Required Report: Required - Public Distribution **Date:** July 14, 2025

Report Number: E42025-0004

Report Name: Wood Pellets Annual

Country: European Union

Post: The Hague

Report Category: Wood Pellets

Prepared By: Bob Flach and Sophie Bolla

Approved By: Laura Geller

Report Highlights:

In 2023 and 2024, EU consumption of wood pellets declined for the first time since 2015, due to a mild winter, high stocks, low power prices, and power plant outages. However, consumption is forecast to improve in 2025 based on a recovery of both residential and industrial use. Although EU wood pellet production is anticipated to expand in 2025, it is not keeping up with the growing demand due to the limited sustainable supply of woody biomass. Because of this, EU imports are projected to partially recover from the dip reported in 2023 and 2024. The EU Deforestation-free Supply Chain Regulation (EUDR) could become a trade barrier in 2026.

Table of Contents

I. Summary

Policy and Programs

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 a new overall renewable energy target of 32 percent by 2030. With the REDII, the EU expanded the sustainability criteria to cover forestry biomass. In October 2023, the REDII was aligned with the EU's Green Deal goals of a reduction of greenhouse gas (GHG) emissions of 55 percent by 2030 and carbon neutrality by 2050, and an overall renewable energy target of at least 42.5 percent by 2030. The revised REDII (REDII+) entered into force on November 20, 2023, with an 18-month period to transpose most of the Directive's provisions into national law.

As part of the Green Deal, the European Commission (EC) adopted the EU Deforestation-free Supply Chain Regulation (EUDR) aimed to prevent products causing deforestation entering the EU market. The EUDR targets products which are identified by the EC as the main drivers of deforestation including wood pellets and wood chips. The requirements will go into force on December 30, 2025.

EU Wood Pellet Market Developments

In 2023 and 2024, EU consumption of wood pellets declined for the first time since 2015. Industrial use fell due to power plant outages and low power prices, while residential use declined due to earlier stock building in 2022, and a mild winter in 2023/2024. In 2025, EU wood pellet consumption is forecast to recover based on European Commission's (EC) mandates and EU Member States incentives to support renewable and local energy production. In 2025, the main driver for consumption will be the residential use in France, Germany, Austria, Poland, Spain, Portugal, Czechia, Slovakia, and Croatia. Industrial use is forecast to recover in the Netherlands and Denmark in 2025. Consumption is stagnating in Italy, Sweden, and Finland due to the limited availability and the linked relatively high price level of wood pellets.

Although EU wood pellet production is anticipated to expand in 2025, it is not keeping up with the growing demand at both the Member State and EU levels due to the limited sustainable supply of woody biomass. Based on the widening gap between production and consumption, EU imports are projected to partially recover from the dip reported in 2023 and 2024. The region with the best prospects for transatlantic pellet exports is Western Europe due to the availability of deep seaports. While the increased import demand is attracting imports from Brazil, Vietnam, Malaysia, and Thailand, the United States remained the top supplier to the EU (with a volume of 1.9 MMT and import value of $425 million) in 2024. The EU Deforestation-free Supply Chain Regulation (EUDR) could be a potential trade barrier, as it set to enter into force in December 2025.

The broader biofuels market reporting is contained in the separate FAS GAIN report: the EU Biofuels Annual 2024. The Biofuels Annual 2025 will be published in July.

II. EU Biomass Policy

The EU's Renewable Energy Directive (RED)

The EU Energy and Climate Change Package (CCP) ran from 2010-2020. The RED, which was part of the CCP package, entered into force on June 25, 2009, and expired on December 31, 2020. The CCP required the EU to achieve a binding target whereby 20 percent of its overall energy use would be powered from renewable sources by 2020. For more on the 2009 RED, see the 2020 Biofuels Report.

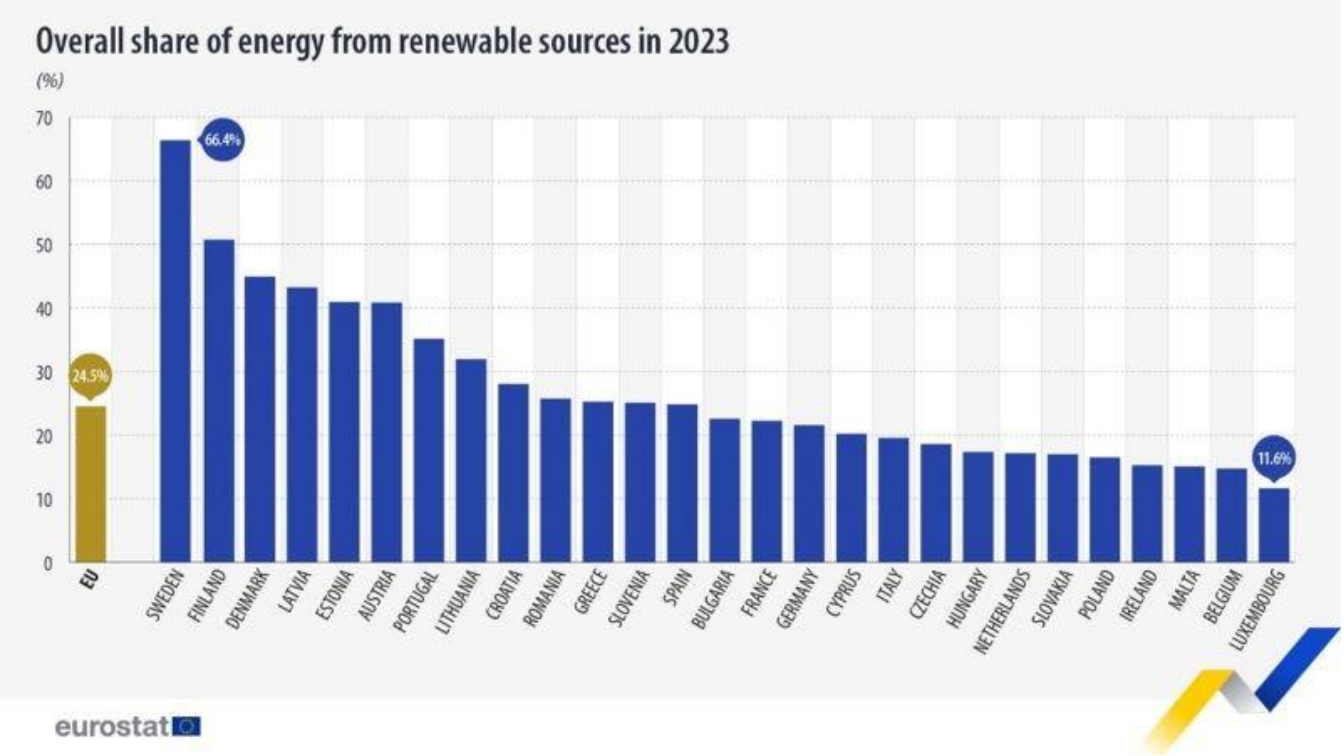
The Renewable Energy Directive II (REDII)

The European Union (EU) adopted the new REDII for the period 2021-2030 in 2018. Most of the provisions of Directive 2018/2001 entered into force on January 1, 2021. The Directive was amended in October 2023 by Directive 2023/2413 to align the REDII with the EU's Green Deal ambitions of a reduction of greenhouse gas emissions of 55 percent by 2030 (compared to 1990) and carbon neutrality by 2050. The revised REDII (REDII+) entered into application on May 21, 2025. Some Member States still must transpose the Directive into national law.

The REDII+ sets out an overall renewable energy target of at least 42.5 percent binding at EU level by 2030. For the heating and cooling sector, the revised Directive requires that each Member State increase

the share of renewable energy in that sector by at least 0.8 percent as an annual average calculated for the period 2021-2025 and by at least 1.1 percent as an annual average calculated for the period 2026-2030, starting from the share of renewable energy in that sector in 2020. National policies with regard to the heating sector for select countries are covered in the residential consumption section of this report.

Uptake of Renewables in the European Union (Eurostat)



In September 2024, the European Commission (EC) published a report on the State of the Energy Union 2024. In 2023, the EU reached a 24.5 percent share of its final energy use from renewable sources, up 1.5 percent from 2022. The average share of energy from renewable sources in heating and cooling was 26.2 percent in 2023.

The REDII Sustainability Criteria

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 were strengthened with the 2023 revision of the Directive (the REDII+). Article 29 requires that the country in which forest biomass was harvested has laws applicable to harvesting as well as monitoring and enforcement systems in place. Forestry biomass also needs to follow land-use, land-use change and forestry (LULUCF) criteria, notably regarding 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 is assessed at the country level or at the sourcing area level. The sustainability criteria governing feedstock sourcing practices apply to EU power plants with a total rated thermal input equal to or exceeding 7.5 megawatts (MW) for installations producing power, heating, cooling, or fuels from solid biomass fuels and to plants with total

rated thermal input capacity equal to or exceeding 2 MW for installations using gaseous biomass fuels.

Additionally, Member States are requested to take measures to ensure that energy from biomass is produced in a way that minimizes undue distortive effects on the biomass raw material market and an adverse impact on biodiversity, the environment, and the climate. To that end, they must ensure the application of the cascading principle based on the Waste Framework Directive. In December 2022, the EC published an Implementing Regulation establishing operational guidance on the evidence for demonstrating compliance with the sustainability criteria for forest biomass laid down in REDII.

Compliance With Sustainability & GHG Emission Saving Criteria - Voluntary Schemes

EU Member State voluntary and national certification schemes help to ensure that biomass is sustainably produced by verifying that they comply with EU sustainability criteria. Following the entry into force of the REDII, voluntary schemes recognized under the Directive must adjust their certification approaches to meet the new requirements. Those additional rules are enshrined in Implementing Regulation 2022/996 which lays down the rules to verify sustainability and greenhouse gas (GHG) emissions saving criteria and low ILUC-risk criteria. This Regulation states the implementing rules to ensure economic operators comply with sustainability criteria and provide accurate data on GHG gas emission savings of the REDII. More information about the recognition process can be found on the EC website. Recognition by the EC is not a pre-requisite for certification. EU countries may accept evidence from voluntary schemes or national certifications schemes set up by EU countries not recognized by the EC if the competent authorities in those countries are confident about the quality of the certification services provided by these schemes.

Additional National Sustainability Requirements

The REDII allows Member States to establish additional sustainability criteria for biomass fuels. Before December 31, 2026, the EC will assess the impact of such additional criteria on the internal market, accompanied, if necessary, by a proposal to ensure harmonization at EU-level.

A key factor in being able to capture the demand in the EU market and benefit from its growth potential is the sustainability of the supply. European traders and end-users of industrial wood pellets are calling for clear, consistent, harmonized, and long-term government regulations. Taking this into account, the industry is actively formulating its own criteria. For residential wood pellets, the European Pellet Council (EPC) developed sustainability criteria called ENplus, based on EN 14961-2. It includes sustainability requirements for the entire supply chain. For *industrial pellets*, the Sustainable Biomass Partnership (SBP) developed a sustainability scheme based on existing programs, such as the Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC).

The European Green Deal and EU Climate Law

On December 11, 2019, the EC presented its Communication on the European Green Deal. On July 9, 2021, Regulation 2021/1119, also known as the EU Climate Law, was published in the EU Official Journal. The Climate Law enshrines a legally binding target of net zero GHG emissions by 2050. EU Institutions and Member States are bound to take the necessary measures at EU and national level to

meet the target. The Climate Law includes measures to keep track of progress and adjust the EU's actions accordingly. The text also includes a reduction of net GHG emissions by at least 55 percent compared to 1990 levels by 2030. The Law also includes a process for setting a 2040 climate target.

Deforestation-Free Supply Chain Initiative

In 2023, the European Union adopted the EU Deforestation Regulation (Regulation 2023/1115) aimed to prevent products causing deforestation entering the EU market. The Regulation targets products which are identified by the EC as the main drivers of deforestation including wood pellets and wood chips (HS code 4401). To sell any of the covered products in the EU or export them from the EU, business operators will be required to provide extensive information about the product's origins, including the precise location(s) and general production time. The Regulation establishes a country benchmarking system through which the EC will assess the risk that countries, or parts thereof, produce relevant commodities and products that contribute to deforestation. Products sourced from standard- or high-risk origins must comply with additional risk assessment and mitigation procedures. Major concerns of suppliers relate to the requirement of the EUDR to provide the geolocation and plot information through the supply chain, specifically for bulk products sourced from small forest plots and many forest owners. An additional complication for wood pellets is that the majority is produced from a by-product. For more information, please see GAIN Report: European Institutions Finalize Deforestation-Free Supply Chain Regulation.

On December 23, 2024, the European Union published Regulation 2024/3234 amending the EUDR in the Official Journal. This amendment postpones the date of entry into application of the EUDR by one year to December 30, 2025, for most operators and June 30, 2026, for small and medium sized operators. As part of the postponement, the EC also published an official statement in which it commits to analyze, based where appropriate on an impact assessment, additional measures to simplify and reduce the administrative burden in the context of the general review of the Regulation, expected no later than June 30, 2028.

On April 15, 2025, the EC also published an updated Guidance Document and Frequently Asked Questions document on the implementation of the EUDR. More information can be found in GAIN Report: EU Deforestation Regulation - Revised Implementation Timeline for 2025, published February 12, 2025.

In June 2025, the EU published the benchmarking system which classifies countries by low, standard, and high risk. The United States and the EU are classified as low risk, while most other countries are categorized as standard risk. Only four countries are considered high risk; Russia, Belarus, North Korea, and Myanmar.

The EU Taxonomy for Sustainable Activities

In order to meet the EU's climate targets for 2030 and reach the objectives of the European Green Deal, the EC adopted the Taxonomy Regulation in June 2020. This Regulation establishes the framework for an EU classification system for sustainable activities by setting out four overarching conditions that an economic activity must meet in order to qualify as 'environmentally sustainable.' The Taxonomy Regulation aims to act as a screening mechanism to define sustainable activities to steer private

investment to activities the EC deems sustainable. It creates three different categories: sustainable activities, transitional activities, and enabling activities. The taxonomy includes bioenergy activities, and the EC classifies forestry biomass as sustainable activities. More information can be found in GAIN Report: Commission Adopts Taxonomy for Green Investments.

EU Policy Response to the War in Ukraine

On April 8, 2022, EU agreed on a fifth package of restrictive measures against Russia. As part of this package, the EU adopted import bans on wood pellets from Russia through Council Regulation (EU) 2022/576. Imports from Belarus are banned through Council Regulation (EU) 2022/355 of 2 March 2022 for its involvement in the war.

III. EU Wood Pellet Market Developments

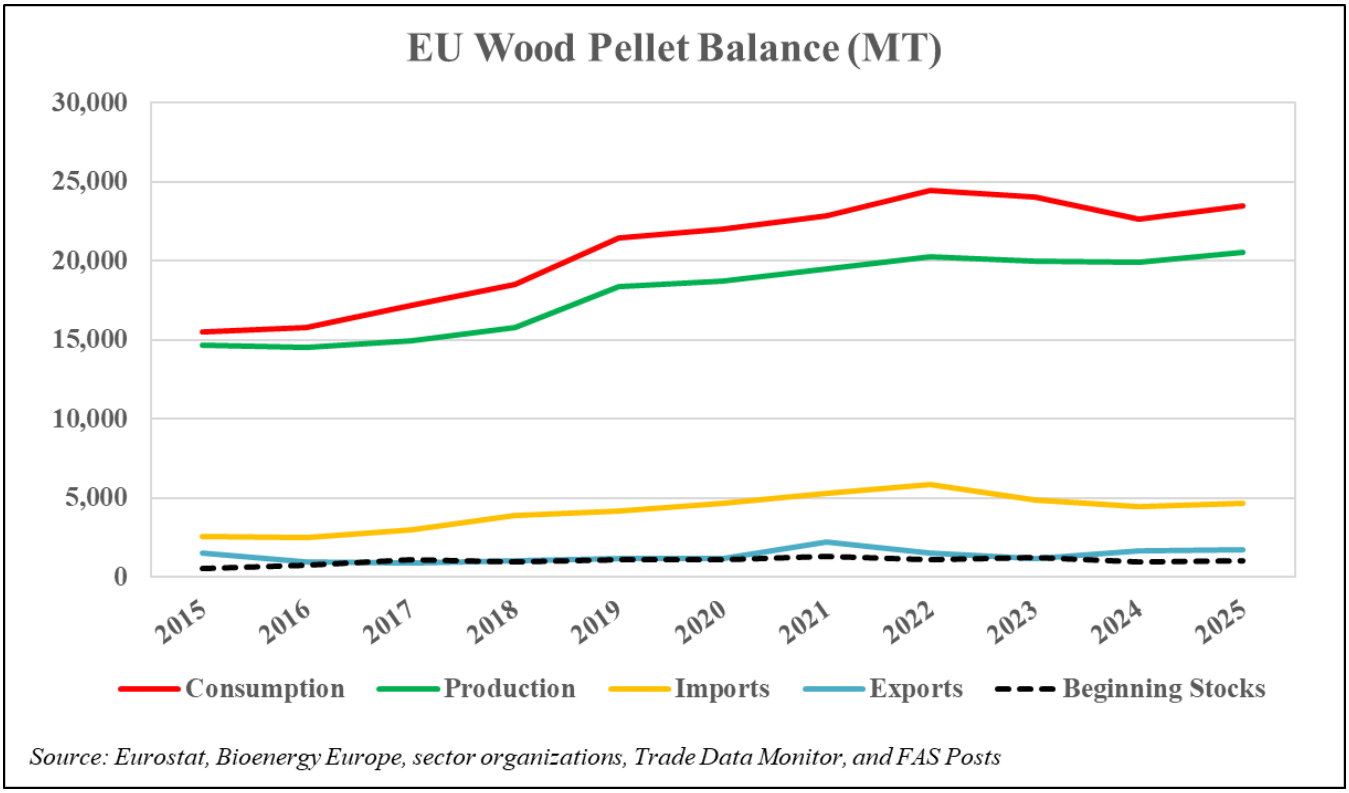
EU Production, Supply and Demand Table

Biomass, sourced from the agricultural and related food processing sector, and the forestry sector, is increasingly used as input for renewable heat and power production. Because wood pellets are generally traded over longer distances than other biomass types (such as wood chips, firewood, and pellets made from other biogenic sources), this report is restricted to the wood pellet market.

Table 1. EU27 Wood Pellets Market Balance and Production Capacity (1,000 MT)

Calendar Year	2016	2017	2018	2019	2020	2021	2022	2023	2024[e]	2025[f]
Beg. Stocks	762	1,078	957	1,128	1,067	1,317	1,107	1,256	925	1,024
Production	14,545	14,957	15,772	18,360	18,713	19,489	20,227	19,969	19,900	20,500
Imports	2,523	3,012	3,906	4,192	4,679	5,318	5,849	4,897	4,481	4,680
Exports	944	900	994	1,193	1,170	2,208	1,487	1,167	1,662	1,700
Consumption	15,808	17,190	18,513	21,420	21,972	22,809	24,440	24,030	22,620	23,450
Ending Stocks	1,078	957	1,128	1,067	1,317	1,107	1,256	925	1,024	1,054
Biomass Use Capacity										
Capacity	21,640	22,574	23,094	23,710	24,100	25,600	26,500	27,200	27,500	28,000
Capacity Use (%)	67.2	66.3	68.3	77.4	77.6	76.1	76.3	73.4	72.4	73.2

Sources: Eurostat, Bioenergy Europe, Trade Data Monitor, and FAS Post Estimates. e=estimate f=forecast. NA=not available. Note: The source for production was switched from Member State sources to Eurostat when report coverage was adjusted from EU28 to EU27.



Source: Eurostat, Bioenergy Europe, sector organizations, Trade Data Monitor, and FAS Posts

The EU is the world's largest wood pellet market and consumed 22.6 million metric tons (MMT) of pellets in 2024, which is a 5.9 percent reduction from the 24.0 MMT used in 2023. EU consumption peaked in 2022 because of high fossil energy prices during that year. In 2023 and 2024, consumption of pellets fell for the first time since 2015. Industrial use fell due to power plant outages and low power prices, while residential use declined due to earlier stock building in 2022, and a mild winter in 2023/2024.

In 2025, EU wood pellet consumption is forecast to recover based on European Commission's (EC) mandates and EU Member States incentives to support renewable and local energy production. During the end of 2025, commercial stockpiling is anticipated in response to the enforcement of the EU Deforestation-free Supply Chain Regulation (EUDR) at the end of the year (for more information see the Biomass Policy section of this report). Future consumption will continue to depend on a range of climate and market factors, such as weather conditions and the pricing of coal, heating oil, and natural gas.

Consumption

Residential use (domestic stoves and dedicated heat boilers with a capacity below 50 kW) and small-to-medium scale commercial use (with a capacity of more than 50 kW, which generally includes dedicated heat boilers used in residential buildings and public buildings) of pellets represents approximately 55 percent of EU pellet consumption. The remaining 45 percent is for large scale industrial use, with a capacity of generally more than 5 MW (source: Bioenergy Europe). The major users of wood pellets in the EU are Germany, France, Italy, Denmark, the Netherlands, Sweden, and Austria (in declining order of importance).

Table 2. EU27 Main Pellet Consumers (1,000 MT)							
Calendar Year	**2018**	**2019**	**2020**	**2021**	**2022[e]**	**2023[e]**	**2024[e]**
Germany	2,195	2,190	2,590	2,940	3,330	3,360	3,370
France	1,430	1,800	2,000	2,400	2,800	3,250	3,500
Italy	3,300	3,400	3,400	3,400	3,000	2,800	2,800
Denmark	3,075	3,000	2,500	2,500	2,600	2,500	1,800
Netherlands	615	1,240	2,560	2,915	2,950	2,200	1,750
Sweden	1,785	1,900	1,425	1,715	1,685	1,705	1,645
Austria	955	1,000	1,050	1,130	1,250	1,330	1,430
Total	**18,513**	**21,420**	**21,972**	**22,809**	**24,440**	**24,030**	**22,620**

Source: Bioenergy Europe and Member State sector organizations, e = estimate EU FAS Posts

Residential Use of Pellets

Residential use for heating fluctuates annually but is a relatively stable market compared to industrial heat and power generation. Demand depends on the winter temperatures and fossil fuel prices. Demand from medium-sized users of pellets (by industries or public buildings such as hospitals and sport facilities) is generally less impacted by weather conditions. The EU Member States with a large residential market for wood pellets are Germany, France, Italy, Sweden, and Austria.

During 2021 – 2022, rising prices of fossil fuels (such as diesel oil, coal, and natural gas) boosted the demand for wood pellets. In 2023, the residential sales of pellets were tempered by the mild winter conditions and the stockpiling of pellets during 2022, which was combined with a significant lower demand by the industrial power sector (see next section). In 2024, the recovery of the residential use didn't outbalance the further reduced use by the industrial power sector. In 2025, EU residential use of wood pellets is forecast to continue to grow, mainly driven by the consumption in France, Germany, Austria, Poland, Spain, Portugal, Czechia, Slovakia, and Croatia. While consumption in Italy, formerly the biggest residential market for pellets has been stagnating since 2023. Consumption is also stagnating in the Nordics (Sweden and Finland) and Bulgaria. The main reason for this stagnation is the limited availability and the linked relatively high price of wood pellets for residential use.

In France, the Multiannual Energy Programming (MEP) aims to double the heat generated from biomass between 2016 and 2028, while maintaining forest balance and ecosystem services. From 2021 to 2023, sales of pellet equipment rose by nearly 30 percent, driven by increased public aid, the wish among French citizens to control their energy costs, and a growing interest in low-carbon solutions. Wood pellets offer an energy source that is less affected by global markets or geopolitical conflicts than fossil energy sources as in France 85 percent of the domestic use is produced from local woody by-products (source: Propellet, 2024),

Most wood pellets in Germany are used for residential heating. In 2024, the number of wood pellet-based heating system units in Germany is estimated at 738,000 (722,000 in 2023). For 2025, the German Pellets Institute (DEPI) forecasts this number to increase to 760,000 over the course of the year. Germany supports the use of wood for heat generation and German law mandates that all buildings erected after 2009 must use a certain share (depending on form of energy used) of renewable energy to satisfy their heating/cooling requirements. Wood pellets are one of the options. Additionally, the

Building Energy Act limits the installation of oil heating systems as of 2026. Beginning in July 2026, in cities of more than 100,000 inhabitants newly installed heating units need to use a minimum of 65 percent renewable heat. In mid-2028, this requirement will be extended to small villages. When buying a house with existing gas- and oil heating units that are older than 30 years, these need to be exchanged within two years after the purchase.

Outside Germany, incentives for residential bioenergy are provided in for instance Austria, Poland, and Sweden. These incentives are often tied to the revised second Renewable Energy Directive (REDII+). In the REDII+ renewable energy targets are set for the heating of buildings, which is anticipated to further support the demand for pellets for residential heating. In Austria, wood pellets are mainly and increasingly used in household heating and receive subsidies by the federal government, the state governments and the communities. Use of pellets in industrial heating systems is also increasing.

The Polish wood pellet market, about 1.3 MMT annually, is dominated by residential use for heat production and estimated at about 60 percent of the total wood pellet market. About 25 percent of wood pellets are used by private businesses or institutions like schools and hospitals for generating their own energy or heat. With the Clean Air program, the Polish government offers subsidies to exchange coal-fired stoves with more ecological options such as heat pumps and biomass stoves. Since the beginning of the program in December 2020 until the end of November 2024 (when the program was suspended), over one million applications were filed, with biomass stoves accounting for 26 percent of new heating sources.

In Spain, wood pellet consumption also increased and amounted to 870,000 MT. In 2023, for the fifth consecutive year in raw, domestic consumption exceeded production. The driver is mainly the higher residential use and improved competitiveness against alternative energy sources. Portuguese consumption (300,000 MT) represents approximately one third of production, which makes the country a traditional wood pellet exporter. Heating purposes are Portugal’s main use of pellets.

In Czechia, the popularity of wood pellets for heating has increased due to boiler subsidies, energy independence goals, and a shift away from Russian gas. Consumer interest is soaring. The Ministry of Agriculture and Rural Development in Slovakia is emphasizing the potential of fuelwood biomass for addressing the country's energy needs in its new "National Forestry Program for 2025-2030." With concerns over the energy crisis and rising prices, the ministry sees wood as a strategic raw material that could serve as an alternative energy source. In Croatia, the domestic market for wood pellets has grown steadily due to increased adoption of pellet furnaces for home heating. An increasing share of the Croatian production is consumed domestically.

Italy was the leading European market for household use of wood pellets, but the market shrunk and is currently stagnating at around 2.8 MMT. The main reason for the stagnation is the recently relatively mild winters. Another factor is the limited Italian domestic pellet production and the dwindling exportable supplies of neighboring countries such as Austria, Slovenia, and Croatia.

In Sweden, there are around 20,000 pellet stoves installed, and almost two million biomass local space heaters, mostly wood stoves, wood boilers and pellets boilers. The Swedish Pellets Association has started a campaign to raise awareness of pellets and pellet stoves. The objective is to reach 200,000 new pellet stoves installed in ten years. But statistics show that the pellet production and consumption has

been stagnating for decades. In 2024, production is estimated at 1.57 MMT and consumption at 1.65 MMT. Limited volumes (a few 100,000 MTs) are imported from the Baltics. In Finland there is an increased demand for pellets by households, but the supply has been limited and prices high due to the ban on Russian and Belarussian pellets. A new heating plant using pellets will be opened in 2025.

In 2023 and 2024, Bulgarian wood pellet consumption fell in from the record level in 2022 due to the softening energy prices. Out of total 2.8 million households in the country, about 1.5 million households use wood pellets and/or fuelwood for heating. Greenhouses and small businesses have switched to biomass for heating. Larger manufacturers and municipal heating units also commonly use biomass. However, in 2024 and 2025 many public and private users started to switch from biomass to solar energy due to government subsidy programs.

National government incentives across the EU are expected to further increase residential pellet use through 2025. As a result, the amount of pellets available for export is declining in traditional producing countries, especially Germany, Poland, Latvia, Estonia, Czechia, Slovakia, Romania, Bulgaria, Croatia, and Portugal. This shift is contributing to growing EU demand for pellet imports.

Industrial Use of Pellets

In markets such as the Netherlands and Denmark, residential use is relatively small and the demand for wood pellets is dominated by large scale power plants. These countries opted to fulfill their obligations for renewable energy consumption by using biomass for the generation of electricity. In case of pellet demand, they largely depend on imports as they lack sufficient domestic production. In several EU Member States, such as Denmark, Poland, Hungary, and Croatia locally sourced wood chips and remainders are often preferred above wood pellets for generating power. In Croatia for instance, total installed biomass plant capacity has almost doubled since 2017 from approximately 350 MW/year to approximately 600MW/year. These plants primarily use wood residues from sawmills and forestry operations as fuel, contributing significantly to Croatia's renewable energy mix. For more information about the wood chips market in the Nordic Region see the GAIN Report - Markets for Wood Chips in Northwestern Europe, published on April 23, 2024.

The Netherlands is the primary industrial market for wood pellets in the EU. In 2024, the Netherlands imported 1.50 million metric tons (MMT) of wood pellets with a value of $325 million. This is the second year in a row Dutch pellet imports declined (from 2.82 MMT in 2022 and 2.33 MMT in 2023). The United States is the top supplier to the Netherlands, with a volume of 0.76 MMT, and a value of $148 million in 2024. The Netherlands is the fourth largest destination for U.S. wood pellets, after the United Kingdom, Japan, and Denmark. Most of the wood pellets are used by Dutch power plants and co-fired with coal. All the imported wood pellets which are used for renewable energy generation are subject to stringent sustainability requirements.

In 2024, Dutch pellet use and imports declined because the largest power plant was retrofitted to fully run on biomass. Negative power generation margins also played a role by the lower use of pellets by other plants in the Netherlands. Reportedly pellet use increased significantly during the fourth quarter of 2024. While consumption is forecast to increase further in 2025, imports are expected to remain at a low level in 2025, due to high stocks which were built.

On April 22, 2022, the Dutch government laid out their policy for the application of biomass to the Dutch Parliament. The government will support the application of biomass for high value applications. The Dutch Cabinet confirmed it will phase out its support for the applications for low value purposes (i.e., electricity and low temperature heat). Subsidies for biomass for power and low temperature heat will be phased out in 2027. For more information, see the GAIN Report - Dutch Government Lays Out New Biomass Policy, published on April 29, 2022. The Dutch policy of phasing out bioenergy subsidies is outlined in the National Energy Plan (Dutch language), published on December 1, 2023.

On April 26, 2023, the Dutch Cabinet informed (Dutch language) the Dutch Parliament about additional measures to reach the renewable energy targets. The document underlines the government's ban on coal for power production by 2030 at the latest. This ban on coal has the potential to further increase the demand for wood pellets by the Dutch power sector in the long term. Both the Dutch government and power sector are looking into the application of Bioenergy Carbon Capture and Storage (BECCS), reaching negative carbon emissions. The Dutch Government is drafting a new National Energy Plan, covering the planned production and use of biochemicals, sustainable marine and aviation fuels (SMF and SAF), and a National Action Plan for Bioresources for determining a strategy for sourcing sustainable feedstocks and phasing out fossil inputs.

The Netherlands Environmental Assessment Agency (PBL) noted that 50 MegaMT (one million MT) of bioresources are indispensable for reaching the Dutch climate goals in 2050. The main application for these bioresources is as feedstock for the chemical industry and the production of SMF and SAF. For this transition, investments in advanced lignocellulosic biofuel production as well as Bioenergy with Carbon Capture and Storage (BECCS) are required. The Dutch government is actively seeking cooperation in sourcing feedstocks for the bioeconomy at the EU level, with a Joint Statement on a European Sustainable Carbon Policy Package, as well as at the global level.

The second largest industrial pellet market is Denmark. Most of the Danish large-scale combined heat and power (CHP) plants have now converted from fossil fuels to woody biomass. Based on the approved funding, the consumption of woody biomass for heat and power is guaranteed and expected to remain unchanged by Danish Energy Agency (DEA). On May 19, 2020, the EC 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.

A large portion of the pellets consumed in Denmark are imported. In 2024, Danish pellet imports fell for the third successive year, from 3.23 MMT in 2021 to 1.66 MMT in 2024. Danish wood pellet imports from the United States increased from 498,000 MT to 703,000 MT ($164 million) in 2024. In 2025, Danish pellet consumption and imports are forecast to recover based on a higher industrial use. While pellet imports fell, Danish wood chips imports increased significantly between 2021-2024 (for more information see the GAIN Report - Markets for Wood Chips in Northwestern Europe, published on April 23, 2024). To further reduce carbon dioxide (CO_2) emissions, or even make them negative, Denmark is examining the option to capture and store the CO_2 output of the bioenergy installations applying BECCS. The Danish Economic Council - an independent advisory body - estimated that the negative emissions through BECCS account for about one-third of the total Danish reduction target for 2030.

Another important industrial pellet market was Belgium. From 2012 to 2020, Belgian pellet use was estimated at about 1.5 MMT per year. Because the main bioenergy plant in Wallonia only uses recycled wood and stopped the use of pellets from primary wood, Belgian annual consumption fell to about 750,000 MT. In 2025, the industrial use of pellets is forecast to recover only marginally. In the short term, the main driver for further growth of the EU pellet market is the residential use.

Production

Table 3. EU27 Main Pellet Producers (1,000 MT)							
Calendar Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024[e]**
Germany	2,415	2,820	3,100	3,300	3,570	3,710	3,695
France	1,450	1,600	1,700	1,860	2,050	2,230	2,450
Latvia	1,715	2,210	2,265	2,140	1,980	1,980	1,980
Austria	1,345	1,440	1,540	1,610	1,640	1,725	1,800
Sweden	1,640	1,700	1,660	1,755	1,810	1,740	1,650
Estonia	1,345	1,600	1,600	1,650	1,540	1,385	1,350
Poland	410	1,105	1,265	1,280	1,270	1,265	1,280
Portugal	735	1,010	860	730	745	750	900
Spain	593	714	616	642	716	800	810
Lithuania	315	605	510	530	525	605	610
Total	**15,772**	**18,360**	**18,713**	**19,489**	**20,227**	**19,969**	**19,900**

Source: Eurostat (dataset Roundwood, fuelwood and other basic products), Bioenergy Europe, and Member State sector organizations, e = estimate EU FAS Posts.

The dip in demand for wood pellets in 2023 and 2024, the resulting low prices, and the increased costs of inputs negatively affected the profit margins of the EU wood pellet sector. Even so, the current strong growth of residential demand is forecast to support a further increase in production in 2025. Below is a brief overview of the main pellet producers by region.

In 2025, a strong production growth is forecast in Western Europe, led by France and Germany (after a temporary dip in 2024). Wood pellets, especially for residential use, are crucial for France to reach carbon neutrality by 2050. Reportedly, three new sites opened their doors in 2024, for an additional production capacity of 270,000 MT of pellets, and an additional actual production volume of 200,000 MT. These new facilities will help strengthen the industry's resilience and support the goal of doubling national production capacity to over four MMT per year by 2028 (French Wood Pellet Association). Post projects that by 2028, France will produce 3 MMT of pellets annually. Germany is the third largest wood pellet producer in the world after the United States and Canada. It has currently 40 companies with 50 production facilities for wood pellets with a total annual production capacity of 4.2 MMT. In 2024, production amounted to 4.0 MMT, 92 percent of which was produced from residues of the timber industry. The remaining eight percent consisted of non-sawable round logs.

The Nordic Region (Sweden and Finland) is a relatively isolated market for pellets but well connected with the Baltic Region (Latvia, Estonia, and Lithuania), and Poland. For the last decade, Swedish wood pellet production stagnated around 1.75 MMT. The Finnish pellet production fluctuates around 350,000 MT and is forecast to expand based on an increased demand by the residential as well as industrial market. In the near term, Finland plans to add 300,000 MT of new annual production capacity. Both

Sweden and Finland are net importers of wood pellets and source the majority of their imports from the Baltics.

Wood pellet production has expanded rapidly in the Baltic Region between 2015 – 2020 but has stagnated since 2020. Current production is estimated at about 2.0 MMT in Latvia, 1.4 MMT in Estonia, and 0.6 MMT in Lithuania. The main factor for the production stagnation is the limited availability of raw materials. In Latvia, increased wood harvesting was limited by a Constitutional Court ruling in 2024. As a result of this ruling, the administrative burden for the forest sector reportedly increased, and younger trees cannot be harvested. In Estonia, wood pellet production is forecast to decline further in 2025 with reduced availability of raw materials, despite slightly recovering export demand. Another restriction for pellet production is the government's decision to forbid cutting trees in protected forest habitats. Early in 2025, the forestry sector requested the government to introduce changes to the legislation. Lithuanian wood pellet production is forecast to continue to grow in 2025. However, future production might be hampered by lower availability of raw materials. In April 2025, the Ministry of Environment presented the conclusion of the draft amendments to the Law on Forests, which should be discussed by the government and then passed to Parliament for approval. The Baltics are producing both for the residential and industrial export markets, with the latter market mainly located in Denmark, the United Kingdom, and the Netherlands. In 2021, combined Baltic exports reached a record of 4.69 MMT, but plummeted during 2022 and 2023, and recovered to 3.39 MMT in 2024. During 2022 and 2023, a higher share of production remained in the Baltics because the ban on Russian gas boosted domestic demand. In 2024 and 2025, Polish production is forecast to expand due to the developing residential use market. However, the wood pellet industry fears for the availability of raw materials due to the governmental policy of protecting the Polish forests from wood harvesting.

Portugal and Spain are net exporters of wood pellets. Post estimates Portugal's production at about 900,000 MT with an installed annual capacity at around 1.4 MMT of pellets. Over the last five years Portuguese exports fell by 45 percent to 389,000 MT far below the record volume of 709,000 MT achieved in 2019. Portuguese production is constrained by the limited availability of woody inputs. The main markets are France, the United Kingdom, Denmark, and Spain. Despite falling total exports, France has been the main growth market for Portuguese wood pellet exports over the past five years. Spanish wood pellet production continued its ongoing expansion trend and amounted to currently about 800,000 MT. Pellet production is increasingly concentrated in large-capacity plants. Spain has a total theorical capacity of 1,950,000 MT per year. In 2023 and 2024, Spanish exports fell by 43 percent to 119,000 MT. France and Italy were the main destinations.

The main wood pellet producer in Central Europe is Austria. In 2024, Austria produced 1.8 MMT of wood pellets, which is four percent more than in the previous year. Austria is a net-exporter of wood pellets, but domestic demand is on a rising trend. Major destinations for Austrian pellets are Italy and Germany. In 2023, Czech production fell by more than ten percent to 470,000 MT due to the lower sawlog production level because of lower construction activity and the improvement of the bark beetle situation. Production still exceeds consumption by three times, and therefore two thirds of Czech pellets are exported, mainly to Austria, Germany and Italy. Slovakia's pellet production grew rapidly from around 100,000 MT between 2012 – 2022 to nearly 400,000 MT but is stagnating at around 300,000 MT currently. A new Slovak forestry program identifies various sources of fuelwood biomass, including forests, wood processing industries, and municipal sectors, emphasizing the need to enhance the supply and utilization of biomass resources for energy generation. Production in Romania is also stagnating, at

about 350,000 MT annually. The more stringent Romanian forest legislation for sourcing fuel wood and the government incentives for the utilization of more efficient heating equipment may support the wood pellets industry. According to Eurostat, Hungarian production of wood pellets almost doubled in 2023 (to 109,000 MT), but the volume of wood pellet production and trade is still negligible compared to other biomass sources. In Hungary mostly firewood and other solid biomass such as wood industry waste, municipal waste, and agricultural byproducts (corn and sunflower husk and stem, oilseed cake, etc.) are used as renewable energy source.

Commercial wood pellet production was expanding rapidly in the Balkan Region, but production is not keeping up with increasing domestic demand. Croatia's wood pellet industry has experienced significant growth over the past decade, with annual production ranging between 430,000 and 550,000 MT. Approximately 80 percent of production is exported, primarily to EU countries such as Italy. In 2024, Croatia exported 297,000 MT, a decrease of more than ten percent compared to 2023. Based on expanding domestic and export demand, Croatian wood pellet production is forecast to increase. In Bulgaria, manufacturers have made efforts to increase domestic supply, however, they face challenges related to much higher wood prices (30 percent average increase for the last two years) and reduced prices of pellets. Industry reports an increase in consolidations and mergers. The authorities have encouraged higher wood pellets production to meet the expectations of the rural population and its social needs. Due to the growing interest in alternative fuels, a stable increase in domestic production and trade can be expected in the future. Current production is estimated at 240,000 MT.

Overall, in the EU, local shortages of woody biomass supported the production of pellets made from other biomass sources. With increasing competition for sawdust resources, a broader sustainable raw material is becoming necessary. There is increased interest in agricultural residues for pellet production, but even the volume of these additional feedstocks will not be sufficient to satisfy the full demand. Overall, EU wood pellet production is not expected to be able to keep up with the increasing demand, particularly from the residential heating market.

Trade

Table 4. Main EU27 Importers of Wood Pellets (1,000 MT)

	Total Imports[a]		Imports from U.S.	
Calendar Year	**2023**	**2024**	**2023**	**2024**
Italy	1,575	1,838	60	7
Denmark	2,486	1,664	498	703
Netherlands	2,327	1,501	1,539	758
France	1,000	1,374	290	259
Belgium	616	630	439	118
Germany	436	371	5	43
Sweden	295	315	0	0
Poland	280	282	60	1
Total EU	**-**	**-**	**2,909**	**1,904**

Source: Trade Data Monitor (HS Code: 440131) (a) Includes EU intra-trade.

Cost differentials between shipping and rail access to deep seaports noticeably impact European wood pellet trade flows. In Denmark, the Netherlands, Belgium, and France, importers are sourcing a large

share of their pellets from non-EU suppliers, mainly the United States, Canada, Ukraine, and recently also from Brazil, Vietnam, Malaysia, and Thailand. This is due to these markets having access to deep seaports. Dutch, Belgian, and Danish ports also serve as a hub for Northwestern European markets, in particular Germany. Port size and depth limitations in the Nordic region (Denmark, Sweden, and Finland) and Poland favor pellet supplies from the Baltic Sea, which are typically transported on smaller vessels than those used in Atlantic trade. In Denmark, one plant is located at a deep seaport and is supplied from North America. The markets for pellets in Italy depend on local and regional production as well as imports from third countries, particularly Brazil. Since 2012, wood pellet imports from Brazil have shown a steady increase to Italy.

Table 5. Main Suppliers of Wood Pellets to EU27 (1,000 MT)

Calendar Year	2019	2020	2021	2022	2023	2024
United States	1,295	1,247	1,781	3,125	2,909	1,904
Canada	80	517	292	337	334	619
Brazil	147	174	196	268	369	419
Ukraine	431	441	411	401	466	408
Vietnam	0	0	0	33	198	382
Malaysia	44	0	0	93	183	326
Thailand	0	0	0	7	66	137
Norway	13	42	49	73	53	86
Belarus	375	524	594	248	0	1
Russia	1,475	1,510	1,881	1,021	0	0
Total	**4,191**	**4,679**	**5,318**	**5,849**	**4,897**	**4,481**

Source: Trade Data Monitor (HS Code 440131)

EU demand for pellets has significantly outpaced domestic production over the past ten years, resulting in increased imports from the United States, and to a lesser extent Canada, Russia, Ukraine, Belarus, and more recently Brazil, Vietnam, Malaysia, and Thailand. In 2024, EU wood pellet imports totaled 4.48 MMT (with a value of $1.0 billion), which is 0.42 MMT less than reported in 2023. The main reason for this dip is the power plant outages in Northwestern Europe and the stock building of pellets during 2022 (see the section Consumption). EU year-to-year imports from United States fell 1.0 MMT to 1.90 MMT (value $425 million) in 2024, the share of U.S. pellets in total EU imports fell from 59 to 42 percent.

Following Russia's invasion of Ukraine, the wood pellet imports from Russia and Belarus are significantly affected. On April 8, 2022, the EU agreed on a fifth package of restrictive measures against Russia. As part of this package, the EU adopted import bans through Council Regulation (EU) 2022/576, which banned Russian wood pellets from entering the EU market. Imports from Belarus are banned through Council Regulation (EU) 2022/355 of 2 March 2022 for its involvement in the war. These bans increased the opportunity for transatlantic trade including Brazil, as well as Asian sources.

Based on the strong growth of the residential market and recovery of the industrial market, EU wood pellet imports are forecast to recover to 4.68 MMT, which is still well below the 5.85 MMT achieved in 2022. Suppliers outside the EU could be affected by the implementation of sustainability requirements by the EC and individual EU Member States. A potential trade barrier is the EU Deforestation-free Supply Chain Regulation (EUDR), which includes the requirement to provide the geolocation and plot information through the supply chain (see the EU Biomass Policy chapter of this report).

Appendix - Related Reports from FAS USEU and FAS Posts

Country	Title	Date
Finland	United States Tall Oil Exports to the Nordics Surge	11/06/24
UK	Wood Pellet Annual 2024	11/04/24
EU	Biofuels Annual 2024	08/13/24
EU	Wood Pellet Annual 2024	07/05/24
Denmark	Markets for Wood Chips in Northwestern Europe	04/23/24
EU	Wood Pellet Annual 2023	08/20/23
EU	Biofuels Annual 2023	08/14/23
EU	Biofuel Mandates in the EU by Member State - 2023	07/06/23
Spain	Spanish Wood Pellet Market Outlook 2023	05/08/23
EU	EU Parliament Adopts Negotiating Positions on Deforestation-Free Supply Chains and Renewable Energy	09/30/22
EU	Biofuels Annual 2022	07/13/22
EU	Wood Pellet Annual 2022	07/13/22
Netherlands	Dutch Government Lays Out New Biomass Policy	04/29/22
Germany	Fuel of the Future Congress Concludes Biofuels are Indispensable for Reaching EU Climate Goals	03/02/22
Netherlands	Sustainable Marine and Aviation Fuels in Northern Europe	12/13/21
EU+UK	Biofuels Annual 2021	06/22/21
EU	EC Adopts its EU Taxonomy for Green Investments	05/14/21
Netherlands	Dutch Wood Pellet Imports Reach New High	04/26/21
Netherlands	Dutch Government Advised to Cascade Biomass	07/14/20

FAS GAIN Reports can be downloaded from the following FAS website: https://gain.fas.usda.gov/#/

This report was a group effort by the following FAS analysts:

Ornella Bettini of FAS/Rome covering Italy
Sophie Bolla of USEU/FAS Brussels
Mila Boshnakova of FAS/Sofia covering Bulgaria
Logan Clow of FAS/London covering Ireland
Tania DeBelder of USEU/FAS Brussels covering Belgium
Monica Dobrescu of FAS/Bucharest covering Romania
Dimosthenis Faniadis of FAS/Rome covering Greece
Bob Flach of FAS/The Hague covering the Netherlands and the Nordics
Jana Fischer of FAS/Prague covering the Czech Republic and Slovakia
Anna Galica of FAS/Warsaw covering Poland and the Baltic States
Gellert Golya of FAS/Budapest covering Hungary
Marta Guerrero of FAS/Madrid covering Spain and Portugal
Roswitha Krautgartner of FAS/Vienna covering Austria and Slovenia
Sabine Lieberz of FAS/Berlin covering Germany
Andreja Misir from FAS Zagreb covering Croatia
Alexandra Robu of FAS/Paris covering France

The chapters were coordinated by:
Executive Summary by Bob Flach
Policy and Programs by Sophie Bolla
EU Wood Pellet Market Developments by Bob Flach

Disclaimer: This report presents the situation and outlook for biofuels in the EU. This report presents the views of the authors and does not reflect the official views of the U.S. Department of Agriculture (USDA). The data are not official USDA data. Official government statistics on biofuels are not available in many instances. This report is based on analytical assessments, not official data.

Attachments:

No Attachments