



Electrical industry: A sluggish “future-sector”



Like the broader industry, the electrical sector is suffering from a weak economy. A lack of competitiveness is becoming increasingly evident in several divisions. “Future-divisions” present opportunities for the sector, but will it be able to seize them? Investment and innovation will be the key. Sector output is expected to decline by 1% this year.

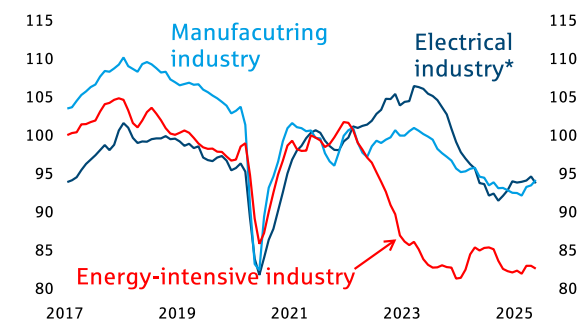


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The electrical industry¹ recently generated 2.7% of Germany's gross value added, making it the third-largest industrial sector after the automotive industry and machinery. This **future-orientated** sector, which employs around 700.000 people, is expected to play a key role by supplying essential products for the transformation toward new technologies. Currently, however, the situation is subdued: from January to May, the sector produced around 1.5 % less (seasonally adjusted) than during the same period last year. Still, this low production is not consistently observed throughout the sector. Within the two roughly equal-sized divisions – electronics (including data processing equipment and electronic and optical products) on the one hand, and electrical equipment on the other – the latter has recently performed significantly worse.

Economic weakness hits electrical industry

Net production, 2021 = 100, calendar/seasonally adjusted, smoothed

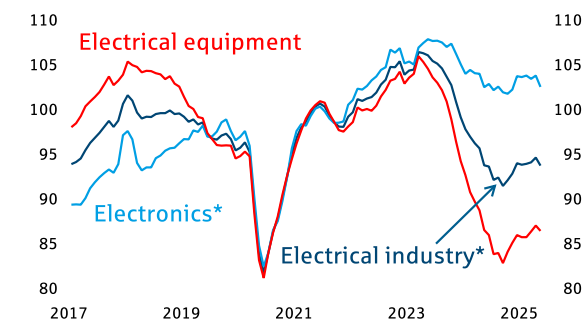


*NACE 26+27

Sources: Macrobond, Helaba Research & Advisory

Low-level production of electrical equipment

Net production, 2021 = 100, calendar/seasonally adjusted, smoothed



*Manufacture of computer, electronic and optical products, **NACE 26+27

Sources: Macrobond, Helaba Research & Advisory

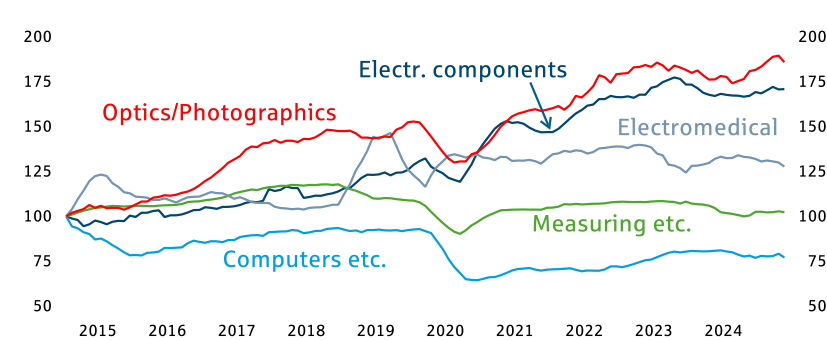
As in much of the manufacturing sector, production in the electrical industry slumped in mid-2023. Being a non-energy-intensive sector, its decline came later than in energy-intensive industries, where rising energy prices had a direct impact. In case of the electrical industry, the impact was primarily indirect, driven by a broader lack of aggregate demand in the overall economy. In combination with **weak global industrial demand**, the business cycle thus explains a large part of the current situation. Moreover, rising unit labor costs are weighing on this **labor-intensive sector**: with personnel expenses accounting for 25 % of total costs, they are about 7 percentage points higher than in manufacturing overall. Nevertheless, some divisions are proving to be more resilient than others.

¹ Unless otherwise stated, the official classification is applied here and in the following. This includes NACE section 26 ‘Manufacture of data processing equipment, electronic and optical products’ and 27 ‘Manufacture of electrical equipment’. This classification is not always clear-cut, and in some cases the alternative classification used by the German Electro and Digital Industry Association (ZVEI) is applied. For details, see [German Federal Statistical Office \(2012\)](#).

Complex technologies tend to perform better

Mixed picture in the electronics division

Net production*, Jan. 2015 = 100, calendar and seasonally adjusted, smoothed



**Selected divisions of NACE 26 "Manufacture of computer, electronic and optical products"
Sources: Macrobond, Helaba Research & Advisory

Over the past ten years, the electronics division has seen notable growth in the production of **optics and photography** equipment. However, despite this expansion, their share of sector turnover remains relatively small at just 5.2 %. The larger division of **electronic components** - accounting for 13.5 % of turnover – have also grown strongly, although their output declined by 7% over the past two years. **Electromedical equipment** saw continued growth until the crisis year of

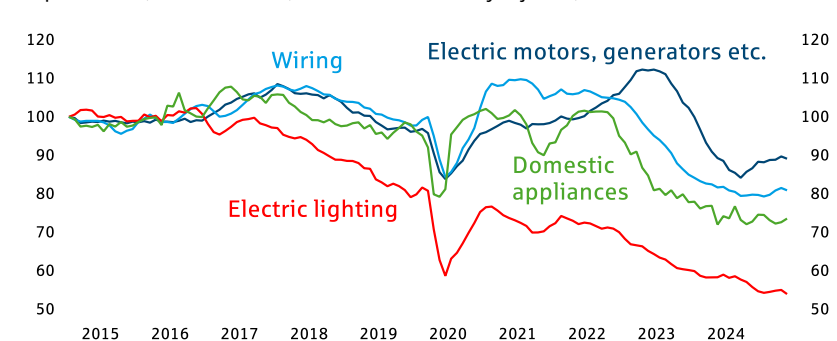
2023, but has been on a downward trend since. The ageing population in many industrial nations presents potential opportunities in the years ahead. Meanwhile, the **measurement, control, and navigation technology** division (share of turnover: 13.5 %) has remained stagnated over the past decade. Production volumes of **IT and peripheral devices**, on the other hand, have declined significantly.

Within the sector of **electrical equipment**, it is difficult to identify divisions that have experienced strong growth in recent years. The production of **lights and lamps** is largely in free fall, with its share of total industry turnover falling from 10 % (2010) to 5.6 % recently. A similar trend can be observed for **household appliances**. This development began even before the pandemic and is largely due to the fact that these are mainly 'simple' goods with low labor productivity or innovation. Countries with lower wage levels can produce them at comparable quality and thus benefit from a competitive advantage. This trend has at least come to a halt recently in the production of cables and installation materials. Meanwhile, **the important segment of electric motors, generators, and electricity distribution equipment** (17.5 % share of sales) slumped in 2023 but has shown signs of recovery.

With production growing 167 % over the last decade, **batteries and accumulators** are the sectors top performers. This includes not only traditional products such as button cells and batteries for combustion vehicles, but also **future-oriented products** such as solar batteries and devices for storing renewable

"Assembly line goods" no longer attractive in Germany

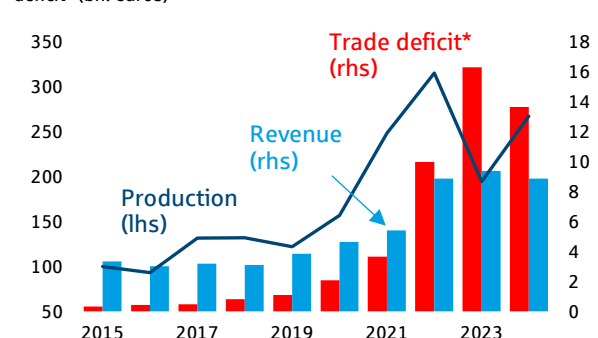
Net production*, Jan. 2015 = 100, calendar and seasonally adjusted, smoothed



*Selected divisions of WZ 27 "Manufacture of electrical equipment"
Sources: Macrobond, Helaba Research & Advisory

Batteries in demand – but increasingly abroad

Batteries & Accumulators: Production (2015 = 100), Revenue & Trade deficit* (bn. euros)



*Difference between imports and exports with the rest of the world
Sources: Macrobond, Own calculations, Helaba Research & Advisory

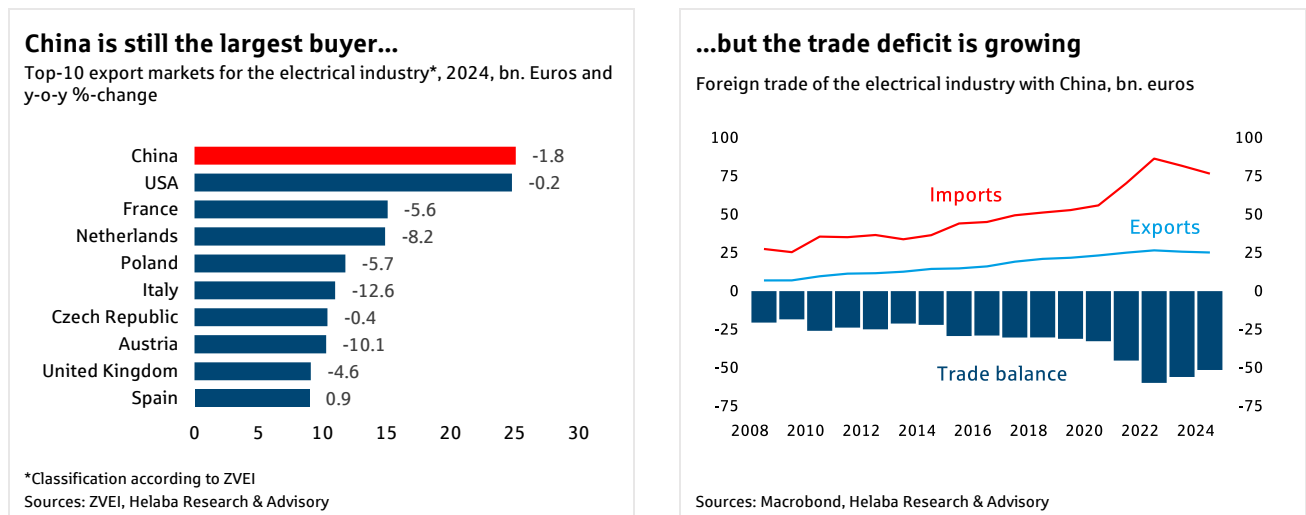
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energy. However, the segments relatively low sales share of 3.6 % puts this strong production growth into perspective. In recent years, **growing dependence on foreign suppliers** has become evident: the trade deficit with the rest of the world increased from 1.1 billion euros in 2019 to 13.7 billion euros in 2024. While revenues did rise as well, they remained significantly below the trade deficit at 8.9 billion euros.

China is shaping global market dynamics

China **currently dominates the global electrical market**. According to the German Electro and Digital Industry Association (ZVEI), China accounted for 38 % of global market share in 2023 – far ahead of the USA (15 %) and the rest of Asia (12 %). Germany's share, by contrast, was only 3 %.

The global market is of major importance to the German electrical industry, with a **foreign sales ratio of just under 60 %**. The largest export destinations are China and the USA, each with sales of around 25 billion euros and a combined export share of nearly 20 %. European countries follow in third place. While exports to all top buyer countries – except for Spain - declined by a total of 3.5 % in 2024 (see figure below), export volumes have been rising again since January by 6.3 % year-on-year. Notably, some European export countries recorded strong growth, in some cases even reaching double-digit growth rates.



However, export trends to China reveal a similar picture as in other sectors – particularly in **machinery** and the **automotive industry**²: the rise of the People's Republic into a competitor. After more than a decade of continuous growth, exports to the People's Republic declined in both 2023 and 2024. At the same time, imports rose significantly, widening the already existing trade deficit. In 2024, notable net exports to China were limited to just two divisions: measurement, control and navigation technology, and electric motors, generators, and electricity distribution equipment. This development is likely to persist in the coming years. In addition to China, the United States also presents a challenge to the sector's foreign business due to the **15 % tariffs imposed on German exports**. As a result, the domestic market and Europe are expected to offer better prospects for higher sales in the future.

Unit labour costs, profitability and competitiveness

There is a **marked difference in long-term productivity trends** between the two major divisions (see figure on p. 4). Over the past 20 years, labor productivity in the electronics division has doubled, whereas in the electrical equipment sector it has largely remained at its original level, apart from some temporary fluctuations. This divergence is also reflected in unit labor costs, i.e. the ratio of labor costs to labor productivity. In the electronics sector unit labor costs declined sharply and, despite rising in recent years, remain 17% below their 2005 level. However,

² See also our focuses „[Machinery: Are German exports at risk?](#)“ from May 23, 2025 and „[German Automotive: Downfall or structural change?](#)“ from June 10, 2025.

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domestic producer prices have fallen even more strongly, which is weighing on the division's profitability. Since other countries – above all China – are also making productivity gains, the development of unit labor costs does not currently provide a significant competitive advantage.

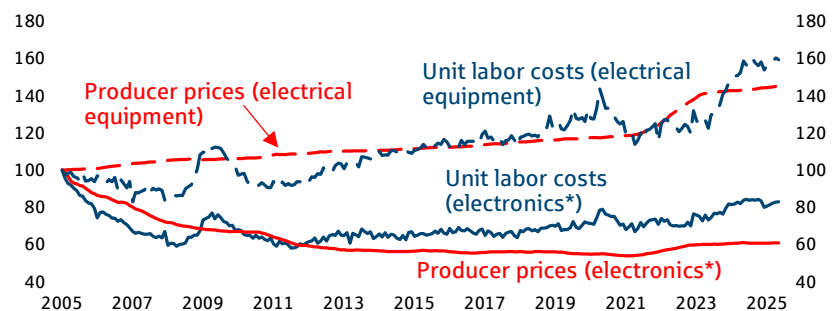
Unit labor costs for electrical equipment rose steadily over the past decade and saw a further sharp increase starting in 2023 (see figure). Producer prices have failed to keep up with this trend, putting pressure on domestic profitability. The higher level of unit labor costs is also **weighing on competitiveness** – particularly in comparison to countries with lower wage levels.

Digitalisation and Green Transition offer opportunities for the sector

Digitalization is expected to generate demand across almost all divisions of the electrical industry. At the same time, the **green transformation** is likely to give a particular boost to individual “**future-divisions**”. These include (1) the manufacture of electric motors, generators, and electricity distribution equipment: solar power systems, which are essential for ensuring the sustainability of the energy sector. Turbine generators are required for wind power plants, electric motors for rail vehicles, transformers, and voltage converters for energy supply. (2) In the case of batteries and accumulators, solar batteries, and products for storing electricity from renewable energies are expected to come increasingly into focus. (3) Electronic components include products for future key technologies, such as solar cells and modules, chips, semiconductors and wafers.

Higher unit labor cost growth for electrical equipment

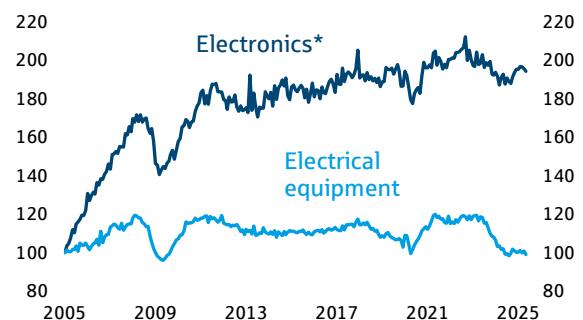
Unit labor costs per hour worked, producer prices, Jan. 2005 = 100, seasonally adjusted



*NACE 26: "Manufacture of computer, electronic and optical products"
Sources: Feri, Helaba Research & Advisory

Productivity varies across divisions

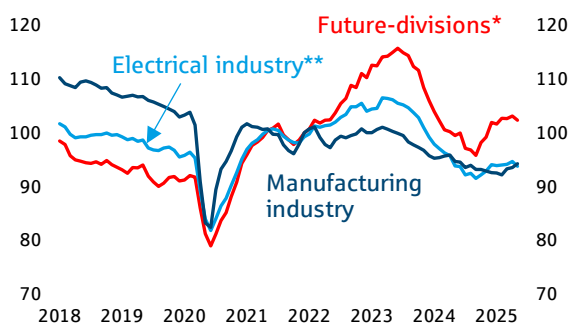
Labor productivity per hour, Jan. 2005 = 100, seasonally adjusted



*NACE 26: "Manufacture of computer, electronic and optical products"
Sources: Feri, Helaba Research & Advisory

"Future-divisions" perform above average

Net production, 2021 = 100, calendar/seasonally adjusted, smoothed



*NACE 26.1, NACE 27.1, NACE 27.2, weighted by revenue shares, **NACE 26+27
Sources: Macrobond, Helaba Research & Advisory

In terms of growth, these three future-oriented divisions are **already outperforming both the overall industry and the manufacturing sector**. While production trends were similar before the pandemic, these divisions were able to expand much more strongly afterwards and recovered more quickly from the 2023 downturn. As a result, their seasonally adjusted growth since 2021 is around 9 % higher than that of the electrical industry and the manufacturing sector respectively.

While part of this division's production takes place in Germany, a substantial share of future technology is still imported. **Expanding domestic production** would strengthen Germany's position in its future

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transformations and reduce its dependence on foreign suppliers. In this context, the electrical industry holds a **dual advantage**: it's relatively low emissions and energy intensity make it less vulnerable to the challenges of the green transformation – such as rising CO2 prices. At the same time, the success of the green transformation depends on the sector itself, due to the reasons outlined above.

While 'simple' technologies – where high unit labor costs represent a particular disadvantage – are likely to face increasing challenges in the future, the outlook for future-oriented divisions is more promising. However, a **long-term investment strategy** is essential to expand production and achieve productivity gains through research and development (R&D), and innovation. The industry is already demonstrating the necessary: In 2023, the electrical industry accounted for 14.2 % of total German R&D spending, **second only to the automotive industry**.

Given the subdued course so far this year, the persistently sluggish industrial activity domestically and abroad, and ongoing tariff issues, production in the German electrical industry is **expected to decline by around 1 % in 2025**. However, the outlook for 2026 is more optimistic – especially if the fiscal packages take effect and domestic aggregate demand picks up as a result.



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