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GAIN Report

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Voluntary - Public

Date: 2/5/2019

GAIN Report Number: NL9001

Netherlands

Post: The Hague

The Dutch Industrial Market for Biomass

Report Categories:

Biofuels

Wood Products

SP1 - Expand International Marketing Opportunities

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Report Highlights:

This brief report describes the 2018-2020 industrial market for biomass for energy generation in the Netherlands. Based on the allocated Dutch government subsidies, domestic biomass consumption is forecast to grow from about 1.8 million mt in 2018 to about 2.3 million mt in 2020. It is expected that an increasing volume will be imported either in the form of wood chips or pellets.

Summary

Based on the type of biomass used, the government funding and the applicable sustainability requirements the Dutch industrial market for biomass can be segmented as following:

1. ***Power plants co-firing biomass with coal***, which are located at ports and are likely to source biomass from abroad in the form of pellets. The subsidy they receive from the government is based on the relatively high price of pellets compared to other types of biomass. The pellets must comply with the Dutch Government sustainability requirements and the Covenant agreed upon with the environmental NGOs. The main constraint from buying from the United States is lack of forest level certification, and the additional requirements enforced by the Covenant.
2. ***Biomass plants generating heat and/or power***
 - a. ***Capacity of more than 5MW***, and need to comply with the Dutch Government sustainability requirements. These plants are often located at inland ports and are likely to source biomass locally but on the longer term from abroad in the form of chips or pellets. The main constraint from buying from the United States is the current relatively high price of pellets and chips compared to locally sourced biomass.
 - b. ***Capacity of less than 5MW***, and thus don't need to comply with the stringent Dutch sustainability requirements. These plants will be located at ports and are likely to source biomass from abroad in the form of chips or pellets. The current main constraint from switching to biomass is the lack of favorable disposition by the public.

Based on the large solid biomass projects listed in the tables in this report, the demand for solid biomass will increase by about 500,000 mt in the next two years. This is likely to attract more biomass from other EU Member States in the form of chips, and from third countries in the form of pellets. Until now, the Dutch Enterprise Agency (RVO) granted subsidies for over 200 projects using solid biomass for energy production. A large number of smaller projects are not listed in the tables above but are expected to increase the demand for solid biomass as well.

Introduction

Renewable energy consumption in the Netherlands

In 2014, the Dutch Government set a goal of 14 percent renewable energy consumption in 2020 and 16 percent in 2023. The [Dutch Bureau of Statistics](#) reports a renewable energy consumption of 6.6 percent on the total energy consumption in 2017. Of the renewable energy consumed, biomass contributes 60.6 percent to the total, which can be further divided over use of, mostly solid, biomass by waste incineration plants (14.7 percent), households (14.1 percent), industry boilers and furnaces (13.7 percent), co-firing power plants (1.8 percent), and the use of liquid biofuels (9.7 percent) and biogas (7.4 percent). Wind and solar energy contribute respectively with 16.3 percent and 6.4 percent on the total renewable energy consumption. The majority of the solid biomass used by households, industry

boilers and furnaces, and for co-firing is woody biomass.

Balance of woody biomass

FAS The Hague estimated the balance of woody based on data of the Global Trade Atlas (GTA) and the [Annual Report](#) of the Dutch biomass sector organization Platform BioEnergie.

Balance of Woody Biomass (mt) in 2018 – The Netherlands				
	Production	Import	Export	Consumption
Other woody biomass (not pellets)	1,500,000	550,000	350,000	1,700,000
Wood pellets	5,000	400,000	250,000	155,000

Platform BioEnergie reports that the total use of woody biomass increased from 1,210,000 mt in 2014 to 1,670,000 mt in 2017. This increase consists almost solely of wood chips, supported through increased domestic production of chips and increased imports, mainly from Germany and Norway. The domestically sourced chips originate from management of forests, parks and agricultural land, and 24 percent from the agricultural, food, and wood processing industry. Based on GTA data, from 2014 to 2018, Dutch imports of wood chips increased from 82,000 mt to about 240,000 mt. Another type of biomass imported is sawdust and wood scrap. In 2018, a volume of about 270,000 mt of sawdust and scrap is expected to be imported.

In 2012, the Netherlands imported more than 1.0 million mt of wood pellets. With 600,000 mt, the United States was the main supplier. The consumption of wood pellets stagnated during 2014-2018, due to the temporary termination of co-firing. Based on the biomass projects further described below, the balance of both chips and pellets are forecast to significantly change during the next years. For information about the biomass market in other EU Member States see the public GAIN Report – [EU Biofuels Annual 2018](#), dated July 3, 2018.

Segmentation of the Dutch Industrial Market for Biomass

The Dutch industrial market for biomass can be segmented as following:

1. Large-scale use of pellets for co-firing with coal to produce power.
2. Biomass plants using solely biomass for the generation of power and/or heat. These plants can be further divided over plants larger and smaller than 5MW.
3. Biomass plants using solely biomass for the generation of industrial process heat or steam.

1. Large-scale use of pellets for co-firing with coal to produce power

Solid Biomass for Co-Firing						
Company	Location	Start	Heat (MW)	Power (MW)	Maximum Volume of Biomass (mt)	Type of Biomass
RWE	Geertruidenberg	2018	-	600	1,750,00	Wood pellets
Uniper	Rotterdam	2019	-	272	550,000	Wood pellets
RWE	Eemshaven	2019	-	250	800,000	Wood pellets

Engie	Rotterdam	2020	-	74	240,000	Wood pellets
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FAS The Hague estimates based on Dutch Enterprise Agency (RVO) and private company information.

The Energy Accord of 2013

In 2013, the Dutch Energy Accord was concluded, which includes funds for the **co-firing** of biomass with coal, which was capped at annually 25 Gigajoule, equivalent to about 3.5 million mt of wood pellets per year. In the Accord it was furthermore decided that the use of **solid biomass for energy** will be subject to specific sustainability criteria. These complex requirements have hampered the sourcing of pellets for co-firing. The main problem is that the pellets must be certified at forest level (with a closing window for pellet mill certification). In addition, the Dutch power sector signed a Covenant with environmental NGOs which adds more stringent requirements to the production of solid biomass for co-firing. The Dutch Government developed a Verification Protocol as an alternative for certification, but this program only guarantees the compliance after delivery of the biomass, which puts the end-users at a risk of not receiving the co-firing subsidy. For this reason, the power companies currently prefer to use certification as method of demonstrating compliance. For more information see public GAIN Report – [Current Opportunities for Wood Pellets in The Netherlands](#), dated May 14, 2018.

The slow resumption of co-firing and import of pellets

Since the last quarter of 2017, Dutch imports of pellets slightly recovered. A major part of these pellets is reportedly made of sawdust due to the less stringent sustainability requirements for pellets made of wood waste. The pellets are sourced from a wide range of European sources with Portugal, the Baltic Region and Russia as the main suppliers. Dutch pellet imports are forecast to increase from 329,000 mt in 2017 to about 400,000 mt in 2018, mainly sourced from Portugal, Germany and Russia.

The status of the approval of certification programs

During 2018, an independent [Advisory Commission](#) assessed a number of existing certification programs. After this assessment, the Minister of Economic Affairs and Climate Policy can approve these certification programs, and subsequently energy companies can use the approved schemes to demonstrate that the solid biomass that they use complies with the Dutch sustainability criteria. Demonstrating this compliance is a condition for receiving a subsidy for producing renewable energy. Compliance with the criteria which are not covered by the programs in place will have to be demonstrated by the Dutch Verification Protocol for Solid Biomass, most importantly the greenhouse gas calculation. The programs which were assessed by the commission were the American Tree Farm System (ATFS), Better Biomass, Green Gold Label (GGL), Forest Stewardship Council (FSC) and the Sustainable Biomass Program. It is anticipated that the Dutch energy sector will be able to source pellets from the United States with the mass balance approach which is given as an option by Dutch requirements. The closing window of allowing pellet mill certification will, however, squeeze available supply. For more information about the sustainability requirements see the following website:

<https://english.rvo.nl/subsidies-programmes/sde/sustainability-criteria>

2. Biomass plants for power and/or heat production

Besides co-firing projects also other biomass projects, which use solely biomass, have received funding from the Dutch Government. Since 2008, the Dutch Enterprise Agency (RVO) granted 585 biomass projects. They include the use of a wide variety of woody biomass types such as wood chips and wood

pellets and non-woody biomass types such as fluid waste streams and manure. The funding of large-scale co-firing is based on the use of pellets, and due to the generally higher price of pellets, the funding per MW is higher than for projects receiving their funds based on the use of other biomass types.

Similar as for co-firing, *solid biomass* used for these projects must comply with the Dutch sustainability requirements in case used for steam with boilers (>5 MW), and used for heat with furnaces (>5 MW). Projects which generate less than 5 MW are not bound to the sustainability requirements of the Dutch Government. According to the private company websites, most of the biomass is sourced locally. Currently fresh wood is priced at €55 per mt at the Dutch seaports, local wood is still €10-20 cheaper. But according traders an increasing volume of chips and pellets is sourced from other countries, mainly from Western and Northern Europe. With the further upscaling of the co-firing and opening of other biomass heat and/or power plants companies will have to source more biomass from abroad, likely in the form of pellets.

Large-scale use of biomass (100 percent) for power generation

Based on the [list of the RVO](#), 60 projects for industrial power generation based on 100 percent solid biomass use were granted. Below are the three largest ones:

Solid Biomass for Power, 100 percent biomass (thermal conversion)						
Company	Location	Start	Heat (MW)	Power (MW)	Volume of Biomass (mt)	Type of Biomass
Twence	Hengelo	2018	-	102	180,000	Waste biomass
BECC	Cuijk	2015	-	83	150,000	Waste biomass
EUCO	Amsterdam	2020	-	40	110,000	Waste biomass and chips

FAS The Hague estimates based on Dutch Enterprise Agency (RVO) and private company information.

Large-scale use of biomass (100 percent) for heat generation

Furthermore, the RVO granted funds for 147 solid biomass projects which produce heat (sometimes in combination with power), see the table below:

Solid Biomass for Heat (boiler for solid biomass)						
Company	Location	Start	Heat (MW)	Power (MW)	Volume of Biomass (mt)	Type of Biomass
Eneco	Farmsum	2013	135	49.9	300,000	Waste wood and chips
Nuon	Diemen	2020	120	-	240,000	Wood pellets
Eneco	Utrecht	2019	60	-	120,000	Waste biomass
SVP	Purmerend	2015	44.0	-	100,000	Local wood chips
Attero	Odiliapeel	2015	8.7	-	27,000	Local biomass
Nuon	Lelystad	2000	6.5	1.5	22,000	Local wood chips
DES	Sirjansland	2019	6.0	-	20,000	Waste biomass

FAS The Hague estimates based on Dutch Enterprise Agency (RVO) and private company information.

List of Suppliers and Buyers

Please contact FAS The Hague, bob.flach@fas.usda.gov for a list of U.S. suppliers and Dutch importers

and end-users of woody biomass.