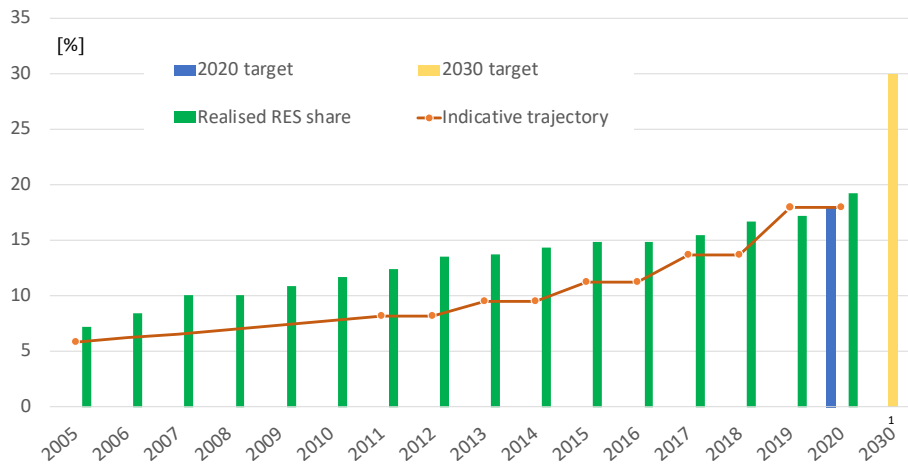


Germany

Renewable energy status

Share of energy from renewable sources in total gross final energy consumption



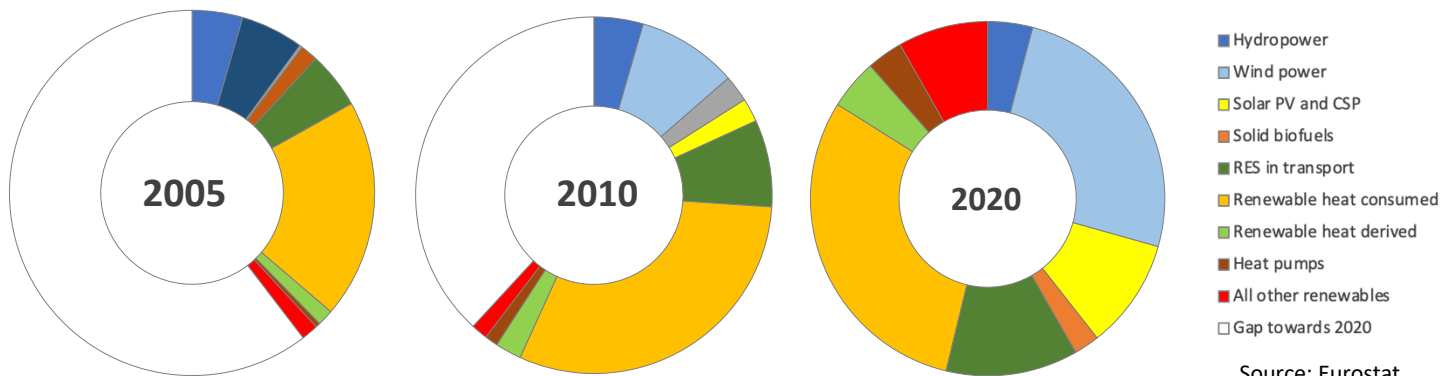
Source: Eurostat

Abbreviations used:

RES: renewable energy sources
 RES-E: renewable electricity
 RES-H/C: renewable heating/cooling
 RES-T: renewable transport fuels

Data for 2020

Overall RES share:	19.3%	Avoided fossil fuels:	48.2 [Mtoe]
Overall RES 2020 target:	18%	Avoided fuel expenses:	6 074 [MEUR]
Overall RES 2030 target:	30%	RES Turnover:	16 940 [MEUR]
Share RES-E in electricity:	44.7%	RES Employment:	242 100 [jobs]
Share RES-T in transport:	9.9%	RES imports ² :	3 749 [MEUR]
Share RES-H/C in heating:	14.8%	RES exports ² :	4 664 [MEUR]



Source: Eurostat

	2005		2010		2020		
	Energy in ktoe		Energy in ktoe		Energy in ktoe	Employment in FTE	Turnover in MEUR
Hydropower	1 869.0	1 862.6	1 712.7	3 100	210		
Wind power	2 319.9	3 805.3	10 529.0	83 500	6 090		
Solar PV, and CSP	110.2	1 008.5	4 182.4	55 600	3 700		
Solid biomass	643.1	890.0	965.3	33 000	2 500		
Ren. energy in transport ³	2 095.0	3 291.6	5 029.6	10 900	700		
Renew. heat consumed	8 084.5	12 817.4	12 564.8				
Renew. heat derived	592.8	994.4	1 901.0				
Heat pumps	168.5	493.0	1 373.6	24 400	1 690		
All other renewables	621.6	621.6	3 427.0	31 600	2 050		
Gap towards 2020	25 180.9	15 901.0					

Source: Eurostat, EurObserv'ER

FTE = Full time equivalent, PV=Photovoltaics, CSP=Concentrated Solar Power. Biofuels in transport only covers compliant fuels (employment and turnover additionally cover the non-compliant biofuels). Derived heat includes heat produced in main activity producer plants and heat sold produced in auto-producer plants. Its counterpart is the final heat consumption in the final consumption sectors (such as households).

¹ From Integrated National Energy Climate Plan

² Referring to the International Trade chapter from the publication: EurObserv'ER - *The State of Renewable Energy in Europe, 2021 edition*

³ Employment and turnover are only referring to biofuels in transport.



CURRENT RENEWABLE ENERGY POLICY

RES-E

The expansion of renewable energy continues to be one of the key pillars of the energy transition. Germany intends to increase the share of renewable electricity from its present level of around 41% up to 80% in 2030. The Renewable Energy Sources Act (EEG) is the main policy vehicle for expanding renewable use in the electricity sector, and has been in place since 2000. Support payments for energy production from renewable energy installations are guaranteed for 20 years. The most recent reform in 2021 confirmed that support paid to new installations above 750 kW (150 kW for biomass) will be determined via auctions. A new amendment of the EEG is currently being drafted (“Easter Package”). The German development bank KfW offers different support programmes providing low interest loans for investments in particular renewable energy technologies. The 52 GWp cap placed on support of solar PV has been removed in 2020.

RES H&C

The energy requirements for buildings are set out in the Building Energy Act (GEG), which entered into force in November 2020. The GEG applies to all buildings that are heated or air-conditioned. Its specifications relate primarily to heating technology and the thermal insulation standard of the building. The GEG also formulates requirements for existing air-conditioning technology as well as heat protection measures for the summer. The targets of the GEG are supported mainly through the Federal Subsidy for Efficient Buildings (BEG), operated by the German development bank KfW. The BEG combines existing programs to promote energy efficiency and renewable energies in the building sector and supports, among other things, the use of new heating systems, the optimization of existing heating systems, measures on the building envelope and the use of optimized system technology.

RES-T

The Biofuels Quota Act requires the mineral oil industry to reduce the GHG emission of its products by using climate-friendly energy products such as advanced biofuels, green hydrogen or electricity. The greenhouse gas reduction quota should be rising from 6 percent at present to 22 percent in 2030. There is a number of incentives and legislation in place to stimulate the uptake of EVs and EV infrastructure, such as tax exemptions for purely electric and fuel-cell vehicles for ten years, purchase subsidies (up to 9,000 EUR for purely electric and fuel-cell vehicles), as well as a 2.5 billion EUR fund to speed up the ramp-up of charging infrastructure and facilitate research in e-mobility and battery cell manufacturing. The German government aims to equip at least 25 per cent of all pit stops with fast-charging infrastructure by the end of 2022, at least 50 per cent by the end of 2024, and at least 75 per cent by the end of 2026.

Table 1: Brief description of key policy instruments aimed at promoting RES in Germany

<i>Instrument</i>	<i>Description</i>
Renewable Energy Sources Act (EEG 2021) <i>Erneuerbare-Energien-Gesetz 2021</i>	<p>Small RES-E plants up to 100 kW (onshore wind 750 kW) are eligible for feed-in tariff. The tariff payment period is 20 years from the day of commissioning. For most technologies, there is an annual degression. The level of the feed-in tariff is defined by law and varies according to specificities of the technologies.</p> <p>The current tariffs are published by the Federal Network Agency (EEG-Registerdaten und -Fördersätze).</p>
“Easter Package” 2022 <i>Osterpaket 2022</i>	<p>The Easter package is the largest energy policy amendment in decades. It will comprehensively accelerate the expansion of renewable energies and amend the EEG 2021, which is currently in place. The main tenets of the package are:</p> <ul style="list-style-type: none"> • Expansion of renewable electricity to 80% by 2030 • Priority for RE in approval procedures • Adjustment of tender volumes to the new expansion target for 2030 (wind onshore total 115 GW, PV total 215 GW additional generation capacity by 2030)
Tenders	<p>The 2017 revision of the EEG introduced tenders with the objectives to</p> <ul style="list-style-type: none"> • better steer development of renewables • reduce costs and distribute financial burden, and • improve market integration • at the same time maintain stakeholder diversity <p>PV, wind onshore, wind offshore and biomass are the eligible renewable energy technologies for tenders. The auction processes are carried out by the regulatory authority Federal Network Agency (Bundesnetzagentur). For each technology target corridors have been defined:</p> <ul style="list-style-type: none"> • For onshore wind and solar-PV the annual capacity corridor is 2 400 MW to 2 600 MW • Offshore wind: There is no annual expansion target, but an overall target of 6 500 MW by 2020 and 15 000 MW by 2030. • Biomass: The annual capacity addition is 100 MW.
Building Energy Act (GEG) 2020 <i>Gebäudeenergiegesetz</i>	<p>The energy requirements for buildings are set out in the Building Energy Act (GEG). The Act has replaced the Energy Saving Ordinance (EnEV), as well as the Energy Saving Act (EnEG) and the Renewable Energies Heat Act (EEWärmeG) and combined their contents into one regulation. In the process, the minimum requirements for new buildings in the GEG have essentially remained the same as in the previous ordinances. The criteria for the structural envelope were relaxed.</p> <p>The GEG came into force on November 1, 2020. It applies to all buildings that are heated or air-conditioned. Its specifications relate primarily to heating technology and the thermal insulation standard of the building. In order to determine the building's energy balance, in addition to space heating and cooling, hot water generation, the operation of ventilation systems, and the electricity that these devices require in operation (e.g., heating pumps, boilers, controllers) are also taken into account. In addition, a building must meet certain specifications for air exchange and minimizing thermal bridges. The latter are building corners or places that are less well insulated.</p> <p>The GEG also formulates requirements for existing air-conditioning technology as well as heat protection measures for the summer. The GEG thus also makes a significant contribution to creating a comfortable living and working environment and limiting the need for heating energy.</p>
Federal Subsidy for Efficient Buildings (BEG) 2020	<p>The Federal Subsidy for Efficient Buildings (BEG) operated by the German development bank KfW is a tool derived from the Climate Action Programme 2030 aiming to promote building renovation across the country. The BEG combines existing programs to promote energy efficiency and renewable energies in the building sector and supports, among other things, the use of new heating systems, the optimization of existing</p>

<p><i>Bundesförderung für effiziente Gebäude</i></p>	<p>heating systems, measures on the building envelope and the use of optimized system technology.</p> <p>The BEG consists of three sub-programs:</p> <ol style="list-style-type: none"> 1. Federal funding for efficient buildings - residential buildings (BEG WG) 2. Federal funding for efficient buildings - non-residential buildings (BEG NWG) 3. Federal funding for efficient buildings - individual measures (BEG EM) <p>The essentials of this programme are the following:</p> <ul style="list-style-type: none"> • Promotional loan from 0.64% (Annual percentage rate for renovation, new construction and purchase). • Up to EUR 150 000 credit per residential unit for an efficient house • Up to EUR 60 000 credit per residential unit for individual measures • Pay back less: between 15% and 50% repayment bonus • Additional funding possible, e.g. for construction supervision
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For further information:

BAFA: Förderprogramme im Überblick (in German), https://www.bafa.de/DE/Energie/Effiziente_Gebaeude/Foerderprogramm_im_Ueberblick/foerderprogramm_im_ueberblick_node.html, last accessed June 2022

BMWK: Das Erneuerbare-Energien-Gesetz , https://www.erneuerbare-energien.de/EE/Redaktion/DE/Dossier/eeg.html?cms_docId=418086, last accessed June 2022

BMWK: Überblickspapier Osterpaket (in German), https://www.bmwk.de/Redaktion/DE/Downloads/Energie/0406_ueberblickspapier_osterpaket.html, last accessed June 2022

Clean Energy Wire: German govt decides new renewables quota for transport fuels, doubles EU target, <https://www.cleanenergywire.org/news/german-govt-decides-new-renewables-quotas-transport-fuels-doubles-eu-target>, last accessed June 2022

Energy Policy Tracker, Country Dossier Germany, <https://www.energypolicytracker.org/country/germany/>, last accessed June 2022

European Commission: European Alternative Fuels Observatory: Germany; Incentives and Legislation, <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/germany/incentives-legislations>,

International Energy Agency (IEA), Country Dossier Germany, <https://www.iea.org/countries/germany>, last accessed June 2022

Member State Progress Report, available at the Renewable Energy pages of the European Commission, <http://ec.europa.eu/energy/en/topics/renewable-energy>

National Energy and Climate Plans (NECPs), <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans>

What is meant by ...?

Auctions for granting renewable energy support	An auction is a process of granting production or investment support to renewable energy projects based on the lowest bids by eligible project developers.
Feed-in tariff (FiT)	A support scheme which provides for a technology-specific remuneration per unit of renewable energy payable to eligible renewable energy producers. A proper, periodic review of FiT rates is often undertaken with the aim to prevent both too high FiTs so as to minimise regulatory rents, i.e. supra-normal returns and too low FiTs to preclude below-target market uptake because of FiT levels that are perceived by market participants to be less attractive. In addition, feed-in tariffs often include "tariff degression", a mechanism according to which the price (or tariff) ratchets down over time.
Feed-in premium (FiP)	A scheme which provides for a support level per unit of renewable energy to eligible renewable energy producers, typically for a period of 10-20 years, at a pre-set fixed or floating rate. The premium is typically adjusted periodically to exactly offset change in the average energy wholesale market price, based on a pre-specified benchmark market price. A floating FiP may move freely or may only be allowed to move within a pre-set interval.
Grants	Grants are non-repayable funds disbursed by one party (grant makers), often a government department, corporation, foundation or trust, to a recipient, often (but not always) a non-profit entity, educational institution, business or an individual. (Source: Wikipedia.org)
Green public procurement	In Green public procurement contracting authorities take environmental issues into account when tendering for goods or services. The goal is to reduce the impact of the procurement on human health and the environment. (Source: Wikipedia.org)
Renewable quota scheme (RQS)	A RQS mandates certain market actors (typically retail suppliers or large energy end-users) to respect a pre-set minimum share or amount of their total energy procurements from renewable sources of energy. Typically a tradable green certificate (TGC) scheme is operated to enable the obligated parties to prove their compliance with the prevailing renewable quota target by means of TGCs.
Sliding feed-in-tariff	A FiT scheme which pre-sets technology-specific declining feed-in tariffs for certain prospective vintages in line with the technology-specific learning curve, as projected by the National Regulatory Agency (NRA). Often a degression rate is used indicating the %/annum decrease in the rate level.
Soft loans	Loans at concessional (below market-based) terms, for example at sub-market-conform interest rates, made available in several Member States to stimulate certain renewable energy technologies.
Tax credits	These are amounts a tax paying entity is allowed to deduct when declaring payable taxes, for example company tax or income tax, to the tax authorities, for example the producer tax credits (PTCs) used in the United States to stimulate among others wind energy deployment.



Disclaimer

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