



SolidStandards

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



**D6.1g
National Industry
Position Paper
Czech Republic**



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.

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About this document

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

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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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Table of content

Foreword	4
1. Description of the national biofuels market of the Czech Republic	5
1.1. General description of the market	5
1.2. General figures of the market.....	7
1.3. Technical potential of RES in the Czech Republic	9
1.3.1. Agricultural residues.....	9
1.3.2. Wood	9
1.3.3. Residual biomass.....	10
1.3.4. Total potential	11
2. Standardisation activities.....	12
2.1. National standardisation activities	12
2.2. National standards	12
2.3. Uptake of European standards	12
3. Certification activities.....	14
4. Standardisation and certification needs	14
4.1. Feedback collection about standards for transport/storage	14
4.2. Feedback collection per type of biomass	14
4.3. Feedback collection about quality certification	15
4.4. Other standardisation and certification needs.....	15
5. Results of discussion of feedback collection with national body for the ENplus certification.....	15
6. Summary of national industry needs	16
7. References.....	16

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.

The findings of this task under WP 6 of the SolidStandards project will be summarised in a final European industry position paper on international standards for solid biofuels.

This report contains the feedback collection and analysis from the Czech Republic.

This national report 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

CZ Biom has discussed this national industry paper with the body responsible for the *ENPlus certification in the Czech Republic*.

NEN will consolidate all national papers to one, overall European industry position paper about international standards for solid biofuels.

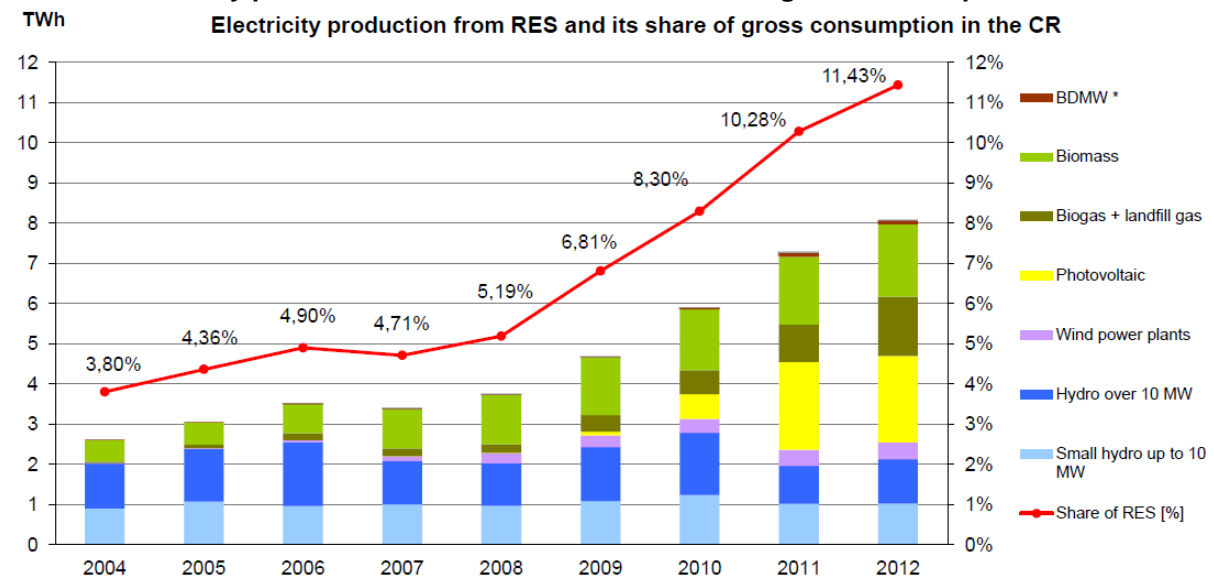
The final European industry position paper will be presented to CEN/TC 335 and/or ISO/TC 238 and distributed among the members of these technical committees.

1. Description of the national biofuels market of the Czech Republic

1.1. General description of the market

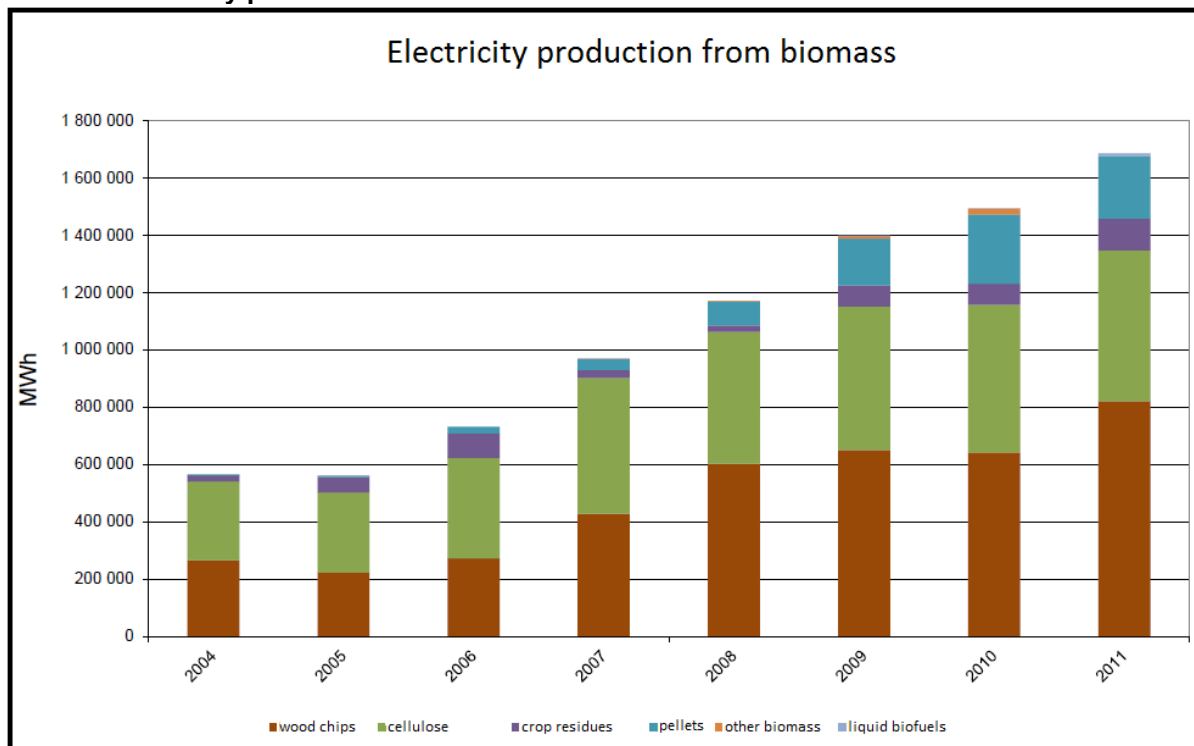
The national biofuels market in the Czech Republic has been constantly developing during the last years. This has been given mostly by positive feed-in tariffs, which were favourable to RES. However, as the Energy Regulatory Office proclaimed, there should be a major drop in this support, which will endanger the further development.

Chart 1: Electricity production from RES and its share of the gross consumption in the CR



Source: ERO, 2013 [1]

According to the statistics of Ministry of Industry and Trade of the Czech Republic (MIT) RES have contributed to primary electricity production in the year 2011 by 8,3 %.

Chart 2: Electricity production from biomass

Source: MIT, 2012 [2]

The positive development in the past years has as well been given by a good network of central heating systems and the price development of biofuels for use in housing compared to fossil fuels.

Due to the high supply of coal in the Czech Republic, the industry still predominantly keeps this source as the primary source of energy.

The situation in the CR can in terms of supply of forest biomass is divided into 2 groups:

1. The owners and managers of forest land

- state enterprise Lesy České republiky,
- state enterprise Vojenské lesy a statky ČR,
- municipal forests,
- non-forest lands suitable for afforestation,
- Private forest owners

2. Processing and supply companies

- Wood processing industry
- Producers and suppliers of compact biofuels (pellets a briquettes)
- Wood chips producers, timber logging companies
- Short rotation coppice

Most important supplier in the number of managed forest land is Lesy ČR in tow with Vojenské lesy a statky ČR, which manage the majority of forests in the CR. Municipal and private forests are in the CR rather minor, 75 % of these areas do not exceed the area of 5 hectares. However, several larger units, which have a larger volume of energy usable biomass can be found. These smaller entities are organized into several groups, where the most important is SVOL (Sdružení vlastníků obecných a soukromých lesů v ČR).

Type of organization active on market	Estimate number of companies active on market	Comments
Solid biofuel producers	120	20 Wood Pellets Producers 30 Non-woodypellets 50 Wood Chips Producers 20 Wood Briquettes Producers
Solid biofuel trader and/or logistics providers	120	Structures in the solid biofuel producers Wholesalers and resellers
Solid biofuel users: small-medium sized (< 1 MW)	600	Municipality Buildings such as kindergartens, schools, hospitals, administrative buildings Small and Medium Enterprises including hotels and greenhouses
Solid biofuel users: large scale (> 1 MW)	80	
Consumer association [name]	2	
Industrial association [name]	3	
Combustion, gasification or fuel production equipment manufacturers	0	
Certification, inspection or testing bodies	3	
Laboratory / Research organization	12	

Note: estimations by the Czech Pellets Cluster

1.2. General figures of the market

The majority of produced biofuels is being exported. This is the case for wood chips, wood and non-woody pellets and also for briquettes. Exports of those biofuels target mostly Germany and Austria. However, during the last years the import of biofuels, especially of pellets has increased. The imports come predominantly from Germany. The vivid market with EU countries also helps to promote the standards for biofuels in the Czech Republic. The Czech exporters are aware of the need to certificate their product in order to be competitive on the European market.

Table 1: Market with wood pellets in thousand tonnes

Year	Production	Import	Export	National use
2003	4	0	3	1
2004	11	0	9	2
2005	16	0	12	4
2006	27	0	20	7
2007	60	0	46	14
2008	135	0	112	23
2009	158	4	134	28
2010	145	13	111	50
2011	148	19	111	56

Source: MIT, 2012 [3]

The non-woody pellets are unlike the wood pellets mostly used for national utilization. According to the statistics of the MIT, in the year 2011, 148 thousand tonnes of non-woody pellets have been produced. 25 thousand tones have been imported and 7 thousand tonnes exported giving the national consumption of 166 thousand tonnes of non-woody pellets.

Table 2: Market with wood briquettes in thousand tonnes

Year	Production	Import	Export	National use
2003	90	0	65	25
2004	110	1	82	29
2005	103	1	80	24
2006	111	3	82	32
2007	113	6	67	52
2008	96	8	69	35
2009	106	22	65	63
2010	120	27	62	85
2011	116	46	74	88

Source: MIT, 2012 [3]

The market with wood briquettes has been with few exceptions constant. The drop has been significant especially in the year 2008. However this has been the case only for the national consumption given by the price development. The exports remained unchanged. The non-woody briquettes production is marginal.

The statistical data for the trade with wood chips and other materials is given by the Forest Management Institute (FMI). The data for 2008-2009 is shown in the following table:

Table 3: Czech Republic – Annual exports and imports of biomass in the period 2008 – 2009

(in thousand tons in a year)	export					import
	CR - WORLD	CR - AU	CR - DE	CR - SR	CR - PL	WORLD - CR
Firewood, roundwood, loppings	75	63	5	2	0,1	10
Wood chips (softwood)	130	75	52	5	1,5	27
Wood chips (hardwood)	130	125	0,5	4	0	1,4
Wood waste, sawdust, pellets and briquettes	380	135	164	55	12	33
Straw, agriculture biomass, crop pellets	12	0	0,5	0,1	10	0,1

Source: FMI, 2010 [4]

Note: CR - Czech Republic, SR - Slovakia, PL - Poland, DE - Germany, AU - Austria, Source: UHUL, 2009

*) This data is based on data that was available during the SolidStandards project (2013).

1.3. Technical potential of RES in the Czech Republic

The most comprehensive study on the biomass potential in the Czech Republic has been done by an interdisciplinary commission lead by Professor Pačes. The so called “Pačes Report” contains the theoretical potential for most of the biomass sources. It has been used among others for the development of the national Biomass action plan.

1.3.1. Agricultural residues

The total estimated energy given in this biomass on agricultural land has been summed to 237 PJ. This figure originates from the residues of agricultural production, which is 143 PJ, and of straw, grass and residues from other areas.

Table 4: Potential on agricultural land

	Without straw	Straw	Grasslands	Other areas	Total
	PJ	PJ	PJ	PJ	PJ
Potential on agricultural land	143	50,6	40	3,3	237

Source: Pačes et al., 2008 [5]

In the last couple of years there has been a subsidy for setting aside of agricultural land in the Czech Republic. This has significantly increased the area of grassland. The 40 PJ mentioned above come in this way from a grass obtained from 980 thousand hectares of land.

Table 5: Area of agricultural land and its potential

area (thousand ha)	mass (th.t)	energy (PJ)
980	2 800	40

Source: Pačes et al., 2008 [5]

1.3.2. Wood

Potential of wood biomass, which can be used for energy production, has been estimated on 84,1 PJ. This figure comes from an annual wood logging in the Czech Republic which is 10,7 million m³ of wood. However, in real conditions half of the material is being used for material use. This gives the total potential of wood for energy purposes of about 42 PJ/a.

Table 6: Estimation of wood potential in the CR

Estimation of wood potential in the CR	coefficient	total (th.m ³)
Timber logging		17 678
- residues from timber logging	0,1	1 768
- wood residues from wood processing	0,25	4 420
- thinning	0,25	4 420
- cleaning	0,005	88
Dendromass for energy purposes total th.m³/year		10 695

Source: FMI, 2007 [6]

Table 7: The estimation of theoretical energy potential of wood in the Czech Republic

Dendromass for energy utilization	m ³	10 695 000
	t	5 375 521
	PJ	84,1

Source: Pačes et al., 2008 [5]

The total potential for energy utilization of biomass is in firewood (mostly in pieces) and wood pellets combusted in local boilers (about 10 %) and this potential is under the present conditions of the logging in the CR which is already practically exhausted. The potential for residual wood suitable for combustion in larger energy sources represents about 27 % of the total potential and this will be fully depleted by forest primary producers already. In the near future, the appropriate expansion of this group is the remains of primary and secondary wood processing (from wood and paper industry) and imports from neighboring countries.

Greatest potential remains in the residual agricultural biomass (straw and hay from the agricultural crop production). This potential is currently used in the CR only to a minimum extent. This category can also include residues from the food industry.

1.3.3. Residual biomass

The residual biomass is creating the biggest group of biomass from a variety of sources. Therefore the calculation is difficult and depends strongly on implementing all the factors. In the table below the major arts of residual biomass, the annual production (2006) are listed and from this following the theoretical energy potential, which is 35 PJ of energy in a year.

Table 8: Total potential of residual biomass in tons per year

Biomass type		Annual production (ths.t/year)	Annual production (PJ/year)	Usable for energy (PJ/rok)
By-products of animal production	Solid and liquid	42 510	21	6
	Animal biomass, fat	350	11,1	5
	Meat and bone meal	300	4,9	2,5
By-products from agricultural production	slops	1 200	3,6	1,8
	Oil seed cake	1 000	9	2
	Sugar beet pulps	73	0,2	0,1
	molasses	1 150	2	0,4
By-products from food production	grains	370	0,5	0,2
	other	-	-	-
Other BDW	Biodegradable part of	1 500	10	3
	Biodegradable part of	500	4	2
	Residues from kitchens	500	5	2,5
WWT sludge	Waste water treatment	300	1,5	0,5
	Sludge from industrial	-	-	-
Celluloses leaches	Energy use according to	1 069	8,9	8,9
Total			82	35

Source: Pačes et al., 2008 [5]

1.3.4. Total potential

With all the figures mentioned above the total potential of biomass in the Czech Republic could be summed to almost 700 PJ of energy. This number could be reached only in the case that all the farmland, which are not used for food production, all the produced annual wood biomass and all the residual biomass from households and industry would be used for energy purposes.

With a moderate estimation of biomass use for energy this theoretical potential gives a technical potential of almost 300 PJ/year.

Table 9: Total biomass potential

biomass	PJ
agriculture	214
forest	42
residual	35

Source: Pačes et al., 2008 [5]

2. Standardisation activities

2.1. National standardisation activities

The Czech Office for Standards, Metrology and Testing (COS) is the national executive body for standardization in the Czech Republic. COS develops, accepts and approves Czech standards, participates in the work of international and European organizations for standardization, as its main target is to defend the Czech interests in that sphere.

The COS is also setting up work groups for the further development of those standards. The working group 138 is responsible for the implementation of standards for solid biofuels.

2.2. National standards

The standards for solid biofuels are closely connected with the EU standards as those have been mostly implemented to national conditions.

Further standards, which have been implemented to national system are ČSN EN 15234-1 to ČSN EN 15234-6.

The CSO accepted the following standards in 2011 and 2012:

- ČSN EN 14961-1:2010 – Solid biofuels. Specification and fuel classes. Part 1: General requirements.
- ČSN EN 14961- 2:2011 – Solid biofuels. Specification and type of fuels. Part 2: Wood pellets for non industrial use.
- ČSN EN 14961- 3:2011 – Solid biofuels. Specification and type of fuels. Part 3: Wood briquettes for non industrial use.
- ČSN EN 14961-4:2011 – Solid biofuels. Specification and type of fuels. Part 4: Wood pellets for non industrial use.
- ČSN EN 14961-5:2011 – Solid biofuels. Specification and type of fuels. Part 5: Firewood for non industrial use.

Further standards, which have been implemented to national system are:

- ČSN EN 15234-1
- ČSN EN 15234-2
- ČSN EN 15234-3
- ČSN EN 15234-4
- ČSN EN 15234-5
- ČSN EN 15234-6

2.3. Uptake of European standards

The European standards are fully implemented into the national system. This is due to vivid market with solid biofuels with other EU countries.

Specific barriers for development of solid biofuel market in the Czech Republic:**- Normative barriers:**

- Heat and electricity developers and project sponsors do not have stimulus for renewable energy production because there are not enough financial guaranties and more comfort procedures;
- Lack of information on the subsidy scheme for solid biomass use for heat production. This is the case especially for municipalities.
- Not sufficient administrative capacity of municipalities for conducting of RES projects especially biomass project for electricity and heat supply using local resources;
- Wood working and wood processing plants do not have law's obligation for energy efficiency wood waste utilization for energy purposes. This lead to groundlessness on bio fuels sale and higher wood biomass prices.

- Financial barriers:

- Difficult access to financial capital in the condition of economic crisis;
- High price of the financial resource in the condition of bankable loan;
- There is not a developed CO₂ emissions market in the country and it is a reason for impossibility for the compensate of the project investment cost;
- Strong competition with fossil fuels, especially brown coal from northern parts of the Czech Republic;
- Unstable subsidy schemes resulting in insecurity about possible investments
- Drop in the feed-in tariffs to minimum level;
- There is a risk for servicing of bank credits and an executable debt.

- Barriers for solid biofuels utilization:

- Low level of technique and technology for wood biomass utilization;
- Insufficient investment for delivering of specializing equipment for production, transport, preservation and processing of wood biomass;
- Insufficient practice for National policy application for developing and subsidizing of bio fuels production base on wood biomass waste;
- Lack of financing for R&D activities for production and new technology implementation of biomass fuels;
- Not a transparent market;
- High exports increasing the price for national market.

3. Certification activities

The Czech producers of biomass fuels use the following standards:

- ČSN EN 14961-1:2010 – Solid biofuels. Specification and fuel classes. Part 1: General requirements.
- ČSN EN 14961- 2:2011 – Solid biofuels. Specification and type of fuels. Part 2: Wood pellets for non industrial use.
- ČSN EN 14961- 3:2011 – Solid biofuels. Specification and type of fuels. Part 3: Wood briquettes for non industrial use.
- ČSN EN 14961-4:2011 – Solid biofuels. Specification and type of fuels. Part 4: Wood pellets for non industrial use.
- ČSN EN 14961-5:2011 – Solid biofuels. Specification and type of fuels. Part 5: Firewood for non industrial use.
- ÖNORM M 7136
- ENplus
- DINplus

4. Standardisation and certification needs

4.1. Feedback collection about standards for transport/storage

There is need for acquiring of the specific knowledge and skills about the European standards for quality, safety, security and health in the field of solid biofuels production transport and logistics.

4.2. Feedback collection per type of biomass

The feedback from the participants has been rather poor. We haven't been able to receive the information from a large group of participants.

The trained participants have a professional need and desire to be certified under the following EU standards for solid biofuels:

For wood pellets:

- EN 14961-1, Fuel specification and classes - Part 1: General requirements
- EN 14961-2, Fuel specification and classes - Part 2: Wood pellets for non industrial use
- ENplus
- DINplus

For wood briquettes:

- EN 14961-1, Fuel specification and classes - Part 1: General requirements
- EN 14961-3, Fuel specification and classes - Part 3: Wood briquettes for non industrial use

For wood chips:

- EN 14961-1, Fuel specification and classes - Part 1: General requirements
- EN 14961-4, Fuel specification and classes - Part 4: Wood chips for non industrial use

Firewood:

- EN 14961-1, Fuel specification and classes - Part 1: General requirements
- EN 14961-5, Fuel specification and classes - Part 5: Firewood for non industrial use

4.3. Feedback collection about quality certification

The participants in the training i.e. representatives of pellets and briquettes manufacturers, wood chips and firewood producers in the trainings would like to introduce quality certification schemes in their facilities in the future.

4.4. Other standardisation and certification needs

As the standardization of solid biofuels has a good tradition in the Czech Republic, there have not been any major needs for additional national implementation. The common standards have been implemented and major certificates are provided.

5. Results of discussion of feedback collection with national body for the ENplus certification

The feedback collection was discussed with the Czech Pellets Cluster, which holds the rights to the ENplus certification for the Czech Republic.

The meeting with the representatives of the Czech Pellets Cluster was held on 28th of June 2013 in Prague. The participant list includes the following representative of the Czech Pellets Cluster:

Mr. Vladimír Stupavský – Chairman of the Czech Pellet Cluster.

The main discussion was connected with the high level and quality of the SolidStandards training, the need from implementation of all European standards for solid biofuel in the market, quality of sustainable certification schemes and sustainability and general policy of the government in the field of establishment of mechanisms and instruments for adopting standards for national industry. Furthermore, the newly implemented ENplus certificate, the experience of Czech actors with the certificate and the possibilities of its development for the future has been discussed.

6. Summary of national industry needs

The Czech market with biofuels is highly export oriented. Due to this, the actors on the Czech market are aware of many EU standards, which they as well use for their products. The further development of solid biofuel standards could lead to higher competitiveness on the EU market and to a more transparent national market.

The main conclusions are as follows:

- Well-developed certification systems;
- Insufficiently developed national market;
- Overcome of normative, financial and political barriers for standardisation and certification process in the Czech Republic;
- New possibilities of solid biofuel certifications (i.e. ENplus);
- Creating of dissemination activities on national and regional level which will support the market players.

7. References

- [1] Energy Regulatory Office (ERO): Yearly Report on the Operation of the Czech Electricity Grid for 2012. Prague, 2013
- [2] Ministry of Industry and Trade of the Czech Republic (MIT): Obnovitelné zdroje energie v roce 2011. Prague, 2012
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