EurObserv'ER

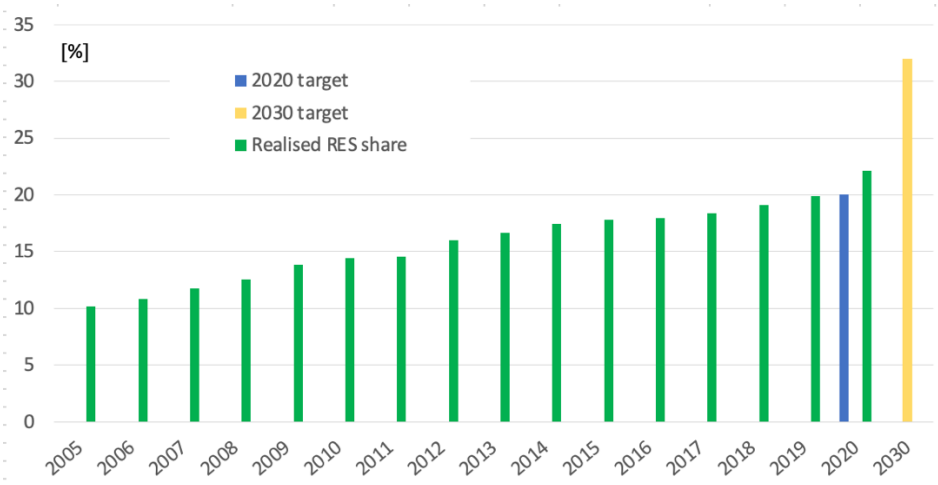
Renewable Energy Policy Factsheet

June 2022

European Union

Renewable energy status

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



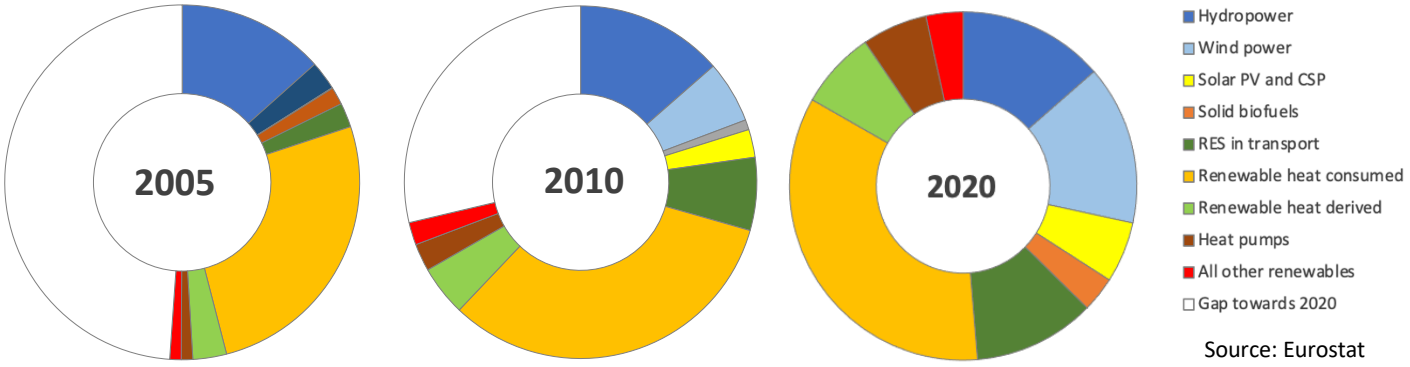
Source: Eurostat

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:	22.1%	Avoided fossil fuels:	164.6 [Mtoe]
Overall RES 2020 target:	20.0%	Avoided fuel expenses:	35 055 [MEUR]
Overall RES 2030 target:	32.0%	RES Turnover:	162 960 [MEUR]
Share RES-E in electricity:	37.5%	RES Employment:	1 313 300 [jobs]
Share RES-T in transport:	10.2%	RES imports[1]:	16 266 [MEUR]
Share RES-H/C in heating:	23.1%	RES exports[1]:	15 293 [MEUR]



Source: Eurostat

	2005	2010	2020		
	Energy in ktoe	Energy in ktoe	Energy in ktoe	Employment in FTE	Turnover in MEUR
Hydropower	29 309.8	29 628.5	29 677.2	5 900	4 650
Wind power	5 733.5	12 442.4	32 366.8	280 400	43 630
Solar PV, and CSP	125.4	1 996.9	12 392.0	165 700	20 870
Solid biomass	3 489.6	5 587.4	7 132.7	283 000	29 750
Ren. energy in transport[2]	4 852.4	14 612.9	24 762.5	141 600	11 720
Renew. heat consumed	56 906.4	71 366.9	75 520.8		
Renew. heat derived	6 704.3	10 099.7	15 752.9		
Heat pumps	2.290.9	5 507.7	13 316.0	318 800	40 970
All other renewables	2 263.4	4 530.6	7 513.2	87 900	11 370
Gap towards 2020	106 758.4	62 661.2			

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

[2] Employment and turnover are only referring to biofuels in transport.

CURRENT RENEWABLE ENERGY POLICY

Summary

The European Union (EU) aims to be climate-neutral by 2050 – an economy with net-zero greenhouse gas (GHG) emissions, which is at the heart of the European Green Deal and in line with the EU's commitment to global climate action under the Paris Agreement. The intermediate target of reducing net GHG emissions is adapted to at least 55% by 2030 compared to 1990 levels. The achievement of these targets requires higher shares of renewable energy sources (RES) and greater energy efficiency. On the 14th of July 2021, the European Commission (EC) proposed in the amendment of the Renewable Energy Directive to increase the binding target of RES in the EU's energy mix from 32% to 40% by 2030. To meet the EU's energy and climate targets for 2030, EU countries need to establish a 10-year integrated national energy and climate plan (NECP) for the period from 2021 to 2030. For the long-term commitments under the Paris Agreement and EU objectives, EU Member States are required to develop national long-term strategies by 1st of January 2020 on how they plan to achieve the greenhouse gas emissions reductions needed. The next strategies are due by 1 January 2029 and every 10 years thereafter. Member States should, where necessary, update their strategies every five years. Later on the 18th of May 2022, the EC proposed in the REPowerEU Plan to raise the RES target for 2030 to 45% due to the hardships and global energy market disruption caused by Russia's invasion of Ukraine. Furthermore, the RED II revision suggests to set a benchmark of 49% of RES in buildings by 2030 and increase the use of RES in heating and cooling by +1.1% each year in each Member States until 2030.
The EU Emission Trading Scheme (ETS) aiming at direct GHG emissions reduction by installations falling under this Directive, is indirectly supporting the uptake of renewables RES as well, as does – rather modestly – the current overall GHG emissions reduction target for year 2030 relative to year 1990 emissions of 55%. The increase of climate ambitious would provide more robust indirect support to achieving the 45% renewables objective. 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.

Renewable energy policy

Renewable Energy Directives

The current directive in force aimed at promoting renewables is the 2018 Renewable Energy Directive (RED II)[1], which sets a binding target of a 32% share of energy from renewable energy source of total final energy consumption to be achieved in 2030. Additionally, RED II contains a transport sub-target: Member States must require fuel suppliers to supply a minimum of 14% of the energy consumed in road and rail transport by 2030 as renewable energy.

On the 14th of July 2021, the amendment of REDII proposed to increase the RES target at EU level to at least 40% of the Union's gross final consumption of energy in 2030. The following substantial amendments are also proposed:

- It introduces the obligation to phase out, with some exceptions, support for electricity production from biomass from 2026.

[1] https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en

- It proposes to update calculation method of the share of energy from renewable energy sources so that (i) energy from renewable fuels of non-biological origin must be accounted in the sector in which it is consumed (electricity, heating and cooling or transport), and (ii) the renewable electricity used to produce renewable fuels of non-biological origin is not included in the calculation of the gross final consumption of electricity from renewable sources in the Member State.
- A new Article 15a is inserted on mainstreaming renewable energy and enabling measures to mainstream heating & cooling in buildings. This new Article includes a new indicative Union target of renewables in buildings by 2030 of 49% and a reference to the new definition of 'efficient district heating and cooling' that will be added to the recast Energy Efficiency Directive, which is one of the ways the minimum level of RES in new buildings and buildings undergoing major renovation can be satisfied.
- It adjusts paragraphs on the qualification and certification requirements of installers to deal with the fact that there is a shortage of installers of renewable heating systems, which is a 'brake' on phasing out fossil fuel systems. It also deletes list of specific types of renewable heating technologies and replaces it by a generic reference to RES heating systems. It amends Article 18(4) REDII by obliging Member States to put in place measures to support participation in training programmes. The previous possibility for Member States to make the list of qualified installers public becomes a requirement.
- It adds a new and additional paragraph to enhance energy system integration between DHC systems and other energy networks, by requiring Member States, where relevant, to develop efficient DHC to promote heating and cooling from RES.
- It inserts a new Article on mainstreaming RES in industry with an indicative target of an annual average increase of renewable energy of 1.1% and a binding target of 50% for renewable fuels of non-biological origin used as feedstock or as an energy carrier. It also introduces a requirement that the labelling of green industrial products indicates the percentage of RES used following a common EU-wide methodology.
- It sets a binding baseline 1.1% annual increase in heating and cooling and adds an additional paragraph obliging the Member States to carry out an assessment of their potential of energy from RES and of the use of waste heat and cold in the heating and cooling sector. It also amends Article with an extended menu of measures to help them implement the heating and cooling target.
- It increases the ambition level of RES in transport by setting a 13% GHG intensity reduction target, increasing the sub-target for advanced biofuels from at least 0.2 % in 2022 to 0.5% in 2025 and 2.2 % in 2030, and introducing a 2.6% sub-target for RFNBOs.

REPoweEU Plan

On the 18th of May 2022, the EC proposed in the REPowerEU Plan to raise the RES target for 2030 to 45% due to the hardships and global energy market disruption caused by Russia's invasion of Ukraine. This would bring the total renewable energy generation capacities to 1236 GW by 2030, in comparison to 1067 GW by 2030 envisaged under Fit for 55 for 2030. Solar photovoltaics (PV) is one of the fastest technologies to roll out. That is why the Commission sets the REPowerEU target of over 320 GW of solar photovoltaic newly installed by 2025, over twice today's level, and almost 600 GW by 2030. As part of the increased ambition for solar,

the Commission presents the EU solar strategy[2] and introduces the European Solar Rooftop Initiative anchored around a legally binding EU solar rooftop obligation for certain categories of buildings.

To further strengthen the EU wind sector's global competitiveness, and achieve the REPowerEU ambition with fast wind energy deployment, supply chains of wind energy need to be strengthened and permitting drastically accelerated.

The European Union should aim at doubling the current deployment rate of individual heat pumps, resulting in a cumulative 10 million units over the next 5 years. Member States can accelerate the deployment and integration of large-scale heat pumps, geothermal and solar thermal energy in a cost-effective way by:

- developing and modernising district heating systems which can replace fossil fuels in individual heating;
- clean communal heating, especially in densely populated areas and cities;
- exploiting industrial heat whenever available.

To strengthen the supply chains for solar, wind and heat pump technologies and make them more sustainable, the Commission will:

- enhance the regulatory framework and ensure life-cycle sustainability, by tabling, in the first quarter of 2023, ecodesign and energy labelling requirements for solar PVs, and by revising existing requirements for heat pumps.
- support efforts from Member States to pool their public resources via potential Important Projects of Common European Interest (IPCEI) focused on breakthrough technologies and innovation along the solar and wind energy and heat pumps value chains.

Furthermore, the plan targets also on boosting sustainable biomethane production to 35 bcm by 2030 is a cost-efficient path to achieve our ambition to reduce imports of natural gas from Russia. To increase the capacity of biogas production in the EU and promote its conversion into biomethane, the estimated investment needs amount to EUR 37 billon euro over the period.

State aid guidelines

The Commission adopted revised guidelines on state aid for environmental protection and energy that are currently in force, in February 2022. These guidelines aim to transform the Union into a fair and prosperous society with a modern, resource-efficient and competitive economy, where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use, while leaving no one behind. Competition policy, and State aid rules in particular, has an important role to play in enabling and supporting the Union in fulfilling its Green Deal policy objectives. The European Green Deal Communication specifically states that the State aid rules will be revised to take into account those policy objectives, to support a cost-effective and just transition to climate neutrality, and to facilitate the phasing out of fossil fuels, while at the same time ensuring a level-playing field in the internal market. These guidelines reflect that revision.

National Energy and Climate plan

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). These plans are key

[2] EU solar energy strategy, COM(2022) 221, (18.05.2022)

instruments to achieve the EU energy and climate targets, including the EU RES target, in a coherent way. The Member States were due to finalise their first NECPs by ultimo 2019 (some did de facto by early 2020), 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 has taken stock of the final plans and has confirmed that they are consistent with the Union's 2030 targets. In turn, the Member States are to report, mostly on a biennial basis on the progress of implementing 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 private sector finance and Member State support through other EU financing channels to be succinctly presented below. The Commission has estimated in State Aid Guidelines that achieving the newly increased 2030 climate, energy and transport targets will require €390 billion of additional annual investment compared to the levels in 2011- 2020, with a further €130 billion a year for the other environmental objectives estimated previously. 2021-2027 long-term EU budget & NextGenerationEU set out the current EU long-term budget (also known as Multiannual Financial Framework – MFF) running from 2021 to 2027 and the instrument NextGenerationEU supporting the recovery plan for Europe.[3]

The funding programme for research and innovation, *Horizon Europe*, is the EU's key funding programme for the period from 2021-2027 with a budget of €95.5 billion, of which €15 billion is dedicated for global challenges and European industrial competitiveness in climate, energy and mobility sectors.

The *Just Transition Fund* (JTF) is the first pillar of the Just Transition Mechanism (JTM). It will be a key tool to support the territories most affected by the transition towards climate neutrality providing them with tailored support. It is implemented under shared management, under the overall framework of Cohesion policy, which is the main EU policy to reduce regional disparities and to address structural changes in the EU. The fund will be equipped with €17.5 billion (in 2018 prices; €19.2 billion in current prices). This amount corresponds to fresh money made available to support EU countries in their green transition, out of which €7.5 billion will be financed under the EU's 2021-2027 budget, while the remaining €10 billion will constitute external assigned revenue stemming from the European Recovery Instrument (and, as such, will be made available from 2021 to 2023).

The *Modernisation Fund*, funded from the sale of 2% of the total EU ETS emission allowances over the period 2021-2030, is to provide funding for innovative renewable energy projects.[4] Furthermore, support can be applied through *Important Projects of Common European Interest* (IPCEI), which may represent a very important contribution to economic growth, jobs and competitiveness for the Union industry and economy. IPCEIs make it possible to bring together knowledge, expertise, financial resources and economic actors throughout the Union.

[3] https://ec.europa.eu/info/strategy/eu-budget/long-term-eu-budget/2021-2027_en

[4] https://ec.europa.eu/clima/eu-action/funding-climate-action/modernisation-fund_en#:~:text=The%20Modernisation%20Fund%20is%20a,systems%20and%20improve%20energy%20efficiency.

The *Innovation Fund* will provide around EUR 38 billions of support from 2020 to 2030 (at EUR 75 / tCO2), depending on the carbon price, for the commercial demonstration of innovative low-carbon technologies, aiming to bring to the market industrial solutions to decarbonise Europe and support its transition to climate neutrality. The goal is to help businesses invest in clean energy and industry to boost economic growth, create local future-proof jobs and reinforce European technological leadership on a global scale.[5]

The *InvestEU* will support sustainable investments in all sectors of the economy and will contribute to the dissemination of sustainable practices among private and public investors. At least 30% of the InvestEU Programme, in line with the European Green Deal objectives, shall support financing for investments that contribute to EU's climate objectives. Moreover, 60% of the investments supported under the "Sustainable Infrastructure Window" of the InvestEU Fund shall contribute to EU's climate and environmental objectives.[6]

The *European Regional Development Fund* and the Cohesion Fund will also get allocations from the MFF 2021-2027. Both funds provide co-funding for, inter alia, renewable energy projects. Regulation (EU) No. 1301/2013 provides the legal framework for their functioning.

[5] https://ec.europa.eu/clima/eu-action/funding-climate-action/innovation-fund/policy-development_en
[6] https://investeu.europa.eu/index_en

For further information:

Amendment to the Renewable Energy Directive to implement the ambition of the new 2030 climate target, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0557

EU climate strategies & targets, https://ec.europa.eu/clima/eu-action/climate-strategies-targets_en

European Green Deal, https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

National energy and climate plans, https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

National long-term strategies, https://ec.europa.eu/info/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-long-term-strategies_enREPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition, https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3131

State aid guidelines, https://ec.europa.eu/commission/presscorner/detail/en/qanda_22_566

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.

Funded by the European Commission