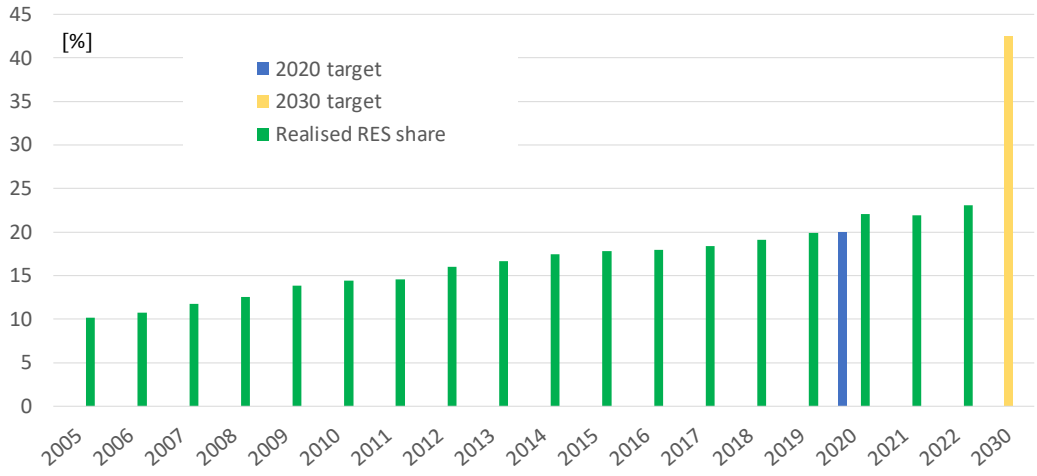
Renewable Energy Policy Factsheet

June 2024

European Union

Renewable energy status

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



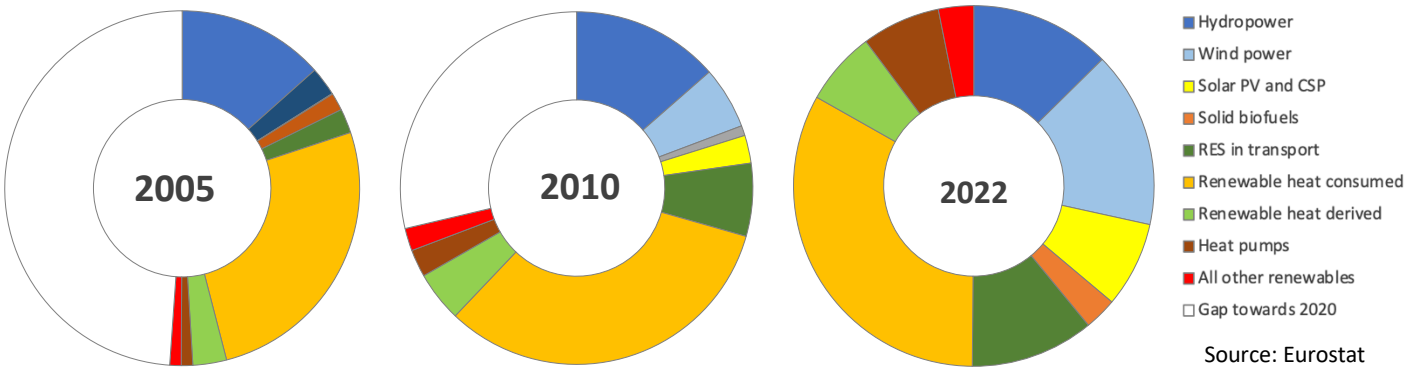
Source: Eurostat

Abbreviations used:

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

Data for 2022

Overall RES share:	23.0%	Avoided fossil fuels:	192.2 [Mtoe]
Overall RES 2020 target:	20.0%	Avoided fuel expenses:	151 102 [MEUR]
Overall RES 2030 target:	42.5%	RES Turnover:	209 730 [MEUR]
Share RES-E in electricity:	41.2%	RES Employment:	1 692 100 [jobs]
Share RES-T in transport:	9.6%	RES imports[1]:	29 625 [MEUR]
Share RES-H/C in heating:	24.9%	RES exports[1]:	14 607 [MEUR]



Source: Eurostat

	2005	2010	2022		
	Energy in ktoe	Energy in ktoe	Energy in ktoe	Employment in FTE	Turnover in MEUR
Hydropower	29 309.8	29 628.5	29 697	78 600	7 510
Wind power	5 733.5	12 442.4	37 228	273 500	43 260
Solar PV, and CSP	125.4	1 996.9	18 079	373 600	44 240
Solid biomass	3 489.6	5 587.4	6 879	331 700	36 160
Ren. energy in transport[2]	4 852.4	14 612.9	26 086	149 700	12 220
Renew. heat consumed	56 906.4	71 366.9	77 770		
Renew. heat derived	6 704.3	10 099.7	15 561		
Heat pumps	2.290.9	5 507.7	16 573	416 200	57 390
All other renewables	2 263.4	4 530.6	7 437	68 800	8 350

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, 2022 edition*

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

CURRENT RENEWABLE ENERGY POLICY

Summary

SUMMARY

The European Union (EU) is committed to achieving climate neutrality by 2050, aiming for net-zero greenhouse gas (GHG) emissions as part of the European Green Deal, aligning with the Paris Agreement. A key milestone is reducing net GHG emissions by at least 55% by 2030 compared to 1990 level, necessitating higher shares of renewable energy sources (RES) and improvement of energy efficiency. The revised Renewable Energy Directive (also known as RED III) [1], entered into force on October 30th, 2023, mandates a binding target of 42.5% share of energy from renewables by 2030 and proposes to aim for an even higher share of 45%. Building on the previous Directives, the revised Directive introduces stronger measures to support the development and uptake of renewables, in order to achieve the climate neutrality goal by 2050 and ensure the secure supply of energy in the EU. Key policies include promoting innovative technologies, enhancing grid integration, supporting renewable power purchase agreements (PPAs), facilitating self-consumption and energy communities, encouraging cross-border cooperation, and phasing out biomass for electricity-only production. Additionally, sector-specific targets for renewables in heating and cooling, transport, industry, buildings and district heating and cooling are increased to facilitate the increased RES target. Furthermore, the revised Directive also sets targets for renewable fuels of non-biological origin (RFNBOs), including hydrogen, in transport and industry sectors, to foster the emissions reduction in hard-to-electrify sectors.

The EU has also revised state aid guidelines to align with the European Green Deal, ensuring RES-support schemes are compatible with EU competition law. The 10-year integrated national energy and climate plans (NECPs) for 2021-2030, prepared by all Member States (MS), outline pathways to meet energy and climate targets and have been updated by MS in 2023 according to the article 14 of the Governance Regulation. The Commission's review confirmed their consistency with the EU's 2030 targets, with updates due in 2024.

Support for RES includes funding through programmes like Horizon Europe (€95.5 billion for 2021-2027), the Just Transition Fund (€19.2 billion), the Modernisation Fund, and the Innovation Fund (€38 billion for 2020-2030). The InvestEU programme supports sustainable investments, with at least 30% dedicated to EU climate objectives. The Connecting Europe Facility (CEF) allocates €5.84 billion for 2021-2027 to enhance trans-European networks in transport, energy, and digital services, supporting the EU's decarbonization goals.

RENEWABLE ENERGY POLICY

Renewable Energy Directives

RES-E

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023L2413

The currently in force Renewable Energy Directive (RED III) introduces the following policies for the electricity sector:

- Support for Innovative Technologies: The directive encourages MS to focus on deploying innovative renewable energy technologies. An indicative target suggests that at least 5% of newly installed capacity should come from innovative technologies by 2030. This includes technologies like floating solar panels, advanced wind technologies, and integration of renewable energy storage solutions.
- Grid Integration and Flexibility: RED III emphasizes improving grid integration and flexibility to accommodate higher shares of variable renewable energy sources such as wind and solar. Measures include enhancing grid management practices, investing in innovative grid technologies, and promoting energy storage solutions to stabilize supply.
- Promotion of Power Purchase Agreements (PPAs): The directive supports using renewable power purchase agreements (PPAs) to secure long-term buying commitments for renewable electricity. This helps to provide financial security for new renewable projects and encourages corporate investment in renewables.
- Facilitation of Self-Consumption and Energy Communities: RED III promotes self-consumption of renewable electricity and the development of renewable energy communities. It supports regulatory frameworks that make it easier for individuals and communities to produce, consume, and sell renewable energy, thereby decentralizing energy production and supporting local energy resilience.
- Cross-border Cooperation: The directive encourages EU countries to engage in cross-border cooperation to achieve their renewable energy targets more efficiently. This can include joint projects, shared renewable energy installations, and harmonized regulatory frameworks to facilitate energy trade and cooperation.
- Phase-Out of Biomass for Electricity Production: While not explicitly dealing with increasing renewables directly, the directive plans to phase out or reduce support for biomass for electricity-only production to ensure sustainability and focus on more efficient uses of biomass in cogeneration.

RES - T

Additionally, RED III stipulates a new target for the transport sector: MS must now either reduce the GHG intensity in the transport sector by 14.5% or increase the share of renewables to at least 29% in the transport sector`s final energy consumption and the following additional measures:

- Specific target for advanced biofuels and renewable fuels of non-biological origin (RFNBOs): a combined target share for both renewable fuels in the energy supply to the transport sector is set to promote sustainable alternatives to traditional fossil fuels. The targets are at least 1% in 2025 and 5.5% in 2030, of which at least 1% is from RFNBOs. For MS with maritime ports, they shall endeavour to ensure that as of 2030 the share of RFNBOs in the total amount of energy supplied to the maritime transport sector is at least 1.2 %.
- Strengthened Sustainability Criteria for Biofuels: RED III reinforces sustainability criteria to ensure the environmental integrity of biofuels used in transport. This includes stricter controls

to prevent deforestation and ensure that biofuel production does not compete with food crops, promoting truly sustainable fuel sources.

RES - H&C

The revised RED III directive mandates MS to set binding targets for RES share in heating and cooling sector with an annual increase of at least 0.8% between 2021 and 2025 and 1.1% between 2026 and 2030. This consistent and quantifiable increase aims to achieve a more substantial progressively integrated integration of renewable energy sources. Additionally, the following measures were introduced:

- Integration of Energy Efficiency and Renewable Sources: The RED III directive emphasizes integrating energy efficiency measures with deploying renewable energy technologies. This dual approach increases the share of renewables and maximizes overall energy efficiency, particularly in new buildings and major renovations.
- Support for District Heating and Cooling (DHC) Systems: The RED III directive promotes developing and modernizing DHC systems that utilize renewable energy and waste heat. This includes policy measures that facilitate the infrastructure upgrade necessary for integrating renewable sources, thereby enhancing the efficiency and sustainability of DHC systems. In addition, there is an indicative target of RES and waste heat in DHC systems of 2.1% annual increase.

REPowerEUPlan

The REPowerEU Plan, proposed on May 18, 2022, aims to address the energy challenges amplified by geopolitical tensions, specifically Russia's invasion of Ukraine. Central to the plan is the ambitious goal to increase the EU's renewable energy target for 2030 to 45%. This adjustment would significantly expand renewable energy capacities, aiming for 1236 GW by 2030.

- Solar Energy Expansion: The plan envisions a substantial increase in solar photovoltaic (PV) installations, targeting over 320 GW by 2025 and nearly 600 GW by 2030. This includes the introduction of the European Solar Rooftop Initiative, which mandates solar installations on specific categories of buildings.
- Wind Energy Development: To enhance the EU's global competitiveness in the wind sector, the plan emphasizes the need for strengthened supply chains and dramatically accelerated permitting processes to facilitate rapid wind energy deployment.
- Heat Pump Deployment: The plan advocates for doubling the rate of heat pump installations, targeting an additional 10 million units over the next five years. This includes promoting the integration of large-scale heat pumps, geothermal, and solar thermal energy, particularly through the development and modernization of district heating systems.
- Sustainable Production Enhancements: The plan outlines measures to strengthen supply chains for key technologies like solar, wind, and heat pumps. This includes regulatory improvements, such as eco-design and energy labeling requirements, and supporting MS in pooling resources for important projects of common interest.

- Biomethane Production: A significant focus is also placed on increasing sustainable biomethane production to 35 billion cubic meters (bcm) by 2030, highlighting biogas production and its conversion to biomethane as a strategic path to reduce natural gas imports

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 a vital 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.

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 MS. 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.[2]

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

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

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.[3] 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.

The *Innovation Fund* will provide around EUR 38 billion 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 globally.[4]

The *InvestEU* will support sustainable investments in all sectors of the economy and will contribute to disseminating 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 goals.[5]

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.

The *Connecting Europe Facility (CEF)* is a crucial EU funding instrument to advance the European Green Deal and achieve the Union's decarbonization goals for 2030 and 2050. Primarily, it enhances the development of high-performing, sustainable, and efficiently interconnected trans-European networks in transport, energy, and digital services, crucially impacting Europe's energy sector. For the 2021-2027 period, the *CEF* has allocated an energy budget of €5.84 billion. The investments are directed towards transitioning to clean energy and completing the Energy Union. The focus areas include cross-border renewable energy projects, enhancing the interoperability of networks, and fostering better integration of the internal energy market.

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

[4] https://ec.europa.eu/clima/eu-action/funding-climate-action/innovation-fund/policy-development_en

[5] https://investeu.europa.eu/index_en

For further information:

The revised Renewable Energy Directive EU/2023/2413, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023L2413&qid=1699364355105

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_en

REPowerEU: 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

The CEF fund: Energy Infrastructure (Connecting Europe Facility) - European Commission , https://cinea.ec.europa.eu/programmes/connecting-europe-facility/energy-infrastructure-connecting-europe-facility-0_en

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