



DOES RENEWABLES PIONEER GERMANY RISK RUNNING OUT OF POWER?

Misconceptions about the German energy transition explained

Energy Security

Germany has been a pioneer in climate protection and perceived as a global role model for a successful energy transition for a long time. The country set itself ambitious targets to further accelerate the energy transition.

On average, renewable energy covered around 50% of Germany's gross electricity consumption during 2020. At certain hours, renewables generated more than 100% of consumption. There were only 12 days in 2020 when renewables covered less than 25% of total demand.

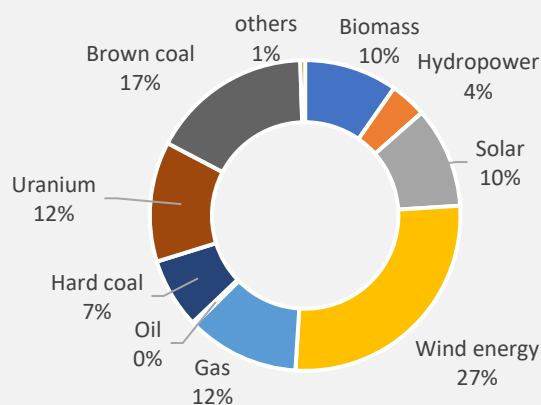


Figure1: Net public electricity generation in Germany in 2020

The German energy transition repeatedly faces some misconception about the resilience of the German energy system which will be addressed with this paper.

Misconception: "Due to high shares of renewables, Germany faces more blackouts."

The facts: Hardly any other country in the world has as few supply failures as Germany. In 2019, the annual average outage duration per customer reached another record low, of around 12 minutes. Regional fluctuations in renewables are being offset by European grid integration, demand-side response, the flexibilization of fossil power plants and other measures. Studies with predictions for future periods show that security of supply will be guaranteed in Germany – even in rare cases when solar and wind energy generation are low at the same time.

Misconception: "Due to the energy transition, many people in Germany cannot pay their electricity bills anymore."

The facts: Energy poverty barely exists in Germany. In 2018, less than 3% of the population was in arrears with their electricity bills, well below the EU average of 6.6%. The amount of arrears has not increased in Germany since 2005.

Electricity Prices

In the early years of the worldwide expansion of renewables and the beginning of Germany's energy transition (2000 and the following years) high investments in renewables were required and high feed-in tariffs were guaranteed for 20 years to refinance these investments. The costs of renewable energies and grid expansion in Germany are covered by consumers via surcharges which are part of the electricity price. However, nowadays prices for renewable energy generation are falling rapidly due to a decline in component costs, reduction of margins through increased competition, and beneficial financing conditions. Therefore, the future expansion of renewables will only have a very limited impact on electricity prices.

Misconception: "Electricity bills increased significantly due to the energy transition."

The facts: Since 2014 both the "renewable energy surcharge" per kWh and electricity prices have been stable in Germany. Even though German households pay one of the highest electricity prices per kWh within the group of industrialised countries, their actual electricity bills are not significantly higher than in countries with low electricity prices. This is mainly due to the successful implementation of efficiency measures and energy saving behaviour.

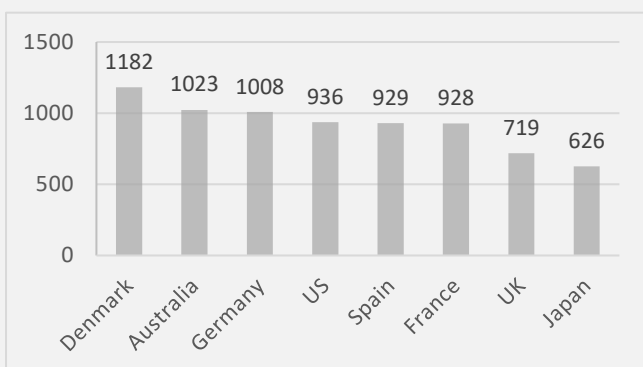


Figure2: Annual electricity expenditure (€/a) per household/small business

Energy Trading

Misconception: "Germany claims to be green but actually imports a lot of coal power from Poland and a lot of nuclear energy from France."

The facts: It is correct that, at around 15 TWh, France was the largest importer of electricity to Germany in 2019 and that nuclear energy accounts for approximately 70% of the electricity mix of France. It is also correct that Poland still has high shares of coal power in the national electricity mix, but it is not correct that the country exports large amounts of power to Germany. In 2019 the figure was less than 1 TWh. In fact, Germany was a net exporter of electricity in 2019 with total exports of 61 TWh, which made Germany one of the largest electricity exporters in Europe.

Public Acceptance

Misconception: "The Germans oppose the energy transition."

The facts: According to the [2018 IASS Social Sustainability Barometer](#), more than 90% of Germans support the energy transition. Nevertheless, some projects – e.g. for on-shore wind turbines and grid expansion face resistance at local level. Local acceptance can be directly increased by financial participation of local citizens and communities. It is helpful to provide key information and ensure maximum transparency from the very beginning with all relevant stakeholders, from companies to civil society.

Economy and Employment

Misconception: “The energy transition has made the German economy less competitive.”

The facts: Energy-intensive industries pay reduced surcharges and therefore a significantly lower electricity price. In addition, large clients purchase power directly at the electricity exchange and have continuously benefited from lower wholesale prices due to increasing renewable energies. This is a significant contribution to ensuring the competitiveness of German industry.

Misconception: “The energy transition causes net job losses.”

The facts: In 2018, the renewable energy sector employed around 300,000 people in Germany. These are well-paid jobs in a future-oriented industry. Although around 20,000 jobs will inevitably disappear due to the decommissioning of lignite power stations and with another 40,000 jobs being indirectly affected, the overall net employment effects of the energy transition are positive. This positive employment trend is not limited to Germany: it is estimated that in 2018 worldwide 11 million people were employed in the renewable energy sector. Research by the German Institute for Economic Research (DIW) estimates that by 2030, the energy transition will have created an additional 360,000 jobs in the country.

Background: Reduction of CO₂ emission

The German government estimates that around 187 million tonnes of CO₂ emissions in 2018 were saved by renewables alone. Electricity generation from renewables accounted for the largest contribution to emission reduction. In 2019, Germany's emissions fell by 8% to 620 Mt of CO₂, a level not seen since the 1950s, when the German economy was around ten times smaller.

To further reduce CO₂ emissions, the coal phase-out was anchored in law in 2020 and will be completed by 2038 at

the latest. Additionally, in 2019, the government adopted a comprehensive climate change mitigation program that introduces a CO₂ price for heating and transport starting in 2021.

Germany is going to phase-out nuclear energy entirely by the end of 2022. Although this lowers the mitigation potential of CO₂ emissions, it reduces the risk of a nuclear accident and the costs of safe disposal and storage of radioactive waste. Official calculations show that the cost for decommissioning nuclear power plants in Germany, excluding the cost for disposal of nuclear fuel elements, stands at around €1.1 bn per GW so far.

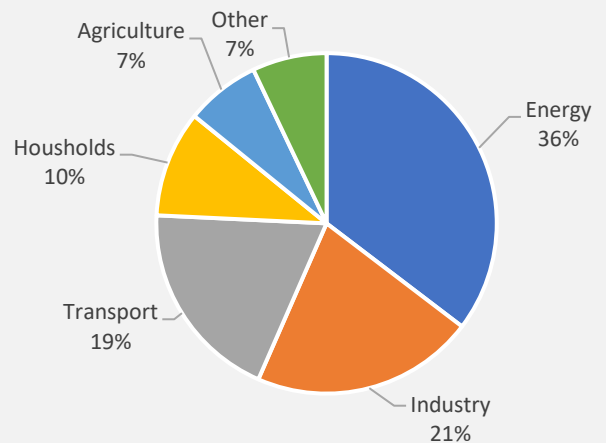


Figure3: GHG emissions contributors in Germany in 2017

Sources

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Imprint

Publisher:

Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH

registered offices: Bonn and Eschborn, Germany

Contact:

**Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH**

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Published in March 2021

GIZ is responsible for the content of this document.

On behalf of the Federal Ministry for Economic Affairs and
Energy (BMWi)