International conferences

The 10 underlined presentations were made especially for PellCert and the ENplus development. Most presentations covered both quality and sustainability aspects. Approximate audience representation is given (not taking into account the respective attendance to the specific session if applicable):

- 30 October 2012, Peter Rechberger, “Overview of ENplus industrial wood pellet certification”, USIPA exporting pellets conference, New Orleans, USA
Audience: 400 US and European stakeholders involved in the industrial pellets export to Europe
- 10 October 2012, Peter Rechberger, “The latest developments to the ENplus certification”, Pelletsforum, Berlin
Audience: 500 pellet stakeholders, both industry and residential sector

- 26 June 2012, Peter Rechberger, "ENplus – Pellet certification for quality and sustainability", AEBIOM European Bioenergy Conference, Brussels
Audience: 250 bioenergy stakeholders, mainly interested in sustainability
- 20 June 2012, Peter Rechberger, "ENplus – the most successful wood pellet certification", EUSEW PellCert/SolidStandards/MixBiopells workshop, Brussels
Audience: various, 50 people registered, among which pellet producers, certification bodies
- 29 May 2012, Peter Rechberger, "Development of the ENplus certification", World Bioenergy Conference, Jonköping, Sweden
Audience: 1000 mainly European but also other bioenergy experts
- 2 May 2012, Peter Rechberger, "(Wood) Pellets for Electricity - the European experience", UNIDO Sustainable Biomass for Electricity conference, Güssing, Austria
- 25 April 2012, Peter Rechberger, "Wood Pellets: An opportunity for Eastern Europe", Ukrainian Biofuel Forum, Kiev
- 13 March 2012, Peter Rechberger, "Wood pellet certification for quality and sustainability", BioPower Generation conference, Rotterdam
Audience: Several 100 power experts, mostly utilities
- 23 February 2012, Edita Vagonyte, "Wood pellet certification - towards a biomass commodity", 3rd Biomass Trade & Power conference, Brussels
- 9 February 2012, Peter Rechberger, "Biomass and pellets", presentation to a Canadian delegation, Brussels
- 2 February 2012, Peter Rechberger, "Biomass and pellets", presentation to Biowanze company, Wanze, Belgium
- 31 January 2012, Peter Rechberger, "European market development", Pellets 2012 conference, Stockholm
Audience: 200 pellet stakeholders from Sweden, many producers
- 21 December 2011, Peter Rechberger, "Overview: AEBIOM, EPC, pellets and ENplus", presentation to the Canadian embassy, Brussels
- 17 November 2011, Peter Rechberger, "Sustainability of solid biomass – chances and risks", Austrian Biomass Day, Wieselburg, Austria
- 26 October 2011, Peter Rechberger, "Will biomass become a commodity?", Biomass Power Conference, London, UK
- October 2011, Peter Rechberger, "ENplus market launch status", Pellet Forum, Stuttgart, Germany
Audience: 500 pellet stakeholders, both industry and residential sector
- September 2011, Peter Rechberger, "ENplus pellets quality certification", Nordic Bioenergy Conference, Jyväskylä, Finland
Audience: 500 mainly European bioenergy stakeholders
- 30 June 2011, Peter Rechberger, "ENplus pellets quality certification", AEBIOM European Bioenergy Conference, Brussels, Belgium
Audience: 250 bioenergy stakeholders, mainly interested in sustainability

AEBIOM had also more general presentations regarding sustainability in a wider sense at many other occasions and engaged with the participants.

2.1.4 Industrial stakeholders consultation

Two workshops dedicated for industrial pellets stakeholders were organized by the PellCert project (Laborelec):

- 15 November 2011, Linkebeek, Belgium
- 25 June 2012, Brussels

Interaction within the Initiative Wood Pellet Buyers (IWPB) was crucial to formulate quality specifications for industrial pellets (as these were not included in the official EN standard). Laborelec leads the sustainability working group of IWPB and could therefore bring the view and expectations of the pellets using utilities to the PellCert project. EPC president Christian Rakos (PellCert partner proPellets AT) as well as EPC members from Canada and USA were also present in the meetings. All minutes of the meetings are publically available at <http://www.laborelec.be/ENG/initiative-wood-pellet-buyers-iwpb/>

- 19 May 2011, London
- 7 September 2011, Copenhagen
- 9 November, Amsterdam
- 30 January 2012, Geneva
- 27 February 2012, London
- 18 April 2012, London
- 30 May 2012, Schipol, Netherlands
- 23 October 2012, London

2.1.5 European industrial pellet suppliers consultation

Besides the interaction within the IWPB, also European industrial pellet producers and traders were directly involved in the ENplus development.

EIPS was founded as an AEBIOM/EPC working group and has since then gained importance and formal structure with own work plan, statutes, etc. The European industrial pellet producers had no common approach on European level as they work internationally and therefore often are not active in their national pellet association (most of which focus only on the heating market). The ENplus industrial pellet certification as well as sustainability criteria were discussed at EIPS meetings. Furthermore, the EIPS president is part of the EPC Board and was therefore directly involved in the sustainability decisions for ENplus.

The involved countries nicely complement the EPC members, as EIPS is especially well represented in the Baltic States and Russia which are mainly export oriented and responsible for the largest volume of industrial pellets produced in Europe.

List of EIPS meetings:

- 14 November 2011, Brussels
- 10/11 January 2012, Brussels
- 18 April 2012, London
- 10 October 2012, Berlin

2.1.6 European Commission consultation

As requested by the Commission this consultation was part of the kick-off meeting. AEBIOM and proPellets Austria (President of EPC) have attended various workshops and meetings with the Commission to relay the view of the pellet sector and the envisioned role of ENplus (not directly part of the project). AEBIOM and other PelCert partners frequently interacted with Emilio Font de Mora and other EU officials at various events in Brussels and internationally, including the 2 AEBIOM European Bioenergy Conferences and EUSEW workshop.

The consortium was looking for the sustainability requirements for the use of solid and gaseous biomass sources directive. Unfortunately, this directive has never been published during the commission's term of office.

2.2 Sustainability requirements implemented in ENplus

Following all this consultation process and the editing of the principles of sustainability that can be applied for the sourcing and trading of woody biomass (Laborelec), the consortium had to make a decision regarding the selection of the sustainability criteria.

The idea of an “ENplus GREEN” scheme has been dismissed – all sustainability requirements have finally been incorporated in the ENplus handbook directly to avoid any difference of sustainability for pellets ENplus certified (with/without ENplus Green). As a consequence, pellets are certified based both on technical criteria and on environmental criteria.

The consortium was planning to implement the criteria from the sustainability requirements for the use of solid and gaseous biomass sources directive. Unfortunately, this directive has never been published during the commission’s term of office.

With the editing of the consolidated handbook, the sustainability criteria of ENplus have been reinforced:

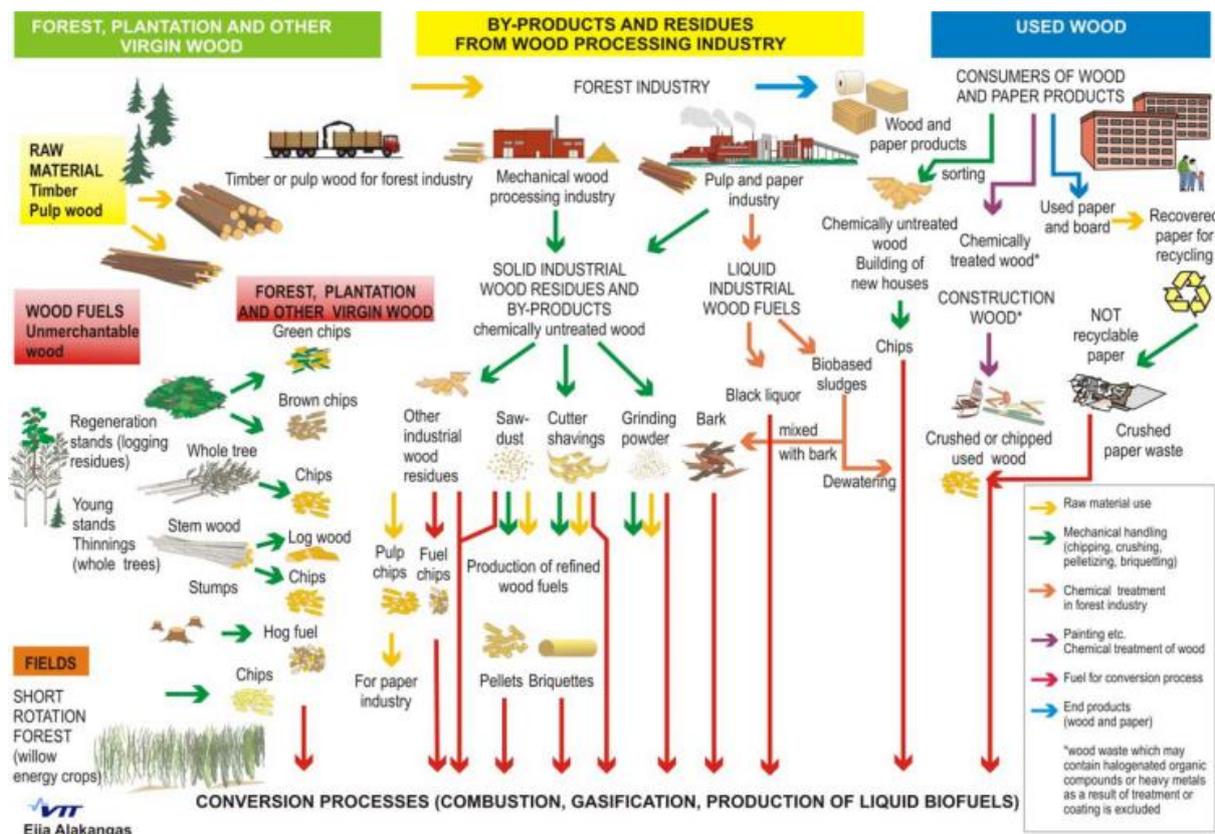
- The pellet producer has to state the type of raw material he is using (virgin wood, residues, used wood).
- The producer has to state the % of raw material he is using which is certified, e.g. under PFC or PEFC scheme (Implementation of the 9 principles of the concept of sustainability developed by Laborelec for the raw material).
- The Green House Gases balance (GHG) of the pellets produced in the plant is calculated by the auditor (Implementation of the first principle of the concept of sustainability developed by Laborelec).
- A statement of commitment has to be observed and signed by the producer. (Implementation of the 9 principles of the concept of sustainability developed by Laborelec for the raw material).

2.2.1 Type of raw material

In the consolidated version of the ENplus handbook, the producer has to state the type of raw material he is using:

- Virgin wood (category 1.1 in EN 14961-1)
- Residues (category 1.2 in EN 14961-1)
- Used wood (category 1.3 in EN 14961-1)

The definition of these categories are based on the raw material classification from the standard EN 14961-1. The graph below illustrates these different categories.



The type of raw material used by the pellet producer is controlled by the inspection body. This information is then recorded by the certification body in the conformity report (extract of a conformity report below, Handbook p. 36).

Raw materials

Sources : % virgin wood (1.1) % residues (1.2) % used wood (1.3)

These data are recorded by EPC. So far, these criteria are only informative. If it is decided to create a binding criteria for raw material, EPC will easily be able to detect and inform the producers which need to change their raw material sourcing to comply with this new rule.

2.2.2 Percentage of certified raw material

The producer has to state the percentage of raw material he is using which is certified, e.g. with PFC/PEFSC schemes. Complying with one of these schemes is a reliable way to commit with the 9 principles of the solid biomass sustainability concept developed by Laborelec for the raw material.

This information is controlled by the inspection body. This data is then recorded by the certification body in the conformity report (extract of a conformity report below, Handbook p. 36).

<p>Raw materials</p> <p>Sustainability: <input type="text"/> % of (1.1) from certified sources <input type="text"/> % of (1.2) from certified Chain of Custody</p>

These data are recorded by EPC. As for the type of material, these criteria are only informative so far. If it is decided to create a binding criteria for certified source raw material, EPC will easily be able to detect and inform the producers which need to change their raw material sourcing to comply with this new rule.

2.2.3 GHG balance of produced pellets

In order to implement the first principle of sustainability, a tool has been created to perform life cycle GHG calculations of wood-based pellets according to the quality label ENplus. This tool was produced by Bioenergy 2020+ GmbH in cooperation with ofi Technologie & Innovation GmbH under the commission of proPellets Austria. The second version of this tool will rely on the GHG calculation tool of the BioGrace II project that aims at harmonising GHG calculation rules for heat and electricity from biomass through the European Union.

This information is calculated by the auditor of the inspection body. This data is then recorded by the certification body in the conformity report (extract of a conformity report below, Handbook p. 36).

Carbon footprint:		g CO ₂ -eq./ kg pellets
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These data are recorded and aggregated by EPC. With 150 producers ENplus certified, these data are becoming workable for EPC. In order to use this data without disclosing confidential information, EPC will publish the average value of all producers on its website. This will create a nice competition for each producer who will tend to beat this mean value. A favourable GHG balance value could be a very nice marketing argument for the producer but can also be useful if any binding legislation occurred in this field.

2.2.4 Statement of commitment to sustainable pellet production

In order to become ENplus certified, all the producers have to sign a Statement of commitment to sustainable pellet production (see blank charter below). The content of this charter is based on the 9 principles of the solid biomass sustainability concept developed by Laborelec for the raw material.

The management of(NAME OF THE COMPANY)..... is committed to ensuring, that its wood sourcing practices and its pellet production operations are carried out in accordance with the following principles:

- *The production of woody biomass does not significantly take place at the expense of the net carbon balance of carbon reservoirs in vegetation and soil.*
- *The production of the woody biomass does not interfere negatively with biodiversity within the forest of origin*
- *The production of woody biomass maintains or improves the soil quality*
- *The production of woody biomass does not exhaust ground and surface water and avoids or significantly limits negative impacts on water resources.*
- *The production of pellets avoids or significantly limits negative impact on air quality*
- *The production of wood pellets does not endanger food, water supply or subsistence means of local communities.*
- *The production of wood pellets respects property rights and contributes to local prosperity and to the welfare of the employees and the local population.*
- *Ethic principles related to health and safety, human rights, freedom of association, compulsory labour, child labour, discrimination, environmental responsibility, business integrity and corruption in all its forms are fully respected.*
- *Wood sourcing is fully compliant with the European Timber Regulation (EUTR) and the EU Forest Law Enforcement, Governance and Trade (FLEGT) regulations.*

The Management of(NAME OF THE COMPANY)..... will make this commitment public (e.g. by publication on its website) or by other adequate means of communication. The management also agrees that it will accept any investigations organised by the inspection body being responsible for the production control as part of the ENplus certification, if there is a serious case and/or substantiated concerns raised that these principles are not being followed.

Name, signature, date

3 Sustainable Biomass Partnership sustainability scheme

Since 2008 there has been a steady increase of biomass use for energy and transport fuel applications, leading to some issues of public acceptance and critics about the lack of sustainability of such a “bio-mess” (Greenpeace, 2011). Sustainability criteria are included in the Renewable Energy Directive, for the liquid biofuels and bioliquids. Though EURELECTRIC and AEBIOM have clearly reported sector’s expectations for such sustainability framework applied to the solid and gaseous biomass, no decision has been communicated by the European Commission (to date March 2012). However, this didn’t prevent several Member States to define their own (differing) biomass sustainability obligation.

Belgium was the first country to require partial sustainability criteria for allocation of Green Certificate. *The Belgium systems in Wallonia and in the Brussels region are based upon avoided CO₂ emissions with respect to a defined reference and require a traceability of the supply chain.*

In the UK, the Renewable Energy Certificates (ROCs) have to be linked to binding sustainability criteria as per 1 April 2013. The Netherlands has the so called 'green deal' between the government and energy sector to keep the share of cofiring at 10% in period 2012-2015 with binding RED sustainability criteria. Various other European countries already cover limited sustainability aspects (e.g. only on end-use efficiency or sourcing) in their national schemes.

On the other hand, some countries are against any new obligation on forest management, such as Sweden (SQ Consult, Dec 2011).

Beyond the forestry management aspects that can be partly certified on basis of the FSC, PEFC and similar schemes, there is also a need for each industrial actor to develop a methodology for the CO₂ balance calculation. Such methodology consists in data gathering calculation methodology (proposal made by the Commission in the Annex I of the 2010 report on *sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling*).

Until now, there remain a gap in homogeneity in the adoption of this methodology as each EU country requires a specific method to be applied. The BIOGRACE II project objective is to define common methodology and data references for the solid biomass for bio-energy applications. Laborelec and AEBIOM are involved in this project (starting in 2012).

Meanwhile, the major industrial users of wood pellets have decided, in 2010, to sit together to define which should be the minimum requirements for sustainable wood pellets bulks, to facilitate the trading. The utilities involved in the Initiative Wood Pellets Buyers (IWPB), have thus worked on a proposal of nine sustainability principles, along with the definition of technical specifications. These principles and the description of criteria attached are based on an aggregate of the following utilities' experiences with their systems:

- the Green Gold Label developed by Essent and Control Union in the Netherlands,
- the corporate approach developed by Drax in the UK for biomass sustainability,
- the agreement of Vattenfall with the Senate of Berlin for the use of biomass as a sustainable fuel,
- the verification procedure developed by Laborelec and SGS in Belgium for the grant of green certificates with sustainable solid biomass.

There exist other examples of voluntary standards or initiatives such as the NTA8080/8081, or the Blue Angel Label in Germany, who has recently included chips and pellets for stoves and boilers. Other large utilities such as Electricité de France or Enel have started their analysis on these topics; however they have not yet led to proposed criteria, and potentially, they could adopt a different set of sustainability criteria for their operations. (SQ Consult, 2011).

Since 2010, the Group IWPB has evolved towards Sustainable Biomass Partnership to establish more than only guidelines, but a sustainability scheme, that would be applicable for the contracting of biomass lots.

SBP is currently focusing on developing tools to provide assurance that woody biomass is sourced from legal and sustainable sources. SBP recognises fully the credibility of existing and well-proven forest certification schemes, the Forest Stewardship Council (FSC) and the Programme for Endorsement of Forest Certification schemes (PEFC), and does not wish to compete with or replicate them. Unfortunately there is limited uptake of certification in some key forest-source areas and the schemes themselves do not yet cover all the key requirements of biomass users.

Therefore, SBP is working to develop solutions, short-term and long-term, to address both these issues and is in discussion with both schemes on how these challenges might be overcome.

SBP's immediate priority is to develop standards & processes allowing companies in the biomass sector to demonstrate compliance with legal, regulatory and sustainability requirements.

The SBP's Biomass Assurance Framework is designed as a clear statement of principles, standards and processes necessary to demonstrate such compliance. Wherever possible, use is made of the FSC and PEFC standards and processes already applied to other forest product streams. Further refinement and strengthening of these SBP standards will follow as necessary.

AEBIOM is actively collaborating to the initiative of SBP with being member of the SBP sounding board and with participating in every meeting. This close collaboration is positively influencing the sustainability management of ENplus but it may also lead to the creation of a common sustainability scheme between ENplus and SBP scheme on mid-term.

4 Conclusion and future development

Defining and implementing some sustainability requirements in the ENplus scheme has been a very challenging task. Sustainability is a global concept which is complex to implement on the field. Hence, the four sustainability requirements developed for ENplus are a nice achievement but are also a very good basis for future development of the scheme.

With the absence of any directive defining some sustainability requirements for the use of solid and gaseous biomass sources from the European Commission, the PellCert consortium had to define by itself the sustainability criteria but had also to define the rules related to these requirements. A progressive approach has been selected. The 4 requirements defined in the ENplus are not binding so far but this will be reinforced in a close future. E.g. EPC will publish the average value of the GHG balance from all producers on its website. This will create a nice competition for each producer who will tend to beat this mean value. Thanks to these requirements, EPC is already collecting a lot of valuable sustainability data from producers (% of certified raw, type of raw material used, etc.). Once a binding rule will be implemented, it will be very easy for EPC to detect the producers who need to change their management in order to comply with these new rules.

In parallel, AEBIOM is closely collaborating with SBP which is developing a sustainability scheme mainly for big power plants using pellets. This close collaboration is positively influencing the sustainability management of ENplus but it may also lead to the creation of a common sustainability scheme between ENplus and SBP scheme on mid-term.