# Germany

## **Renewable Energy Policy Factsheet**

#### Summary

Main support scheme in Germany: tendering scheme for RES-E, small power plants up to 100 kW are supported by a feed-in tariff. Market Incentive Programme (MAP) for RES-H, Electric Mobility Strategy for the transport sector.





### Abbreviations used:

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

Data for 2016 **Overall RES share:** Overall RES 2020 target: Share RES-E in electricity: Share RES-T in transport: Share RES-H/C in heating:

14.8% 18.0% 32.2% 6.9% 13.0%

Avoided fuel expenses: **RES Turnover: RES Employment:** 

> Hydropower Wind power

57.6 [Mtoe] 10.6 [billion euro] 35500 [MEUR]





Avoided fossil fuels:

283100 [jobs]

Solar PV, CSP and water heaters Solid biomass Biofuels in transport Renewable heat consumed Renewable heat derived Heat pumps All other renewables

□ Gap towards 2016

Source: Eurostat, 2018.

	2005		2016	
	Energy	Energy	Employment	Turnover
Hydropower	1861.9 ktoe	1861.1 ktoe	5200 Jobs	650 MEUR
Wind power	2286.4 ktoe	6882.2 ktoe	121700 Jobs	16060 MEUR
Solar PV, CSP and water heaters	110.3 ktoe	3275.8 ktoe	33500 Jobs	4160 MEUR
Solid biomass	612.7 ktoe	928.1 ktoe	42500 Jobs	5110 MEUR
Biofuels in transport	1872.3 ktoe	2547.5 ktoe	21800 Jobs	2300 MEUR
Renewable heat consumed	6981.9 ktoe	11672.9 ktoe		
Renewable heat derived	591.6 ktoe	1593.2 ktoe		
Heat pumps	194.2 ktoe	972.0 ktoe	14500 Jobs	1920 MEUR
All other renewables	621.6 ktoe	3462.5 ktoe		
Gap towards 2016	18062.4 ktoe			Source: Eurostat, EurObserv'ER, 2018.

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).



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	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	Loans
RES-E									
- Offshore wind	0	0							
- Onshore wind	0	0							
- Solar	0	0							
- Hydro	0								
- Geothermal	0								
- Solid biomass	0	0							
- Biogas	0								
RES-H/C									
- Solar thermal	0			0					0
- Geothermal	0			0					0
- Biomass	0			0			0		0
- Biogas	0			0			0		
<ul> <li>Small scale installations, e.g. solar thermal collects, heat pumps, biomass boilers and pellet stoves</li> </ul>				0		0	0		0
<ul> <li>Others, i.e. aerothermal, hydrothermal heat pumps</li> </ul>				0			0		0
RES-T									
- Bio gasoline			0					0	
- Biodiesel			0					0	
- Electric mobility	1					0			

<sup>&</sup>lt;sup>1</sup> Sources: EurObserv'ER, GSR/REN21 2018, RES-Legal Europe (2018)

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

Instrument	Description				
EEG 2017	Small RES-E plants up to 100 kW are eligible for feed-in tariff as set out in				
	the EEG 2017. The level of the feed-in tariff is defined by law and varies				
	according to specificities of the technologies. The tariff payment period is				
	20 years from the day of commissioning. For most technologies, there is				
	an annual degression to organise the transition towards a self-sufficient				
	renewables market. The degression rate depends on capacity additions of				
	the past 12 months. The level of the feed-in tariff is defined by law and				
	varies according to specificities of the technologies.				
	• Wind Onshore: €ct 4.66 – 8.38 per kWh				
	• Wind offshore: €ct 3.9 – 1.4 per kWh (until 2020)				
	• <b>Solar PV</b> : €ct 8.91 – 12.70 per kWh				
	• Geothermal: €ct 25.2 per kWh				
	• Biogas from bio-waste: €ct 13.05 – 14.88 per kWh				
	<ul> <li>Biogas from manure: €ct 23.14 kWh</li> </ul>				
	<ul> <li>Landfill gas: €ct 5.66 – 8.17 per kWh</li> </ul>				
	• <b>Sewage gas:</b> €ct 5.66 – 6.49 per kWh				
	<ul> <li>Hvdro power €ct 3.47 – 12.40 per kWh</li> </ul>				
	• <b>Biomass:</b> €ct 5.71 – 13.32 per kWh				
Tenders	After the latest revisions of the EEG (2014 and 2017) tenders were				
	introduced as RE support instruments with the objectives to				
	Better steer development of renewables				
	<ul> <li>reduce costs and distribute financial burden, and</li> </ul>				
	<ul> <li>improve market integration.</li> </ul>				
	<b>PV. wind onshore. wind offshore and biomass</b> are the eligible renewable				
	energy technologies for tenders. For each technology target corridors				
	have been defined:				
	<ul> <li>Solar-PV: The annual capacity corridor is 2 400 MW to 2 600 MW.</li> </ul>				
	<ul> <li>Onshore wind: The annual capacity corridor is 2 400 MW to 2 600</li> </ul>				
	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.				
	<ul> <li>Biomass: The annual capacity addition is 100 MW.</li> </ul>				
EEWG	The Renewable Energy Heat Act ("FEWärmeG") 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:				
	<ul> <li>Minimum 15% of total heating and cooling demand must be met</li> </ul>				
	by solar thermal energy, or				
	<ul> <li>Minimum 30% of the total demand when biogas is used, or</li> </ul>				
	<ul> <li>Minimum 50% of the total demand when solid biomass,</li> </ul>				
	geothermal, district heating, waste heat or co-generation is used.				
MAP	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 (Bundesamt für				
	Wirtschaft und Ausfuhrkontrolle – BAFA) offer financial support for				
	renovations of heating systems under the MAP.				

# For further information:

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http://www.bafa.de/DE/Energie/Heizen mit Erneuerbaren Energien/heizen mit erneuerbaren en ergien node.html, last accessed June 2018.

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BMWi (2018): Recht und Politik, <u>https://www.erneuerbare-energien.de/EE/Navigation/DE/Recht-Politik/recht-politik.html</u>, last accessed June 2018.

EEA (2017): Progress of renewable energy sources, European Environmental Agency (EEA), https://www.eea.europa.eu/data-and-maps (European Union), last accessed June 2017.

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IRENA 2015: Remap 2030. A renewable Energy Roadmap. Renewable energy prospects: Germany, <a href="http://www.irena.org/DocumentDownloads/Publications/IRENA\_REmap\_Germany\_report\_2015.pdf">http://www.irena.org/DocumentDownloads/Publications/IRENA\_REmap\_Germany\_report\_2015.pdf</a>, last accessed June 2017.

REN21. (2018): Renewables 2018 Global Status Report, (Paris: REN21 Secretariat), <u>http://www.ren21.net/wp-content/uploads/2018/06/17-8652\_GSR2018\_FullReport\_web\_final\_.pdf</u>, last accessed June 2018.

RES Legal 2018: Germany, <u>http://www.res-legal.eu/search-by-country/germany</u>, last accessed June 2018.

REN21. (2018): Renewables 2018 Global Status Report, (Paris: REN21 Secretariat), <u>http://www.ren21.net/wp-content/uploads/2018/06/17-8652\_GSR2018\_FullReport\_web\_final\_.pdf</u>, last accessed June 2018.

# 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.



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## Disclaimer

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