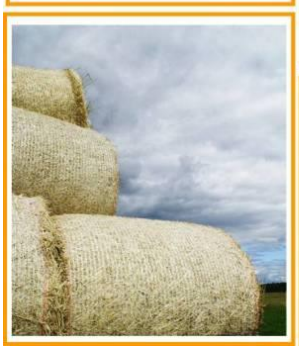





SolidStandards

Enhancing the implementation of quality and sustainability standards and certification schemes for solid biofuels (EIE/11/218)



D6.1d
National Industry Position Paper
The Netherlands

Co-funded by the Intelligent Energy Europe Programme of the European Union

The SolidStandards project

The SolidStandards project addresses ongoing and recent developments related to solid biofuel quality and sustainability issues, in particular the development of related standards and certification systems. In the SolidStandards project, solid biofuel industry players will be informed and trained in the field of standards and certification and their feedback will be collected and provided to the related standardization committees and policy makers.

SolidStandards is coordinated by:

WIP Renewable Energies
Sylvensteinstrasse 2
81369 Munich, Germany
Cosette Khawaja & Rainer Janssen
cosette.khawaja@wip-munich.de
rainer.janssen@wip-munich.de
Tel. +49 (0)89 72012 740

About this document

This document is part of **Deliverable 6.1** of the SolidStandards project. It is the National position paper of The Netherlands. This document was prepared in **June 2013** by:

Indra te Ronde and Jarno Dakhorst
Netherlands Standardization Institute (NEN)
P.O. Box 5059, 2623 AX
Delft, The Netherlands
indra.teronde@nen.nl
Tel. + 31 15 26 90 406

Intelligent Energy Europe

The SolidStandards project is co-funded by the European Union under the Intelligent Energy Europe Programme (Contract No. EIE/11/218).

Co-funded by the Intelligent Energy Europe Programme of the European Union

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Foreword

CEN, the European Committee for Standardisation, represented in this consortium by NEN, is interested in gathering the opinions of industry representatives for the development of new standards, the revision of existing standards, and the representation of European interests within international standardisation (ISO) procedures. The SolidStandards project offers an excellent opportunity to collect a large number of viewpoints through direct contact with industry representatives. In addition, a broader, public approach has been applied to collect feedback from industry players other than those participating in trainings. Furthermore, experience gained through the project has been used to provide recommendations to CEN and the solid biofuel community how to cope with new developments on solid biofuel markets.

This industry position paper contains the feedback collection and analysis for **The Netherlands**, and includes the following:

1. Description of national biofuel markets based on **available data**
2. Description of standardisation activities.
3. Description of certification activities.
4. Overview of standardisation and certification needs.
5. Results of discussion with national mirror committee.
6. Summary of national industry needs.

The objectives are:

- To explain the industry points of view to standardisation committees.
- To initiate and support the development of additional standards (e.g. on biomass storage).
- To increase the practical applicability of standards under development.
- To bring European industry viewpoints into on-going CEN and ISO standardisation processes.
- To provide the necessary feedback on existing standards in order to facilitate their revision in the future.

NEN discussed the concept version of the national industry paper with the Dutch mirror committee, 310 029 ‘Solid Biofuels’ on 23 April 2013. A selection of committee members has delivered additional input and gave feedback (after that meeting). This input is integrated in this final version of the Dutch industry position paper, and has been shared with those who delivered input. This has contributed to the quality of this paper. This final version is also provided to the Dutch mirror committee in June 2013.
The following sources of information are used:

- Feedback from participants of the SolidStandards training (6 and 7 June 2012; 3 June 2013) – feedback collected during the interactive parts of the training sessions and by means of questionnaires.
- Feedback from the Dutch mirror committee 310 029 Solid Biofuels, and specific input and feedback from a selection of committee members.
- Several (research) reports, published by third-parties. See Bibliography.
- Several websites of third parties. See Bibliography.
- NEN sales figures.

Training questionnaires

During the training of the SolidStandards project, participants were asked to fill in a questionnaire for feedback. The number of respondents of the first training session in 2012 was 15 respondents out of 22 participants. For the second training session (2013) also 15 persons filled in the questionnaire, out of a group of 24 participants of in total.

The answers of these 30 questionnaires are also used in several chapters of this paper. Unfortunately, not all participants filled in all the questions of the questionnaire. However, the outcome of the questionnaires is to a certain extend useful fort his position paper. Annex A is an informative Annex, in which all relevant remarks from participants regarding improvement of the standards are summarized.
Remark: The input of the Belgian participant during the training session in 2013 is used in a more general way (for example in the contribution to the interactive part of the training session). This means that actually 16 questionnaires were filled in, however, 15 specific for The Netherlands.

1. Description of the national biofuels market of The Netherlands

1.1. General description of the market

An overview of the national industry in The Netherlands, based on (the best) available can be found in Table 1.1. (found in the period March to June (2013))

Table 1.1. **Type of organization active on market**	**Estimate number of companies active on market**	**Comments**
Solid biofuel producers	Wood pellets producers: >5	<u>Wood pellets producers:</u> 1. Plospan Bio-Energy BV 2. Energy Pellets Moerdijk BV 3. Vagroen 4. WWR Group / Energon 5. Novus
	Woodchips producers: >5	<u>Woodchips producers:</u> 1. DELTA Milieu Biofuels BV 2. Woodchips Moerdijk BV 3. Den Ouden Groenrecycling B.V. 4. Vagroen 5. Bruins & Kwast Exploitatie BV 6. Parenco Hout BV 7. Van Werven
	Suppliers of wooden residues: >15	<u>Suppliers of wooden residues:</u> App. 15 BVOR-associated companies (such as Van Berkel Biomassa & Bodemproducten) (BVOR/see below) Remark: according to industry association Cumela [1] at least 800 companies (their members) have (at least 1) woodshredder(s).
	Torrefaction products: 4	<u>Torrefaction products [2]:</u> 1. Energy Invest 2. FoxCoal BV 3. Topell Energy 4 . Torr®Coal Technology BV

[1] http://www.cumela.nl/agrarisch-loonwerk-grondverzet-en-cultuurtechniek/biomassa
[2] www.dutchtorrefactionassociation.eu

Solid biofuel trader and/or logistics providers	Exact number unknown	Some large players are EBS and Nidera.
Solid biofuel users: small-medium sized (< 1 MW)	Figures (electricity and heat) : Number of systems 2,135 [3] (in 2010) and 2,310 [4] wood boilers for heat in companies	.
Solid biofuel users: large scale (> 1 MW)	Conventional Power Plants/Co-firing: In The Netherlands large scale power plants use biomass (e.g. woodpellets) for co-firing applications.[5] From 2007 onwards, the main fuel for co-firing was wood pellets. The use of wood pellets has increased from 450 ktonne in 2006 to 675 ktonne in 2007 and increased to 790 ktonne in 2008. Other important biomass fuels were waste wood, agricultural residues from cocoa processing and various waste streams. For 2009 the wood pellet consumption is estimated to be around 1,264 ktonne in 2009.[6] More detailed information is : RWE-Essent consumed 1,000 ktonne and GDF Suez 500 ktonne in 2010 [7] and respectively 650 ktonne [8] and 470 ktonne in 2011. [9] Essent reports that their consumption was 625 [10] ktonne in 2012, there is no data of 2012 available from GDF Suez. Remark: There are no further figures available for CHP application (woodpellets et cetera) in the Netherlands.	Remarks Co-firing: • Nuon operates 1 a power station for wood chips (Lelystad). [11] • The power plant at Buggenum (woodpellets) closed down in 2013. [12] • RWE-Essent is operating a bioenergy plant at which it experiences with various biomass sources • There are several biomass based power plants planned or realised in the coming years (city of Utrecht, etc.). Waste to Energy Plants (figures 2009) [13] • 8 out of 12 for renewable electricity (5,73 Pj) • 6 of 12 for renewable heat (5,19 Pj)
Consumer association	n/a	n/a
Industrial association	Exact number unknown: > 10	The most relevant associations to be mentioned are: 1. Platform Bio-energie. 2. BVOR. 3. Warmtenetwerk. 4. Vereniging Energie-Nederland. 5. Duurzame Energie Koepel. 6. AVIH. 7. Dutch Torrefaction Association. 8. Vereniging Afvalbedrijven. 9. BRBS Recycling. 10. Cumela.

[3] IEA Bioenergy Task 40 Country report The Netherlands p24
[4] http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=82004NED&LA=NL
[5] Industrial Wood Pellet Report (Laborelec/GDF Suez) p7.
[6] IEA Bioenergy Task 40 Country report The Netherlands p27
[7] Industrial Wood Pellet Report (Laborelec/GDF Suez) p7.
[8] https://www.essent.nl/content/Images/95045_MVO%20Jaarverslag%202011.pdf
[9] http://www.gdfsuez.nl/activiteiten/onze-centrales/centrale-gelderland.aspx
[10] http://www.mvoverslagessent.nl/mvo-verslag/CSearch.cGVsbGV0/a1047_Biomassa-van-houtpellets
[11] http://www.nuon.com/company/core-business/energy-generation/power-stations/cluster-utrecht.jsp
[12] http://www.nuon.com/company/core-business/energy-generation/power-stations/buggenum
[13] IEA Bioenergy Task 40 Country report The Netherlands p26

Combustion, gasification or fuel production equipment manufacturers	1	The national association of biomass boiler suppliers is NBKL.
Certification, inspection or testing bodies	Exact number unknown: > 5	Well known national testing bodies are: 1. DEKRA Certification. 2. Quality Services Certification BV. 3. Control Union Certifications. 4. KIWA. 5. SGS.
Laboratory / Research organization	Exact number unknown: > 10	Some are Incolab, PCU, ECN, WUR, TNO

1.2. General figures of the market

General

General figures[14] for 2011 in the Netherlands are:

- Production of woodpellets 0,70 Mt.
- Production of woodchips and other woody biomass 0,15 Mt.
- Production of Round wood 0,48 Mt.
- Production of Round fuel wood (for woodstove of household consumption) 0.66 Mt.

1,28 Mt of woodpellets is imported (2011). Based on the above mentioned figures it can be concluded that The Netherlands is a net importing country for wood pellets. Wood pellets are imported mainly from Canada and the USA.

Woody biomass in The Netherlands is consumed by utilities (e.g. co-firing), combustion in BEC's, heat boilers for companies, use for waste incineration, and use for wood stoves for households.

- Remark: There is no public available data about production capacity per producer nor financial data per producer about, for example, turn over.
- Remark: There is no public available data available about every type of solid biomass (for example grass or cane).
- Remark: There is no public available data about torrified biomass (powder/pellets) or about gasification.

[14] Sustainable biomass and bioenergy in The Netherlands: Report 2012

2. Standardisation activities

This chapter gives a comprehensive overview of standardisation activities and the adoption of standards in The Netherlands.

2.1. National standardisation activities

Nationally

Activities of the national mirror committee 310 029 "Solid Biofuels" are aimed at contributing to and promoting the use of CEN and ISO standards related to solid biofuels in The Netherlands. Besides that, the committee monitors (first time) experiences by users of these standards. If problems occur caused by the requirements in the standards, the committee will try to resolve this in future revisions. The committee also investigates whether there are any obstacles for a smooth implementation of solid biofuels (both neat and solid recovered fuels (SRF)) as a result of law and legislation. In case there are any obstacles, the committee will look for options to take them away, wherever possible.

The Dutch technical agreement, NTA 8080[15], describes the requirements for sustainably produced biomass for energy applications (power, heat & cold and transportation fuels). It includes criteria for solid, liquid and gaseous biofuels. The standard is based on the so called Cramer criteria, named after the chairperson of the committee that developed the testing framework for sustainable biomass. These criteria are: Greenhouse gas emissions, competition with food and other local applications, biodiversity, environment, prosperity, and social well-being[16]. NTA 8080 was published in 2009.

Based on new insights and developments (for example at European level), NTA 8080 will be revised (an NTA shall be reviewed every three years to determine whether a revision is needed). These revision activities have already started and the scope will be broadened to biobased products as well.

New themes and needs

The committee also started with activities aimed at standardisation of torrefaction. ECN is one of the organizations engaged in research on torrefaction. The results of previous research are used as input. The committee also started to focus on other themes, which are: Quality of biomass, and transport and storage. The work programme is derived from the work programme of CEN/TC 335, CEN/TC 343 and ISO/TC 238.
The committee will explore its role in the development of quality certificates for solid biofuels (together with BVOR and NL Agency).

CEN/ISO activities

The committee handles all documents from CEN/TC 335, CEN/TC 343 and ISO/TC 238 for discussion and voting. The committee functions as technical platform for international standardisation activities. Four working groups are under Dutch leadership (CEN/TC 335/WG 3 Sampling and sample preparation, CEN/TC 335/WG 5 Chemical test methods, CEN/TC 343/WG 3 Sampling, sample preparation and supplementary test methods, and ISO/TC 238/WG 5 Chemical test methods).

[15] http://www.sustainable-biomass.org/?pub_Id=3892
[16] www.sustainable-biomass.org

The committee defines the Dutch positions towards CEN/TC 335, CEN/TC 343 and ISO/TC 238, and provides input for new standardization topics in the field of solid biofuels. In doing so, the committee actively submits comments during the finalization of the upgrading of CEN standards to ISO standards. The committee also follows the developments of CEN/TC 411 “Bio-based products”.

The committee act as sounding board for the SolidStandards projects.

National and European law and legislations

The committee discusses mandatory implications and related actions caused by (a possible change in) national and European policy. The committee follows developments regarding national and European law and legislation about solid biofuels, and discusses the impact and opportunities for standardisation. An example is the possibility of mandatory co-firing targets (in The Netherlands).

The committee establishes and maintains relations with national and international platforms.

Composition of the national mirror committee

The composition of the national mirror committee is presented in Table 1.3.[17]

Table 1.3 Composition of the national mirror committee

Member
AgentschapNL (NL Agency)
ECN
Nuon Power
DNV KEMA Energy & Sustainability
Incolab Services B.V.
Peterson Control Union Group
EON Benelux N.V.
Essent N.V.
Vereniging Afvalbedrijven (Dutch Waste management Association)
BRBS Recycling
Topell energy BV (on behalf of the Dutch Torrefaction Association)
Torr Coal group (on behalf of the Dutch Torrefaction Association)

(April 2013)

2.2. National standards and uptake of European standards

Sales figures of standards bought at NEN can be used to a certain extent to give insight in the uptake of CEN (and ISO) standards. The overview of standards, as published on the website of SolidStandards[18], is used for this industry position paper.
Remarks:

[17] Committee Plan 2013 - Dutch National Mirror Committee 310 029 “Solid Biofuels”
[18] www.solidstandards.eu

- If a standard is bought, it is concluded that the standard is used as well (*for the purpose of this industry position paper*).
- These figures are based on individual copies. NEN has also licensing contracts to several companies that may include the solid biofuels standards portfolio (but that information is not available).
- Although standards are copyright protected, the possibility exists that (internal) reproductions are available.

It can be concluded that each standard is sold at least once over the past years. Sales figures for a period of 10 years are used (until March 2013). Some standards are sold more often than others. Figures show that the total sales numbers are in the range of 1 to 15 per (CEN/ISO) standard. In general, it can be concluded that:

- Standards for Terminology, Fuel quality assurance, Physical and mechanical properties, Sample and sample preparation, and Chemical properties are sold just once or twice a year each in the period 2001-2013. Sometimes, a standard was sold for example 4 or 5 times in one year, but this is more or less incidentally.
- Standards for Sample and sample preparation, Chemical properties, and fuel specifications and classes are sold the least. Only NEN-EN 14961-1:2010 is sold a little bit more.
- Standards about Chemical properties are hardly sold/used.

On the contrary, national technical agreements (specifications) (NTA) are sold more often.

- Both *NTA 8003 - Classification of biomass for energy recovery* and *NTA 8080 - Sustainability criteria for biomass for energy purposes* are sold approximately 40 up to 80 times a year (years 2008-2013). These technical agreements can be considered popular compared to the CEN/ISO standards which are mentioned above. A reason for that could be national government funding (subsidy programmes) on this theme.
- Some of the technical agreements from the “NTA 8200” series were sold more often than the earlier mentioned CEN/ISO standards as well (these series are used as input for CEN/TC 355 activities). Sales figures are varying from 4 up to 10 times a year for each NTA.

Based on training feedback, participants that were unfamiliar with the standards before, are now considering to use standards in the future (especially standards for Terminology and Fuel specification and classes).

3. Certification activities

Quality
According to the feedback of the training participants they have most interest in NEN-EN 14961 and EN-plus (virtually similar scores).The participants have less (similar) interest in ÖNorm M 7135 and DIN plus.

Sustainability
The report *Sustainable biomass and bioenergy in The Netherlands: Report 2012* describes that numerous sustainability certification schemes are being developed or implemented by a variety of private and public organisations with different interests, purposes and target groups. Woody biomass has already a long certification tradition, particularly sustainable forest management schemes. It is expected that the share of certified wood products will further grow steadily. Indeed, the hot topic in this category is the energy use of woody biomass by utilities, particularly wood pellets. In the past years the use sustainable certified wood pellets was dominated by the Green Gold Label system: the percentage of certified pellets in the market is very high, almost 90% in 2011. In terms of percentage, near to 90% of wood pellets was certified. About 50% of other woody biomass (for other use) was certified. A part of table ES-1 from this report is shown below (table 1.4 of this paper):

Table 1.4

Table ES-1 Market share of sustainability certification schemes in the Netherlands

Type of biomass	Sustainability schemes	Market share
Woody biomass: Sawn timber and wood based panels	*FSC* *PEFC*	12% (2008) 22% (2008) Total share in 2011 is estimated to be 43%
Woody biomass: Wood pellets used by utilities	*Green Gold Label* *Laborelec Label*	51.8% (2011) 33.5% (2011)

The websites of FSC and PEFC can be checked for more information about the internationally applied systems (both systems are internationally widely applied).
Green Gold Label was developed by Essent and Control Union Certifications (both located in The Netherlands), and Laborelec (from Belgium) together with SGS (international certification company).

The consumption of wood pellets by utilities is expected to increase in the near future, however a decline in use can be noticed for the past years (government policy, price level et cetera influence this to a great extent). This also depends to a large extent on legislation (for e.g. possible introduction of a suppliers' obligation) and market changes (for e.g. competition from wind and solar power for future investment). However, it is still unclear regarding the Green Deal (a Dutch innovation programme) for solid biomass. At the moment, the government is considering to implement a coal tax. The situation might be clearer in 2013.[19]

NTA 8080 (as mentioned earlier) is a voluntarily certification system, recognized by the European Commission under the European Renewable Energy Directive, that enables companies to demonstrate that the biomass that is produced, converted, traded or used complies with international criteria for sustainability. For an overview of registered companies with an NTA 8080 certificate the website www.sustainable-biomass.org can be checked. It was stated during both training sessions (2012/2013) that NTA 8080 should be even more promoted to become more accepted by the industry.

[19] Report Sustainable biomass and bioenergy in The Netherlands: Report 2012

4. Standardisation and certification needs

4.1. Feedback collection about standards for transport/storage

11 out of 30 participants think that quality issues during transport and logistics are mainly relevant for pellets, and think that quality issues in pellet transport and logistics are sufficiently addressed in EN 15234.

3 out of 30 participants are aware of ÖNORM M 7136, 10 participants are aware of DINCERTO/EN Plus. 5 participants are aware of ÖNORM M 7137. Those who are aware are (almost all) in favour of such a system at European level.

22 out of 30 participants think that there should be standards on health and safety aspects for pellet storage at the end-users. Topics that are considered subject for those standards are as follows (including number of participants that mentioned it):

- Dust explosion: 16
- Self-ignition: 13
- Fungi spores: 13
- Off-gassing: 11
- Other: 8

It can be concluded that there is some awareness about health and safety aspects. A majority of the participants think that standards should be developed to prevent or cope with one or more risks. The risk of dust explosion was mentioned most, also self-ignition, fungi spores, and off gassing were recognised as potential standardisation topics.

During the training session of 3 June 2013, transport and storage was one of the major subjects for discussion. Especially the lack of (European) standards to ensure quality and health was recognised.

4.2. Feedback collection per type of biomass

The most relevant answers that were given relate to wood pellet. The reason for this is that the Dutch training was mainly focussed on woodpellets.
The most significant results of the training/questionnaires are described below:

Terminology:

- 10 out of 30 participants already use - EN 14588: Solid biofuels – Terminology, definitions and descriptions. 7 participants indicated that they will use this standard in the future.

Classification system:

- 10 out of 30 participants use EN 14961-1 and all 10 think EN 14961-1 is useful for the description of the quality of the pellets. 3 participants indicate that they will use both standards in the future.
- 14 out of 30 participants think that fuel specifications according to EN 14961-2 match the needs of the market and 13 out of 30 participants agree with the requirements (threshold values) defined in EN 14961-2. 13 participants think that three quality classes for wood pellets are enough, 3 indicate that these classes are too few.

Quality assurance:

- 16 participants consider an integrated quality assurance system for production, trade and delivery of pellets (as defined in EN 15234-2) necessary and useful (13 participants think it is realizable).
- EN 14961-2 and EN plus are considered most valuable for to participants (participants give 43 points for both systems), ÖNorm M 7135 and DIN plus are considered less valuable (based on points, namely 17 resp. 21 points).
- During the interactive part of the training session on 3 June 2013, it appeared that standards for quality of biomass should be much more promoted. Some suppliers deliver poor quality biomass that gives the industry a bad name. It was recognized that installations are not functioning properly and are damaged by poor quality biomass. This has a negative impact for those who deliver good quality biomass (who all use standards). Some participants active in production or trade of wood pellets expressed their concern.
- During both training sessions (2012/2013) it was stated that security of delivery and quality of biomass is especially for smaller companies, with smaller quantities, an issue related to cost-effectiveness.

Sampling and sample preparation:

- 7 out of 30 participants already use both EN 14778 and EN 14780, while 2 indicate that they will use these standards in the future.
- During the training session on 6 and 7 June 2012 it appeared that the standards for analyses were considered good. It was stated that good standards are available for most analyses. But some aspects should be improved, namely (1) The dividing line between biomass and solid recovered fuel (SRF) is not always clear and it is therefore difficult to determine which standard must be used and (2) Implementation of the C14-method in analysis methods.

Physical and mechanical properties

- 6 out of 30 participants already use EN 14774-1 and EN 14774-2. 8 participants indicated that they will use these standards in the future.

4.3. Other standardisation and certification needs

New subjects or ideas for quality certification schemes that are mentioned by the participants regarding:

- Properties missing in EN 14961-1: Add volatile compounds, biogenic content (note: that is Biomass content), "short cyclic C", hydrogen.
- Improvements for the EN 15234-6: The way of harvesting, washing away of minerals by rain, etc. determine the quality; registration of these data provides insight into the quality.
- Quality classes for non-woody pellets: Biogenic content should be defined.
- During the training session on 6 /7 June 2012 it was mentioned that torrefaction is a new process and new product. Current standards are partially useful. However, torrefaction and its products are not specifically described in the standards. This was also mentioned by members of the national mirror committee.
- New standards for safety and health issues related to transport and storage of solid biomass need to be developed in the near future. This was also mentioned by members of the national mirror committee.

4.4. Feedback collection about quality certification

See earlier description in paragraph 3.

5. Management Summary for The Netherlands

In The Netherlands large scale power plants use biomass for co-firing applications, especially wood pellets. The Dutch industry produces not enough wood pellets, and needs to import them, mainly from Canada. The consumption of wood pellets by utilities is expected to increase in the near future, however a decline in consumption was noticed. But this will depend to a large extent on legislation (for e.g. possible introduction of a suppliers' obligation) and market changes. Other types of biomass are (almost all) widely used but in small amounts. Wood pellets for industrial use were for approximately 90% certified.

Quality issues during transport and logistics are mainly relevant for pellets. It can be concluded that participants are most aware of EN 15234, and they think that quality issues in pellet transport and logistics are sufficiently addressed. A majority of the participants recognise one or more risks related to health and security/safety. New standards should be developed to prevent or cope with these risks. In the first place, dust explosion is considered a risk aspect suitable for standardisation, self-ignition, fungi spores and off gassing as well. The necessity for standards for these topics was also mentioned by members of the national mirror committee.

NTA 8080 is a voluntarily certification system, recognized by the European Commission under the European Renewable Energy Directive, that enables companies to demonstrate that the biomass that is produced converted, traded or used complies with international criteria for sustainability. NTA 8080 is currently under revision. NTA 8080 should be even more promoted to become more accepted by the industry.

Solid biomass standards are sold a couple of times a year (a standard is sold about 15 times maximum during its existence (so far)). This illustrates to a certain extent the uptake of standards in The Netherlands.

Based on training feedback, a part of the participants that were unfamiliar with the standards before they attended the training sessions, are now considering to use standards in the future (especially standards for Terminology and Fuel specification and classes).

Some standards (and certification schemes) should be improved for especially smaller companies, with smaller quantities, to keep it cost-effective.

Some new ideas/topics for solid biomass standards we mentioned:

- Biogenic content (non-woody).
- Torrefaction and its products.
- Safety and health -issues related to transport and storage of solid biomass.

These aspects were also mentioned by the National Mirror Committee.

6. Bibliography

Reports:

- IEA Bioenergy Task 40 Country report The Netherlands
- Industrial Wood Pellet Report (Laborelec/GDF Suez)
- Sustainable biomass and bioenergy in The Netherlands: Report 2012
- Committee Plan 2013 - Dutch National Mirror Committee 310 029 “Solid Biofuels

Websites:

- http://www.cumela.nl/agrarisch-loonwerk-grondverzet-en-cultuurtechniek/biomassa
- www.dutchtorrefactionassociation.eu
- http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=82004NED&LA=NL
- https://www.essent.nl/content/Images/95045_MVO%20Jaarverslag%202011.pdf
- http://www.gdfsuez.nl/activiteiten/onze-centrales/centrale-gelderland.aspx
- http://www.mvoverslagessent.nl/mvo-verslag/CSearch.cGVsbGV0/a1047_Biomassa-van-houtpellets
- http://www.nuon.com/company/core-business/energy-generation/power-stations/cluster-utrecht.jsphttp://www.nuon.com/company/core-business/energy-generation/power-stations/buggenum
- http://www.sustainable-biomass.org
- www.solidstandards.eu

Other:

- Discussion with Dutch National Mirror Committee 310 029 “Solid Biofuels”
- SolidStandards Questionnaires (training sessions 2012 and 2013).
- SolidStandards training sessions, interactive session (and feedback during training sessions 2012 and 2013).

Annex 1

Additional and useful information from the training participant's questionnaire:
A significant amount of answers was given on a couple of open questions from the questionnaire. Some of these answers can be considered as suggestions for improvement, other as informative but also useful. This is also very useful information especially useful for the Dutch mirror committee on solid biofuels.

The following current standards are considered very important to the biomass market by participants of the training:

- Our company still applies NTA (Netherlands Technical Agreement) on this topic.
- EN 14961, because this standard facilitate the trade in wood pellets.
- Sampling and analysis.
- Also NTA 8080, Sustainability criteria for biomass for energy purposes.
- Sustainability including socio-ethical and biodiversity (CCBA).
- EN 14588 and EN 14961; they create clarity for trade and contracting.
- EN 14778 and EN 14780; this is important for each analysis.
- Each applicable standard for the different types of biomass.
- All EN-standards about Quality specification and assurance.
- All EN-standards Fuel specifications and classes.
- All EN-standards Fuel quality assurance.

The following solid biofuel subjects were mentioned that need to be standardized according to the training participants:

- Hydrophobicity, electric conductivity, reactivity.
- Sustainability.
- By extending the scope for soil examination making them also applicable to certain biomass flows (compost, sludge, ...), for example pH analysis, PAC, PCB, OCB, pentachloridefenol, etc. Not per se by specific biomass standards
- Management systems.
- Traceability.
- Sustainability of solid biofuels.
- Too complex. Why not an overall overview?
- Dust; <100 mm / quality (heating).

The following ideas for ameliorations for EN 15234-2 were indicated:

- The quality control deserves attention.
- Certification control management.
- Quality at end user is leading.
- Transfer moments of biomass must be checked.
- Prevent bad quality solid biomass (woodpellets) in order to prevent damage to burning installation.
- Promotion of certification of pellets.
- No ameliorations for the standard, but determination of fines is of great importance. Promotion of standards in The Netherlands is of importance
- A little bit more tuning, and more cooperation with producers.

The following ideas for ameliorations for EN 14961-2 were indicated:

- Keep it simple but also distinctive. Let clearly see that a certificate cannot tell everything or in case it can, that it does.
- One time costs/one time visit.
- Not real improvements, however it is important how to simulate implementation of the standards. During the discussion sessions of the trading about use of non-certified woodpellets, this was an issue (prevent bad quality).
- Cooperation with ECO-innovation program 2014-2017.