

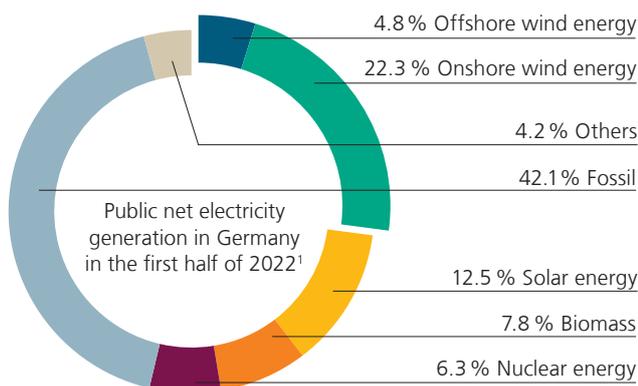
Facts and figures – Germany

# Wind energy



## Wind energy's share of energy production

Wind energy produced approx. 69 TWh of electricity in the first half of 2022. As a result, wind energy made the largest contribution to the German energy mix, followed by lignite, solar energy, hard coal, gas, and biomass. The share of onshore and offshore wind energy increased by around 18 % compared with the first half of the previous year. In total, renewable energies produced approx. 137 TWh in the first half of 2022 and thus account for approximately 50 % of energy production.<sup>1</sup>



## Status wind energy in the first half of 2022

Total installed output:

**57 GW** onshore and **8 GW** offshore<sup>2</sup>

## Further expansion of wind energy in Germany

German Federal Government's goals:

Onshore wind energy

**2 % of the country's territory by 2032**<sup>3</sup>

Offshore wind energy

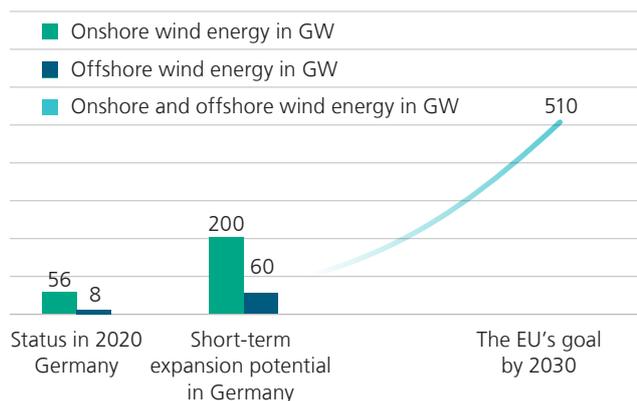
**At least 70 GW by 2045**<sup>4</sup>

## Climate neutrality – Germany's goals

Germany hopes to achieve climate neutrality by 2045 at the latest: CO<sub>2</sub> emissions should be reduced by 65 % by 2030 and 100 % by 2045. With this in mind, the new German Federal Government has set itself the goal of increasing the share of renewable energies in gross electricity consumption to 80 % by 2030. The consequences of this and the EU goals for the expansion of the wind energy sector in Germany: an **annual increase of at least 8–9 GW** of wind energy is required until 2030 to produce sufficient CO<sub>2</sub>-free electricity for Germany.<sup>5</sup>

## The European Commission's goal by 2050

The EU has also set itself the goal of becoming climate neutral by 2050. This will require massive expansion of the wind and photovoltaic energy sectors: 510 GW of wind by 2030 and then **1,000 GW onshore and 300 GW offshore**<sup>6</sup> by 2050.



## Wind energy creates new jobs

The inter-trade organizations BWE and VDMA estimate that there were **100,000 people employed in the wind energy sector in 2020**. The future local value added of significantly more than €10 billion per year will increase the employment rate in the wind energy sector considerably further still. In the next five years, further expansion could create 3.3 million new jobs around the world.<sup>7</sup>

## Recycling quota



Current status of disposal of wind turbines:

**85%** of the materials used are recyclable.<sup>8</sup>

The first wind farm with recyclable rotor blades is set to commence operations in 2022.<sup>9</sup>

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Fraunhofer Institute for Wind Energy Systems IWES  
Am Seedeich 45, 27572 Bremerhaven, Germany  
info@iwes.fraunhofer.de, www.iwes.fraunhofer.de

## Innovative technology

Research projects help to make next-generation turbines even more powerful and reliable, allowing them to achieve a higher number of full-load hours, even in inland areas. Alongside the location, the turbine technology is decisive for the level of the energy production costs. System elements of the rotor blades, tower, gearbox, generator, and the power electronics, but also all other mechanical and electrical components, can make considerable contributions to reducing costs and increasing reliability.<sup>10</sup>

## Shaping the energy of the future.



Key GW = gigawatt, TWh = terawatt hour

Sources 1. Energy-Charts, 2. German Federal Ministry for Economic Affairs and Climate Action (BMWK), 3. German Onshore Wind Energy Act (WLaG), 4. German Offshore Wind Energy Act (WindSeeG) 2022, 5. German Federal Government, Fraunhofer ISE, 6. WindEurope (on the basis of the European Commission's "Stepping up Europe's 2030 climate ambition"), 7. German Wind Energy Association (BWE), 8. ETIPWind, 9. Siemens Gamesa Renewable Energy, 10. Strom-Forschung. Graphics Page 1: strom-report.de, page 2: Fraunhofer IWES, Photos Page 1: © chung-king – stock.adobe.com, page 2: © iStock\_Charlie Chesvick, 09/2022