EUBIONET III

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Solutions for biomass fuel market barriers and raw material availability

WP2 - Biomass fuel trade in Europe –

Country report: The Netherlands

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Preface

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Content

1 Introduction

The aims of this country report are:

(1) To identify new industries in the Netherlands where biomass is used as an energy carrier, or has the potential to be used in the future, and to describe which drivers, bottlenecks and opportunities these sectors see for the (increased) use of biomass;

(2) To analyse bioenergy trends and reasons for change in the Netherlands and point out barriers & opportunities for trade,

By 'new industries' we do mean industries which are normally not directly associated with bioenergy. Examples of 'new industries are: metal (e.g. steel, silicon carbide), cement, food processing and construction (brick producing) industries. The forestry, pulp & paper and the energy sectors should be excluded –they are 'classic' bioenergy users, and are in other parts of the EUBIONETIII project. Also, the agricultural production sector (including farmers, pig & poultry producers, greenhouse cultivation, and aviculture as suggested by EUBIONETIII partners) are excluded. However, use of biomass in the food-processing industries (e.g. processing table olives, cocoa, coffee, meat) are included.

By 'energy carrier' we mean that the biomass should be used for energy purposes. e.g. to produce electricity, and/or heat/steam. Examples could be the cement industry (co-firing biomass wastes to produce heat), or a food processing industry (e.g. fermenting their biomass residues to produce heat and electricity). What we are not looking for are industries using biomass to produce biomaterials (e.g. bioplastics) – unless they (also) use biomass to meet their energy requirements. A borderline case is the production of silicon or iron using wood chips or charcoal as reducing agent. In these examples the role of biomass is twofold: it produces the necessary heat for the process (so it's an energy carrier, that's what we are looking for), but it also is actual part of the chemical reaction (getting the oxygen out of the ore, producing pure iron/silicon).

2 Biomass use in new industries

2.1 General overview

In Table 1, an overview is listed of the industries categories investigated in EUBIONETIII and their presence in the Netherlands

Table 1. Selected industries, descriptions.

NACE Industry	Description
C10 Manufacture of food products	Several large companies are producing in the Netherlands, such as ADM, Unilever, Friesland Foods, McCain, Friesland Campina, Royal Cosun and Lamb Weston Meijer. Next to this, there are numerous smaller companies processing food products.
C11 Manufacture of beverages	A number of major international beer breweries have production plants in the Netherlands, e.g. Heineken and Inbev. Also, there several production plants of soda's liquid dairy products etc.
C19 Manufacture of coke and refined petroleum products	There is significant refining capacity in the larger Rotterdam area, a.o. plants of Shell, Total, BP, Kuwait Petroleum and Esso.
C20 Manufacture of chemicals and chemical products	In the especially in the area surrounding th Rotterdam harbour. Typical companies producing in the Netherlands are Akzo Nobel, Dow Chemicals, DSM and Lyondell
C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	More than 100 pharmaceutical companies are registered in the Netherlands, amongst other Bayer, DSM, Organon, Pfizer and Solvay
C23.5.1 + C23.5.2 Manufacture of cement, lime and plaster	There is only one major cement producers in the Netherlands: ENCI, with three production plants in Maastricht, IJmuiden and Rotterdam
C24 Manufacture of basic metals	There is only one major steel-producing company in the Netherlands, Corus (part of the Tata group).

In table 2, the total primary energy use (in PJ) of primary energy in 2006 for each of the categories listed above is specified. In addition, also an estimate is provided how much biomass is used (in PJ) for energy use. As can be seen, the only two sectors in which biomass is currently used for energy purposes are the food processing and the cement industry. Thus these two sectors are further investigated in sections 2.2 and 2.3.

Table 2. Primary energy use in selected industrial sectors in 2006.

Industry	Primary Energy use (PJ) in 2006	Of which biomass (PJ)
C10 Manufacture of food products	66	0.42[a]
C11 Manufacture of beverages	Included in previous row	Included in previous row
C19 Manufacture of coke and refined petroleum products	132	0
C20 Manufacture of chemicals and chemical products	48	0
C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	Included in previous row	0
C23 Manufacture of other non-metallic mineral products	4	0
C23.5.1+23.5.2) Manufacture of cement, lime and plaster	26	1.3[a]
C23.6 Manufacture of articles of concrete, cement and plaster	Included in previous row	Included in previous row
C24 Manufacture of basic metals	93	0

a This is based on annual average based on multi-year cumulative biomass use (typically between 2001-2007) in various sub-industries (e.g. potato, coffee, meat-processing etc.). Source of information: van der Sterren (2009), Alfing (2009)

To put these numbers into perspective, in table 3, the total energy consumption by sector is presented.

Table 3. Total energy consumption by sector (PJ) in 2006 (to see the importance of industry)

Industry	1142.4
Transport	500.1
Residential sector	420.3
Energy production	634.0
Others sectors	535.2
Total	3232

Source of information: ECN (www.energie.nl) / CBS

Table 4. National requirements, voluntary agreements etc. for different sectors.

Country	Target of national action plan in general based on RED	Targets for industry in national action plan	Remarks
Netherlands	In February 2009, the Dutch Government announced that they would aim for 30% reduction. In addition, 20% of all energy consumed in 2020 was to be produced form renewable energy sources (EZ,2009). This beyond the target of 14% specified in the RED for the Netherlands	In October 2008, the Dutch Government has agreed on a covenant with the Dutch utilities and other industry on qualitative targets for the use of (amongst others) bioenergy in the energy sector and various other industry sector (including agriculture). (EZ, 2008a, 2008b, 2008c).	Biomass is explicitly mentioned as one option to reduce GHG emissions by the utility sector. Specific targets for biomass include the ambition to utilize 200 PJ of biomass for energy purposes by 2020.

RED = Renewable Energy Directive.

2.2 Developments in the food processing industry

The Dutch FNLI (Federation of the Dutch Food and Grocery Industry) is the umbrella organisation for all companies and trade associations (food and non-food) and represents the common interests of its members. The annual turnover of all members of the FNLI is approximately50 billion euros, and the industry sector employs more than 140.000 people in the Netherlands.

As shown in table 4, the Dutch Government and various industry sectors agreed with the agricultural sector on Energy Covenant „Clean & Efficient Agricultural sector"

Targets for 2020 are:

- 2% energy saving per year
- 30% reduction of GHG
- 20% of energy is sustainable.

The entire agricultural sector has the target to use 200 PJ, of which the food and grocery industry has a large share: about 75 –125 PJ. This is a very ambitious target, given the current estimated use of 0.4 PJ in 2006. It is also an ambition, and not an obligation.

The expectation is that the ambitious targets can be reached by making efficient use of so-called high-risk waste streams, and waste streams which are currently not utilized. The main conversion route will likely be anaerobic digestion of these waste streams, producing biogas (and optionally subsequently electricity and heat). Another route is the production of liquid biofuels from e.g. used fats, or production of ethanol (EZ, 2008c).

However, a leading principle is and remains the use biomass for the application with the highest profit. In other words, if biomass streams can be sold more profitably for other uses (e.g. as animal feed), they not be utilized for energy purposes (Alfing, 2009).

In an explorative study, Budding and Blok (2009) investigated the financial feasibility of using more biomass from the food-processing sector for anaerobic digestion. Their main conclusions were that utilization of biomass by-products can only be feasible if:

- A subsidy is available for the renewable energy produced
- Sufficient biomass material is available within the close vicinity of the digester
- The biomass waste streams are available at negative costs (i.e. otherwise a fee has to be paid for their processing)
- There is a heat demand close to the digester, or (preferably) the biogas can be used directly in the near vicinity
- The digestate can be used as fertilizer

From the literature and an interview with a coffee –processing company in the Netherlands, it became clear that in a few cases, already biomass waste streams (e.g. spent coffee ground, rejected food products, animal fats, manure) and waste water are used to produce either process steam (in boilers) or biogas (through digesters). Some companies such as sugar producer Suikerunie (Backx, 2009) and dairy producer Campina (van Kasteren, 2008) have started to build pilot plants, which typically produce a few hundred TJ of biogas per year. However, given the limitations mentioned above, many companies in the food processing industry are reluctant to invest on a large scale in bioenergy production.

2.3 Developments in the cement industry

Within the Netherlands, ENCI Maastricht is the largest cement factory in the Netherlands, and the only one utilizing biomass. In 2007, ENCI Maastricht produced almost 1.4 million tonnes of cement, and about 900,000 tonnes clinker (which are largely used internally for cement production). Producing cement is a very energy-intensive process, and ENCI Maastricht alone consumes annually about 3.1 PJ primary energy, which is a little less than 1% of the total primary energy demand of the Netherlands. It has been strongly increasing its use of biomass waste streams from 0% in 1996 to 44% in 2007, leading to an overall GHG emission reduction of 28% compared to 1990. Sewage sludge is the principal biomass source, other biomass feedstocks being still significant quantities of bone meal, paper sludge and plastic-paper derived fuel.

For more information on the use of biomass in the Dutch cement industry, we refer to the Dutch case study on the cement industry, available eat the EUBIONETIII website (Junginger, 2009).

3 Current potential and use of solid biomass

In this chapter, an overview of the current technical potential of solid biomass fuels in the Netherlands, and compared to the actual utilization. In tables 5a-5g, these are quantified as far as possible on basis of available data. However, a number of general and specific remarks have to be placed:

- Currently, no significant amount of woody or herbaceous biomass crops are cultivated in the Netherlands. Even though in theory, agricultural land could be used for energy crops, given the prices for land and labour, and the availability of cheaper biomass for import, it is unlikely that any major bioenergy crop plantations will be established in the Netherlands in the near future.

- Estimates on the use of domestic (residential) firewood are very uncertain. Interestingly, Kuiper and de Lint (2008) estimate that the technical potential for firewood is about 3.6 PJ (based on the amount of wood that can be taken out of existing forests and landscape management). For comparison, the Dutch statistical office CBS estimates that in 2006, about 9.3 PJ were used (see table 7). This could imply that possibly firewood is imported. However, consumption is mainly estimated based on the number of boilers, of which an inventory was last made in 2002.

- Especially in recent years, by-products and residues from wood processing industry and also used wood (both clean and contaminated) are widely traded across borders, for different end uses (e.g. to be land-filled, used as raw material in e.g. the particle board industry, or combusted for energy). Thus, if these streams are produced domestically, it does not automatically imply that they are available for domestic energy use.

- The technical potentials for herbaceous and fruit biomass resources (see table 5e) are difficult to estimate, and no comprehensive and detailed recent studies are available. However, it is again safe to say that logistical barriers and related production costs will prevent the use of these streams, unless prices for these biomass streams increase significantly.

- A major source of bioenergy is the organic fraction of organic waste (see table 5e). The use of waste for energy has been constant over the past years, and no major increase is expected in the near future.

- The feedstock potential to produce refined solid biofuels is rather limited (see tables 5c and 5f), and is also largely utilized. On the other hand, the Netherlands have been importing significant amounts of solid, refined biofuels (basically only wood pellets) in the past years – since 2006, this amount has further increased.

Table 5a Forest, plantation and other virgin wood

FOREST, PLANTATION AND OTHER VIRGIN WOOD	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount	Unit	Amount (PJ)	Amount (tons (dry matter)	Remarks
Forest area			360000	hectares			83.600 ha is reserved for nature, in which 276400 is used for wood production
Annual increment of wood in forests	50	9	2500000	m^3 (solid)	22.5	1250000	based on production on 275000 ha. Mass in tonnes is at 0% moisture content
Annual final fellings (average)			1552000	m^3 (solid)			
Annual thinnings (average)			40000	m^3 (solid)			
Annual resources of forest residues (theoretical)	50	9	1523655	m^3 (solid)	13.716	762000	
Forest residue potential for energy use (technological)	50	9	500000	m^3 (solid)	4.5	250000	Of the 250,000 tonnes (dry matter) wood residues, only 40% (100 ktonnes) are estimated to be availablefor energy purposes, the remainder for other end-uses
Short rotation coppice (woody, poplar, willow etc.)			0	m^3 (solid)	0	0	Currently, no woody energy crops are cultivated in the
Other forest wood for energy use (e.g. wood from gardens, parks, landscape management, vineycards etc.	50	9	528000	m^3 (solid)	4.752	264000	This is the theoretical potential. The actual techno-economic potential is estimated at 150,000 m3, i.e. 75000 tonnes dry matter, or 1.35 PJ

Data sources: Kuiper and de Lint (2008), UNECE/FAO (2008

Table 5 b. Domestic (residential firewood)

DOMESTIC (RESIDENTIAL) FIREWOOD	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount	Unit	Amount	tonnes	Remarks
					PJ		
Firewood (logs usually 1 meter long)			na	m3 (solid)			
Chopped and splitted firewood (oven ready logs for stoves and fireplaces)			na	m3 (solid)			
Total			400000	m3 (solid)	3.6	200000	

Table 5 c. By-products and residues from wood processing industry

BY-PRODUCTS AND RESIDUES FROM WOOD PROCESSING INDUSTRY	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount	Unit	Amount PJ	Amount tons	Remarks
Chemically untreated (sum of the rows below)	15	15.4		m3 (solid)	4.466	290000	from primary wood processing industry, including bark, shavings and sawdust
Sawdust (for pellet production and also direct combustion)				m3 (solid)	na		
Bark				m3 (solid)	na		
Chips, shavings and other chemically treated industrial residues (e.g. from sawmill for energy use)				m3 (solid)	na		
Chemically treated (sum of the rows below)	15	15.4		m3 (solid)	5.082	330000	From the secondary wood processing industry
Plywood, particle board or other solid biomass residues				m3 (solid)	na		
Spent liquors (e.g. black liquors)				tonnes	na		
Paper and board residues				tonnes	na		
Total*				specify unit	9.548	620000	Note that about half of this volume is already used for energy purposes, the remainder is exported to the plywood industry in Germany and Belgium, or used for other non-energetic domestic purposes. For comparison, Steierer et al (2007) report use of 1387000 m3 wood of wood residues/byproducts for energy purposes

Table 5 d. Used wood

USED WOOD	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount	Unit	Amount PJ	Amount tons	Remarks
Chemically untreated (e.g. pallets, wood packages etc.)	15%	15.3			7.65	500000	So-called A-quality, i.e. not contaminated
Chemically treated (painted wood, plywood residues from society, used furniture)	15%	15.3			11.475	750000	So called- B-Quality (700 ktonnes) anc C-quality (50 ktonnes), respectively lightly and heaviliy contaminated
Total	15%	15.3			19.125	1250000	

Table 5 e. Herbaceous and fruit biomass resources and other resources

HERBACEOUS AND FRUIT BIOMASS RESOURCES AND OTHER RESOURCES	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount	Unit	Amount PJ	Remarks
Energy grasses (reed canary grass, miscanthus, etc; specify) for energy use			0	PJ	0	Currently, no significant amount of woody or herbaceous biomass crops are cultivated in the Netherlands
Land area for energy crops (wood, herbaceous, fruit)			0	ha	0	
Straw (potential)		13.6	15,000	tons	0.204	All available straw from wheat is already fully utilized
Olive residues (potential)			0	tons	0	
Olive production area			0	ha	0	
Peat			0	tons	0	
Verge grass		5.3	400000-1000000	tons	4.5	Estimates on availability vary widely. 4.5 PJ is an average estimate for2007
Grass hay		12.7	140,000	tons	1.8	Expected availability in 2010. no data available for 2006
Productive reed lands			20,000	tons	0.4	technical potential
Organic fraction of Municipal solid waste					26.6	Actual use in waste incineration plants for energy production. No significant further increase expected

Table 5 f. Production of refined wood fuels

REFINED WOOD FUELS Production in 2006	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount of production	Production capacity	Unit	PJ	Remarks
Pellets	10	17.20	110,000	125,000	tons	2	Only limited availability of local sawdust
Briquettes	10	17.20	0	0	tons	0	

Table 5 g. National use of refined wood fuels

REFINED WOOD FUELS National use in 2006	Av. moisture %	Av. net calorific value as received (MJ/kg)	Amount of use	Unit	PJ	Remarks
Pellets	10.00	17.20	484,000	tons	8	
Briquettes	10.00	17.20	0	tons	0	

Table 6. Summary table of resources – techno-economical potential (use one decimal)

PJ/a	Forest residues	Solid ind. wood residues	Firewood	Used wood	Herbaceous & fruit biomass	Spent liquors	Peat	Other biomass	Total potential	Production of refined biomass fuels
Netherlands	9.3	9.5	3.6	19.1	6.9	0.0	0.0	26.6	75.0	1.9

Table 7. Summary table of energy use. Year: 2006.

PJ/a	Forest residues	Solid ind. wood residues	Fire-wood	Used wood	Herbac. & fruit biomass	Spent liquors	Peat	Other biomass	Use of refined biomass	Total
Netherlands	3.6	4.774	9.3	2.3	0	0	0	28.3	8.5	56.774

4 International bioenergy trade

4.1 General overview

As already mentioned in the previous section, the Netherlands have been a major importer of solid refined biomass fuels, as has been described already in an earlier country report of Netherlands in the frame of the EUBIONETIII project and various country reports from IEA Bioenergy Task 40 in the Netherlands (refs to be added). In tables 8a and 8b, a brief overview is presented of the solid trade streams.

Unfortunately, it was not possible to specify the exact quantities of biomass imported for each specific country. Suppliers are in general reluctant to reveal the exact origin, as this is commercial-sensitive information. In general, major quantities of wood pellets are sourced from Canada (and more recently since 2008 also the USA). Minor quantities were imported from the Baltic states, Finland and Germany.

Regarding the export of refined wood fuels, as the Netherlands are consuming much more than their domestic production, little or no export is taking place. Possibly, the harbours of Rotterdam, Amsterdam and Flushing act as a hub and redistribution centre for e.g. wood pellets from North America, but no statistics on imports and re-exports are available.

Table 8 a. Exporting of refined biomass (countries and amount in tons and PJ:

REFINED WOOD FUELS Export	Pellets, tons	Pellets, PJ	Briquettes, tons	Briquettes, PJ	Remarks
Country x			0	0	No significant export of refined wood fuels
Country y			0	0	
Total	316000	5.53	0	0	

Table 8 b. Importing countries and amount in tons and PJ:

REFINED WOOD FUELS Import	Pellets, tons	Pellets, PJ	Briquettes, tons	Briquettes, PJ	Remarks
Canada			0	0	Due to confidentiality reasons, no details on the exact import volumes from each country are available. It is likely that the largest part is imported from Canada, and that minor volumes were sourced from the Baltic states, Finland and Germany.
Latvia and Lithuania			0	0	
Finland			0	0	
Total	690000	12.075	0	0	

4.2 Barriers and opportunities for bioenergy trade

Based on the interviews (as given in appendix 1, 2 …) the following main barriers are identified:

- All traders interviewed emphasized that the uncertainty regarding subsidies, i.e. commitments under the former MEP system (which still is responsible for the majority of imports) and the uncertainty whether the current SDE feed-in premium system for renewable electricity will include co-firing of wood pellets in the future.

- Concerns regarding the sustainable production is a barrier for the use of certain biomass streams, such as palm kernel expeller. It is a real problem that currently no label/certification system is in place. However, recently the first palm oil plantations have been RSPO –certified, and it is now investigated, whether the palm kernel expeller form these plantations are then automatically also RSPO-certified / sustainable. On the other hand, for many biomass streams used as animal feed (e.g. sunflower husk) the issue of sustainability plays a much lesser role.

The current economic crisis has had several effects influencing the competitive position of wood pellet use. Various traders reported different effects:

- On the supply side, especially in the USA, the housing market has collapsed, which means less timber is sawn and thus less sawdust is produced, leading to less availability of cheap feedstock. On the other hand, it has enabled the use of plantation wood in amongst others Alabama, so the crisis has also openend up new feedstock sources.

- Ocean dry bulk freight rates have collapsed, leading to lower transport costs. However, as many traders has often fixed transport rates significant time ahead, the effects are not as strong as could be expected.

- On the end-use side, the prices for coal have more than halved, the prices for CO_2 have about halved, and the price for electricity has been decreasing.

Overall, the economic crisis has probably led to a worse competitive position for wood pellets co-firing then e.g. in the beginning of 2008.

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Appendix 1 Interview with Marleen Vermeulen

Respondent:	Ms. Marleen Vermeulen
Company:	Nidera Handelscompagnie BV
Traded biomass fuels	Nidera trades amongst others biodiesel, bioethanol, wood pellets, sunflower husk pellet, palm kernel shells, palm kernel expeller
Traded annual volumes (e.g. tons or PJ)	confidential
Date:	28-4-2009
Interviewed by	Martin Junginger

Nidera is a major trader in solid and liquid biomass commodities. Ms. Vermeulen is mainly an expert on the solid trade. Bioethanol and biodiesel are covered in different interviews.

The largest biomass trade stream by far is wood pellets. Wood pellets are currently exported by Canada (mainly the west coast), and the US (mainly Florida and Alabama), and transported in volumes of 20-30 ktonnes per ship to the Netherlands and Belgium (the ARAG ports of Amsterdam, Rotterdam, Antwerp and Ghent), the UK, and Scandinavia (Sweden and Denmark). Other major imports of wood pellets are occurring from Germany and most recently from Portugal, where several large production plants have recently come online. Ms. Vermeulen confirmed that for 2008, the total imported volume of wood pellets for consumption in the Netherlands is likely to be around 900 ktonnes.

Other solid biomass commodities include palm kernel expeller and palm kernel shells from Indonesia and Malaysia, and sunflower husk pellets from e.g. Ukraine and the Baltics, typically shipped in 3000-5000 tonne volumes. Incidentally, a small quantities of bagasse pellets are imported, but so far, it has been impossible to obtain larger quantities, and they have only been used for testing purposes.

Basically all solid biomass streams are used for co-firing in coal power plants. The major markets are the Netherlands and Belgium (Essent and Electrabel), and Scandinavia (Dong and Vattenfall). A lot is expected from the UK market, but so far the expected demand based on announcement of e.g. Drax (up to 1.5 million tonnes demand for biomass) have not materialized.

a) What are currently the largest barriers preventing increasing production and export / import and consumption of biomass?

It is difficult to point out one clear barrier, as these differ strongly per country. In the Netherlands, it is clearly the uncertainty regarding subsidies, i.e. commitments under the former MEP system (which still is responsible for the majority of imports) and the uncertainty whether the current SDE feed-in premium system for renewable electricity will include co-firing of wood pellets in the future.

The situation is similar in the UK, where there is still uncertainty how the ROC scheme will support imported biomass use. Also in Portugal and Spain, new support schemes for use of biomass for electricity production are under development, but have not reached a stage yet where there is enough security to justify investments.

A second, general barrier is uncertainty about a follow-up of the Kyoto protocol, although Ms. Vermeulen is expecting that there will be a follow-up, and does not see it as a major barrier.

Third, concerns regarding the sustainable production is a barrier for the use of certain biomass streams, such as Palm kernel Expeller. Nidera is working together with Control Union, and they are often using the Green Gold label or the Electrabel/Laborelec label to certify wood pellets. Also the new NTA standard based on the Cramer criteria is currently being tested. For palm kernel expellers, it is a real problem that currently no label/certification system is in place. However, recently the first palm oil plantations have been RSPO –certified, and it is now investigated, whether the palm kernel expeller form these plantations are then automatically also RSPO-certified / sustainable. On the other hand, for many biomass streams used as animal feed (e.g. sunflower husk) the issue of sustainability plays a much lesser role.

The use of feed streams for bioenergy purposes is currently mainly limited by the price of these streams. In case prices drop low, occasionally peanut husk pellets and sunflower pellets are utilized.

Another trend identified is that biomass residues are increasingly utilized locally. For example, rice husks are frequently sued for CDM projects locally. Palm kernel shells are in high demand in South East Asia for energy purposes. Thus, it is less attractive to invest lost of time and energy in setting up supply chains for such commodities, if there is a real chance/risk that they will be utilized locally.

b). How could these barriers be overcome - proposals

Clear and long-term policies on country, EU and global level (including a follow-up of Kyoto) would be clearly beneficial.

Regarding the development of sustainability standards for biomass, so far the industry is using the systems developed on voluntary basis (e.g. GGL and the Laborelec label). On the longer term, an internationally-accepted standard for a wide variety of labels could be a good solution.

c) What are current opportunities for biomass trade?

Interestingly, the current economic crises ahs directly and indirectly created a number of opportunities for solid biomass trade:

- Freight rates have dropped dramatically, especially for large scale (Panamax) type vessel, but also (thought o a lesser extent) for smaller coaster/handy vessels. As freight costs are usually a substantial part of the overall costs of wood pellets, this has caused traded volumes to clearly increase.
- The weak US dollar against the Euro has especially aided the export of wood pellets from North America to Europe
- The housing crisis in the USA has caused prices for wood to decline strongly, which enables the pellet plants in the US to use wood as feedstock for wood pellet production which are subsequently exported to Europe. On the other hand, the reduced amount of wood being processed also means reduced availability of saw dust. The resource availability is and remains a concern on the longer term.

Appendix 2 Interview with Jorrit Hachmer

Respondent:	Mr. Jorrit Hachmer
Company:	Essent Trading
Traded biomass fuels	wood pellets, wood chips, lightly contaminated wood
Traded annual volumes (e.g. tons or PJ)	1 million tonne pellets, ca. 400 ktonnes other woody material
Date:	29-4-2009
Interviewed by	Martin Junginger

Essent trading is a major trader in solid biomass commodities. Essent used to trade also liquid biofuels such as Crude Palm Oil (CPO) and derivatives, but has stopped doing so due to concerns regarding the sustainability of these commodities.

The largest biomass trade stream by far is wood pellets. Wood pellets are currently imported mainly from Canada and the US, together good for approximately 75% of the volume. The remaining volumes are imported from e.g. South Africa, Southern European countries and the Baltics. Minor quantities are also trade through the Netherlands, and re-sold in to the UK, Belgium, Sweden and Denmark.

Other commodities traded include wood chips (about 250 ktonnes), which are mainly destined for the Cuijk power plant near Nijmegen. These wood chips are only transported over short distances and procured form numerous local suppliers, so likely most of it originates from the Netherlands (possibly minor quantities from Germany). Essent also trades about 100-200 ktonnes of lightly contaminated wood (so-called B-wood), but these again concern mainly domestic transactions.

Finally, Essent also experiments with minor quantities of agricultural residue streams. One example are coffee husk pellets from Brazil. Tests have shown that these pellets can be co-fired with coal, and show reasonable fuel qualities (so they are a lesser fuel than wood pellets). The main reason to do so is to gain some fuel diversification, in case the wood pellet market collapse and/or prices increase dramatically. However, as both the combustion properties of these fuels are worse than those of wood pellets (lower calorific density, higher ash content), and the current subsidies for agricultural residues are lower than those for woody streams, Essent has not pursued any large-scale sourcing and use of agricultural residues.

a) What are currently the largest barriers preventing increasing production and export / import and consumption of biomass?

Both the biggest driver and barrier at the same time is policy support. On the one hand side, the subsidies is clearly the main reason that large-scale co-firing is currently happening. On the other hand, there is currently a huge uncertainty about how policy will continue. Most of the current MEP- contracts are expiring around 2012 or shortly after, after which it is entirely unclear whether and how further co-firing will be supported.

Moreover, there is a large diversity of support systems in various European countries: where the Netherlands have feed-in premiums, in the UK, producers get ROC's for their green electricity (for which the price can vary), and in Belgium, each producer has an obligation to produce a certain amount of renewable electricity.

The current economic crisis has had several effects influencing the competitive position of wood pellet use:

- On the supply side, especially in Northern America, the housing market has collapsed, which means less timber is sawn and thus less sawdust is produced, leading to less availability of cheap feedstock.
- Ocean dry bulk freight rates have collapsed, leading to lower transport costs.
- On the end-use side, the prices for coal have more than halved, the prices for CO2 have about halved, and the price for electricity has been decreasing.

Overall, the economic crisis has clearly led to a worse competitive position for wood pellets co-firing.

Regarding sustainability criteria and certification of wood pellets, a number of draw-backs are pointed out:

- The large majority of wood pellets currently utilized are coming from Canada, the USA and inside the EU, all regions where sustainable forestry is common practice. Applying certification (and testing Cramer criteria) for all biomass sources implies spending a relatively lot of effort on streams that are of relatively low concern. This leads to both additional costs and reduced speed with when new projects are implemented.
- Already today, several countries have developed different systems with different criteria (e.g. Belgium, the Netherlands, UK, Germany). Increasingly, producers are facing a multitude of systems. Providing certificates for each of them is increasingly becoming a burden.
- Wood pellets are produced form saw dust, and in some case the sawdust may be derived from literally tens or even hundreds of sources. Tracing the origin of each of them is in practice not always feasible.
- Sustainability is an absolute requirement to our business and Essent is proud of its Green Gold Label. But a harmonization of sustainability requirements with focus on those areas where concern are most legitimate would be good for the development of the industry as a whole.

b). How could these barriers be overcome - proposals

More European-wide harmonized and long-term policies could offer certainty to market parties to invest in additional capacity to use pellets for electricity production.

Similarly, an international agreement on which solid streams (from which regions) need to be certified for which sustainability aspects would be beneficial for international trade. Essent has been developing voluntarily the Green Gold Label, and has actively promoted and offered to share this system with other producers, traders and consumers.