

Spain

Renewable energy status

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



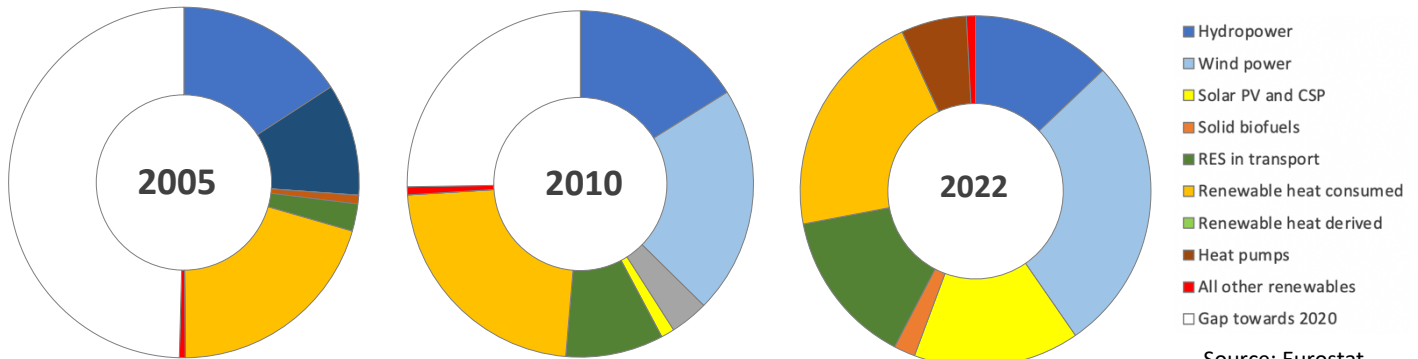
Source: Eurostat

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:	22.1%	Avoided fossil fuels:	17.6 [Mtoe]
Overall RES 2020 target:	20%	Avoided fuel expenses:	15 893 [MEUR]
Overall RES 2030 target:	47.9%	RES Turnover:	17 400 [MEUR]
Share RES-E in electricity:	50.9%	RES Employment:	156 400 [jobs]
Share RES-T in transport:	9.7%	RES imports ² :	3 603 [MEUR]
Share RES-H/C in heating:	20.0%	RES exports ² :	773 [MEUR]



Source: Eurostat

	2005	2010	2022		
	Energy in ktoe	Energy in ktoe	Energy in ktoe	Employment in FTE	Turnover in MEUR
Hydropower	2 733.4	2 782.2	2 592	3 600	420
Wind power	1 782.4	3 672.1	5 509	37 100	4 970
Solar PV, and CSP	4.1	617.9	3 072	42 300	4 730
Solid biomass	135.8	215.6	396	26 400	2 060
Ren. energy in transport ³	434.6	1 579.6	2 883	13 100	1 300
Renew. heat consumed	3 523.6	3 910.2	4 240		
Renew. heat derived	0.0	0,0	0		
Heat pumps	0.0	0,0	1 211	32 200	3 720
All other renewables	92.3	129.6	167	1 700	200

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 From Integrated National Energy Climate Plan

² Referring to the International Trade chapter from the publication: EurObserv'ER - *The State of Renewable Energy in Europe, 2022 edition*

³ Employment and turnover are only referring to biofuels in transport.



CURRENT RENEWABLE ENERGY POLICY

RES-E

According to Spain's NECP 2012-2030 plan, it aims to achieve 81% of electricity from renewable energy by 2030. In 2023, Spain set a record to achieving this and reached an annual electricity production of 50.4 percent which was sourced from renewable energy sources. Royal Decree-Law 8/2023 introduced new measures in the electricity sector because of the war between Russia and Ukraine. Initially, under the Royal Decree-law 12/2021 adopted on 24 June 2021, electricity-producing facilities that contribute to the electricity system were exempted from the suspension of 7 percent of Tax on the Value of Electricity Production (IVPEE) until 31 December 2023. However, with the introduction of Royal Decree-Law 8/2023, this exemption was terminated and starting 1 January 2024, IVPEE was applicable to all electricity producing facilities at rate of 3.5% until March and increased to 5.25% until June.

RES-H&C

In the past, there was a lack of focus on the decarbonisation of heating and cooling in Spain. However, the new draft of the National Climate and Energy Plan of 2023 has shown focus and development of local heating and cooling plans. Royal Decree-Law 14/22 introduced on 1 August 2022 had shown exceptional efforts to promote energy saving, enhancing energy efficiency, and reducing energy dependence.

The law was modified for specific non-residential buildings until 1 November 2023 and mandated setting a maximum heating temperature of 19°C and a minimum cooling temperature of 27°C. Moreover, air-conditioned rooms with access to the street must have automatically closing doors, and there are amendments related to energy efficiency inspections of generating equipment.

RES-T

Spain's NECP sets clear targets reduction to increase the share of renewables in various sectors, including the transport sector such as in greenhouse gas emissions from 55% to 32%. Climate Change and Energy Transition Law 2021 has also set new measures to identify new fuel and combustible supply facilities starting 2023. New regulations such as building other than residential buildings that have more than 20 parking spaces must provide electric vehicle charging points have come into effect.

With the introduction of the Hydrogen Roadmap 2050, Spain aims to have 150-200 buses powered by renewable hydrogen fuel cells, develop a network of 100 to 150 hydrogen refueling stations across the country and implement hydrogen powered trains for medium and long-distance routes.

Table 1: Brief description of key policy instruments aimed at promoting RES in the Spain

<i>Instrument</i>	<i>Description</i>
Climate Change and Energy Transition Law, 2021	<p>The Climate Change and Energy Transition Law came into effect on May 20, 2021. This legislation incorporates into Spanish law the goal of achieving climate neutrality by 2050.</p> <p>The long-term aim is to decarbonize the economy by 2050 with a fully renewable electricity system. By 2030, it aims to reduce greenhouse gas emissions by at least 23% compared to 1990 levels, reach 42% renewables in final energy consumption, achieve 74% renewable electricity generation, and improve energy efficiency by reducing primary energy consumption by at least 39.5%.</p> <p>Starting in 2023, and every two years thereafter, a resolution from the Secretary of State for Energy will identify the new fuel and combustible supply facilities required to adhere to the new regulations.</p> <p>From 2023:</p> <ul style="list-style-type: none"> • All buildings for use other than private residential use that have a parking area with more than 20 parking spaces must provide at least the minimum electric vehicle recharging infrastructure • Credit institutions must publish specific decarbonization targets for their lending and investment portfolio. <p>Moreover, the energy targets may be adjusted by the Council Ministers starting 2023.</p>
Integrated National Energy and Climate Plan (NECP), 2021-2030	<p>Since the last adoption of the NECP 2021-2030 in May 2022, a preliminary revision of the 2023-2030 NECP has been prepared, aligning with emission reduction targets set at the European level.</p> <p>This draft outlines the following objectives compared to NECP 2021-2030 targets to be achieved by 2030:</p> <ul style="list-style-type: none"> • Reduction in greenhouse gas emissions from 55% to 32% • From 42.5% to 48% of final energy consumption sourced from renewables. • A 44% enhancement in energy efficiency in terms of final energy compared to 38-40.5% in the last plan • 81% of electricity generation from renewable sources. • Decreasing energy dependency to 51%.
National Recovery and Resilience Plan – Green Transition, 2021	<p>Spain's reforms and investments, as approved by the Council on 13 July 2021, are paving the way for the challenges and opportunities presented by the green and digital transitions. Following Council approval of Spain's plan on 13 July 2021, Spain's recovery and resilience plan was updated on 17 October 2023, with an augmented allocation and the addition of a REPowerEU chapter.</p> <p>Key points include:</p> <ul style="list-style-type: none"> • 142 investment streams and 111 reforms are now part of the plan. • 40% of the plan is dedicated to supporting climate objectives. • 26% of the plan aims to drive the digital transition. <p>The updated plan introduces one reform, scales up one investment, and includes seven new investments aimed at reducing Spain's reliance on fossil fuels, aligning with the objectives of REPowerEU.</p>
Royal Decree-Law 8/2023	<p>On 28 December 2023, Royal Decree-Law 8/2023 introduced substantial new measures for the electricity sector, expanding upon the initial packages of measures designed to address the impacts in Spain resulting from the war in Ukraine.</p> <p>Royal Decree-law 12/2021 adopted on 24 June 2021, initially exempted electricity-producing facilities that contribute to the electricity system from the suspension of the Tax on the Value of Electricity Production (IVPEE), a 7% tax on the value of electricity production, during the third quarter of 2021. This exemption was subsequently extended until 31 December 2023.</p> <p>However, under RDL 8/2023, the suspension of the IVPEE has ceased, and starting from 1 January 2024, it will be applicable at a rate of 3.5% until March and increased to 5.25% until June.</p>
Royal Decree-Law 14/2022	<p>On 1 August 2022, Royal Decree-Law 14/2022 introduced exceptional measures aimed at promoting energy savings, enhancing energy efficiency, and reducing energy dependence. These measures temporarily modified paragraph 2 of RITE I.3.8.1 for specific non-residential buildings until 1 November 2023.</p>

	The law included setting a maximum heating temperature of 19°C and a minimum cooling temperature of 27°C. Additionally, air-conditioned rooms with access to the street must have automatically closing doors, and there are amendments related to energy efficiency inspections of generating equipment.
Hydrogen Roadmap of Spain (2020-2050)	<p>The Spanish government introduced “Hydrogen Roadmap: A Commitment to Renewable Hydrogen” which was approved in October 2020. The Roadmap outlines a vision for 2030 and 2050, setting national targets for the next decade. Specifically, in the transportation sector, the plan aims to achieve the following milestones by 2030:</p> <ul style="list-style-type: none"> • 150 to 200 buses powered by renewable hydrogen fuel cells. • Introducing 5,000 to 7,500 light and heavy hydrogen fuel cell vehicles for transporting goods. • Developing a network of 100 to 150 hydrogen refueling stations across the country, spaced no more than 250 km apart. • Implementing hydrogen-powered trains on at least two commercial medium- and long-distance routes that are currently not electrified. • Adopting handling machinery equipped with renewable hydrogen fuel cells and establishing refueling points at the top five ports and airports by volume of goods and passengers.

For further information:

Climate Change and Energy Transition Law, 2021,
https://www.boe.es/diario_boe/txt.php?id=BOE-A-2021-8447

Integrated National Energy and Climate Plan (NECP), 2021-2030,
https://commission.europa.eu/document/download/9ea170ec-fdce-49cb-9424-4ee95db33a4a_en?filename=EN_SPAIN%20DRAFT%20UPDATED%20NECP.pdf

National Recovery and Resilience Plan – Green Transition, 2021,
https://commission.europa.eu/document/download/9ea170ec-fdce-49cb-9424-4ee95db33a4a_en?filename=EN_SPAIN%20DRAFT%20UPDATED%20NECP.pdf

Royal Decree-Law 8/2023, <https://www.boe.es/eli/es/rdl/2023/12/27/8>

Royal Decree-Law 14/22, <https://www.boe.es/eli/es/rdl/2022/08/01/14/con>

Hydrogen Roadmap of Spain (2020-2050), https://www.iea-amf.org/content/publications/country_reports/spain

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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