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**Report Name:** Markets for Wood Chips in Northwestern Europe

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**Report Highlights:**

EU imports of fuel wood totaled \$1.8 billion in 2023. The two main categories of fuel wood imported by the EU are wood pellets and wood chips. This report focuses on the bioenergy market for wood chips in Northwestern Europe, which is increasingly seeking to import from outside the EU. North America is regarded as a natural region to source woody biomass from. Currently imports of wood chips from the United States are restricted for phytosanitary reasons. According to EU regulations, pine wood chips need to be heat treated and fumigated.

## EU Biomass Policy

The EU market for fuel wood, in particular industrial use, is highly regulated by EU policies for supporting renewable energy and cutting CO<sub>2</sub> emissions. In 2018, the European Union (EU) adopted the Renewable Energy Directive II (REDII). Most of the provisions of the REDII entered into force on January 1, 2021. It sets an overall renewable energy target of 32 percent by 2030. In order to qualify for counting towards the REDII targets, biomass consumed in the EU must comply with strict sustainability criteria provided in Article 29 of the REDII (for more information see the section EU Import Requirements for Wood Chips).

In October 2023, the EU published the new RED (REDIII) with no change proposed for the sustainability criteria for biofuels. For more information about the EU policies for biomass and the market for wood pellets see the FAS GAIN Report – [EU Wood Pellets Annual 2023](#), published August 20, 2023, and for the broader biofuels market reporting the FAS GAIN report - [EU Biofuels Annual 2023](#), published August 14, 2023.

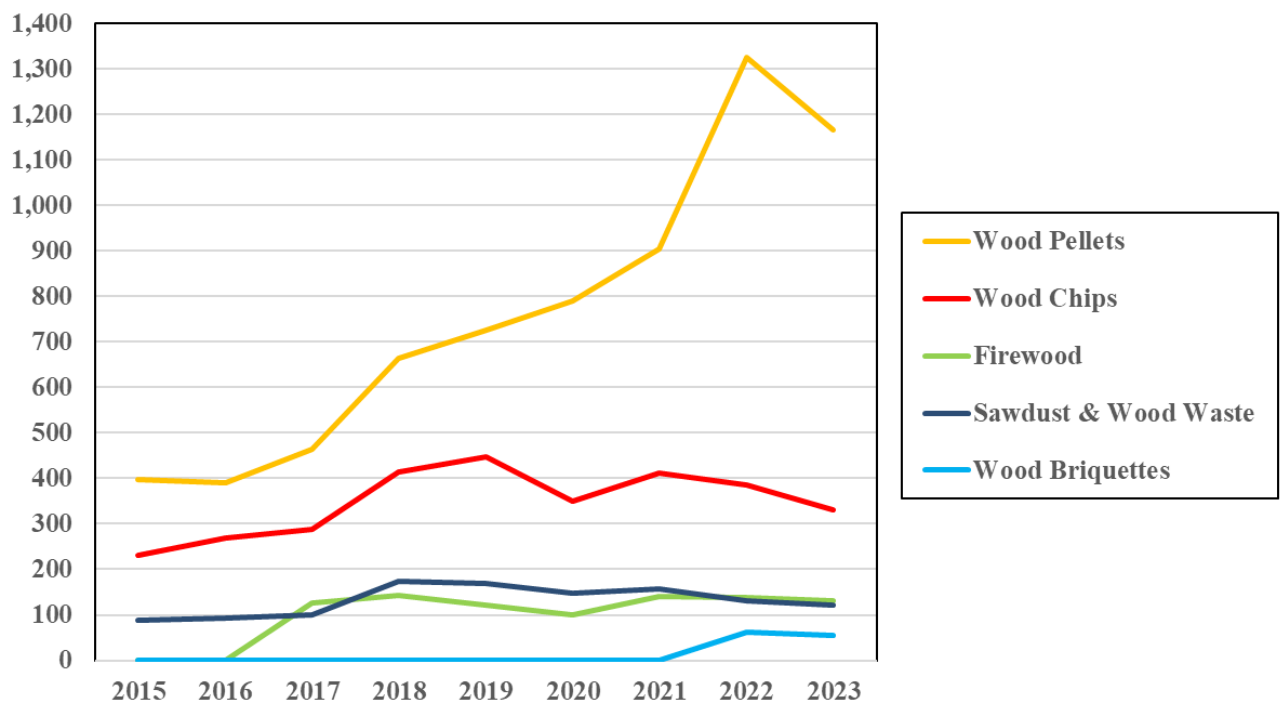
## EU Markets for Fuel Wood

EU Imports of Fuel Wood (\$ million)									
Calander Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Wood Pellets</b>	<b>398</b>	<b>390</b>	<b>463</b>	<b>663</b>	<b>726</b>	<b>791</b>	<b>905</b>	<b>1,326</b>	<b>1,167</b>
-U.S. Origin	138	143	175	227	240	230	346	682	694
<b>Wood Chips</b>	<b>230</b>	<b>269</b>	<b>289</b>	<b>415</b>	<b>448</b>	<b>349</b>	<b>411</b>	<b>386</b>	<b>332</b>
-U.S. Origin	2.7	2.6	2.2	1.8	1.4	1.4	2.5	4.1	2.1
<b>Firewood</b>	<b>0</b>	<b>0</b>	<b>127</b>	<b>144</b>	<b>122</b>	<b>100</b>	<b>140</b>	<b>138</b>	<b>131</b>
-U.S. Origin	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
<b>Sawdust and Wood Waste</b>	<b>89</b>	<b>93</b>	<b>99</b>	<b>174</b>	<b>169</b>	<b>148</b>	<b>156</b>	<b>132</b>	<b>121</b>
-U.S. Origin	0.7	0.8	5.1	28.5	32.5	33.3	23.9	25.7	13.6
<b>Wood Briquettes</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>62</b>	<b>56</b>
-U.S. Origin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<b>Total Fuel Wood</b>	<b>848</b>	<b>871</b>	<b>978</b>	<b>1,396</b>	<b>1,465</b>	<b>1,388</b>	<b>1,613</b>	<b>2,044</b>	<b>1,807</b>
-U.S. Origin	142	146	182	258	274	264	373	712	710

Source: Trade Data Monitor. For HS codes see the Appendix of this report.

EU imports of fuel wood totaled \$1.8 billion in 2023 (see table above), which is 11 percent lower than the value imported in 2022 (\$2.0 billion). This lower import value was caused by a lower demand from power companies and by the restrictions on imports from Russia and Belarus imposed on April 8, 2022. As a result of these restrictions imports of all fuel wood categories fell from these two countries, namely from \$680 million in 2021 (mainly wood pellets and wood chips), to \$338 million in 2022, and to nearly absent in 2023. This lower import supply is only partly counterbalanced by increased imports of wood pellets from Brazil, Vietnam, and Malaysia.

### EU Imports of Fuel Wood Categories (\$ Million)



Source: TDM HS Codes: See the appendix of this report

The two main categories of fuel wood imported by the EU are wood pellets and wood chips (see graph above). EU imports of wood pellets increased significantly and steadily from about \$400 million in 2015 to over \$1.0 billion in 2022 and 2023. This import boost is driven by using wood pellets to replace coal for electricity generation in the Netherlands, Denmark, and Belgium. EU imports of wood chips, and other fuel wood categories, have not shown such an expansion during this period. The main reasons for the preference of wood pellets above wood chips is that pellets are further commoditized, easier to transport and store, and are subject to fewer phytosanitary requirements. For this reason, wood pellets are generally traded over longer distances than other biomass types (such as wood chips, firewood, and pellets made from other biogenic sources). Wood chips are also imported for other uses than bioenergy, such as a raw material for paper and fiberboards.

### Market Outlook for Wood Chips in Northwestern Europe

This report focuses on the bioenergy market for wood chips in Northwestern Europe, for more information about EU market for wood pellets see the FAS GAIN Report – [EU Wood Pellets Annual 2023](#), published August 20, 2023

<b>EU Member State Imports of Wood Chips (\$ million)</b>									
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Denmark	23	13	26	57	54	57	93	134	167
Sweden	56	76	95	124	121	95	77	104	161
Portugal	98	119	123	126	155	56	119	201	157
Finland	108	101	106	160	185	202	207	118	113
Austria	57	67	78	83	60	50	48	82	90
France	35	38	41	42	39	35	39	71	74
Netherlands	10	27	29	41	28	34	26	38	46
Belgium	5	4	5	6	9	16	18	39	38
Ireland	1	3	5	4	7	12	9	6	36
Spain	5	7	7	7	8	8	24	37	32
Germany	57	41	50	49	27	18	21	37	30
Poland	35	35	29	47	57	49	46	57	27

Source: Trade Data Monitor. For HS codes see the Appendix of this report.

***The Current Situation – Wood Chips for Industrial Purposes Are Mainly Sourced Locally.***

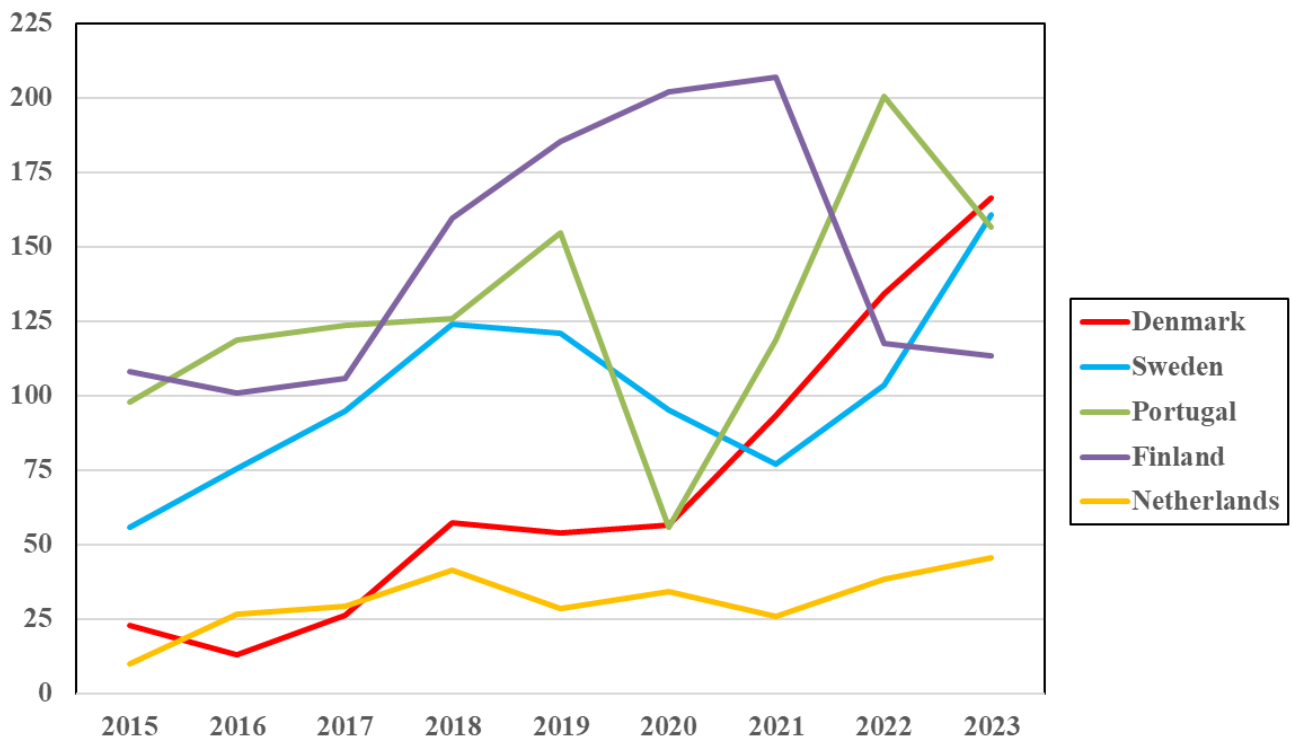
Denmark, Sweden, Portugal<sup>1</sup>, and Finland are the main wood chips importing EU Member States, see the table above and graph below. This report focuses on the wood chips markets in the Nordic countries (Denmark, Sweden, and Finland) and the Netherlands. Most of the wood chips are imported locally, in particular from the Baltic region (Latvia and Estonia). Even though a significant share is sourced outside the EU, of which the most are non-coniferous (HS code 440122):

- Denmark imports about thirty percent from third countries, mainly from Brazil (\$29 million) and Norway (\$24 million) in 2023.
- Sweden sources about twenty percent of the wood chips imports outside the EU, mainly from Norway (about \$18 million annually).
- Finland imported significant volumes of wood chips from Brazil (\$13 million) and South Africa (\$11 million) in 2022, but these imports fell to almost zero in 2023.
- The Netherlands sources only five percent of the wood chips outside the EU, of which \$250,000 were from the United States<sup>2</sup> in 2023 (\$1.0 million in 2022).

<sup>1</sup> Portugal mainly sources wood chips outside the EU (about ninety percent) namely from Uruguay (\$107 million in 2023) and Brazil (\$24 million). Most of the wood chips imported by Portugal are non-coniferous chips for the pulp and paper sector.

<sup>2</sup> Based on the unit value (about \$1,500 per MT) these wood chips are not used for industrial purposes but are for garden / household use and are bagged.

**Wood Chip Imports of Selected EU Member States  
(\$ Million)**



Source: TDM

### ***The Potential – The Bioenergy Sector Is Looking for Third Country Suppliers***

Prices of bulk shipments for industrial purposes range from \$100 – 300 per MT. Generally, the bioenergy sector cannot compete on price in the EU domestic market with other users of wood chips such as the plywood, and pulp and paper sector. It is increasingly seeking to source biomass from outside the EU. Taking in account the national import demand for woody biomass and the logistical infrastructure and boilers, the markets with the most potential for third country wood chips imports are Sweden, Finland, and in particular, Denmark. According to sector sources, the Netherlands lacks the suitable infrastructure and power plants to import and use wood chips for bioenergy.

The potential of the Danish wood chips market is estimated by industry contacts at 5.0 MMT, of which at least half will need to be imported from outside the EU. Based on the approved funding, the Danish consumption of woody biomass for heat and power is guaranteed by the [Danish Energy Agency](#) (DEA). On May 19, 2020, the European Commission approved a [€550 million state aid scheme](#) to support the production of electricity by Danish biomass installations. The scheme will be in place until December 31, 2029. The goal of the program is to phase out coal and generate 55 percent of electricity from renewable energy by 2030. To further reduce carbon dioxide (CO<sub>2</sub>) emissions, or even make them negative, Denmark is examining the option to capture and store the CO<sub>2</sub> output of the bioenergy installations, also known as bioenergy carbon capture and storage (BECCS).

The natural sourcing region for wood chips for Denmark is Scandinavia and the Baltic region. Since the ban on imports from Russia, the supply in this region fell, and consequently Danish buyers are increasingly importing from third countries. In 2023, Denmark imported approximately 300,000 MT of eucalyptus wood (non-coniferous) from Brazil. But the Danish sector is seeking a more diverse supply, from preferably closer and more mature markets.

### ***The United States as Supplier of Wood Chips***

In Western Europe, North America is regarded as a natural region to source woody biomass from as shipping times are relatively short compared to the South America and Asia. In addition, the United States and Canada are regarded as mature markets, and more in compliance with environmental, social, and governance (ESG) criteria and sustainability standards.

With a value of \$336 million, the United States is ranked as the third largest exporter of wood chips after Australia (\$818 million) and Thailand (\$460 million). The top markets for U.S. wood chips are Japan, Canada, Turkey, China, and Mexico (see table below). About ninety percent of the wood chips exported by the United States are coniferous. The United States also exports wood chips of non-coniferous species such as oak and poplar.

U.S. exports of wood chips to the EU fluctuate between only 0.8 and 3.0 million. Currently, Denmark does not import wood chips from the United States because of phytosanitary requirements. Pine (coniferous) wood chips need to be heat treated and fumigated (see Phytosanitary Requirements). Heat treatment is regarded as too expensive by the U.S. producers and Danish buyers for commercial applications. In 2018, an attempt was reportedly made to import debarked maple wood (non-coniferous) from Canada, but this was unviable because of the requirement to segregate maple from other wood species.

<b>U.S. Exports of Wood Chips (\$ million)</b>									
	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
World	286	238	239	295	239	206	233	306	336
Japan	104	92	93	125	118	85	96	143	167
Canada	93	72	76	102	102	97	78	67	92
Turkey	76	59	43	39	10	10	5	26	56
China	0	7	4	4	0	2	39	55	15
Mexico	0.2	0.2	14.0	17.3	1.8	0.7	0.8	4.5	1.6
EU 27	3.0	1.5	1.5	1.2	0.8	1.4	1.8	2.4	1.4

Source: Trade Data Monitor. For HS codes see the Appendix of this report.

### **Phytosanitary Requirements**

Plants and living parts of plants, including unprocessed fuel wood, must be accompanied by a phytosanitary certificate to enter into the EU. In addition, many types of wood require treatment to prevent harmful organisms from spreading with the wood. A small portion of these shipments are inspected as part of the monitoring by the national inspection authorities. This phytosanitary inspection

ensures the shipment does not contain harmful organisms. In the Netherlands, the Netherlands Food and Consumer Product Safety Authority (NVWA) checks for a phytosanitary certificate and takes samples. In Denmark [the Danish Agency for Agriculture](#) (Danish language) is responsible for the inspections.

### *Phytosanitary Certificate and Inspection*

The Dutch NVWA provides an [overview](#) (Dutch language) of the requirements per plant species and origin. The wood species stated in rows 29-42 of the document need a phytosanitary certificate for import. This overview concerns the products that are subject to both a certificate and inspection according [EU 2019/2072](#), Annex XI part A, page 216). Other living plants and plant parts are subject to a certificate, but not subject to inspection are listed in Annex XI, part B, page 256. The list of plants, subject to the exception from a phytosanitary certificate is set out in Part C of Annex XI to this Regulation, starting on page 261.

### *Special Requirements*

ANNEX VII of EU 2019/2072 (page 94) lists the plants, plant products and other objects, originating from third countries and the corresponding special requirements for their introduction into the EU. If these chips are mixed, the entire shipment needs to meet all requirements for all included species.

-Under row 77 (page 157) it is stated that for the origin the United States wood of conifers (*Pinales*) in the form of chips, particles, sawdust, shavings, wood waste and scrap obtained in whole or part from these conifers an official statement is required that the wood has undergone an appropriate **heat treatment** and an official statement that **subsequent to its heat treatment** the wood was **transported with appropriate measures** related to prevention of infestation with the vector *Monochamus* (beetle species) and *Bursaphelenchus xylophilus* (nematode species), **or has been subject to fumigation or additional heat treatment** with an appropriate time/temperature schedule as referred to in Regulation (EU) No 2016/2031. For the requirements of other common species see the table below:

Species	Row/Page	Special requirement in Annex VII of EU 2019/2072
Conifers	77/157	Heat treatment and transport measures or fumigation
Oak	91/170	Heat treatment or drying or fumigation
Maple	97/173	Heat treatment or drying or debarking
Poplar	97/173	Heat treatment or drying or debarking

The treatment method must be approved by the European Commission (EC) as well as the national agencies authorizing pesticides and fumigation substances. Specialized infection prevention companies can provide fumigation services at major seaports and inland locations across the U.S. and work closely with USDA-APHIS officers to show compliance with international quarantine requirements.

### **Sustainability Requirements**

In order to qualify for counting towards the REDII targets, biomass consumed in the EU must comply with strict sustainability criteria provided in Article 29 of the REDII. The criteria include that the country in which forest biomass was harvested has laws applicable in the harvest area as well as monitoring and enforcement systems in place. Forestry biomass will also need to follow land-use, land-

use change, and forestry (LULUCF) criteria notably with regard to the existence of management systems to ensure that carbon stock and sink levels in the forest are maintained or strengthened over the long term. Sustainability will be assessed at the country level or at sourcing area level.

The REDII allows Member States to establish additional sustainability criteria for biomass fuels. Several EU Member States (including Denmark and the Netherlands) have developed their own rules in response to the growing use of imported wood pellets. By December 31, 2026, the European Commission will assess the impact that such additional criteria may have on the internal market to ensure harmonization of sustainability criteria for biomass fuels.

Voluntary schemes, and national certification schemes, of EU Member States help to ensure that biomass is sustainably produced by verifying that they comply with the EU sustainability criteria. Following the entry into force of the REDII, voluntary schemes recognized under the RED must adjust the certification approaches to meet the new requirements. Certification schemes which are often applied are [SBP](#), [FSC](#), and [PEFC](#).

Beginning on December 30, 2024, the EU will enforce the [EU Deforestation-free Supply Chain Regulation](#) (EUDR) establishing rules for agricultural commodities identified as the main drivers to deforestation and forest degradation including fuel wood. For more information see the FAS GAIN Report - [European Institutions Finalize Deforestation-Free Supply Chain Regulation](#), published by Brussels USEU on January 12, 2023.

## Appendix

Category Name Used in Report	HS Codes
Wood Pellets	440131
Wood Chips	440121 Wood in chips or particles, coniferous 440122 Wood in chips or particles, non-coniferous
Firewood	440111 Firewood in any form, coniferous 440112 Firewood in any form of non-coniferous
Wood Briquettes	440132
Sawdust & Wood Waste	440139 Sawdust and wood waste and scrap, whether or not agglomerated, other than pellets. 440140 Sawdust (chips), waste and scrap, wood, non-agglomerated 440141 Sawdust, not agglomerated. 440149 Wood waste and scrap, not agglomerated (excl. sawdust)

## Attachments:

No Attachments.