



GERMANY

1. INTRODUCTION

Germany continues to rank among the top 10 Trilemma performers (rank 7) with a balance grade of AAA. Despite a dramatic surge in global energy prices since the second half of 2021, the German population has access to affordable energy. With a share of 68%, Germany's energy supply remains highly dependent on energy imports. Primary energy consumption had reached a 50-year low in 2024, 30% less than in 1990. Renewable energies hold a share of 20% in the primary energy consumption and of 55% in Germany's electricity consumption. Renewable energies covered 58% of the country's electricity generation mix in 2024. The remaining shares in the electricity generation mix in 2024 were held by coal (22%), natural gas (16%) and other energies (4%). Greenhouse gas emissions fell by 3% to 656 million tonnes of CO₂-eq in 2024, 36 million tonnes below the limit set for 2024 in Germany's Climate Protection Act. Compared to 1990 the reduction is 48%.

2. TRENDS AND OUTLOOKS

The share of imports in covering Germany's primary energy demand was 98% for oil, 95% for natural gas and 100% for hard coal in 2024. Renewable energies and lignite are the only domestic energy sources that Germany has at its disposal to a greater extent. As a direct consequence of the Russian invasion of Ukraine in February 2022, the Federal Government took actions to reduce dependence on fossil fuels – especially from Russia. Until 2021, Russia was Germany's most important supplier of natural gas, crude oil and hard coal. Russia has since been replaced in the role by Norway and the USA. In 2024, Norway was Germany's most important supplier of natural gas. When it comes to crude oil, Norway and the USA took the first two places. Australia, USA, South Africa and Colombia held the leading positions as the suppliers of hard coal.

Whereas there has been no visible impact on the physical supply and delivery of oil, gas and electricity, German consumers faced dramatic power tariff as well as gas price increases in 2022 and 2023. The Federal Government had implemented a relief package which included the introduction of price caps for piped natural gas, electricity and heat. The package, which expired by the end of 2023, was implemented with federal funds to compensate the considerable burdens on households and businesses. Furthermore, the EEG levy, put as a surcharge on electricity tariffs, has been completely replaced since mid-2022 by financing the expansion of renewable energies from the federal budget.

To secure supplies by diversifying gas suppliers, LNG terminals (FSRU) were built on the German coast. Since the end of 2022, LNG has been able to be landed directly on German coasts and, after being transformed, fed into the German long-distance pipeline network. In the medium to long term, these terminals could also be used to import hydrogen. With an update to the National Hydrogen Strategy from July 2023, the German federal government has further increased the level of ambition for the hydrogen ramp-up. By 2030, 10 GW of electrolysis capacity is to be built in order to cover 30 to 50% of Germany's hydrogen needs. In July 2024, the Federal Cabinet decided on an import strategy for hydrogen and hydrogen derivatives. The federal government assumes a national demand for hydrogen and its derivatives of 95 to 130 TWh by 2030. Of this, 45 to 90 TWh will probably have to be imported from abroad. The aim is to achieve a reliable supply of green hydrogen and its derivatives.

Germany aims to achieve climate neutrality by 2045. A key component in meeting this target is the expansion of renewable energies. By 2030, the capacity of onshore wind turbines is to be increased to 115 GW (as of mid-2024: 62 GW), offshore wind to 30 GW (as of mid-2024: 9 GW) and PV to 215 GW (as of mid-2024: 90 GW). Other goals aimed at meeting the federal government's greenhouse gas emissions reduction target of 65% by 2030 compared to 1990 include the phasing out of coal-fired power plants, ideally by 2030, a 49% share of renewable energy in the heating sector (2023: 19%) and an increase in the number of registered electric vehicles to 15 million by 2030 (as of mid-2024: 2.5 million). As a consequence, an increase in electricity consumption is expected.

In order to maintain the security of supply in a system that is based on the significant expansion of renewable energies, the government plans to tender 12.5 GW of new controllable power plants based on natural gas as a first step, which will be designed for the later use of hydrogen. In addition, the federal government wants to introduce a technology-neutral capacity mechanism that will be operational until 2028. The federal government has decided on a carbon management strategy as a further building block for a climate-neutral and competitive industry. The capture and use or storage of CO₂ emissions that are difficult or impossible to avoid should be used primarily for industry and waste management. By changing existing legal regulations, the intention is to enable both onshore storage and to create the conditions for offshore storage in the future. The adopted carbon management strategy is primarily about naming the necessary areas of application for CCU and CCS and presenting the legal, ecological and economic framework conditions for a successful ramp-up in Germany. The focus will be on creating the necessary infrastructure.

