Market evolution: Generating sets (CN 8502) — 2015–2025

Introduction

The product group CN 8502 — electric generating sets and rotary converters — covers a broad range of equipment including diesel and spark-ignition gensets, wind-powered generating sets and rotary converters. Over the decade 2015–2025 the extra-EU trade in these goods underwent a marked transformation: total export value expanded while physical volumes contracted, import values more than doubled despite a steep volume drop, and the EU's trade surplus remained firmly positive. The overall trade picture reveals a market reshaped by surging unit prices, geopolitical shifts and changing import dependencies.

Surging unit prices drive value growth while volumes shrink

Export value rose by a quarter even though shipped units fell by a fifth

Between 2015 and 2025 extra-EU exports of generating sets climbed from €6 069 million to €7 563 million, a 24.6 % increase. Over the same period the number of exported items decreased from 670 634 to 536 073 (–20.1 %), with a temporary trough of 390 414 units in 2022. The divergence between value and volume translates into a 55.9 % rise in the average export unit price, from approximately €9 050 to €14 108.

Import value more than doubled despite a collapse in quantity

Extra-EU imports jumped from €724 million to €1 791 million (+147.6 %), while the imported quantity plummeted from 605 580 units to 221 909 (–63.4 %). The import unit price consequently soared by 575.6 %, from €1 195 to €8 072. This suggests a fundamental shift in the composition of imports away from bulk, low-value items toward higher-value equipment.

The EU's trade surplus widened moderately

Because export growth in value terms outpaced that of imports, the trade balance improved from a surplus of €5 346 million to €5 772 million (+8.0 %). The EU therefore remained a strong net exporter of generating sets throughout the decade, as highlighted by the net import reliance indicator, which moved from –42 % in 2015 to –38 % in 2024.

Product-level data confirm a premiumisation trend

Looking at the main headings inside CN 8502, the wind-powered segment (8502 31) illustrates the trend well. Export value of wind-powered sets grew from €2 360 million to €3 078 million while the shipped quantity fell from 404 800 to 325 341 units, lifting the average price from €5 830 to €9 461. On the import side, wind-powered sets went from €91 million to €708 million with a quantity reduction from 493 169 to 110 797, implying a unit-price jump from €186 to €6 387. Similar patterns appear in diesel-powered large sets (8502 13) and spark-ignition sets (8502 20). The product-segment breakdown shows that virtually all sub-headings experienced rising unit values.

Geopolitical forces drastically reshaped export destinations

Ukraine and Taiwan replaced Russia as key markets

Russia was the EU's fourth-largest export market in 2015, absorbing €336 million worth of generating sets. Following the imposition of sanctions, exports virtually ceased; by 2025 the value was negligible (just €9 940 in 2024, and null in the 2025 data). In parallel, exports to Ukraine exploded from €9 million to €789 million (+8 652 %). Taiwan also saw explosive growth, from €12 million to €390 million (+3 094 %). These three partners alone redrew the export map.

The United States and the United Kingdom remained the top outlets

Exports to the United States gained 82.6 %, reaching €1 446 million in 2025, making it the largest single destination. The United Kingdom followed closely with exports of €1 380 million (+74.1 %). Together, the US and the UK accounted for more than one-third of all extra-EU exports of generating sets in 2025.

Traditional partners such as Canada and Spain lost ground

Exports to Canada shrank by 77.6 % from €280 million to €62 million. Among EU Member States, Spain's extra-EU exports collapsed from €901 million to €210 million (–76.7 %), while Italy's declined by 17.4 %. Meanwhile, Germany reinforced its position as the dominant EU exporter, increasing its deliveries from €1 709 million to €3 138 million (+83.6 %). Detailed partner and reporter data are available on the top-partners and top-reporters dashboards.

Export market concentration rose but stayed moderate

The Herfindahl-Hirschman Index for export destinations (by value) increased from 548 to 1 036 (+89.3 %), indicating that exports became somewhat less diversified. This is partly explained by the strong performance of a few large markets (US, UK, Ukraine, Taiwan) and the disappearance of Russia and Canada as significant destinations. The concentration indicator confirms a gradual but consistent upward trend throughout the period.

Import sourcing concentrated rapidly, led by China's ascent

China became the dominant import supplier

Imports from China surged from €204 million in 2015 to €824 million in 2025 (+303.4 %). China's share of extra-EU imports reached 46 % in 2025, up from 28 % at the start of the period. The import HHI consequently rose from 2 259 to 2 949 (+30.5 %), signifying a substantially more concentrated supplier base.

India and Türkiye joined China as major sources

India's deliveries to the EU shot up from €20 million to €200 million (+895.0 %), and Türkiye's increased from €30 million to €95 million (+218.7 %). Together with China, these three countries supplied more than 60 % of EU imports of generating sets in 2025. This contrasts sharply with the situation in 2015, when the US, UK, China and India each held comparable shares.

Import volumes from several suppliers were extremely volatile

The coefficient of variation of annual import quantities shows high instability for several partners. The US recorded a CV of 1.55, Taiwan 1.55, Mexico 2.25 and Thailand 1.28, largely reflecting sporadic large-batch shipments. Even China's quantity flows, while steadier, exhibited a CV of 0.86. The volatility dashboard illustrates these patterns.

Price shocks struck both import and export flows in 2022

The automated shock detector identified a severe price shock in EU imports from the United States in 2022, where the unit price skyrocketed by 5 657 % while the volume collapsed to 2 % of its previous level. Chinese imports also recorded a notable price increase (+118 %) in the same year. On the export side, several destinations experienced price spikes, including Türkiye (+152 %) and Kazakhstan (+330 %), linked to a mix of supply constraints and shifts in product mix. The shock events table documents these episodes in detail.

EU production expanded but the bloc remained an export-oriented manufacturer

EU production of generating sets grew from 231 492 units in 2015 to a peak of 682 187 in 2021, before settling at 480 397 in 2024 (the latest available year). Production value rose from €12.0 billion to €14.9 billion over the same interval. Despite the increasing import penetration in value terms, the EU's export propensity stayed high at 37 % in 2024, while the net-import-reliance ratio remained strongly negative, confirming that the EU is structurally a net exporter in this sector. The production volume data and the specialisation map show that Denmark, Austria, Germany and Spain are the most specialised EU producers in this field.

Conclusion

The EU's extra-EU trade in generating sets over 2015–2025 was marked by a sharp value-volume divergence: increasing unit prices more than compensated for falling quantities, pushing both export and import values significantly higher. The export landscape was reshaped by geopolitical developments, with Ukraine and Taiwan emerging as major destinations while Russia vanished as a market. On the import side, sourcing became increasingly concentrated, led by China, India and Türkiye, and punctuated by severe price shocks in 2022. Throughout this period the EU maintained a comfortable trade surplus and a solid domestic production base, but the rising reliance on a few suppliers and the persistent price volatility warrant continued monitoring.

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