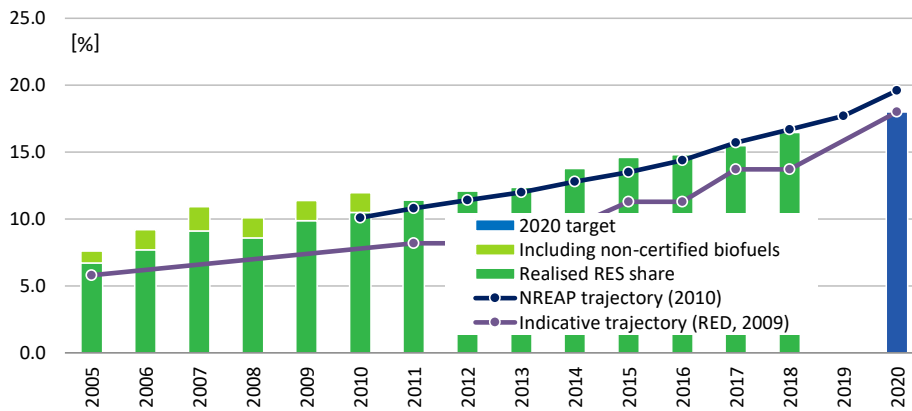


### Summary

Renewable electricity systems up to 100 kW are supported through a feed-in tariff. Since 2017 tenders (sliding feed-in premiums) are in place for PV, on- and offshore wind and for biomass larger than 750 kW. KfW loans (for offshore wind, deep geothermal, battery storage), BMU loans and investment subsidies, flexibility premiums (biogas), and a tenant electricity surcharge are further support mechanisms for RES-E. The Market Incentive Programme (MAP) is the main promotion instrument for renewable heat. A greenhouse gas reduction quota is in place for the transport sector. Beyond, KfW loans are available for purchase of hydrogen, hybrid and electric vehicles. Private individuals can benefit from buyer's premium when buying such vehicles.



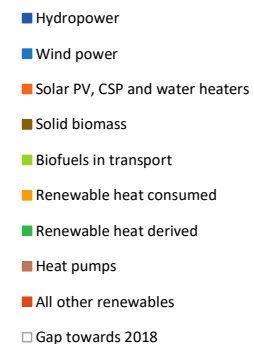
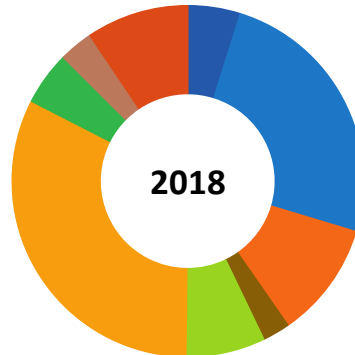
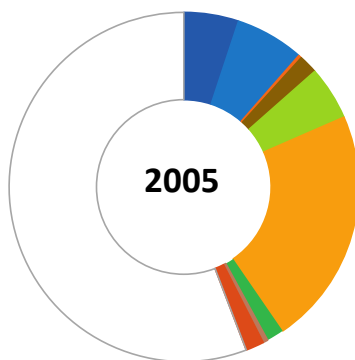
Source: EEA, Eurostat

### Abbreviations used:

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

### Data for 2018

Overall RES share:	16.5%	Avoided fossil fuels:	66.6 [Mtoe]
Overall RES 2020 target:	18.0%	Avoided fuel expenses:	12.7 [billion euro]
Share RES-E in electricity:	38.0%	RES Turnover:	35510 [MEUR]
Share RES-T in transport:	7.9%	RES Employment:	263700 [jobs]
Share RES-H/C in heating:	13.6%		



Source: Eurostat, 2020.

	2005		2018		
	Energy		Energy	Employment	Turnover
Hydropower	1869.0 ktce		1787.4 ktce	7600 Jobs	1060 MEUR
Wind power	2340.2 ktce		9123.9 ktce	106200 Jobs	15340 MEUR
Solar PV, CSP and water heaters	110.2 ktce		3936.7 ktce	45600 Jobs	6150 MEUR
Solid biomass	643.1 ktce		931.0 ktce	35400 Jobs	4330 MEUR
Biofuels in transport	1828.2 ktce		2686.3 ktce	14500 Jobs	1540 MEUR
Renewable heat consumed	8084.5 ktce		11908.4 ktce		
Renewable heat derived	592.8 ktce		1816.5 ktce		
Heat pumps	168.5 ktce		1152.5 ktce	15700 Jobs	2230 MEUR
All other renewables	621.6 ktce		3458.3 ktce	38700 Jobs	4860 MEUR
Gap towards 2018	20542.8 ktce				

Source: Eurostat, EurObserv'ER, 2020.

Hydropower jobs & turnover only covers 'small hydropower'. 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 autoproducer plants. Its counterpart is the final heat consumption in the final consumption sectors (such as households).



## ***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 energy from its present level of around 42% up to 40-45% in 2025. 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 2017 determined that support paid to new installations above 750 kW (150 kW for biomass) will be determined via auctions. A new version of the EEG is currently drafted. 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:** The Renewable Energies Heat Act (EEWärmeG) is the major instrument to increase the proportion of heat generated from renewable sources for heating/cooling with the funding details being fleshed out in the Market Incentive Programme (MAP). The Renewable Energies Heat Act (EEWärmeG) obliges new buildings to include renewable energy systems (e.g. heat pumps, solar thermal installations etc.) or to over-comply with the energy-efficiency regulation. The MAP supports owners mainly of existing buildings with the installation of technologies using renewable energy sources for heating or cooling (e.g. solar thermal, heat pumps). At present, renewables account for 13.9% of final energy consumption for heat and cooling. By end of 2020, this share is to reach 14%.

**RES-T:** Renewables in the transport sector (biofuels like bioethanol, biodiesel and biogas) accounted for 5.6 per cent of the fuel used in the Germany in 2019. The Biofuels Quota Act requires the mineral oil industry by means of the climate protection quota to reduce the GHG emission of its products by 7% in 2020 through blending conventional fuel with bio fuel. Fuel taxes for gas and methane are deliberately lower at the petrol station than regular oil-based fuels.

## ***OVERVIEW OF MAIN SUPPORTING POLICIES***

Germany is one of a handful of countries globally to have enshrined the goal of climate neutrality by or before 2050 in its national law. It has set the preliminary target of cutting emissions by at least 55 percent by 2030 compared to 1990 levels. More than 42 percent of the country's power consumption was covered by renewables in 2019, exceeding the target of 35 percent set for 2020. The government is now taking aim at 65 percent by 2030, as is stated in its Climate Action Programme 2030. Since the EEG 2017, renewable electricity is mainly supported by auctions. Further, concessional long-term funding is offered by Germany's Bank for Reconstruction (KfW) via its low-interest-rate Renewable Energies Loan Programme. Renewable heating and cooling are supported by the regulations in the Renewable Energies Heat Act (EEWärmeG), and the Market Incentive Programme (MAP). Numerous support schemes are available for renewable heat on state (Länder) level.

In 2016, the Federal Government adopted additional stimulus measures for electric mobility consisting of temporary purchase incentives, additional funding for the expansion of the charging infrastructure, and tax measures. Purchase grants ("environmental bonus" of up to €600 million) were extended to 2020 with €4,000 for the purchase of purely electric vehicles, €3,000 for the purchase of plug-in hybrids. The Expansion of charging stations is supported with another €300 million in order to attain 100,000 charging points to be installed by 2020 (27,700 in 8/2020).

In June 2020, the Federal Government has adopted the *National Energy and Climate Plan (NECP)*, that informs the European Commission on the EU Member States' contributions to achieving the EU energy targets for 2030 in energy efficiency and renewable energy. At the heart of the national monitoring system is the annual monitoring report. Every three years, the monitoring report is supplemented by a strategic progress report. In June 2020, the German Federal Government adopted the *National Hydrogen Strategy (NWS)* and an economic stimulus package that includes €9 billion to support hydrogen-related measures.

**Table 1: Overview of support schemes to promote renewable energy in the Germany<sup>1</sup>**

	REGULATORY POLICIES					FISCAL INCENTIVE AND PUBLIC FINANCES			
	Feed-in tariff EEG 2017	Tendering / auctions	Quota obligation with Tradable Green certificates	Quota obligation without Tradable Green certificates	Net-metering/ net-billing	Capital subsidy, grants	Tax regulation mechanism I (EIA)	Tax regulation mechanism II	Concessionary loans
<b>RES-E</b>									
- Offshore wind	o	o							o
- Onshore wind	o	o							o
- Solar	o	o							o
- Hydro	o								o
- Geothermal	o								o
- Solid biomass	o	o							o
- Biogas	o								o
<b>RES-H/C</b>									
- Solar thermal	o			o					o
- Geothermal	o			o					o
- Biomass	o			o			o		o
- Biogas	o			o			o		
- Small scale installations, e.g. solar thermal collects, heat pumps, biomass boilers and pellet stoves				o		o	o		o
- Others, i.e. aerothermal, hydrothermal heat pumps				o			o		o
<b>RES-T</b>									
- Bio gasoline			o					o	
- Biodiesel			o					o	
- Electric mobility						o			

<sup>1</sup> Sources : EurObserv'ER, REN21, Global Status Report 2020, RES-Legal Europe (2019), CLEW Clean Energy Wire 2020.

Table 2: Brief description of key policy instruments aimed at promoting RES in Germany

<b>Instrument</b>	<b>Description</b>
<b>EEG 2017</b> <sup>2</sup>	<p>Small RES-E plants up to 100 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.<sup>3</sup></p> <ul style="list-style-type: none"> <li>• <b>Wind Onshore:</b> €ct 4.66 – 8.38 per kWh</li> <li>• <b>Wind offshore:</b> €ct 3.90</li> <li>• <b>Solar PV:</b> €ct 6.34 – 9.04 per kWh (market premium 1 Oct 2020)</li> <li>• <b>Solar PV:</b> €ct 5.94 – 8.64 per kWh (fixed feed-in tariff 1 Oct 2020)</li> <li>• <b>Geothermal:</b> €ct 25.2 per kWh</li> <li>• <b>Biogas from bio-waste:</b> €ct 13.05 – 14.88 per kWh</li> <li>• <b>Biogas from manure:</b> €ct 23.14 kWh</li> <li>• <b>Landfill gas:</b> €ct 5.66 – 8.17 per kWh</li> <li>• <b>Sewage gas:</b> €ct 5.66 – 6.49 per kWh</li> <li>• <b>Hydro power</b> €ct 3.47 – 12.40 per kWh</li> <li>• <b>Biomass:</b> €ct 5.71 – 13.32 per kWh</li> </ul>
<b>Tenders</b>	<p>The latest revision of the EEG introduced tenders with the objectives to</p> <ul style="list-style-type: none"> <li>• better steer development of renewables</li> <li>• reduce costs and distribute financial burden, and</li> <li>• improve market integration</li> <li>• at the same time maintain stakeholder diversity</li> </ul> <p><b>PV, wind onshore, wind offshore and biomass</b> 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 <b>target corridors</b> have been defined:</p> <ul style="list-style-type: none"> <li>• For onshore wind and solar-PV the annual capacity corridor is 2 400 MW to 2 600 MW</li> <li>• Offshore wind: There is no annual expansion target, but an overall target of 6 500 MW by 2020 and 15 000 MW by 2030.</li> <li>• Biomass: The annual capacity addition is 100 MW.</li> </ul>
<b>EEWG</b>	<p>The Renewable Energy Heat Act (“EEWärmeG”) requires new buildings to source a share of their total energy demand for heating and cooling systems from renewables, such as geothermal heat pumps, solar PV or solar thermal installations. The proportion varies by technology:</p> <ul style="list-style-type: none"> <li>• Minimum 15% of total heating and cooling demand must be met by solar thermal energy, or</li> <li>• Minimum 30% of the total demand when biogas is used, or</li> <li>• Minimum 50% of the total demand when solid biomass, geothermal, district heating, waste heat or co-generation is used.</li> </ul>
<b>MAP</b>	<p>The Market Incentive Program (MAP) supports installations of renewable heating and cooling technologies in existing industrial and commercial buildings and thus complements the Renewable Energy Heat Act, which considers only new buildings. Both the German Development Bank (KfW) and the Federal Office of Economics and Export Control (BAFA) offer financial support for renovations of heating systems under the MAP.</p>

<sup>2</sup> Federal Network Agency 2020,

<sup>3</sup> RES Legal 2019: Germany, <http://www.res-legal.eu/search-by-country/germany/>

### ***For further information:***

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RES Legal (2019): Germany, <http://www.res-legal.eu/search-by-country/germany>, last accessed August 2020 (discontinued, last updated version from January 2019).

## 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 depression", 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 depression 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

This document was prepared by the EurObserv'ER consortium, which groups together Observ'ER (FR), TNO Energy Transition (NL), Renewables Academy (RENAC) AG (DE), Frankfurt School of Finance and Management (DE), Fraunhofer-ISI (DE) and Statistics Netherlands (CBS, NL). The information and views set out in this publication are those of the author(s) and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the data included in this study. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein.