

IMPLEMENTATION PLAN

SPAIN

This document is carried out in compliance with Article 20.3 of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

INTRODUCTION

This document is prepared in accordance with Article 20(3) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

The elements addressed therein pursue the objectives set by the European Union to ensure that market prices reflect only supply and demand conditions, that the integration of renewables and demand response in electricity markets is improved, that the free movement of electricity within and between Member States is achieved, that there is free entry and exit to the market for all market participants and that transparent trading of electricity on wholesale markets is possible in the long term.

This implementation plan contains the measures that will enable Spain to address the main areas of improvement in the light of the shortcomings detected in order to achieve these objectives. To this end, the document includes an analysis of the main market deficiencies identified, as well as the measures and reforms that will be analysed and, where appropriate, undertaken, over different time horizons.

This document is therefore divided into three sections. The first section summarises the regulatory framework applicable to electricity markets (both wholesale and retail), with special mention of the latest regulatory developments, and an analysis outlining the general aspects of capacity mechanisms, indicating the instruments implemented in the past to guarantee security of supply in Spain, with a brief reference to the next steps that are expected to be taken for the potential approval of a capacity mechanism.

Furthermore, and in accordance with article 20.3 of Regulation 2019/943 (EU) of 5 June 2019 on the internal market for electricity, the second section includes an analysis of the main elements that distort the electricity markets, highlighting those regulatory developments that contribute to the elimination of the aforementioned distortions.

Finally, the third and last section compiles the measures that are intended to be implemented in each of the points analysed in the second section of this document.

1. SUMMARY AND EVOLUTION OF THE REGULATORY FRAMEWORK APPLICABLE TO THE SPANISH ELECTRICITY SYSTEM

The regulatory framework of the Spanish electricity system has undergone a profound transformation in recent years as a result of the need to adapt the regulation to the challenges arising from the energy transition and in compliance with the ambitious objectives of decarbonisation to which the Kingdom of Spain has committed itself. This transformation has also been reinforced by the gradual adaptation of national regulation to the European regulatory framework and, more recently, as a result of the response measures implemented to address the challenges arising from the energy crisis caused by Russia's invasion of Ukraine.

From the European perspective, the approval of the different regulations on capacity allocation, congestion management and electricity trade (in the different time horizons) and the approval of the important regulatory package "*Clean Energy for all Europeans*", represented a very significant boost in favour of the integration of European electricity markets, laying down the foundation for the promotion and deployment of a decarbonised European electricity production *mix* and consolidating the paradigm shift that involves the empowerment of the electricity consumer as an active subject of electricity markets.

Thus, since the approval of Directive (EU) 2019/944 of the European Parliament and of the Council, of 5 June 2019, on common rules for the internal market for electricity and amending Directive 2012/27/EU, as part of the aforementioned winter package, partial transposition has been carried out by means of, among others, Royal Decree-Law 23/2020, of 23 June, approving energy and other measures for economic reactivation, which amended Law 24/2013, of 26 December, on the Electricity Sector, to incorporate as agents of the electricity sector the storage facility owners, independent aggregators and renewable energy communities..

This transposition process has been updated with successive regulations, including Royal Decree 446/2023, of 13 June, amending Royal Decree 216/2014, of 28 March, which establishes the methodology for calculating voluntary prices for small electricity consumers and their legal contracting regime, for the indexation of voluntary prices for small electricity consumers to forward signals and reduction of their volatility, which adapts the regulation of the so-called "regulated retail prices" to the European regulatory framework in this area, as well as Royal Decree-Law 5/2023, of 28 June, adopting and extending certain measures in response to the economic and social consequences of the war in Ukraine, to support the reconstruction of the island of La Palma and other situations of vulnerability; transposing European Union Directives on structural modifications of commercial companies and reconciliation of family and professional life for parents and carers; and on the implementation and enforcement of European Union law, which introduces the figure of the so-called Citizen Energy Communities as a new subject of the electricity system that is destined to play an essential role in the aforementioned objectives of decarbonisation and consumer empowerment.

On the other hand, at the national level and in terms of distribution of competences, the approval of Royal Decree-Law 1/2019, of 11 January, on urgent measures to adapt the

competences of the National Markets and Competition Commission to the requirements derived from Community law in relation to Directives 2009/72/EC and 2009/73/EC of the European Parliament and of the Council, should be highlighted, of 13 July 2009 concerning common rules for the internal market for electricity and natural gas, has attributed the Spanish National Regulatory Authority (the National Markets and Competition Commission -CNMC-) competences in the area of, inter alia, organised electricity markets.

By virtue of the attribution of competences by the aforementioned regulation, the CNMC has been approving a set of regulatory provisions, including, in the wholesale market, Circular 3/2019, of 20 November, of the National Markets and Competition Commission, which establishes the methodologies that regulate the functioning of the wholesale electricity market and the management of the operation of the system, as well as the Resolution of 11 December 2019, of the National Commission for Markets and Competition, which approves the conditions relating to balancing service providers and balancing responsibility providers in the Spanish peninsular electricity system. In that regard, balancing conditions regulate the principles for the management of balancing activities, guaranteeing an adequate level of competition and fair conditions for all market participants, including the owners of power plants, demand response and storage systems.

Furthermore, the necessary modifications were also adopted by the so-call to the operating procedures for the participation of the Spanish electricity system in the European platforms for balancing replacement reserves and offsetting deviations, the management of these balancing energies and their settlement on the market, and the participation of demand and storage facilities in the different balancing markets.

In addition to the European regulatory framework and the distribution of competences described above, it is worth highlighting other regulatory actions and incentives that have contributed to the continued integration of renewables into the national electricity *mix*.

Thus, the new milestone system applicable to the processing of renewable electricity production projects, established in the aforementioned Royal Decree-Law 23/2020 of 23 June, and the new regulatory and remuneration framework set out in Royal Decree 960/2020 of 3 November, which regulates the economic regime for renewable energies for electricity power plants, have been largely responsible for the significant deployment of renewable production facilities, which currently places Spain as a renewable power, with a wind generation capacity with more than 30 GW of installed capacity and more than 20 GW of photovoltaic capacity already in operation. All this without taking into account the significant number of projects still in the permitting process, which are expected to largely meet the ambitious renewable energy development targets set out in the Integrated National Energy and Climate Plan (INECP) 2021-2030, currently under review.

At the same time, a privileged access to solar energy as a primary resource, linked to the facilitating regulatory framework that has been consolidated in recent years (in particular Royal Decree 244/2019, of 5 April, which regulates the administrative, technical and economic conditions for self-consumption of electricity), is making Spain an undisputed leader in the penetration of renewable self-consumption.

Regulatory developments with an impact on the retail sector include the implementation of the new methodologies for calculating the regulated costs of the electricity system, as well as the recent reform of the Voluntary Price for Small Consumers (PVPC).

From the point of view of the regulated costs of the electricity system (those costs used to finance the regulated activities of the electricity sector -transport and distribution of electricity- as well as other energy policy measures), the distribution of competences consolidated by the aforementioned Royal Decree-Law 1/2019, of 11 January, has given the CNMC the competence to approve the methodology, structure and values of the transmission and distribution tariffs, while the Government is responsible for approving the structure of the charges, their methodology and their values. Both methodologies have been approved during 2020 and 2021 (specifically, CNMC Circular 3/2020, of 15 January, establishing the methodology for calculating electricity transmission and distribution tariffs, and Royal Decree 148/2021, of 9 March, establishing the methodology for calculating electricity system charges) and their effective application took place on 1 June 2021. These methodologies have been designed with the aim of encouraging the process of electrification of the Spanish economy, contributing to the promotion of electric mobility and the electrification of energy end uses, guaranteeing the revenues necessary to finance the regulated costs of the electricity system, and promoting energy efficiency in consumption and environmental sustainability.

Also in the retail sector, it is worth highlighting the latest regulatory changes made to the Voluntary Price for Small Consumers (PVPC). This PVPC is currently configured as a contracting modality that incorporates a dynamic price whose calculation methodology, regulated by Royal Decree 216/2014, of 28 March, which establishes the methodology for calculating voluntary prices for small electricity consumers and its legal contracting regime, includes the result of the electricity market price in each hour, so this PVPC is considered to be a dynamic price perfectly indexed to the wholesale electricity market.

However, the aforementioned Royal Decree 446/2023 of 13 June has introduced a relevant change in the construction of the aforementioned regulated price, in such a way that certain forward signals are incorporated to partially "*de-index*" the wholesale market price.

The reason for this change is to be found in the price crisis suffered in recent years as a result of Russia's invasion of Ukraine.

Thus, since its creation in 2014, the previous regulation of the PVPC had been configured as one of the most competitive electricity supply offers in the retail electricity market, as shown in the annual supervision reports on the retail electricity market prepared by the CNMC. However, this competitiveness had been achieved at the cost of a high exposure of the marketers supplying the PVPC (reference marketers, or CORs) to the daily market, undermining the incentives to supply through forward hedging instruments, which has been revealed as a weakness in the context of the upward escalation of the prices of all energy products, caused in the first instance by the contagion effect of natural gas on electricity prices.

This energy context led to the approval of protection measures for all consumers, including the so-called "Iberian mechanism" regulated in Royal Decree-Law 10/2022 of 13 May, which temporarily established a production cost adjustment mechanism to

reduce the price of electricity in the wholesale market, which decoupled the escalation of gas prices from electricity prices, bringing significant savings to all end consumers.

However, as a structural measure, it became clear that a regulatory reform was needed to guarantee a certain degree of price stability for end consumers through partial indexation to the organised products of the organised forward market managed by OMIP (Operador del Mercado Ibérico-Polo Portugués), which was achieved through the approval of the aforementioned royal decree.

All the measures mentioned so far highlight the intense reform process carried out in recent times, which have tried to provide an effective response to the different challenges faced by the sector in recent years. However, as will be shown in the following sections, further important steps still need to be taken at both wholesale and retail level, so that new technologies such as storage, the effective participation of new market players (e.g. the independent aggregator), and the creation of new markets (such as local flexibility markets) improve the competitiveness of electricity markets, resulting in greater benefits for all actors involved, including the household, SME and industrial sectors. This development will be completed once the transposition process of Directive 2019/944 of 5 June 2019 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU is completed.

Finally, special mention should be made of the development of interconnections that allow the effective achievement of an internal market for electricity within the European Union.

The planning of the electricity transmission grid for the period 2021-2026, approved in March 2022, is currently in force and includes both internal transmission grid actions and interconnections with other countries. However, despite the wide range of actions included in this plan, Spain continues to have a reduced exchange capacity with the Central European electricity system. In addition to contributing to market integration, the development of new interconnections is essential to achieve the binding renewable energy targets.

Precisely this lack of interconnections is currently revealed, as detailed in this implementation plan, as one of the main distorting elements of the market that justifies the adoption, on a temporary basis and in compliance with the other requirements established in Regulation 2019/943 of 5 June 2019, of a capacity mechanism to guarantee the availability of certain firm capacity in order to ultimately safeguard security of supply. The capacity market to be implemented will remain in force as long as the restrictions observed are maintained, and in no case will it exceed the approval period provided by the European Commission, in accordance with article 21.8 of Regulation 2019/943, of 5 June 2019.

1.1 Evolution of capacity mechanisms in Spain

Capacity payments

Order ITC/2794/2007, of 27 September 2007, revising electricity tariffs as of 1 October 2007, approved the regulation of capacity payments that were defined in article 16 of the

repealed Electricity Sector Act 54/1997, of 27 November 1997, establishing in annex III of the aforementioned order, the conditions for providing the medium and long-term capacity service offered by power plants to the electricity system, the requirements for participating as a service provider, as well as the remuneration system for payments for this capacity.

Under the concept of capacity payments, this regulation included two types of service: the long-term capacity investment incentive and the medium-term availability service. The latter was not applied and was redefined by Order ITC/3127/2011, of 17 November, which regulates the availability service of capacity payments and modifies the investment incentive referred to in Annex III of Order ITC/2794/2007, of 27 September, which revises electricity tariffs as of 1 October 2007.

The availability service was intended to promote the availability over an annual time horizon of the installations, setting a payment for the plants subject to the provision of the service to ensure that they were operational and guaranteed electricity supply. The availability payments were based on the net installed capacity of the plant, as well as on an availability index.

The investment incentive was a long-term incentive to promote the construction and commissioning of generation facilities or significant investments in plant modifications in such a way as to enable the recovery of investment costs.

The aforementioned Order ITC/3127/2011, of 17 November, established the values of the availability service for a period of one year starting on the 15th day of the month following its entry into force. It also revised the long-term capacity investment incentive for plants whose commissioning certificate had been granted after 1 January 1998 in order to update this payment and adapt it to the changes that had occurred in the operating hours of these plants, and plants that had made significant environmental investments to reduce sulphur oxide emissions, in addition to desulphurisation plants, were included in this service.

Royal Decree-Law 9/2013, of 12 July, adopting urgent measures to guarantee the financial stability of the electricity system, established 1 January 2016 as the final date for entitlement to the long-term capacity investment incentive, the date by which facilities should have the definitive commissioning certificate, and reduced this incentive to €10,000/MW/year, accompanying this measure with an extension of the deadline. Therefore, from that date this incentive is closed for new plants, and the total annual payments foreseen will be progressively reduced, ending in 2035.

Finally, Order TEC/1366/2018, of 20 December, establishing the electricity access tariffs for 2019, partially repealed Order ITC/3127/2011, of 17 November, in line with the planned reforms of the capacity mechanisms in the "Clean Energy for All Europeans" legislative package, which had been presented by the European Commission on 30 November 2016, and in view of the transition process underway in Spain towards a new scenario characterised by decarbonisation, decentralisation of generation, electrification of the economy, more active participation of consumers and more sustainable use of resources.

In this scenario of increasing penetration of renewable energies and the new European framework, it was considered appropriate to carry out an in-depth analysis of the

availability service, in accordance with the guidelines of the aforementioned framework, and the medium-term availability service was eliminated.

As a result of this set of actions, it is concluded that only the capacity payments (long-term capacity investment incentive service payment) committed to certain power plants remain in force, with no new capacity payments expected to be committed under the aforementioned regulation. Beyond 2023, this downward trend will continue to consolidate until there are no installations left to collect this incentive in 2035. Specifically, in 2028, the payment to the last combined cycle plant entitled to remuneration from this incentive will end (there are currently nine plants of this type of technology that receive this remuneration). After this date, only one hydro facility will remain (which will receive this income until 2032) and one pumping plant will end its payment in 2035.

Interruptibility demand-side management service

On the other hand, the possibility of reducing the energy demanded in exchange for financial compensation was provided for in the Order of 20 February 1987, which established electricity tariffs. The successive orders approving electricity tariffs continued to regulate the interruptibility supplement, which was available to certain consumers under certain conditions.

Subsequently, Royal Decree 1634/2006, of 29 December, establishing the electricity tariff from 1 January 2007, determined that the interruptibility supplement would disappear on 1 July 2008.

This Royal Decree established the basis for regulating the interruptibility demand management service, as the need to adapt Spanish regulation to that of the European Union and to avoid discriminatory treatment of consumers based on the procedure for acquiring energy made it necessary to enable consumers who acquire their energy freely on the Production Market to participate in the capacity reduction mechanism.

Thus, Order ITC/2370/2007 of 26 July 2007 was approved, regulating the interruptibility demand-side management service for consumers who purchase their energy on the production market, which is currently still applicable to consumers located in the electricity systems of non-mainland territories.

The administrative authorisation for the provision of the interruptibility service is granted, where applicable, by the Directorate General for Energy Policy and Mines.

Since 2015, the interruptibility service for consumers located in the peninsula is regulated in the Order IET/2013/2013, of 31 October, which regulates the competitive mechanism for the allocation of the interruptibility demand management service¹, which includes a competitive auction procedure (thus replacing the previous authorisation regime), managed by the System Operator, in which interruptible resource is allocated for two

¹ The service can be activated both for technical reasons and for economic reasons (when the cost of interrupting the supply is lower than the cost of activating the corresponding adjustment services).

types of product: a 5 MW product; and a very high availability product, which until 31 May 2018 was 90 MW, since then they are 40 MW blocks.

Since 2017, a number of amendments have been made to bring the mechanism into line with the requirements of EU legislation, among others:

- The reduction of the service delivery period, of the maximum capacity to be auctioned and of the starting prices of the blocks.
- The modification of the activation criteria for economic reasons so that the interruptibility service is used more frequently.

However, the last auction held under this framework was applicable for the first half of 2020, with no new interruptibility auctions planned.

1.2 Current situation and proposed capacity mechanism

Spain currently has just over 121 GW of installed capacity at national level, distributed among different technologies and in which renewable production plays an increasingly predominant role (currently, 23.2% of this generation corresponds to wind technology, around 11.3% to conventional hydro and pumped-storage and more than 14.4% to photovoltaic technology, among others). This generation fleet is also facing an unprecedented transformation process, guided by the guidelines established in the National Integrated Energy and Climate Plan 2021-2030 (currently under review), a planning instrument drawn up within the framework of 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, which sets the renewable penetration path necessary to ensure compliance with the decarbonisation requirements to which the Kingdom of Spain has committed itself.

Thus, in accordance with the plan currently in force, renewable electricity generation in 2030 will account for 74% of the total, consistent with a trajectory towards a 100% renewable electricity sector by 2050. In addition to this integration of renewables, it is necessary to incorporate storage technologies (a total of 6 GW of storage is expected by 2030), as well as other technological levers to provide flexibility to the electricity system, all in order to have sufficient back-up technology to accompany the aforementioned renewable penetration.

Specifically, the plan foresees a total installed capacity in the electricity sector of 161 GW by 2030, of which 50 GW will be wind energy; 39 GW solar photovoltaic; 27 GW combined cycle gas (coinciding with the currently existing combined cycles -CCGT-); 16 GW hydro; 9.5 GW pumped-storage; 7 GW solar thermoelectric; and 3 GW nuclear, as well as smaller capacities of other technologies. A comparative analysis of the current distribution of the electricity mix and that envisaged in the INECP reveals the ambitious objective of integrating renewables, which is accompanied by the gradual and programmed decommissioning of certain electricity production technologies.

This Plan is currently under review, with the presentation in June 2023 of a draft that increases the targets to achieve 81% renewable energy in electricity generation by 2030. To this end, it foresees a total installed capacity in the electricity sector of 214 GW, of which 62 GW will be wind energy; 76 GW solar photovoltaic; 27 GW combined cycle gas (coinciding with existing combined cycles); 14.5 GW hydro (without pumping); 18.5 GW storage; 4.8 GW solar thermoelectric; and 3 GW nuclear, as well as smaller capacities of other technologies.

In addition to the obvious benefits in terms of reducing greenhouse gas emissions, this process of integrating renewables has other repercussions for the electricity system as a whole, including a reduction in wholesale electricity prices as a result of the lower variable and operating and maintenance costs associated with these renewable technologies. In this way, the greater availability of renewable resources will enable the displacement of emitting technologies with higher operating costs from marginal matching processes, which ultimately leads to lower electricity prices, resulting in greater benefits for the domestic, SME and industrial sectors.

The situation described above does not imply, however, that backup technologies will not play a crucial role in the process of decarbonising the economy. Indeed, such power plants will be essential to counteract the intermittent nature that is inherent to some of the more predominant renewable technologies (wind and photovoltaic). By way of example, the planning process foresees, as shown above, the maintenance of the approximately 27 GW of combined cycle plants currently in operation by 2030. This technology, together with others (mainly the deployment of storage in its broadest sense), is necessary to guarantee an adequate level of security of supply, given the manageable nature of these facilities, providing both robustness and flexibility to the electricity system as a whole.

Many of these facilities with the capacity to provide firmness to the peninsular electricity system currently have a reduced load factor, which places them in a compromised position from the point of view of their economic viability. However, taking into account the aforementioned renewable integration process, the situation for these facilities is expected to worsen, as they will only come into operation at certain times of the year, when there is no availability of renewable resources. In this context, it is essential to promote the deployment of other technologies with the capacity to provide system resilience and which are climate neutral (such as storage), insofar as compliance with decarbonisation targets necessarily requires a gradual and gradual reduction in contributions to the electricity mix from emitting technologies with the capacity to provide resilience to the electricity system as a whole.

As mentioned above, and as will be detailed in the following sections of this document, Spain also has a series of endogenous characteristics, including a low level of interconnections with the European continent, which limits the capacity to take advantage of the firmness benefits that generation located beyond the border can provide. In turn, the capacity to provide firmness through interconnection with Portugal is limited, given the climatic similarities between the two countries.

In this context, therefore, it is possible to state the existence of an adequacy concern that is revealed, not only by means of a qualitative analysis such as the previous one, but is also revealed in the national resource adequacy analysis (NRAA) prepared by the

System Operator on the basis of the ACER methodology established in ACER Decision no. 24/2020.

One of the essential elements included in this simulation is the so-called economic viability of the facilities due to their participation in the wholesale production markets. This economic viability analysis leads to the conclusion that the real availability of generation resources is insufficient to cover the electricity supply needs in Spain under optimum conditions, as the current combined cycle generation fleet cannot recover its fixed costs, so that a large part of this fleet would end up being withdrawn from operation and functioning, inevitably leading to a adequacy problem in the period of analysis considered². In turn, the result of the national coverage analysis is compared with the values of VoLL (value of lost load), CoNE (Cost of new entry) and the reliability standard (defined in ACER Decision No. 23/2020 on the methodology for the calculation of the value of lost load, cost of new entry and reliability standard), by means of which it can be definitively concluded that a adequacy problem exists at national level³.

For this reason, and while certain structural characteristics of the electricity system remain latent, it is essential to articulate regulatory instruments to safeguard the availability of these firm generation resources. To this end, procedures have been initiated for the implementation of a capacity mechanism in the Spanish peninsular electricity system that complies with all the principles set out in Regulation 2019/943 on the internal market for electricity.

The capacity market proposed in the draft ministerial order whose national public hearing took place in May 2021 is constituted as a centralised system through which the system operator (SO), Red Eléctrica de España, S.A., will contract the firm capacity needs (in MW) detected in the adequacy analysis.

These adequacy analyses will be carried out by the SO by means of a probabilistic analysis in a single node, following the methodology used in the European coverage analysis, and will determine the firm capacity needs for each of the time horizons considered.

This firm capacity must ensure its availability at times of greatest stress for the peninsular electricity system and will be contracted through competitive procedures managed by the OS.

Auctions will be called by means of a resolution of the Secretary of State for Energy (SEE). The owners of those facilities that are awarded the contract will be constituted as capacity service providers, and must comply with the provisions of the order and the operating procedures that develop it.

² In ENTSO-e's ERAA 2022 analysis, the economic viability analysis resulted in a "decommissioning" of 9.6 GW of cycles in 2025, resulting in a LOLE of 6.7 hours, while the national coverage analysis results in a value of 9 GW of unviable cycles in 2027 assuming the delay or non-commissioning of new storage capacity, resulting in a LOLE of 4.76 hours, higher than the reliability standard (RS) of 0.94 hours.

³ On 11 October 2023, the public consultation of the proposed Resolution of the Directorate General for Energy Policy and Mines was opened on the proposal of the Directorate General for Energy Policy and Mines setting the values of the value of lost load and the reliability standard, in accordance with the provisions of Regulation (EU) 2019/943 of the European Parliament and of the Council, which set the values of the VoLL and the RS at 22.879 €/MWh and 0.94 hours, respectively.

This capacity market shall comply with the general principles applying to capacity mechanisms in accordance with Article 22 of Regulation (EU) 2019/943 of 5 June 2019 on the internal market for electricity.

In addition, and as enabled by Article 22 of Regulation (EU) 2019/943 of 5 June 2019, a maximum CO2 emissions limit of 550 grams per kWh is generally set for the generation facilities participating in the mechanism.

The draft ministerial order also regulates aspects related to the rights and obligations of capacity service providers, including their remuneration system (which is configured, in simplified form, as a fixed monthly remuneration for each service provider, in €/MW, depending on the firm capacity assigned and the price resulting from matching in the capacity auctions held), or the penalty scheme in the event of non-compliance by the aforementioned parties, although some of these detailed aspects will be established by means of the corresponding operating procedures approved by resolution of the SEE, at the proposal of the SO.

Finally, the regulation contemplates the form of financing of the capacity market, which will be assumed, as until now with the "capacity payment/investment incentive", by all electricity consumers and which will be established as an energy term, by tariff segment and hourly period (the same as those established for transmission and distribution tariffs and charges), depending on their firmness needs.

In any case, the abovementioned design elements may be subject to adaptation or reconfiguration, taking into account the evolution of market conditions, the recommendations of the competent authorities or, finally, any other circumstance that motivates their better definition, in order to achieve the objectives pursued by means of such regulatory scheme.

2. ELECTRICITY MARKET IN SPAIN

The different aspects contemplated in article 20.3 of Regulation (EU) 2019/943 on the internal market for electricity are detailed below, in order to highlight both the adaptation of national regulations to the aspects included in the European Union regulations, and those elements that still require new developments and advances in order to contribute to the effective development of the internal market for electricity in the European Union.

2.1 Removal of wholesale electricity price caps

Article 10 of Regulation (EU) 2019/943 on the internal market for electricity establishes, as a general principle, that there are no upper and lower limits for wholesale electricity prices.

This provision shall apply, without prejudice to the possibility for market operators to apply harmonised technical limits sufficiently high so as not to restrict trading, inter alia, to bids and matches at all time horizons, and shall include balancing energy and diversion prices.

To this end, the European Agency for the Cooperation of Energy Regulators (ACER) initially set cap prices of -500 €/MWh and +3000 €/MWh in the day-ahead market, -9,999 and 9,999 €/MWh in the continuous intraday market and -15,000 and 15,000 €/MWh in the balancing markets⁴, with respective rules to extend them if necessary.

However, the above values are not fixed prices but, on the contrary, can be increased once certain thresholds are exceeded.

Thus, as a result of the price crisis that began in the second half of 2021, in the month of May the threshold established in the regulation was exceeded, which caused the maximum price in the daily market to increase from 3,000 €/MWh to 4,000 €/MWh. In September, a new price increase caused the referred price reference to be increased again to 5,000 €/MWh, although this increase finally did not take place by unanimity of the NEMOs and in cooperation with ACER and the TSOs, as recommended by the Council meeting of 9 September 2022. In January 2023, ACER adopted the new harmonised methodology for updating the maximum and minimum cap prices in the European day-ahead coupled markets incorporating improvements in the updating mechanism to avoid sudden increases in the matching price caps.

In order to comply with the aforementioned Community framework, the necessary measures have been taken to adapt national regulations to the European guidelines (until 6 July 2021, the applicable national regulations established a price floor and ceiling of 0 and 180 €/MWh, respectively).

Thus, at the end of 2019, the MIBEL Market Operator, OMIE, carried out a public consultation on this adaptation, in which, in accordance with the wording of article 10 of Regulation (EU) 2019/943, it proposed a rule to update the daily and intraday market supply limits.

Subsequently, in December 2020, OMIE initiated a new public consultation period concerning a proposal for the revision of the Daily and Intraday Electricity Production Market Operating Rules, following the approval procedure described in article 23 of Circular 3/2019 applicable to methodologies, conditions, market operating rules and operating procedures and demonstration projects.

As a result, OMIE proposed to the competent regulatory authority, the Markets and Competition Commission (CNMC), the replacement of the currently existing technical bid price limits by the matching limits agreed by ACER in its Decisions 4/2017 and 5/2017 of 14 November, for the harmonisation of maximum and minimum matching prices for the day-ahead and intraday market.

Finally, the Resolution of 6 May 2021 of the National Markets and Competition Commission, which adopted the operating rules for the daily and intraday electricity

⁴ The matching price limits of the balancing markets have been defined by ACER at +15.000 €/MWh on a transitional basis according to its decision 03/2022 of 25/2/2022 until 48 months after the entry into operation of all European balancing platforms.

markets to adapt the supply limits to the European matching limits, sets new maximum and minimum supply price limits in line with those existing at European level.

In relation to the balancing markets, the technical limits of the maximum and minimum price offers for balancing energy from replacement reserves (RR) are aligned with the price methodology approved by ACER, which currently establishes transitional limits of $\pm 15,000$ €/MWh, as it is a standard product in the European balancing platform developed through the TERRE Project.

By Resolution of 11 December 2019, of the National Commission for Markets and Competition, approving the adaptation of the system operating procedures to the conditions relating to balancing (BOE 23 December 2019), the price limits hitherto existing in the balancing markets were eliminated, in application of Regulation (EU) 2019/943 on the internal market for electricity and Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (EB Regulation). This amendment has enabled bids to be submitted and performance allocations to be obtained on the balancing markets with negative prices.

Thus, in the national tertiary regulated energy market, there are bid limits of $\pm 9,999.9$ €/MWh, while the price of secondary regulated energy is set on the tertiary regulated bid ladder. When the price of secondary energy is calculated on the tertiary regulation bid ladder, it can thus reach values between $\pm 9,999.9$ €/MWh (multiplied, in some cases, by increasing or decreasing factors).

Later, once the Spanish electricity system participates in the European MARI (tertiary regulation) and PICASSO (secondary regulation) platforms with the standard European manual frequency recovery reserve product (mFRR) and the standard European automatic frequency recovery reserve product (aFRR), respectively, these limits will be revised to contemplate a transitional value of $\pm 15,000$ €/MWh, in accordance with the pricing methodology approved by ACER, applicable to all standard balancing energy products.

2.2 Scarcity prices

Article 20(3)(c) of Regulation 2019/943 provides for the need to provide for the possible inclusion of a scarcity pricing function for balancing energy referred to in Article 44(3) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.

Article 44(3) states that *'each TSO may develop a proposal for an additional settlement mechanism, separate from the settlement of deviations, to settle the costs of contracting the balancing reserve in accordance with Chapter 5 of this Title, as well as administrative and other balance sheet costs. The additional settlement mechanism shall be applicable to the settlement agents responsible for the balance sheet. This shall preferably be achieved by the introduction of a pricing function in shortage situations. If TSOs choose another mechanism, they shall provide a justification to that effect in the proposal. Such a proposal shall be subject to approval by the competent regulatory authority.'*

Bearing in mind that there is currently no scarcity pricing function for balancing energy, so that the settlement mechanism applicable to the parties responsible for balancing is carried out in accordance with the aforementioned rule, this measure could be considered within the reform plan proposed by the Kingdom of Spain in order to eliminate possible distortions or market failures that this absence could cause in the balancing markets.

However, in this regard, it is worth recalling the document prepared by ENTSOE "Options for the design of European Electricity Markets in 2030", which established the following:

*"A scarcity pricing function aims to "artificially" raise the price of the diversion above the price that the market would achieve on its own. In the SEM (Ireland) market, scarcity pricing is achieved by implementing a lower limit on the diversion price in times of scarcity. In the ERCOT market (Texas), scarcity pricing is achieved through a "mark-up" that is applied to the real-time price. The value of the 'mark-up' varies depending on the available reserves: when the available reserve is below the minimum reserve requirement, the probability of a load curtailment is imminent and the mark-up increases the real-time price to the value of the loss of load (VoLL). [In contrast, when available reserves are much larger than the minimum reserve requirement, the value of the increment is zero. The overall impact of scarcity pricing is to increase prices at times of scarcity, which in turn incentivises consumers to reduce their demand at those times. **Whether such prices can be a decisive incentive for generators to invest in new generation capacity is debatable**, as it depends on the (expected) frequency, magnitude and long-term recurrence of such prices, as well as numerous other exogenous variables that influence investment decisions. As such, the impact of scarcity pricing on adequacy has yet to be demonstrated, and even more so in the European context."*

From the above it seems to be concluded that the effectiveness of scarcity prices in the balancing markets seems doubtful to say the least, so that it is far from being possible to guarantee that their introduction will solve the coverage problems detected that serve as justification for the implementation of a capacity market in the peninsular electricity system.

2.3 Interconnection and internal network capacity

Firstly, and as background, it should be noted that the European Council of March 2002 already established the objective of reaching a minimum interconnection ratio of 10% (this being the sum of import exchange capacities divided by installed capacity). In 2020, this ratio was 6% for the Spanish peninsular electricity system and 2% for the Iberian Peninsula, both values far from this target. On numerous occasions, the European Commission endorsed this objective and the urgency of meeting it by 2020.

Subsequently, Article 4 of 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 sets out a number of targets for the "internal energy market" dimension. Thus,

Member States must reach a level of 15 % of electricity interconnection by 2030, this being the sum of import capacities compared to installed generation capacity.

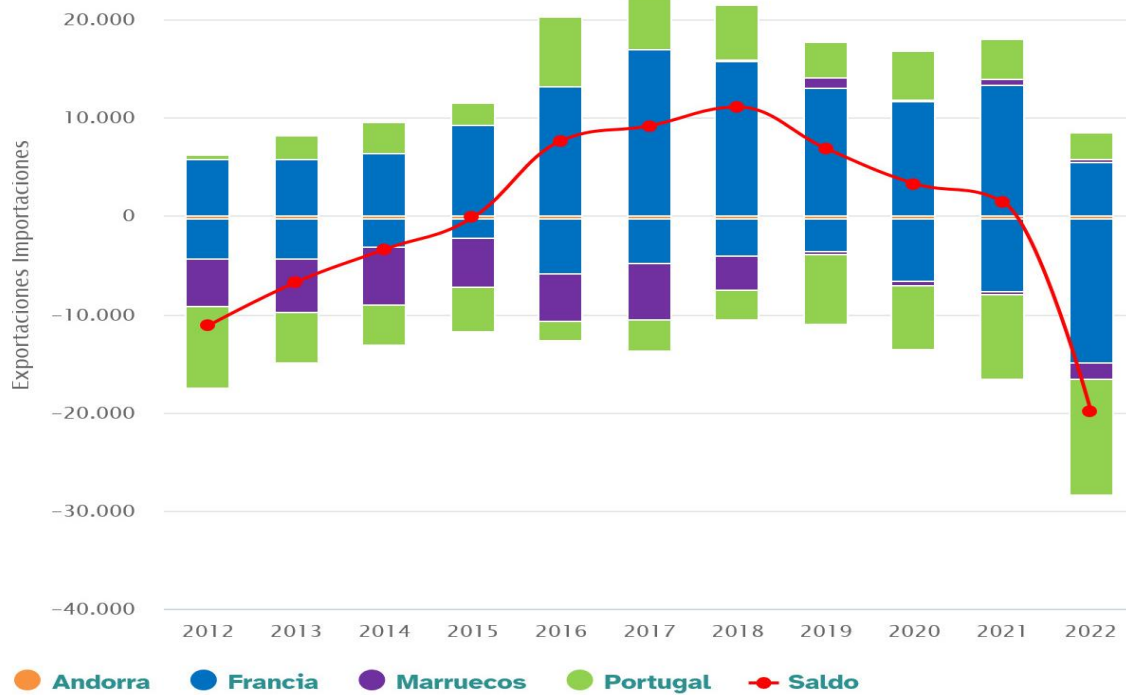
The Spanish electricity system is interconnected with the Portuguese system (thus forming the Iberian electricity system), with the North African system through Morocco and with the Central European electricity system through the border with France (in addition to the interconnection with Andorra); however, only the Member States Portugal and France are taken into account in the usual calculations.

2.3.1 Current interconnection

Currently, Spain has a level of import interconnections with a 70th percentile value with France of 2913 MW, 3240 MW with Portugal, 107 MW with Andorra and 600 MW with Morocco. Assuming the forecast commissioning of the interconnections included in the electricity transmission grid planning for the period 2021-2026 approved in March 2022, these interconnections would amount to a 70th percentile value in imports of: 5000 MW with France, 3500 MW with Portugal, 250 MW with Andorra and 1200 MW in imports with Morocco. However, taking into account only the interconnections with Portugal and France, would leave Spain still far from the 15% electricity interconnection target of the Member States established in article 4.d) of Regulation 2018/1999.

With regard to international electricity trading, in 2022 the net balance was an exporter, reaching 19,841 GWh⁵. A net export balance has not been recorded since 2015 and, moreover, represents a record volume. The reasons for this export balance can be found in the exceptional situation of the electricity markets during the energy crisis suffered in that year, added to the particular situation of the generation park in the countries that share a border with Spain, which contributed to an increase in exports to guarantee coverage of the demand for electricity in those countries.

⁵ Red Eléctrica de España's Spanish Electricity System Report for the year 2022. https://www.sistemaelectrico-ree.es/sites/default/files/2023-03/ISE_2022.pdf

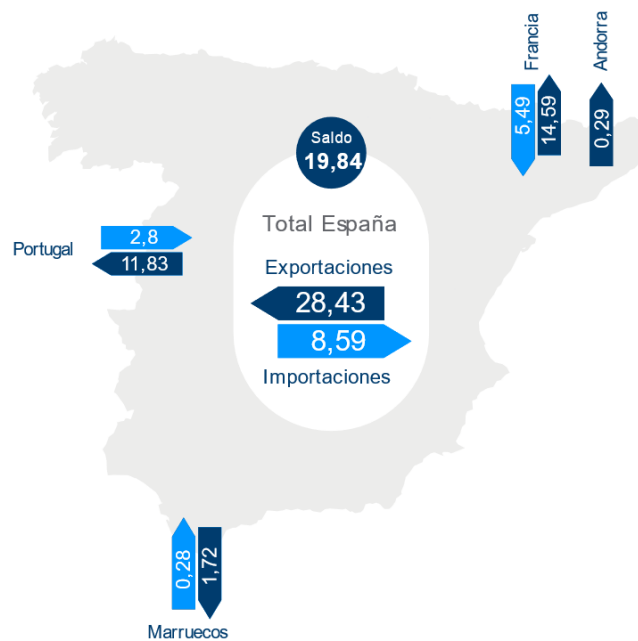


Source: Spanish Electricity System Report 2021. REE

The latest year for which more detailed data is available is 2022, when the volume of capacity scheduled through interconnections reached 37,011 GWh.

Intercambios internacionales de energía eléctrica programados por interconexión 2022

GWh



Source: Spanish Electricity System Report 2022. Red Eléctrica

France

The annual net balance of electricity trade through the interconnection with France in 2021 was 6,054 GWh, 15.4% higher than in 2020. Electricity imports amounted to 13,442 GWh, 15.2% higher than the previous year, and exports amounted to 7,388 GWh, 35.6% higher than last year. With the exception of February, November and December, the net monthly balances have been import-oriented in all months.

During 2021, a high level of utilisation of this interconnection was recorded, most of the time in the direction from France to Spain (62% of the hours), which is similar to 2020. The average capacity utilisation rate in this period is 81.9%. The change in the direction of the balance towards an exporting sign is generally due to two causes: excess renewables in the Spanish system or high prices in France, generally due to the high unavailability of its nuclear plants. The first reason is the one that occurred in February, when 576 hours had an export balance with an average use of capacity of 87.3%. The second reason is the one that has occurred most in the last two months of the period, with France reaching a maximum hourly price of 620 €/MWh. In these last months, the average use of exchange capacity reached a value of 80.7%.

In 2022, the net balance with France was a net exporter of 9,095 GWh, which represents a change in direction and an increase in volume of 50.2% compared to 2021. Imports amounted to 5,490 GWh, 59.2% lower than the previous year, and exports amounted to 14,585 GWh, 97.4% higher than last year. The change in direction this year is due to the combined effect of the unavailability of a large part of the French nuclear fleet and the implementation of the so-called Iberian mechanism regulated in Royal Decree-Law 10/2022 of 13 May, although this second factor has had less weight in determining the direction of flows at the border with France compared to the first phenomenon mentioned above.

During 2022, a high level of utilisation of this interconnection was recorded, most of the time in the direction from Spain to France (76% of the hours). The average percentage of capacity utilisation in this period is 85.2%.

Portugal

The annual net balance of scheduled energy trade in the interconnection with Portugal in 2021 was again an exporter, amounting to 4,548 GWh, compared to 1,455 GWh in 2020. This is the third consecutive year with an export balance, previously not recorded since 2015. Imports reached a figure of 4,124 GWh, down 16.5% on the previous year, while exports reached 8,673 GWh, 36% higher than last year.

In the interconnection with Portugal in 2022, the annual net balance has been an exporter for the fourth consecutive year, with a value of 9,023 GWh, doubling compared to last year. This is the fourth consecutive year with an export balance, previously not recorded since 2015. Imports have reached a figure of 2,810 GWh, with a decrease of 31.9% compared to the previous year, while exports reached 11,833 GWh, a figure 36.4% higher than last year.

Morocco

The balance of scheduled trade with Morocco was again an importer in 2021, with a value of 182 GWh, compared to 298 GWh exporters in 2020. The months of February, July to September and November have a net export balance, while the rest of the months have a net import balance. The total volume of energy exchanged was 772 GWh, 11.7% higher than in 2020, but far from the values of other years.

In 2022, Morocco was once again an exporter, with a value of 1,438 GWh, compared to 182 GWh for importers last year. The total volume of energy exchanged was 2008 GWh, 160.1% higher than last year, but lower than in previous years.

Andorra

The programmed balance in the interconnection with Andorra has been exporting, with a value of 225 GWh, which represents an increase of 15.1% compared to 2020. The average use of capacity in the export direction was 17.9%, compared to 18.5% last year.

In 2022, the balance with Andorra was an exporter, with a value of 286 GWh, which represents an increase of 26.9% compared to 2021. The average use of capacity in the export direction was 26.8%, compared to 17.9% last year.

2.3.2 New Interconnection Projects

As indicated in the previous sections, Spain's current exchange capacity is very limited and there is a need to make progress in the development of new interconnections: there are projects underway such as the submarine interconnection through the Bay of Biscay, the northern interconnection with Portugal between Galicia and the Portuguese Minho.

The new electricity link across the Bay of Biscay, almost 400 km long (of which some 300 km will be submarine cable) was declared a Project of Common Interest (PCI) in 2013. The new interconnection between the Gatika substation (located near Bilbao) and the Cubnezais substation (in the French region of Aquitaine) consists of four cables, two for each link. This double submarine and underground link will be direct current, with a transmission capacity of 2x1,000 MW. The northern interconnection project with Portugal between Galicia and the Portuguese Minho region has also been declared a CIP.

It should be noted that interconnections with France and Portugal have been studied in the context of European planning (TYNDP⁶) and both the suitability of the planned interconnection projects and the consequences of not carrying them out have been assessed, quantifying the benefits derived from the integration of markets, in terms of integration of renewable energies and emissions reductions. In addition, the

⁶ Ten Years Network Development Plan ; <https://tyndp.entsoe.eu/>

"*Identification of System Needs*" exercise⁷ assesses the needs for 2030 and 2040 beyond the Bay of Biscay project and the interconnection north of Portugal, the results of which show that the high need to increase interconnections will continue in the coming years.

In addition, a new interconnection with Morocco and one with Andorra are also planned with non-member states.

2.3.3 Internal network capacity

In 2021, in a context still marked by the pandemic, the transmission grid continued to be strengthened, increasing investment to 391 million euros, 2.1% higher than in the same period of the previous year. To this end, facilities have been brought into service that contribute to integrating as much renewable generation as possible, improve grid meshing and promote electrification, guaranteeing the security of supply and ensuring the quality of service.

That year, 206 circuit kilometres and 134 substation positions were commissioned, bringing the total length of circuits in the national transmission grid to 44,769 kilometres, an increase of 0.5% compared to 2020. Transformation capacity increased by 850 MVA, bringing the total national transformation capacity to 93,871 MVA (0.9% higher than in 2020).

In 2022, in a context of economic recovery after the pandemic although marked by other geopolitical factors in Europe, investment in the transmission grid has increased to 448.8 million euros, 14.8% higher than the previous year. These investments have contributed to integrating increased renewable generation, strengthening inter-island links, improving grid meshing and promoting electrification, guaranteeing security of supply and ensuring quality of service.

Throughout 2022, 326 circuit kilometres and 109 substation positions were commissioned, bringing the total length of circuits in the national transmission grid to 45,101 kilometres, an increase of 0.7% compared to 2021. For its part, the total national transformation capacity has risen to 94,221 MVA.

In March 2022, the Council of Ministers approved the Electricity Transmission Grid Development Plan for 2026 at the request of the Ministry of Ecological Transition and Demographic Challenge. This Plan is a fundamental tool for guaranteeing the energy transition and establishes the transmission grid development projects that must be developed over the coming years in order to achieve the energy objectives of national and European policy.

⁷ Link to the latest exercise published in 2022: <https://tyndp.entsoe.eu/resources/tyndp-2022-opportunities-for-a-more-efficient-european-power-system-in-2030-and-2040>

2.3.4 Conclusions

In view of the above, it is essential to develop and implement interconnections between the Spanish electricity system and the Central European electricity system, given that these will provide Spain with new capacity resources located beyond the border, favouring the availability of new firm capacity which will ultimately contribute to the security of supply. This requirement in terms of interconnections requires strengthening bilateral commitments and relations on both sides of the border, in order to promote a deployment that allows the Community's interconnection objectives to be met, while at the same time safeguarding all those aspects that may be affected or compromised as a result of such deployment.

2.4 Self-consumption, storage, demand-side measures and energy efficiency measures

2.4.1 Self-consumption

In Spain, self-consumption is fully deployed, once some regulatory barriers that had hindered its economic viability had been overcome. Royal Decree 244/2019, of 5 April, which regulates the administrative, technical and economic conditions for self-consumption of electricity, was an important step forward in enabling consumers to obtain cleaner energy at a lower cost.

Likewise, collective self-consumption, developed in this Royal Decree, allows various consumers in the same community (community of owners, a neighbourhood, an industrial estate, etc.) to benefit collectively from the same generation facilities located in the vicinity of the community, which entails taking advantage of the generation capacity and, therefore, of the investment to be made.

In this regard, it should be noted that in November 2021, Order TED/1247/2021, of 15 November, was approved, which modifies, for the implementation of variable distribution coefficients in collective self-consumption, Annex I of Royal Decree 244/2019, of 5 April, which regulates the administrative, technical and economic conditions for the self-consumption of electricity. By means of this order, users of collective self-consumption can establish dynamic coefficients for each hour of the year, which makes it possible to optimise the distribution of energy generated by the shared self-consumption installation among its users, especially when these have very different consumption patterns, as may be the case of buildings that combine commercial premises, offices and dwellings.

The actions planned for the coming years in the area of self-consumption are included in the National Integrated Energy and Climate Plan 2021-2030⁸ (INECP), approved on 25 March 2021 and published in the Official State Gazette on 31 March 2021.

As mechanisms to promote the development of self-consumption, Spain has promoted the following actions:

⁸ <https://www.boe.es/boe/dias/2021/03/31/pdfs/BOE-A-2021-5106.pdf>

- a) The development of a Self-consumption Roadmap⁹ , which sets out the self-consumption targets for the period 2021-2030. This roadmap was approved in December 2021. This Roadmap sets out the following objectives:
- a. Establish the potential for self-consumption penetration by type of consumer.
 - b. Establish lines of action to promote renewable self-consumption, placing the citizen at the centre of the energy system, and activate its use as a key tool in the fight against energy poverty.
 - c. Develop instruments to promote their shared use.
 - d. Facilitate the implementation of applications in areas such as industry or the service sector in a context of economic recovery, as well as in the public sector.
 - e. Development of self-consumption as a lever for the rapid generation of activity and employment, both directly and through the effect on the different local value chains and savings in energy costs for consumers and industry.
- b) Soft financing that facilitates the mobilisation of private investment, allowing the return of financing based on the economic savings from self-consumption generation (in this regard, it is worth highlighting Royal Decree 477/2021, of 29 June, approving the direct granting to the autonomous communities and the cities of Ceuta and Melilla of aid for the implementation of various incentive programmes linked to self-consumption and storage, with renewable energy sources, as well as the implementation of renewable thermal systems in the residential sector, within the framework of the Recovery, Transformation and Resilience Plan).
- c) Third-party management or energy services model: according to this model, companies specialised in energy services, such as electricity trading companies, undertake the investment in self-consumption installations and carry out their maintenance, selling the energy produced to consumers at favourable conditions. This avoids the consumer company, family or administration having to make the investment or take responsibility for an activity that is not theirs.
- d) Promotion of experiences that take advantage of the potential of self-consumption regulations to develop systems in which public or private self-consumers can share their surplus generation with vulnerable households, as well as other specific measures aimed at mitigating energy poverty.
- e) Guidelines for municipalities to promote self-consumption: The Institute for Energy Diversification and Saving (IDAE) has prepared a guide for the implementation of self-consumption energy systems to facilitate decision-making by municipal authorities.

2.4.2 Storage

⁹ <https://www.miteco.gob.es/es/ministerio/planes-estrategias/hoja-ruta-autoconsumo/default.aspx>

With regard to storage, the reference at national level is the **Energy Storage Strategy**¹⁰ approved on 9 February 2021, which envisages having a storage capacity of around 20 GW in 2030 and reaching 30 GW in 2050, considering both large-scale and distributed storage.

The Strategy identifies and analyses the challenges, defines the measures for their effective deployment, assesses the opportunities and quantifies the storage needs to contribute to the decarbonisation of the energy system. Among others, the following can be highlighted:

- Establishing legal requirements for storage and the role of market actors, as well as removing bureaucratic barriers and facilitating initiatives and projects.
- Promotion of storage in the electricity system markets, as well as the promotion of dynamic energy prices.
- Promotion of storage and its value chain at all levels, from energy marketing to self-consumption, promoting the figures of the aggregator and energy communities.
- Boosting renewable hydrogen, the development of *power to X* and the potential of thermal storage.
- Promoting energy communities to generate spaces for citizen participation, and training professionals to deepen the just transition.
- Long-term R&D&I support through laboratories and pilot projects, building on international and national initiatives.
- Promote the circular economy by supporting businesses that give a second life to waste and improve its traceability.
- To take advantage of storage as a basis for technological development in islands and isolated areas, promoting R&D&I and the generation of employment.
- Measures to encourage the participation of regional and local authorities, to update and establish a monitoring system from the Administration.
- Study and definition of three important aspects of energy storage: its needs, the assessment of costs and benefits, and the life cycle of storage.

It is also worth highlighting the actions included in the INEC, relating to storage, which are articulated around the Strategic Energy Technology Plan (SET-Plan), which has been the R&D&I pillar of European energy and climate policy since 2007.

In the framework of the SET-Plan, Spanish administrations work in different groups addressing R&I&C needs in sectors such as photovoltaics, concentrating solar capacity, wind energy and energy efficiency.

The Ministry of Science and Innovation (MCI) is responsible for implementing the Spanish Government's policy on scientific research, technological development and innovation and is therefore responsible for developing this dimension in the energy sector in coordination with the Ministry for Ecological Transition and the Demographic Challenge and other agents involved.

Together with the Ministries, they participate in this performance:

¹⁰ https://www.miteco.gob.es/es/prensa/estrategiaalmacenamiento_tcm30-522655.pdf

- The State Research Agency (AEI), responsible for the financing, evaluation, awarding and monitoring of scientific and technical research activities. Its activities include the Technology Platforms.
- The Centre for Technological and Industrial Development (CDTI), which aims to increase the competitiveness of Spanish companies by raising their technological level, for which it finances R&D&I&C business projects.
- Public Research Organisations, such as the Centre for Energy, Environmental and Technological Research (CIEMAT), which focus on programme implementation.

Among other lines of work, R&D&I&C activities are planned aimed at combating climate change and favouring the energy transition focused on the flexibility and optimisation of the energy system, through the implementation of technologies that provide flexibility to the electricity system, which is essential to achieve a high degree of penetration in the non-manageable renewable generation system. The technologies on which the focus has been placed are:

- Electric storage, with and without electric vehicles, and demand-side participation in system operation.
- Thermal storage, in particular coupled to solar thermal technologies.
- Hydroelectric storage.
- Chemical storage in the form of hydrogen, either using electrolysis and consumption in fuel cells, or injecting it into the grid.

All the aforementioned work proposals, which are reinforced by the increased participation of storage in the electricity markets, and especially in the balancing markets, as will be mentioned in the following section, highlight the crucial position that storage represents in the achievement of the decarbonisation objectives to which the Kingdom of Spain has committed itself.

Thus, storage plays an essential role in its capacity to provide firmness and flexibility to the Spanish electricity system, serving as a complementary technology to the main renewables (mainly wind and photovoltaic). In this way, the intermittency in production associated with these facilities is offset by the greater manageability associated with storage.

This technology is also necessary to eventually displace other technologies that are currently responsible for providing the necessary resilience to the electricity system, but which need to incorporate CO₂ costs given the emissions they incur in the electricity production process. Climate neutrality will only be achieved when these technologies are no longer needed in the electricity mix, and this is where storage will have to play a very prominent role.

Therefore, the capacity mechanism that is finally introduced (provided that the national and European procedures allow it) must try to achieve this dual objective: on the one hand, to guarantee security of supply which, at present, and until the aforementioned storage deployments do not take place, is largely based on emitting technologies and, on the other hand, that the instrument that has been created promotes precisely the deployment of storage, thus facilitating a technology that, intrinsically, is emission-free, but allows the necessary firmness and flexibility required by the Spanish electricity system to be safeguarded.

2.4.3 Demand-side measures and energy efficiency.

In the last two years, Spain has substantially boosted the development of instruments to promote demand-side response and energy efficiency, which according to European guidelines can be economic incentives, the introduction of more efficient technologies and techniques, or influencing consumer habits.

In order to make further progress in the integration of demand in the markets, it is necessary to develop the figure of independent aggregators, which have been defined in article 6.1.i) of Law 24/2013, of 26 December, as participants in the electricity production market that provide aggregation services and that are not related to the customer's marketer, with aggregation being understood as that activity carried out by natural or legal persons that combine multiple consumption or electricity generated by consumers, producers or storage facilities for sale or purchase in the electricity production market.

On the other hand, on 11 December 2019, the CNMC approved the Resolution approving the conditions relating to balancing for balancing service providers and settlement subjects responsible for balancing in the Spanish peninsular electricity system in order to incorporate the provisions of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing an Electricity Balancing Guideline (EBGL) into Spanish law.

In order to fully implement the provisions of this resolution, the operating procedures were adapted by Resolution of 10 December 2020, of the National Markets and Competition Commission, approving the adaptation of the system operating procedures to the conditions relating to the balance approved by Resolution of 11 December 2019.

In particular, among other changes introduced, the following stand out:

- Regulatory issues raised:
 - Balancing Markets Conditions, approved by CNMC Resolution of 11 December 2019.
 - CNMC Circular 3/2019, of 20 November, which establishes the methodologies that regulate the functioning of the wholesale electricity market and the management of the operation of the system.
 - Regulation (EU) 2019/943 on the internal market for electricity (IEM Regulation).
 - Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a Guideline on electricity transmission system management (SO Regulation).
 - Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a Guideline on Electricity Balancing (EB Regulation).
- All necessary changes for the participation of demand and storage in balancing services are incorporated in the procedures.
- A new specific operating procedure is approved which includes, among others, the qualification tests for participation in balancing markets, for generation, demand and storage scheduling units.

- The conditions for disabling the provision of substitution reserve services, secondary regulation and tertiary regulation of the different scheduling units or regulation zones, which provide balancing services, are included.
- Programme changes between Balancing Responsibility Parties (BRPs) are permitted, consistent with the provisions of the Balance Sheet Conditions.
- The possibility of contractually delegating responsibility for balancing is included, in accordance with the provisions of the MIE regulation, according to which all market participants will be responsible for the deviations they cause in the system or will contractually delegate this responsibility. The wording of the procedures is adapted to the figures of the market participant (MP), the balancing responsible party (BRP) and the balancing service provider (BSP).

In addition, non-frequency services and congestion management by the system operator will soon be subject to a new regulatory change so that demand can participate in these technical constraint solution processes (both in Phase I, II and in real time). This change is equally relevant given that, if demand is able to participate in these processes in a real and effective manner, it will succeed in displacing the thermal groups which, at present, are mainly responsible for offering the technically viable solution to the technical requirements of the system operator and would thus complete, together with the balancing services that allow demand to participate from 2021, the inclusion of demand suppliers in all the adjustment services of the Spanish peninsular electricity system.

In any case, the changes introduced do not ignore the need for demand-side measures to continue to be promoted, and for the participation of the new subjects of the electricity system (particularly the independent aggregator) to become a reality, for which the process of transposition of Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU still needs to be further developed.

Other vehicles for citizen participation, such as energy communities (grouping renewable energy communities, provided for in Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, as well as citizen energy communities, regulated in Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU) will also play an essential role in contributing to citizen empowerment in the national electricity system.

2.5 Balancing and non-frequency services

2.5.1 Balancing services

In accordance with the provisions of the EB Regulation, and in order to contribute to the development of the internal market for electricity, the European TSOs as a whole are working on the integration of balancing markets into the balancing platforms foreseen for

each European standard balancing energy product, in accordance with the timetable foreseen in the EB Regulation.

In particular, the timetable followed and foreseen by the Spanish peninsular electricity system with respect to the connection to the different platforms is as follows:

- Connection to the RR platform (TERRE): March 2020
- Connection to the IN imbalance compensation platform (IGCC): October 2020
- Connection to the mFRR platform (MARI): May 2024
- Connection to the aFRR platform (PICASSO): July 2024.

Replacement reserve (RR) energy allows the use of balancing resources capable of responding half an hour in advance of the activation time to resolve deviations between generation and consumption that may be identified after the close of each intraday market session and the start of the energy delivery horizon. This is a standard European balancing product, which, as mentioned above, is fully adapted to the ACER Decision on technical price limits. This product is managed through the European balancing platform LIBRA in operation since 2020 and developed by the European TSOs of the TERRE Project.

Within the framework of this service, 1,901 GWh of RR (Replacement Reserves) balance energy was exchanged during 2022, managed through the European platform TERRE, which represented a record amount of RR energy exchanged by Spain among the other participating European areas since its launch in March 2020. Of the total energy exchanged, 1,115 GWh were in the import direction (58.6%) and 787 GWh were in the export direction (41.4%).

Secondary regulation, on the other hand, is a voluntary service whose purpose is to maintain the generation-demand balance, automatically correcting deviations with respect to the planned exchange programme of the "Spain" Control Block and deviations in the system's frequency. Its action time horizon ranges from 20 seconds to 15 minutes. This service is remunerated through market mechanisms for two concepts: availability (regulation reserve) and use (energy).

Secondary regulation would correspond to the European standard automatic frequency recovery reserve (aFRR) product.

Tertiary regulation is an optional service with an obligatory offer, managed and remunerated through market mechanisms, whose purpose is to resolve deviations between generation and consumption identified 15 minutes before the moment of energy delivery and to restore the secondary regulation reserve used. The tertiary regulation service is defined as the maximum capacity variation that a production unit can carry out in a maximum time of 15 minutes, and which can be maintained for 15 minutes and up to 30 minutes.

It should be noted that, in the case of both secondary and tertiary regulation, these are pre-standard products that are currently managed in the national markets dedicated to each product, although they will be progressively integrated into the European balancing platforms for the exchange of standard aFRR (PICASSO) and mFRR (MARI) products respectively.

Although the latest reforms of the aforementioned markets already allow the participation of demand on equal terms with generation, it is still necessary to further develop the aforementioned developments so that this participation is real and effective, and also allows both the participation of storage (the content of which will depend on the regulatory development process envisaged), and of other subjects of the electricity system, such as the independent aggregator (which, once again, still requires a complete regulatory development, as mentioned in previous sections).

2.5.2 Voltage control service managed by market mechanisms

Within the regulatory framework for non-frequency service conditions approved by the CNMC and published in the Official State Gazette on 27 September 2022, which opens up equal participation of generation, demand and storage in these services, a specific voltage control service is established, the proposal of which is the responsibility of the system operator.

In order to make the best regulatory proposal for a voltage control service, the system operator has developed proposals during 2022 and 2023 related to a market open to all system actors that allows the correct voltage control in the Spanish peninsular electricity system. In this way, the Regulatory Demonstration Project for the new voltage control service (PDR), approved by Resolution of the National Commission for Markets and Competition on 8 August 2022, was approved in 2022.

The PDR, under the regulatory framework of CNMC Circular 03/2019 of 20 November, was aimed at analysing the technical-economic feasibility of a proposal for the renewal of P.O. 7.4 "Voltage control service" adapted to the Conditions for non-frequency services.

The conclusions of this PDR will serve to establish a new proposal, so that the OS is expected to launch a new hearing process at the end of 2023, which will allow for the implementation of a voltage control service in 2024, after its approval, which will offer more resources to the system, greater security and the possibility of decarbonising the system, given the increase in possible suppliers and their technical capacity. This service will provide an additional means of remuneration, an expected reduction in demand-side costs compared to the current supply and a greater penetration of renewables in the system with a consolidated security framework.

2.5.3 Conditions for providers of balancing services

Article 18 of the EB Regulation establishes that the Transmission System Operator (TSO) of each member state, Red Eléctrica in its capacity as System Operator in the case of Spain, shall draw up a Proposal regarding the conditions for balancing service providers and the conditions for the settlement agents responsible for balancing.

In this respect, the System Operator sent this proposal to the CNMC and drew up, with the collaboration of the interested parties and following public consultation, a roadmap for the implementation in Spain of the Electricity Balancing Directive.

By resolution of 11 December 2019, the CNMC approved the Conditions relating to balancing for balancing service providers and settlement agents responsible for balancing in the Spanish electricity system, in accordance with the provisions of article 18 of the Regulation EB.

The Balancing Conditions approved by the CNMC are the same for all balancing service providers, whether they are generation, demand or storage facilities, and allow the aggregation of generation facilities, regardless of their technology, demand facilities and storage facilities to offer balancing services to the system.

As a result of the above, numerous operating procedures have been adapted by resolution of 10 December 2020, of the National Commission for Markets and Competition, approving the adaptation of the system operating procedures to the conditions relating to the balance approved by Resolution of 11 December 2019. The main modifications related to the balancing markets have been the following:

- all necessary changes for the participation of demand and storage in balancing services are incorporated.
- Enabling tests for participation in balancing markets are introduced for generation, demand and storage scheduling units.
- the conditions for disabling the provision of the services of substitution reserves, secondary regulation and tertiary regulation of the different scheduling units or regulation zones, which provide balancing services, are incorporated.
- programme changes between Balance Sheet Settlement Parties (BSIs) are enabled, consistent with the provisions of the Balance Sheet Conditions.
- The possibility of contractually delegating responsibility for the balance sheet is included, in accordance with the provisions of the EIF regulation, according to which all market participants will be responsible for the deviations they cause in the system or will contractually delegate this responsibility.
- The price limits on balancing markets are removed, in application of the EIM Regulation and the EB Regulation. This amendment will allow bids to be submitted and performance allocations to be obtained on the balancing markets with negative prices.

The following operating procedures have been approved:

- P.O.3.1. Programming process
- P.O.3.2. Technical restrictions
- P.O.3.3. Activation of balancing energies from the surrogate reserve product (RR)
- P.O.3.6. Reporting and handling of unavailability of generation, demand and storage facilities

- P.O.3.8. Tests for the participation of installations in the processes and services managed by the System Operator
- P.O.7.2. Secondary regulation
- P.O.7.3. Tertiary regulation
- P.O.9.1. Exchanges of information relating to the programming process
- P.O.14.1. General conditions of the system operator's settlement process
- P.O.14.2. Admission of subjects to the market and data required during their participation
- P.O.14.4. Charging rights and payment obligations for system adjustment services

Currently and until 22 September 2023, the OS is open for consultation on the proposed modification of the conditions relating to balancing for balancing service providers and settlement entities responsible for balancing in the Spanish peninsular electricity system and system operation procedures, for the adaptation of processes, settlement and information exchanges to the operation on the European MARI and PICASSO platforms, as well as to contemplate the use of the transversal module for capacity management in the balancing horizon (CMM) and the necessary communications to be established between OS and CMM.

2.6 Regulated prices

In Spain there is the so-called Voluntary Price for Small Consumers (PVPC), which is a single price for the entire Spanish territory, regulated in article 17 of Law 24/2013, of 26 December, on the Electricity Sector and established by the Government in accordance with the methodology set out in Royal Decree 216/2014, of 28 March, which establishes the methodology for calculating voluntary prices for small electricity consumers and their legal regime for contracting.

Following the reform introduced by Royal Decree 446/2023 of 13 June, this PVPC is configured as a price partially indexed to the daily market, also taking advantage of the remote management meter system installed in the domestic consumer segment, and another percentage of the price is determined by means of a basket of future products traded on the organised wholesale market on the peninsula. Law 24/2013, of 26 December, stipulates that its calculation must respect the principle of revenue sufficiency, additivity and not create distortions of competition in the market.

The PVPC is composed of:

- a) a capacity term, which is the capacity term of the grid tariff and charges plus the fixed term of the marketing costs;
- b) an energy term, corresponding to the energy term of the grid tariff and charges;

- c) a term of the hourly cost of energy, calculated by applying the losses corresponding to the production cost of the energy supplied in each hour. This last energy production cost is calculated from:
- of the average hourly price obtained from the daily and intraday market results,
 - of the price of system adjustment services,
 - of other costs associated with supply (including operators' remuneration, capacity payments and the variable term of marketing costs).
 - An adjustment term that incorporates the signal of the forward products included in the PVPC structure itself. The forward products included correspond to the annual, quarterly and monthly product of the base load product and financial settlement traded on the Iberian forward market.

This regulated price is available to electricity consumers with contracted power equal to or less than 10kW, who must sign a contract with one of the reference retailers (COR) designated by the Government. There are currently 8 CORs in Spain (6 nationwide and 2 operating in the geographical area of Ceuta and Melilla). In turn, only domestic consumers and micro-enterprises are eligible for this supply contract, in accordance with the provisions of article 5 of Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 concerning common rules for the internal market in electricity and amending Directive 2012/27/EU.

In any case, despite the existence of this PVPC, end electricity consumers can choose at any time to contract their supply with a free market supplier. Although it is a price whose transparent methodology is determined by the government, it is a price that transfers to the consumer only the cost of energy on the wholesale market (daily or forward), the cost of the grid tariffs through which the regulated costs of the electricity system are reimbursed, and the costs incurred by the COR. The PVPC contract cannot include any other product or service, energy or otherwise, offered directly by the COR or by third parties.

Comparison of prices between the regulated market and the free market in 2021 and 2022

In this regard, and according to the latest retail market supervision report prepared by the Spanish regulator¹¹, the CNMC, for the year 2021 (the last year for which complete information is available that allows a comparative analysis of full-year data), an average consumer on the PVPC saw their prices increase by 39%, as this price directly reflects the evolution of wholesale market prices. Thus, in 2021, the situation was the reverse of that observed in 2020, in which consumers with PVPC had benefited from the decreases experienced in the wholesale market, while the average domestic consumer in the free market did not see their prices reduced.

¹¹ Retail Electricity Market Monitoring Report. 2019. CNMC
<https://www.cnmc.es/sites/default/files/4692868.pdf>

Due precisely to the exposure of the domestic consumer to the volatility experienced by the price in the wholesale spot markets, it was decided to initiate the processing of the Draft Royal Decree amending Royal Decree 216/2014, of 28 March, which establishes the methodology for calculating the Voluntary Prices for Small Consumers of electricity and its legal regime for contracting, for the indexation of the PVPC to forward signals and reduction of its volatility, a project that was finally approved in June 2023 by Royal Decree 446/2023, of 13 June, and will come into effect as of 1 January 2024.

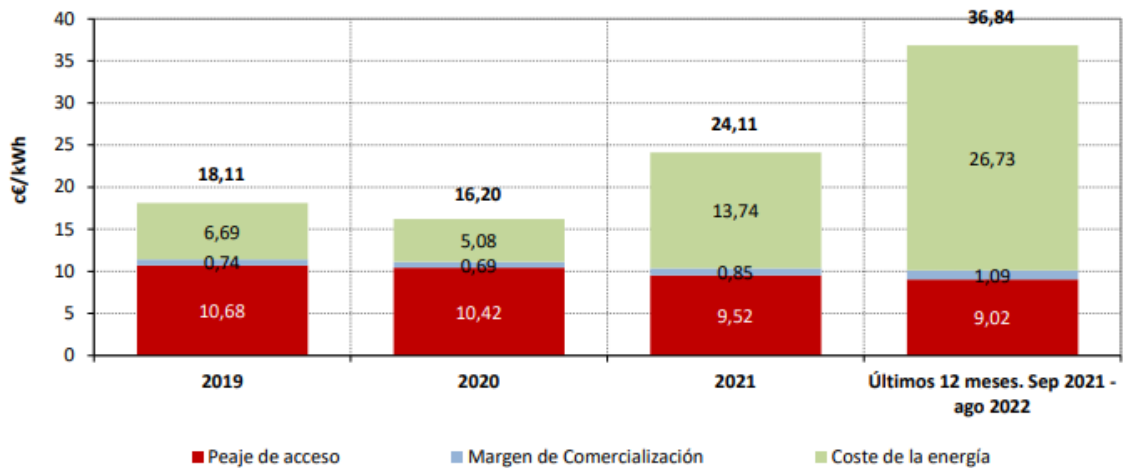
Likewise, in view of the exceptional situation of high prices, a temporary mechanism to limit the price of electricity in the Iberian wholesale market, known as the adjustment mechanism, or Iberian mechanism, was implemented as of June 2022. Under this mechanism, fossil fuel facilities (mainly combined cycle, coal and cogeneration) must bid into the electricity market by internalising the established gas cap. In exchange, these technologies receive an adjustment proportional to the difference between the market price of gas and a reference price, and must internalise the unit amount of the adjustment in their bids on the market. This adjustment cost is financed by the purchasing units and ultimately by the consumer (with exceptions for storage), excluding those with forward hedging instruments or fixed-price contracts with end customers concluded before a certain date. This mechanism entered into force on 15 June and has been extended until 31 December 2023.

The introduction of this mechanism made it possible to decouple the wholesale electricity market price - both spot and forward - from the sharp increases in gas prices that were recorded in 2022. Thus, the average daily market price in Spain was 130.98 €/MWh in the period from 15 June to 31 December, while in Germany it was 282.60 €/MWh and in France 320.50 €/MWh. Meanwhile, in the forward markets, prices of forward contracts in Spain with settlement in the period of the mechanism slowed their rise, while prices of forward contracts with German and French underlyings with settlement in 2022 continued to rise in an unprecedented price increase. In the retail market, most of the new contracts and their renewals came to incorporate an additional cost corresponding to the financing of the adjustment mechanism. Although it is difficult to estimate the savings for the free market from the implementation of the mechanism, for consumers on the PVPC, these savings can be estimated at around 18% in the cost of energy from the start-up of the mechanism until 31 December 2022.

Price developments in 2022

If we analyse the latest available data, according to the CNMC's Bulletin of electricity indicators for August 2022¹², the final billing of consumers on the PVPC fell by -52.8% in the 12-month period between September 2021 and August 2022, compared to the billing for the full year 2021.

¹² Electricity indicators bulletin. December 2022. CNMC
<https://www.cnmc.es/sites/default/files/4505785.pdf>



As can be seen, the main cost component of the bill corresponds to the cost of energy, marked by the price escalation observed during the period considered.

Degree of concentration of the retail electricity sector at the household level in 2021

According to the same CNMC retail market report, for the year 2021, the degree of concentration in the domestic sector (where the PVPC is mainly applied) was high, with an HHI value¹³ of 2,291. The above data would largely justify the existence of the PVPC as a regulated price, since as long as optimal levels of competition are not achieved in this sector, and taking into account the information asymmetries (between suppliers and demanders in this market) inherent to it, it is essential to have a regulated price that also provides a transparent and predictable contracting framework for small consumers, which avoids their exposure to certain practices that are the basis of many of the complaints filed in relation to the contracting and billing of electricity in Spain.

Despite the above, in recent years measures have been promoted to encourage consumer protection in the retail electricity market. Thus, the CNMC has focused its efforts on reinforcing work to ensure that end consumers are involved in their energy supply, are aware of the options that best suit their consumption profile and needs, and understand the components of their billing. By way of example:

- In 2021, the comparator was adapted so that the consumer could access it via the QR code that appears on the electricity bill, without the need to fill in any information. In 2022, the parameters to be included in the QR code were modified to incorporate new concepts that have arisen, such as the financing of the adjustment mechanism.

¹³ The Herfindahl Index or Herfindahl and Hirschman Index (HHI) is a measure of the concentration of a market. The index is calculated by squaring the market share held by each firm and summing these quantities, whereby the results can vary from a value close to 0 (perfect competition) to 10,000 (monopolistic control). Indices between 1,000 and 1,500 points are considered to reflect moderate market concentration, while indices with values above 2,500 points are considered to be too concentrated.

- A tool was included so that consumers could consult the hourly prices of the PVPC, in order to encourage these consumers to adapt their consumption patterns to the cheapest periods. This tool is particularly relevant in the current context for consumers with prices indexed to the wholesale market price, as solar production and self-consumption have increased significantly, causing the hours of greatest solar radiation to register prices significantly lower than those of the rest of the day in certain periods of the summer timetable.
- The monitoring of the obligation established in article 4 of Royal Decree-Law 23/2021 regarding the submission to the CNMC by marketers of all their offers available at any given time, in order to be included in the Energy Offers Comparator, has been increased.

Metering equipment with remote metering and remote management capability effectively integrated into the system

In Spain, all electricity consumers with contracted power up to 15 kW have access to their hourly load curve made available by the distribution company on its website.

With regard to the availability of metering equipment that allows the hourly load curve to be obtained, the first additional provision of Order ITC/3860/2007, of 28 December 2007, revising electricity tariffs as from 1 January 2008, stipulates that before 31 December 2018, all meters up to 15 kW contracted power must be replaced, establishes that before 31 December 2018, all meters with a contracted power of up to 15 kW must be replaced for each distribution company, allowing a margin of 2% of the total number of meters not replaced for each distribution company for reasons not attributable to the company and subject to justification to the CNMC.

According to the latest report prepared by the CNMC¹⁴ in June 2020 on the monitoring of the meter replacement plan, as of 31 December 2019, more than 99.6% of the total number of meters with a contracted power of up to 15 kW had been replaced, of which more than 99% had been integrated.

Table. Summary of Type 5 meters replaced and integrated in Spain as at 31 December 2019.

	TOTAL	Distribuidoras de más de 100.000 clientes	Distribuidoras de menos de 100.000 clientes
Equipos Tipo 5	28.632.114	27.470.738	1.161.376
Sustituidos	28.528.482	27.371.353	1.157.129
Integrados	28.352.767	27.206.528	1.146.239
% Sustituidos	99,64%	99,64%	99,63%
% Integrados¹	99,38%	99,40%	99,06%

¹ Porcentaje calculado respecto a los contadores sustituidos

Source: Agreement issuing a report on the monitoring of the meter replacement plan. CNMC.

¹⁴ https://www.cnmc.es/sites/default/files/3002675_0.pdf

For consumers with type 4 metering equipment (between 15kW and 50 kW), Royal Decree 244/2019, of 5 April, modified article 9 of the Unified Regulation of metering points approved by Royal Decree 1110/2007, of 24 August, so that within 4 years of its approval, type 4 metering equipment must have the capacity to parameterise integration periods of up to one hour, as well as record and store hourly curves of active and reactive energy for a minimum of 3 months.

In addition, the modifications made in the Royal Decree allow the integration of metering equipment located at low voltage at type 3 and 4 border points in the remote management systems of distribution companies.

The 6 distribution companies with more than 100,000 customers together have 688,921 meters in electricity supplies with contracted power between 15 kW and 50 kW, which represents 96.16% of the sector's total. As of 31 December 2019, a total of 76.32% had been replaced, of which 96.07% had been effectively integrated.

For distributors with less than 100,000 customers, as of 31 December 2019, companies had replaced 64.08% of Type 4 equipment, of which 70.41% had been effectively integrated.

In accordance with article 7.39 of Law 3/2013 of 4 June, the National Markets and Competition Commission may carry out the inspections it deems appropriate and initiate the corresponding sanctioning proceedings.

Implementation plan in accordance with Article 20(3) of Regulation 2019/943 (EU) of 5 June 2019 on the internal market in electricity			
NO.	Responsible body	Measure	Detail
1	National Markets and Competition Commission (CNMC)	Elimination of daily and intraday wholesale market prices	<p>Approval of the Resolution of 6 May 2021, of the National Markets and Competition Commission, approving the operating rules of the daily and intraday electricity markets to adapt the supply limits to the European matching limits, which sets new maximum and minimum supply price limits of -500 and 3,000 €/MWh for the daily market and -9,999 and 9,999 €/MWh for the intraday market.</p> <p>Implementation date: 6 July 2021</p>
2	CNMC	Scarcity prices	<p>Article 20(3)(c) of Regulation 2019/943 establishes the need to provide for the possible inclusion of a scarcity pricing function for balancing energy referred to in Article 44(3) of Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing.</p> <p>Taking into account that there is currently no scarcity pricing function for balancing energy, so that the settlement mechanism applicable to the parties responsible for balancing is carried out in accordance with the aforementioned rule, this measure could be considered as part of the reform plan proposed by the Kingdom of Spain in order to eliminate possible distortions or market failures that this absence may cause in the balancing markets.</p> <p>Planned implementation date: under analysis</p>

3	Ministry for Ecological Transition and the Demographic Challenge (MITERD)	Interconnections	<p>Development of the interconnections foreseen in the Planning of the electricity transmission grid for Horizon 2026, approved by Resolution of 8 April 2022, of the Secretary of State for Energy, which publishes the Agreement of the Council of Ministers of 22 March 2022, approving the planning of the electricity transmission grid for Horizon 2026.</p> <p>Approval date: March 2022. Implementation during the period 2021-2026.</p>
4	Self-consumption		
4.1	MITERD	Dynamic coefficients	<p>Order TED/1247/2021, of 15 November, which modifies, for the implementation of variable distribution coefficients in collective self-consumption, Annex I of Royal Decree 244/2019, of 5 April, which regulates the administrative, technical and economic conditions for the self-consumption of electricity.</p> <p>By means of this regulatory modification, users of collective self-consumption can establish dynamic coefficients for each hour of the year, which makes it possible to optimise the distribution of energy generated by the shared self-consumption installation among its users, especially when they have very different consumption patterns, such as in the case of buildings that combine commercial premises, offices and dwellings.</p> <p>Approval date: November 2021</p>
4.2	MITERD	Self-consumption roadmap	<p>Self-consumption Roadmap, which sets out the self-consumption targets for the period 2021-2030.</p> <p>Approval date: December 2021</p>
5	MITERD	Storage	<p>In the development of the Storage Strategy, the following aspects are planned to be addressed:</p> <ul style="list-style-type: none"> - Establishing legal requirements for storage and the role of market players, as well as eliminating bureaucratic barriers and facilitating initiatives and projects. - Promoting storage in the electricity system markets, as well as encouraging dynamic energy prices. - Promotion of storage and its value chain at all levels, from energy trading to self-consumption,

		<p>promoting the figures of the aggregator and energy communities.</p> <ul style="list-style-type: none"> - Promotion of renewable hydrogen, the development of power to X and the potential of thermal storage. - Promoting energy communities to generate spaces for citizen participation, and training professionals to further the just transition. - Support long-term R&D&I through laboratories and pilot projects, taking advantage of international and national initiatives. - Promote the circular economy by supporting businesses that give waste a second life and improve its traceability. - Take advantage of storage as a basis for technological development in islands and isolated areas, promoting R&D&I and job creation. - Measures to encourage the participation of regional and local authorities, to update and establish a monitoring system from the Administration. - Study and definition of three important aspects of energy storage: its needs, the evaluation of costs and benefits, and the life cycle of storage. <p>Approval date: February 2021</p>
6	MITERD and CNMC	<p>Demand-side measures</p> <p>Developing the figure of the independent aggregator, which has been defined in article 6.1.i) of Law 24/2013, of 26 December, as that participant in the electricity production market that provides aggregation services and is not related to the customer's supplier, aggregation being understood as that activity carried out by natural or legal persons that combine multiple consumption or electricity generated by consumers, producers or storage facilities for sale or purchase in the electricity production market.</p> <p>Development of the figure of the independent aggregator and its participation in all markets, in accordance with Directive 2019/944 (EU) of 5 June 2019.</p> <p>Planned implementation date: 2023-2024</p>