Market evolution: Gas turbines (CN 8411) — 2015–2025

Introduction

This report examines the extra-EU trade of the European Union in turbojets, turbopropellers, gas turbines and their parts (CN 8411) from 2015 to 2025. The data cover the headline codes as well as their eight sub-headings. All figures refer to the trade with non-EU partners and are expressed in current euros, tonnes, or units as noted.

Overview of extra-EU trade in gas turbines

The decade under review was shaped by three interlocking dynamics: an extraordinary value boom driven almost entirely by soaring unit prices while physical volumes stagnated; a gradual geographic rebalancing of both export destinations and import sources, most notably toward Asia and emerging markets; and persistent, sometimes extreme, price volatility linked to the lumpy nature of aerospace and energy turbine orders. These forces combined to alter the EU's competitive landscape, its partner concentration and its trade balance profile.

1. A value-led boom: how rising unit prices decoupled trade from physical flows

1.1 The value of extra-EU exports and imports more than doubled in a decade while quantities remained virtually flat

Between 2015 and 2025, the nominal value of EU exports of gas turbines rose from €20.8 billion to €47.7 billion (+129 %), and imports climbed from €20.9 billion to €49.3 billion (+136 %). Over the same period, export volumes actually fell by 7 % (from 92 277 t to 85 663 t) and import volumes increased only 13 % (from 83 489 t to 94 210 t). Consequently, the entire value expansion stemmed from higher unit prices.

Flow	2015 (€ billion)	2025 (€ billion)	Change	Volume change
Exports	20.8	47.7	+129 %	–7 %
Imports	20.9	49.3	+136 %	+13 %
Balance	–0.08	–1.58	—	—

Trade flows – value, volume, price

1.2 Unit values escalated across all major product categories, reflecting the shift toward higher-tech, higher-value segments

The average export price of an EU-produced turbine or its parts more than doubled from €225 489 /t to €556 451 /t (+147 %), while the import price rose from €250 206 /t to €522 795 /t (+109 %). The increase was ubiquitous across the six-digit headings, but was most pronounced for turbojet parts (841191), large turbojets (841112) and turbopropellers over 1 100 kW (841122).

Product segment (CN)	Export unit price 2015 (€/t)	Export unit price 2025 (€/t)	Import unit price 2015 (€/t)	Import unit price 2025 (€/t)
Parts of turbojets/ propellers (841191)	746 805	1 294 451	646 383	1 570 249
Turbojets >25 kN (841112)	1 495 820	2 482 765	1 219 813	1 574 026
Gas turbine parts (841199)	81 036	144 367	50 776	67 401
Gas turbines >5 000 kW (841182)	74 487	107 873	183 857	231 439
Turbopropellers >1 100 kW (841122)	1 060 961	1 883 596	701 441	1 447 699

Product segment price & volume breakdown

1.3 The EU’s trade balance in gas turbines deteriorated, moving from near-balance to a structural deficit

The extra-EU trade balance, which was almost neutral in 2015 (–€82 million), widened into a persistent deficit from 2022 onward, reaching –€1.6 billion in 2025. This swing reflects two forces: imports of high-value completed engines and parts, particularly from the United States, kept outpacing exports in value terms, while the collapse of exports to certain volatile markets (e.g., Iraq, –27 %) temporarily removed some high-value destinations.

Trade balance evolution

2. Shifting trade geography: diversification of partners and the rise of Asia

2.1 The United States remained the Union’s largest trading partner, but its dominant share eroded as China and the Middle East gained ground

The United States was by far the main extra-EU trading partner for CN 8411 throughout the period. EU imports from the US rose from €13.4 billion to €29.3 billion (+119 %), and exports grew from €8.7 billion to €14.2 billion (+63 %). However, its relative weight in EU

imports declined (the HHI value for imports fell from 4 311 to 3 913), while on the export side the HHI dropped even more sharply from 1 976 to 1 349 (–32 %), indicating a more diversified customer base.

Partner	EU imports 2015 (€ billion)	EU imports 2025 (€ billion)	Change
United States	13.38	29.31	+119 %
China	0.84	2.22	+164 %
United Kingdom	2.35	6.43	+174 %
India	0.12	0.51	+333 %
Serbia	0.0016	0.20	+12 368 %

Partner	EU exports 2015 (€ billion)	EU exports 2025 (€ billion)	Change
United States	8.67	14.16	+63 %
China	1.51	6.22	+311 %
United Kingdom	1.72	6.28	+265 %
UAE	0.38	1.83	+377 %
Qatar	0.13	0.48	+278 %

Top partner shares and concentration

Partner concentration HHI

2.2 Imports from emerging suppliers such as Serbia and India surged, reshaping the supplier base

Aside from the established US-UK-China triad, smaller suppliers recorded spectacular growth. EU imports from India expanded from €118 million to €511 million (+333 %), and those from Serbia leapt from €1.6 million to €202 million. This diversification reduced the overall import concentration and brought new sourcing channels for parts and smaller turbines.

Import supplier dynamics

2.3 EU-internal specialisation remained extreme: France alone accounted for nearly half of the Union’s trade, while most other Member States showed negative specialisation

The revealed symmetric comparative advantage (RSCA) in 2025 underscores a highly skewed geography. France exhibited an RSCA of +0.73 (RCA 6.3) and handled 49 % of total EU extra-EU trade in this product. Hungary (+0.41) and Croatia (+0.24) were the only other Member States with a positive RSCA. In contrast, Lithuania (–0.99), Greece (–0.98) and Latvia (–0.97) were among the least specialised.

Member State	RSCA (2025)	Share of EU total trade in CN 8411
France	+0.73	49.2 %
Hungary	+0.41	6.5 %
Croatia	+0.24	0.7 %
Germany	–0.10	17.3 %
Italy	–0.09	6.7 %
Poland	–0.30	3.6 %

Specialisation map and indicators

Poland’s rapid rise is also noteworthy: its extra-EU imports of CN 8411 jumped 505 % and exports 346 % over the decade, reflecting both increased demand and a growing role as a maintenance and parts hub.

Member State trade flows

3. Volatile frontier: price shocks, product mix shifts and exposure risks

3.1 Export markets experienced dramatic price spikes and quantity collapses, often linked to single large-scale engine or turbine deliveries

Many extra-EU export destinations display extreme year-on-year variability. Egypt (coefficient of variation 1.41), Nigeria (1.11) and Algeria (0.95) top the volatility ranking, reflecting the irregular timing of large infrastructural or defence contracts. Price-shock detection confirms that entire annual trade flows can be distorted by a single deal: shipments to Egypt saw a 355 % price jump in 2023 while quantities slumped, and exports to Nigeria recorded a 297 % price surge in 2020 accompanied by an 83 % volume drop.

Export destination	CV (quantity)	Notable price shock event
Egypt	1.41	+355 % price shift in 2023 (>€2 M /t)
Nigeria	1.11	+297 % price shift in 2020
Algeria	0.95	—
Iraq	0.84	—
Iran	0.91	+70 % price shift in 2017

Export volatility charts

Price shock events

3.2 Import supply from the United States underwent a sharp price discontinuity in 2022, with unit values climbing by over 100 % while volumes fell by a third

The US-sourced imports experienced a structural break: after a baseline price of around €483 900 /t in 2020-21, the unit price jumped to €974 335 /t in 2022 (+101 %) and remained above €1 million/t thereafter. At the same time, the imported quantity contracted from an average of 34 255 t in 2020-21 to 22 062 t in 2022. This pattern points to a shift in the composition of imports toward more complex, higher-value assemblies (e.g., large turbojet cores) and away from simpler hardware, possibly reinforced by supply-chain disruptions and higher input costs.

US import price shock details – price tab

3.3 Despite the recent trade deficit, the EU's underlying net export position remained strong, but a high and volatile export propensity exposes the sector to external demand shocks

The EU's net import reliance ratio (extra-EU imports minus exports, divided by apparent consumption) stayed deeply negative throughout the period, improving slightly from –63 % in 2015 to –51 % in 2025. This means the Union is a net exporter of gas turbines and their parts to the rest of the world. However, the export propensity indicator (exports/production) consistently exceeded 100 % (e.g., 138 % in 2015, 133 % in 2024), underscoring the role of re-exports and the fact that production statistics do not capture the full value added in traded goods. The combination of a large external deficit in high-value imports, a still-positive net export position, and an above-100 % export propensity signals a region that acts as a processing, assembly and re-export hub but remains vulnerable to upstream supply disruptions and to the lumpy nature of foreign orders.

Indicator	2015	2025	Change
Net import reliance	–63.0 %	–51.1 %	+18.9 %
Export propensity	137.7 %	133.1 %	–3.4 %
Trade intensity	119.0 %	116.6 %	–2.0 %

Net import reliance

Export propensity

Conclusion

The extra-EU market for gas turbines (CN 8411) underwent a profound transformation between 2015 and 2025. The headline trade figures show a doubling of value flows, but

this growth was almost entirely price-driven, while physical volumes edged sideways or declined. The average unit price of an EU-exported turbine more than doubled, mirroring a shift toward more sophisticated, expensive equipment and a general inflation in high-tech capital goods. Geographically, the US maintained its primacy, yet the landscape diversified: China, the UK after Brexit, the Gulf States and emerging suppliers such as Serbia and India captured larger shares, and export concentration fell markedly. Within the EU, specialisation remained extreme, with France utterly dominant and only Hungary and Croatia showing a positive comparative advantage. The trade is also spectacularly volatile—individual large contracts can swing prices several hundred percent and disrupt annual trends, especially in destinations like Egypt, Nigeria and Canada. At the same time, an import price shock from the US in 2022 revealed how quickly upstream cost structures can change. Even though the EU remains a net exporter in this sector, the widening deficit and the reliance on a few key product segments and partners underscore the need for monitoring both supply-side concentration and the resilience of high-value export contracts.

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If you need advice on European trade policy, or representation for your interests in Brussels, feel free to contact me at support@tradedashboard.eu. You can find my CV at this address.