

At the crossroads?



The Drax wood burning power plant has been highly criticised for its huge forest and carbon footprint. Despite this it has received £5.6bn in subsidies over the past decade to encourage them to burn wood for electricity. Photo: Clare Louise Jackson / Shutterstock.

A brief analysis of the European wood pellets market in 2022 and 2023

In 2022, according to industry data, the consumption of wood pellets in Europe went down by 6 per cent. While residential demand continued to grow, particularly in France and Germany, the industrial sectors' demand decreased by almost 15 per cent, with the amount of electricity produced from burning wood pellets going down in Europe for the first time ever. This brutal trend reversal is explained by a number of factors, in particular the explosion of wood pellets prices, appears to have continued in 2023 and is now threatening the survival of the largest global producer of wood pellets, the US-based company Enviva.

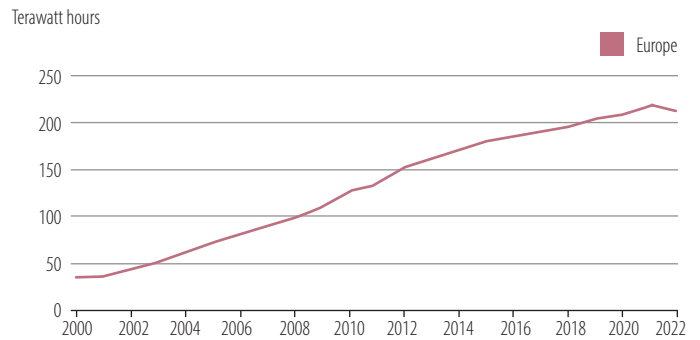
The European (European Union (EU) and United Kingdom (UK)) wood pellets¹ market has been the world's largest for more than 15 years, driven by EU policies to allow market incentives² for both industrial and residential use. Mainly due to growing industrial demand, imports have grown to meet the gap in supply. In 2022 domestic production of wood pellets in the EU was **estimated** by the Foreign Agricultural Service of the United States Department of Agriculture (USDA) to be about 20.3 million tonnes, which was supplemented with imports of 6.9 million tonnes. EU demand for wood pellets seems, however to have reached a crossroads.

The largest EU consumers of wood pellets in 2022, in declining order of importance, were Italy, Germany, the Netherlands, Denmark, France, Sweden, Austria, and Belgium. Among these, Italy, Germany, France, Austria, Sweden have large residential markets.

In the last decade, European forests suffered from increasing logging, as well as climate and biodiversity disturbances. The rising use of biomass for energy – with more than half the EU wood harvest now being burned – contributed to an **overall reduction of the canopy tree cover in Europe since 2016** and **the severe degradation of the entire EU's land carbon sink**– especially in biomass-producing Member States, such as Estonia, Finland or Germany. By the end of 2021, industrial demand for pellets for the energy sector had roughly reached parity with local and residential demand .

2022 was atypical for Europe's energy sector: Russia's invasion of Ukraine caused a massive surge in energy prices. Energy poverty **increased**. In the first half of the year, many citizens turned to wood as a domestic heating alternative, panic-buying drove up prices of wood pellets, and several governments created or reinforced incentives for EU citizens to purchase woody biomass-based heating appliances (such as pellet stoves and boilers). It was therefore

Electricity generation – Bioenergy



Source: Ember Electricity Data Explorer <https://ember-climate.org/countries-and-regions/regions/europe/>

expected that the consumption of wood for heating would dramatically increase.

But according to two recent analyses by the market intelligence firms **Argus media** and **Hawkins Right**, and the latest report by **Bioenergy Europe**, the biomass industry's Brussels trade association, **overall European consumption of wood pellets decreased by six per cent** (minus 1.56 per cent in the EU) in 2022. While residential demand continued to grow, particularly in France and Germany, the industrial sectors' demand decreased by almost 15 per cent.

The analyses attribute this to various factors:

- **the price of wood pellets tripled in 2022's summer months, undermining the sector's economic viability and the attractiveness of the product for all consumers.** Wood pellet prices have largely followed energy prices, driven by strong concerns around Europe's gas supply. They peaked in August 2022 at almost €800/tonne on the residential market (€500/tonne on the industry market), before falling back. The use of pellets for electricity production decreased by 15 per cent between 2022 and 2023 , with **the closure of Belgium's largest biomass plant** in Ghent (205 megawatt (MW)); demand reduction in Danish power plants; and a temporary switch to coal in the Netherlands (as coal had

¹ A limitation of this analysis is its focus on wood pellets, as it is a standardised commodity whose market is relatively well studied by market analysts (although supply chains remain very opaque, with **strong evidence that even old-growth forests in Romania, for instance, are turned into wood pellets today**). By contrast, the other forms of woody biomass (wood chips, logs ...) are more difficult to track, because of the difficulty in accessing recent reliable data on logging levels, and their market is either informal (fuelwood) or difficult to disentangle from other uses (wood chips are used for energy but also as a raw material by the pulp and paper industry, and increasingly other industrial sectors too).

² Burning woody biomass is considered 'renewable' energy in EU law, and energy companies burning it benefit from strong market incentives. Subsidies for biomass amounted to **€16 billion** in the EU in 2020, and the ETS exemption was evaluated at **€12 billion** of lost revenue on the EU's carbon market for the 234 million tonnes of CO₂ emissions reported as direct emissions from wood burning in the EU in 2019.

become cheaper than pellets there). **In the UK, rather than burn them, energy producer Drax re-sold their wood pellets stocks to maximise profits from their “contracts for difference”³ – while avoiding reimbursing UK bill-payers.** The amount of electricity produced by burning wood, which had plateaued at four per cent in the EU & UK energy mix since 2020, decreased in absolute terms for the first time in 2022 (while wind and solar increased).

- **the wood pellets sector failed to provide additional supplies in time after the ban on wood pellet imports from Russia, Belarus and Ukraine that followed Russia’s attack on Ukraine.** Russian exporters found ways to **circumvent** the ban by shipping their supplies through Turkey, China, Kazakhstan or Kirghizstan, but these did not match the pre-ban volumes (they also **rerouted** their wood fuels exports to Asia, in particular South Korea). US exporters stepped in, and partly replaced Russia’s pellets in Europe (at a premium), even though demand in 2022’s fourth quarter was low.
- **Temperatures in the months of October, November and December 2022 were very mild over Europe, reducing overall heat**

demand and therefore consumption of pellets (heat demand is the main driver for residential use).

2023

While on average, pellet prices in 2022 were more than double that of previous years, so far in 2023 they have reduced a little (although they remain more than 33 per cent higher than before the crisis). The latest prices observed on the residential market (September 2023) are around €400/tonne, at least in **Austria, France and Germany.** **Some of the structural reasons for high wood pellet prices – the insufficient production capacity in Europe, high wood prices and high fossil fuels prices – are expected to persist in the 2023-24 winter.**

In fact, pellet production capacity in Europe remains consistently below demand, despite a continued rise in the number of new pellet factories (particularly in Germany, Austria and France), which might cause high pellet prices during the 2023 winter. **According to T. Meth,** the CEO of Enviva, the largest global wood pellet producer based in the US South-East and a major exporter to Europe, the structural shortage of the market “has not subsided at all” and in Europe, “the nervousness for this coming winter is very pronounced”.

Table 3. EU27 Main Pellet Producers (1,000 MT)

Calendar Year	2016	2017	2018	2019	2020	2021	2022
Germany	1,930	2,250	2,415	2,820	3,100	3,300	3,570
Latvia	1,600	1,465	1,715	2,210	2,265	2,140	2,150
Sweden	1,740	1,740	1,640	1,700	1,660	1,755	1,800
France	1,150	1,350	1,450	1,600	1,700	1,850	2,050
Estonia	1,210	1,435	1,345	1,600	1,600	1,600	1,600
Austria	1,070	1,225	1,345	1,440	1,540	1,610	1,690
Poland	800	480	410	1,105	1,265	1,270	1,300
Portugal	605	690	735	1,010	860	730	730
Lithuania	245	315	315	605	510	530	540
Spain	460	460	575	620	530	650	770
Total	14,545	14,957	15,772	18,668	18,993	19,631	20,300

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

³ “Contracts for difference” in the electricity sector are a legally binding agreement between the government and energy companies, whereby these are given a guaranteed “strike price”: when the market price for electricity is below this strike price, Member States pay the difference to energy operators, whereas these are meant to reimburse the difference to the government in the opposite case.

AT THE CROSSROADS?



Pile of pine logs in a sawmill for further processing into pellets.
By Juan Enrique del Barrio / Shutterstock

Due to a combination of bad commercial deals made in early 2022 and the demand reduction among its main European customers, Enviva is now on the verge of bankruptcy

WHAT IS TO COME?

In 2023, **according** to the Foreign Agricultural Service of the USDA, “EU demand is expected to further grow to 25.6 million tonnes, based on a further expansion of the residential markets supported by Member State (MS) incentives and the implementation of the third Renewable Energy Directive (REDIII).” The EU has indeed considerably increased its renewable energy targets for 2030, to 42.5 per cent in 2030, a near-doubling in seven years of current levels. This, without distinction made between biomass and cleaner sources of renewable energy, might have devastating consequences for forests.

Households will most likely drive the expected 2023 increase. One of the **most recent market data publicly available**, from the industry consultancy Hawkins Wright, forecasts a continued reduction in demand among industrial users (energy producers) in 2023, while on the residential front, pellet sales already rebounded in the first semester, due to the steep reduction in prices and a higher-than-expected heating demand during 2023’s winter months.

Phasing-out incentives for fossil fuels in the heating sector in several EU countries, and bans on fossil-fuel boilers in new buildings are, on their own, very welcome developments. Yet EU Member States’ implementation of RED III could drive additional growth in pellet sales in the residential sector if they do not

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seriously take into consideration the damages that wood burning causes to human health, climate and biodiversity. Member States should also provide sufficient public support to enable citizens, especially the poorest, to switch to non-combustion heating solutions such as heat pumps.

Most industry reports agree on one observation: the fastest-growth region for the global wood pellet market is now East Asia. Japan and South Korea, particularly, are importing increasing quantities of pellets from North America and Vietnam to feed the conversion of their coal-fired power plants to biomass. They are imitating the EU in exploiting the inequalities embedded in the current United Nations Framework Convention on Climate Change (UNFCCC) accounting system for carbon dioxide (CO₂) biomass emissions. This system subtracts the CO₂ emissions resulting from biomass combustion from the producing country’s land-use accounts, and counts them as ‘zero’ in the consuming country’s energy sector emissions accounts. Indeed, in 2020, the EU reported to the UNFCCC that its direct biomass emissions (including biofuels) amounted to 596 million tonnes of CO₂ – almost as much the entire German economy, but counted them as ‘zero’ in its energy sector emissions. Including them would have increased the EU’s **reported** CO₂ emissions in the energy sector by more than 22 per cent. •



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