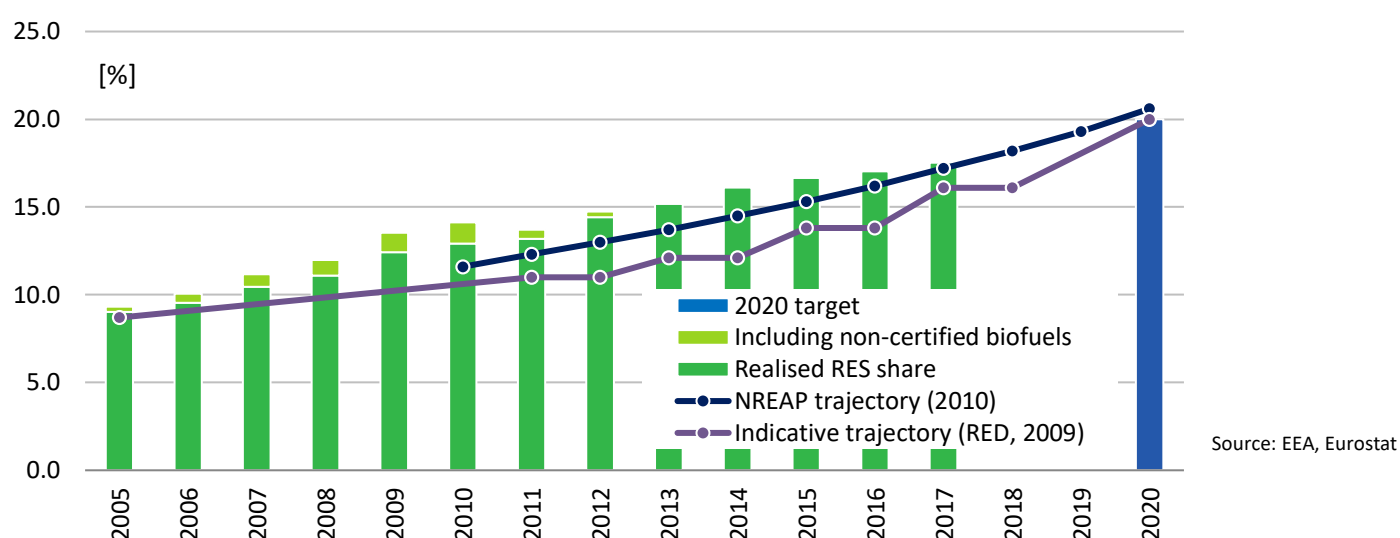


## Summary

The European Union aims to achieve a 20% share (with legally binding national targets) of its final energy consumption from RES by 2020, and at least a 32% share (not broken down into nationally binding targets) by 2030. Key instruments at EU level to promote RES include directives, such as the 2009 Renewable Energy Directive. The EU Emission Trading Scheme (ETS) is also intended to support RES. The European Commission has also adopted state aid guidelines to ensure that support schemes to promote RES at national level are compatible with EU competition law and internal market rules. Further instruments are research, development and innovation funding programmes, such as Horizon2020 and its successor programme, Horizon Europe as well as the NER300 programme and its successor, the Innovation Fund. RES are also supported through regional development funds as well as through grants and loans for RES projects and related infrastructure from the European Investment Bank (EIB) and the European Fund for Strategic Investments (EFSI). A recast directive on the promotion of RES in the period 2020-2030 has been approved by the EU institutions on 14 July 2018 to be adopted along with governance rules to ensure that the EU-wide RES target for 2030 of 32% is met.

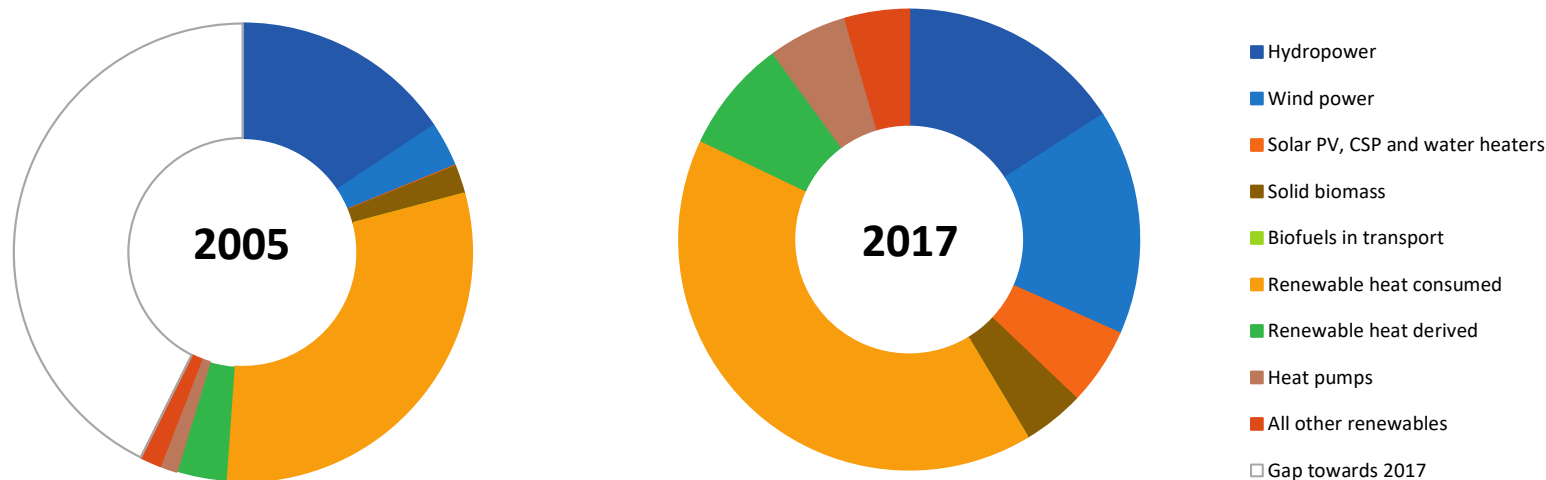


### Abbreviations used:

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

### Data for 2017

Overall RES share:	17.5%	Avoided fossil fuels:	322.1 [Mtoe]
Overall RES 2020 target:	20.0%	Avoided fuel expenses:	93.5 [billion euro]
Share RES-E in electricity:	30.8%	RES Turnover:	154660 [MEUR]
Share RES-T in transport:	7.4%	RES Employment:	1445900 [jobs]
Share RES-H/C in heating:	19.5%		



	2005		2017		
	Energy		Energy	Employment	Turnover
Hydropower	29587.5 ktoe		30001.7 ktoe	70700 Jobs	8360 MEUR
Wind power	5940.0 ktoe		29814.5 ktoe	356700 Jobs	48040 MEUR
Solar PV, CSP and water heaters	125.5 ktoe		10265.9 ktoe	112700 Jobs	13600 MEUR
Solid biomass	3749.3 ktoe		8140.6 ktoe	364800 Jobs	34550 MEUR
Biofuels in transport	n.a. ktoe		1.6 ktoe	230400 Jobs	13810 MEUR
Renewable heat consumed	57167.8 ktoe		76786.3 ktoe		
Renewable heat derived	6702.2 ktoe		14935.3 ktoe		
Heat pumps	2285.5 ktoe		10467.3 ktoe	191700 Jobs	22730 MEUR
All other renewables	2756.1 ktoe		8459.0 ktoe		
Gap towards 2017	80558.3 ktoe				

Source: Eurostat, EurObserv'ER, 2019.

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).



## **SUMMARY**

A transition towards a low carbon energy system is a key priority for the European Union (EU). A prerequisite for this transition is the development of a larger share of renewable energy sources (RES) in the energy system. The European Union aims to achieve a 20% share of its final energy consumption from RES by 2020, and a 32% share by 2030. Whereas the current 2020 framework sets an EU 20% target for energy consumption which relies on legally binding national targets until 2020, the 32% target by 2030 is an EU-wide binding target and will not be broken down into nationally binding targets.<sup>1</sup>

Key instruments at EU level to promote RES include directives, such as the 2009 Renewable Energy Directive. The EU Emission Trading Scheme (ETS) aiming at direct GHG emissions reduction by installations falling under this Directive, is poised to indirectly support RES as well. The European Commission has also adopted state aid guidelines to ensure that support schemes to promote RES at national level are compatible with EU competition law and internal market rules. Further instruments at EU level include funding programmes, such as Horizon2020, its successor programme Horizon Europe, the NER300 programme and its successor, the Innovation Fund.<sup>2</sup> These provide funds for research & development and for innovation in RES as well as commercialisation of RES projects. RES are also supported through regional development funds as well as through grants and loans for RES projects and related infrastructure from the European Investment Bank (EIB) and the European Fund for Strategic Investments (EFSI).

The recast directive on the promotion of RES in the period 2020-2030 has been adopted along with the Governance Regulation, setting rules to ensure that the EU-wide RES target for 2030 is met.

## **RENEWABLE ENERGY POLICY FRAMEWORK**

The European Union has a number of different policy documents and instruments aimed at promoting RES.

### ***Policy documents***

The “Clean Energy for All” Communication<sup>3</sup>, proposed by the European Commission for adoption in November 2016 is the most recent energy and climate policy package concerning the Energy Union, the promotion of RES. The Communication reflects on what needs to be done to achieve the target of at least 27% for the share of renewable energy consumed in the EU in 2030 set by the European Council. Meanwhile, the recast Renewable Energy Directive has been politically agreed upon by the European institutions on 14 July 2018, specifying an EU-level RES target for year 2030 of 32%, including a review clause for a possible upward revision by 2023.<sup>4</sup> This ambitious target is

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<sup>1</sup> In accordance with Article 31 of the Governance Regulation — Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action — the Commission's recommendations on the Member States' renewable energy share are based on the formula set out in Annex II of the Regulation, which is based on the objective criteria listed in Article 5, whilst having due regard to relevant circumstances affecting renewable energy deployment as indicated by the Member States. The methodology followed by the Commission to assess renewable energy contributions is further detailed in Section II of the SWD(2019) 212.

<sup>2</sup> [https://europa.eu/rapid/press-release\\_MEMO-19-1416\\_en.htm](https://europa.eu/rapid/press-release_MEMO-19-1416_en.htm)

<sup>3</sup> <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

<sup>4</sup> [http://europa.eu/rapid/press-release\\_STATEMENT-18-4155\\_en.htm](http://europa.eu/rapid/press-release_STATEMENT-18-4155_en.htm)

underpinning the strategic long-term vision put forward by the European Commission of a climate neutral European economy by year 2050.<sup>5</sup> The Governance Regulation — Regulation (EU) 2018/1999<sup>6</sup> — sets rules that are to ensure achievement of the EU-level energy and climate targets for year 2030, such as notably the target of RES share of at least 32% in EU gross final energy consumption.

In 2015, the European Commission outlined a new Strategic Energy Technology (SET) Plan, which includes renewable energy as one of the main priority areas for research and innovation.<sup>7</sup>

### **Directives**

To date, the prime directive aimed at promoting RES is the 2009 Renewable Energy Directive<sup>8</sup>, which sets a binding target of a 20% share of energy from renewable energy source of total final energy consumption to be achieved in 2020. This target is broken down into national binding targets at Member State level. The recast Renewable Energy Directive for the timeframe 2021-2030 specifies a RES target at sheer EU level of at least 32%. This directive was politically agreed upon by the European Commission on 14 July 2018.<sup>9</sup> Upon endorsement by both co-legislators, i.e. the European Parliament and the European Council, the updated Renewable Energy Directive was published in the Official Journal of the Union on 21 December 2018<sup>10</sup> and entered into force 3 days later.<sup>11</sup> Member States will have to transpose the new elements of the Directive into national law 18 months after its entry into force. A series of additional directives contribute to the promotion of RES and related infrastructure, such as the 2009 Fuel Quality Directive, which promotes the use of biofuels in road transport and non-road machinery. Additionally, new rules came into force in 2015 which amend the current legislation on biofuels – specifically the Renewable Energy Directive and the Fuel Quality Directive - to reduce the risk of indirect land use change and to prepare the transition towards advanced biofuels. This refers to the 2015 Directive to reduce the indirect land use change for biofuels and bioliquids.

### **State aid guidelines**

The Commission adopted revised guidelines on state aid for environmental protection and energy in June 2014. These guidelines aim to avoid market distortions resulting from support for RES and to promote a gradual transition towards market-based support for renewable energies. The guidelines gradually introduce competitive bidding processes for public support for RES and promote a transition from feed-in-tariffs to feed-in- premiums. In addition, certain energy-intensive industries can be partially exempted from surcharges financing RES support, in order to safeguard their competitiveness. The guidelines apply for the 2014–2020 period. New guidelines are expected for the period 2020 and beyond.

### **National Action Plans and Biennial progress reports**

The 2009 Renewable Energy Directive requires Member States to put in place appropriate measures to reach their national binding RES targets for 2020, and that these are presented in National

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<sup>5</sup> See [https://ec.europa.eu/clima/policies/strategies/2050\\_en](https://ec.europa.eu/clima/policies/strategies/2050_en) and in particular <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0773>

<sup>6</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1999&from=EN>

<sup>7</sup> <https://ec.europa.eu/energy/en/topics/technology-and-innovation/strategic-energy-technology-plan>

<sup>8</sup> <https://ec.europa.eu/energy/en/topics/renewable-energy/renewable-energy-directive>

<sup>9</sup> <http://data.consilium.europa.eu/doc/document/ST-10308-2018-INIT/en/pdf>

<sup>10</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN>

<sup>11</sup> [https://ec.europa.eu/info/news/new-renewables-energy-efficiency-and-governance-legislation-comes-force-24-december-2018-2018-dec-21\\_en](https://ec.europa.eu/info/news/new-renewables-energy-efficiency-and-governance-legislation-comes-force-24-december-2018-2018-dec-21_en)

Renewable Energy Action Plans (NREAPs).<sup>12</sup> Among others, the plans cover individual renewable energy targets for the electricity, heating and cooling, and transport sectors the planned mix of different renewables technologies policy measures to achieve national targets including cooperation between local, regional, and national authorities. Every two years, the Member States are required to report on their progress towards the EU's 2020 renewable energy goals. Based on the national reports and on other available data, the European Commission produces an EU-wide report which gives an overview of renewable energy policy developments in EU countries.

### ***National Energy and Climate Plans***

As required by Article 9 of the Governance Regulation, for the first time all Member States have prepared draft integrated National Energy and Climate Plans (NECPs).<sup>13</sup> These plans are key instruments to achieve the EU energy and climate targets, including the EU RES target, in a coherent way. The Member States are to finalise their first NECPs by ultimo 2019, providing details on their transition pathways towards completion of energy and climate targets and bridging remaining “ambition gaps”. In the 2020 State of the Energy Union report the Commission will take stock of the final plans and confirm whether they are consistent with the Union’s 2030 targets or whether further efforts might be needed. In turn, the Member States are to report, mostly on a biennial basis on the progress of their NECPs. The governance process also provides an opportunity to update the plans in 2024.

## ***OVERVIEW OF MAIN SUPPORTING INSTRUMENTS AT EU LEVEL***

In accordance with Article 194 of the Treaty of the Functioning of the European Union (TFEU), the support for RES takes place mostly at the level of the Member States. Support at EU level includes funding for research and innovation as well as enhancements to the electricity grid to support the integration of RES. The framework programme for research and innovation, Horizon 2020, supports research and development in photovoltaics, concentrated solar power, wind energy, ocean energy, hydropower, geothermal energy, renewable heating and cooling, energy storage, biofuels and alternative fuels. The Commission is working on a proposal for Horizon Europe, the framework programme that will succeed Horizon 2020.<sup>14</sup> This will be done in the context of the EU's proposal for the next 7-year EU budget, the Multi-Annual Financial Framework (MFF). The NER 300 programme, funded from the sale of emission allowances from the New Entrants Reserve of the EU ETS, provides funding for innovative renewable energy projects. In the context of the post-2020 ETS reform, a new Innovation Fund will be created to fund renewable energy and other low-carbon projects as well as industrial innovation in this sector.

In addition to the above-mentioned funding programmes, grants and loans are provided by the EIB and the European Fund for Strategic Investments (EFSI), for the expansion of renewable energy and related energy infrastructures. RES are also supported through regional development funds, such as the European Structural and Investment Funds (ESIF), and the Cohesion Fund provides important contributions to investments in the renewable energy sector.

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<sup>12</sup> <https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans>

<sup>13</sup> <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans>

<sup>14</sup> <https://ec.europa.eu/info/node/71880>

## ***What is meant by ...?***

<b>Auctions for granting renewable energy support</b>	An auction is a process of granting production or investment support to renewable energy projects based on the lowest bids by eligible project developers.
<b>Feed-in tariff (FiT)</b>	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.
<b>Feed-in premium (FiP)</b>	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.
<b>Grants</b>	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)
<b>Green public procurement</b>	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)
<b>Renewable quota scheme (RQS)</b>	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.
<b>Sliding feed-in-tariff</b>	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.
<b>Soft loans</b>	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.
<b>Tax credits</b>	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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