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ENTIDADE REGULADORA
DOS SERVIÇOS ENERGÉTICOS

ANNUAL REPORT ON THE ELECTRICITY AND NATURAL GAS MARKETS IN 2019

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1 FOREWORD

The Portuguese Energy Services Regulatory Authority (ERSE) regulates the natural gas and electricity sectors in Portugal, as well as liquefied petroleum gas (LPG) in all categories, petroleum-derived fuels, the biofuels sector and electric mobility.

This report complies with the provisions of Directives 2009/72/EC (electricity) and 2009/73/EC (natural gas) of the European Parliament and of the Council. These Directives dictate that regulators must annually inform national authorities, the European Commission and the Agency for the Cooperation of Energy Regulators (ACER) on its activities and on any developments observed in the electricity and natural gas markets.

ERSE also sends its report to the Government member responsible for energy, to the Portuguese Parliament and publishes it on the ERSE website.

The present report presents the main developments in the electricity and natural gas markets in Portugal in 2019, including subjects such as competition - both in the wholesale and retail markets, security of supply and consumer protection. The report also covers the regulatory measures adopted and the results obtained with regard to ERSE's annual activities.

The analysis and statistical data presented cover essentially the year 2019 and the evolution of regulatory initiatives with an impact on future developments in the markets

The report reflects, whenever applicable, mainland Portugal as well as the archipelagos of the Azores and Madeira. For the natural gas sector, the report only describes the market in mainland Portugal, as there is no natural gas supply to end-consumers on the islands.

2 MAIN DEVELOPMENTS IN THE ELECTRICITY AND NATURAL GAS SECTORS

2.1 EVALUATION OF DEVELOPMENTS AND MARKET REGULATION

The electricity and natural gas markets have improved their performance in 2019.

Generation and energy demand

In mainland Portugal, the hydrological conditions in 2019 were adverse for electricity generation with a hydrological index of 0.81. The proportion of hydro generation in the mix was 18%, corresponding to a decrease when compared to 24% registered the year before. On the other hand, wind generation increased from 22% in the 2018 mix to 28% in 2019, while the remaining renewable generation increased slightly its share of total generation.

In 2019, non-renewable thermal power plants accounted for 44% of electricity generation in mainland Portugal, less than the 47% registered in 2018 and 58% registered in 2017. Within the 44%, only 10% came from coal-fired power plants and 33% from natural gas-fired plants.

Concerning combined cycle natural gas, there was a global increase in its share of generation in 2019 compared to 2018 (from 26% to 33%), while coal-fired power plants decreased (from 20% to 10%), reflecting the gradual decommissioning of coal-fired power plants (through legislative tax measures penalising this energy source).

2019 was characterised by a decrease in electricity consumption of 1.1% compared to 2018, for mainland Portugal. In the natural gas sector, consumption increased by 5% compared to 2018, explained by the increase of its use in power plants, despite stagnation of conventional consumption.

As a consequence of unfavourable hydrological circumstances (drop of 29% in hydropower generation, in absolute terms, compared to 2018), electricity generation from renewable sources decreased by 7% in 2019 compared to 2018, in absolute terms. However, non-renewable generation also decreased, with both decreases being offset by imports.

The energy source that recorded the greatest increase in installed capacity in 2019 was solar photovoltaic (increase of 171 MW during 2019, corresponding to a variation of 31%).

Renewable Energy Sources

In 2019, the installed capacity in power plants from renewable sources was 69% of the total installed capacity of mainland Portugal's electricity system, noting in particular an increase of 2% of installed capacity from renewable sources.

The production of electricity from renewable sources represented 56% of the total electricity produced, made up of 28% wind generation, 21% hydro, 6% biomass and 2% photovoltaic.

The first auction for grid injection capacity for solar energy took place in Portugal in June 2019. The auction counted with 64 competing participants. Demand was nine times higher than supply. The auction allocated a reserve of injection capacity at certain connection points in the public service electricity grid for electricity produced from photovoltaic solar. The closing price of an average value equivalent to an acquisition price of 20 € / MWh, which registered as the lowest price in renewable energy auctions in the world at that time.

Also noteworthy in 2019 was the connection to the grid of the first offshore wind generator, in Viana do Castelo (Windfloat consortium). It is the first of a set of three floating wind turbines, with a total installed capacity of 25 MW, installed about 17 km from the Portuguese coast.

Natural gas supply

In 2019, LNG predominated the supply of the national natural gas system (a record for the use of the Sines terminal was registered), representing 91% of the gas supply injected into the system. This was due to the gradual decrease in wholesale prices for natural gas, in particular due to LNG trade, with a similar phenomenon occurring in the markets closest to Portugal, in particular Spain.

During 2019, there was a significant increase in the use of the main natural gas infrastructure (LNG terminal and underground storage), even reaching maximum values, both in contracting capacity and in use (in particular of the capacity for regasification and for underground storage).

Wholesale electricity and natural gas markets

Regarding the wholesale market, the electricity sector registered an upward trend in production, both installed and attributed, which indicates a high level of competition and penetration of renewable production. The level of integration of the Iberian market remains very high, considering that the prices are practically coupled, even taking into account the circumstances of hydrological conditions or fuel prices.

In terms of the natural gas wholesale market, although the organised market platform was not been yet implemented, the supply of LNG reduced prices and increased the level of competition both internally and with the Spanish market. Imports on the gas interconnection with Spain were greatly reduced and instead it was used frequently for exports. Reported congestion in the infrastructure (LNG terminal and underground storage) may constitute limitations to market functioning, however the expected developments on the MIBGAS platform should counteract this difficulty.

Electricity and natural gas retail markets

In the electricity retail market, the consolidation of the market's liberalisation continued, with a wide range of commercial offers including combined electricity and gas offers. The supplier switching decreased slightly but continued at significant levels (approximately 15% for both sectors).

In the electricity sector, about 94% of electricity consumption and 84% of customers were covered by free market contracts. Regarding natural gas, about 98% of consumption and 84% of customers were covered by the liberalised market.

In the electricity market, at the end of 2019, there were 32 free market suppliers, of which 31 served household customers and small companies (with contracted capacity up to 41.4 kVA). In the natural gas market, 13 suppliers were present of which 12 suppliers serving customers with a consumption less than or equal to 500 m^3/year. We note, therefore, an increase in the number of liberalised market suppliers both for electricity and natural gas.

Since 2018, a new legislative provision allows electricity customers in the liberalised market to opt for the same end-user tariffs as the regulated transitional ones, to be offered by suppliers in the liberalised market. If their supplier does not participate in this new regime, customers can opt to be supplied by the supplier of last resort. However, this new regime did not have substantive effects in terms of the return of consumers to the supplier of last resort.

It is worth noting that 13% of electricity consumers and 1.2% of natural gas consumers in mainland Portugal were covered by the social tariff that grants a tariff discount regardless of the supplier they choose.

Electricity and gas prices

Wholesale electricity and natural gas prices decreased significantly in 2019 compared to 2018 (-17% in electricity and about -50% in natural gas).

The regulated network access tariffs decreased -14.3% in electricity and -14.8% in natural gas.

As a result of both price decreases, the electricity and natural gas prices for final consumers dropped during 2019.

Other relevant market developments

During 2019, the organised natural gas market did not develop as expected. However, a proposal for market rules for the Portuguese market area was prepared during the year and this will be approved in 2020.

The Government approved a diploma amending the self-consumption regime [Decree-Law n.º 162/2019, of 25 October], partially transposing Directive (EU) 2018/2001, on the promotion of the use of energy from renewable sources (hereafter Renewables Directive). This change provided a legal framework for collective self-consumption and renewable energy communities. The first projects under this new regime are expected during 2020.

As regards regulatory innovation, some initiatives should be highlighted, such as the regulation of smart grid services for electricity distribution networks, the integrated guarantee manager, and the pilot project for the participation of demand in the system services market. These initiatives facilitate and promote the participation of consumers and new players in the electricity market.

2.2 REPORT ON THE IMPLEMENTATION OF THE CLEAN ENERGY PACKAGE

As mentioned above, in October 2019, Decree-Law N.º 162/2019 approved the new legal regime for self-consumption of electricity and for renewable energy communities, partially transposing the Renewables Directive.

Thus, the new regime provides for collective self-consumption, through the sharing of renewable production, which is promoted through the simplification of procedures, namely with the creation of an electronic registration platform.

In this context, ERSE launched a public consultation to integrate the new self-consumption provisions in the electricity sector regulatory codes. Considering their innovative nature, it is likely that, by the end of 2020, self-consumption projects will be implemented, thus enabling public entities responsible for regulating the activity to develop this regulation as their practical applications arise.

Within the scope of 2030 National Climate and Energy Plan, Portugal has proposed to achieve a 47% share of energy from renewable sources in gross final consumption in 2030. The promotion and extension of decentralised electricity production from renewable sources becomes increasingly important, as one of the axes to be developed with a view to strengthening renewables production and the consequent reduction of the country's energy dependence.

3 ELECTRICITY MARKET

3.1 NETWORK REGULATION

3.1.1 TECHNICAL FUNCTIONING

3.1.1.1 BALANCING

Imbalances between production and demand and technical constraints are dealt within the scope of the ancillary services market, which is managed by REN in its capacity as Global Technical System Manager, as set out in the Network Operation Code (ROR)[1], and in the Manual of Procedures for Global Technical System Management of the Electrical System (MPGGS)[2].

The energy mobilised to resolve technical constraints and the contracted secondary control band involve costs that are paid by all customers. Additionally, the costs of mobilising secondary control reserve and reserve energy, for each hourly period, which are used to cancel out the agents' imbalances in real time, are paid by all the market agents that have deviated in that period.

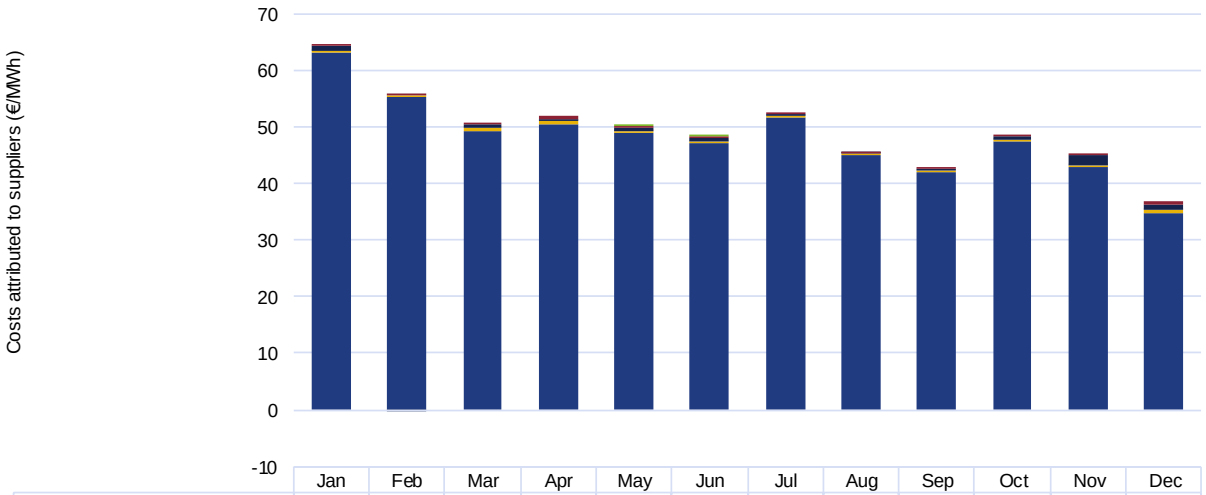
Figure 3-1 shows the impact of the daily, intraday and ancillary services markets on the costs allocated to suppliers in 2019, including the breakdown of daily and intraday market share and of the ancillary services market.

Figure 3-1 also illustrates that the price of the ancillary services market can be mainly explained by the cost of secondary band contracting and imbalance, with less impact on the remaining components.

[1] The Network Operation Code (ROR) was approved by ERSE Regulation no. 621/2017, published in Diário da República, 2.ª série, of 18 December, amending Network Operation Code (ROR), approved as part of Regulation no 557/2014, of 19 December, following a public consultation held by ERSE.

[2] The Manual of Procedures for Global Technical System Management for the Electrical System was approved by ERSE Directive no. 10/2018, published in Diário da República, 2.ª série, of 10 August, later amended by ERSE Directive no. 1/2019, published in Diário da República, 2.ª série, of 7 January.

Figure 3-1 - Impact of daily, intraday[3] and ancillary services markets on the costs allocated to suppliers operating in Portugal, in 2019



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total ancillary services markets	1.36	0.24	1.24	1.31	1.22	1.14	0.50	0.37	0.54	1.13	2.49	2.09
FBDP Technical constraints	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RT Technical constraints	0.16	0.01	0.17	0.36	0.25	0.19	0.03	0.07	0.16	0.09	0.35	0.36
Imbalances	0.83	-0.17	0.63	0.42	0.56	0.68	0.22	0.07	0.09	0.70	1.69	1.09
Extraordinary secondary band	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Secondary band	0.37	0.40	0.44	0.51	0.40	0.27	0.24	0.23	0.28	0.34	0.45	0.62
Daily and Intraday Market	63.16	55.36	49.41	50.62	48.90	47.25	51.82	45.23	42.17	47.45	42.96	34.73

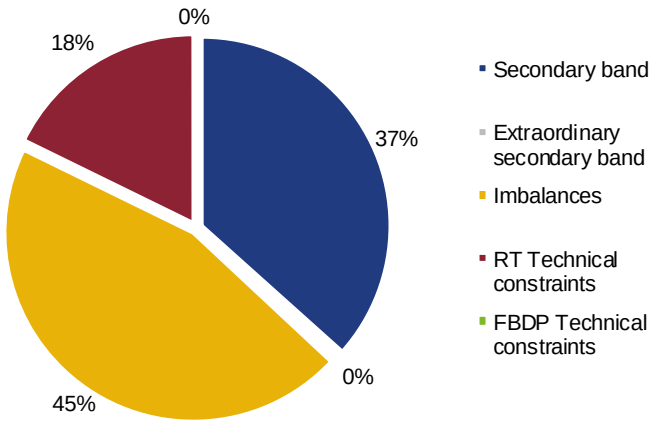
Source: REN data. Note: PDBF - Base Daily Operating Schedule and TR - Real Time.

The ancillary services market represented, in 2019, a weighted average cost of approximately 1.07 €/MWh, against a weighted marginal price in the daily and intraday markets of approximately 48.25 €/MWh, which reflects an decrease in the average market price of nearly 17% compared to the previous year (inverting the increasing trend up to 30% which occurred in 2017 and 2018), in line with the average cost of the ancillary services market, which declined by 7% (adding to a similar decrease which occurred in 2018).

Figure 3-2 presents the cost breakdown of the ancillary services market and shows that the most important components relate to secondary band contracting and imbalances.

[3] Excludes the intraday and continuous market, as a result of the application of the model provided for in the CACM GL (XBID) as set in Regulation (UE) no 2015/1222 of the European Commission.

Figure 3-2 - Breakdown of costs of the ancillary services market, 2019



Source: REN data

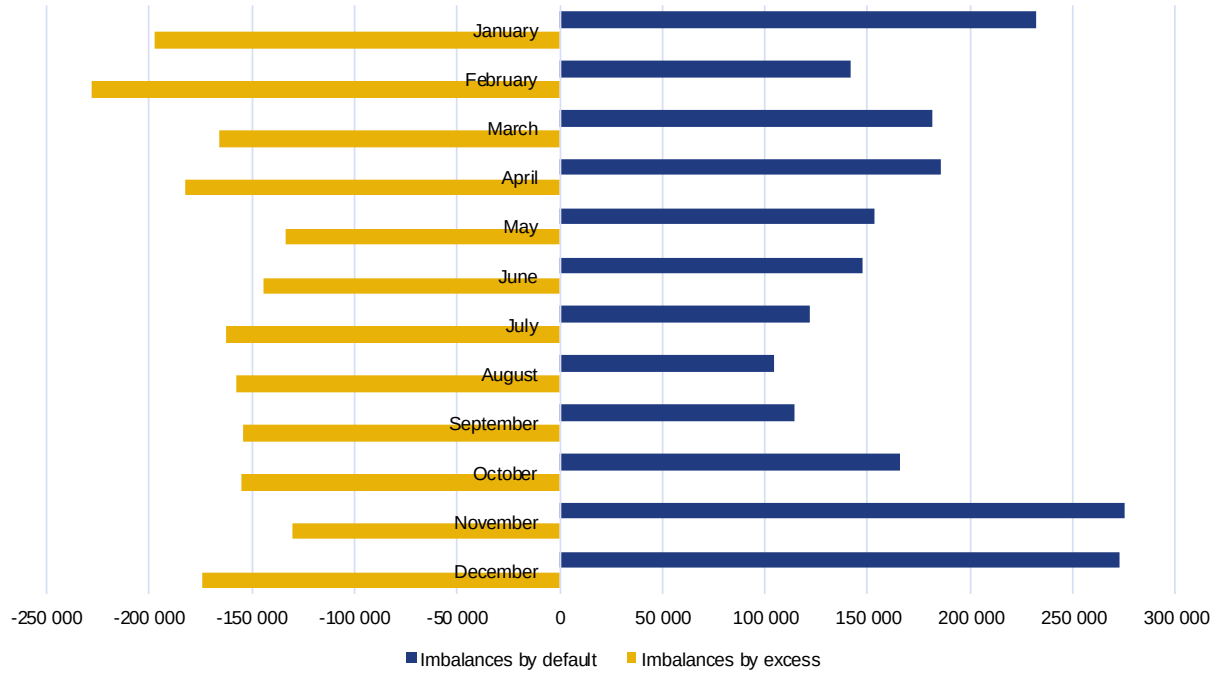
The monetary value of imbalances for each hour corresponds to the variable costs of balancing, which is paid to the agents that correct the imbalance by participating in the ancillary services market.

Figure 3-3 shows the evolution of imbalance energy, by excess[4] and by deficit[5], observed throughout 2019. Compared to 2018, there was a slight decrease in deficit imbalances and a higher decrease in excess imbalances.

[4] Each hourly surplus (excess) imbalance is the result of consumption lower than previously scheduled (consumers' imbalance), or the result of generation higher than previously scheduled (generation units' imbalance).

[5] Each hourly deficit imbalance is the result of consumption higher than previously scheduled (consumers' imbalance), or the result of generation lower than previously scheduled (generation units' imbalance).

Figure 3-3- Evolution of imbalances, 2019



Source: REN data

3.1.1.2 TECHNICAL QUALITY OF SUPPLY

In mainland Portugal and in the Autonomous Regions of the Azores and Madeira, both the Quality of Supply Code (RQS)[6] and the Tariffs Code (RT) [7] include provisions for regulating the continuity of supply[8].

CONTINUITY OF SUPPLY

The transmission and distribution networks are described in terms of continuity of supply, based on indicators for each system (transmission and distribution), specifically, the time/duration of the interruption and its frequency (TIE/TIEPI/SAIFI/SAIDI - please refer to the list of definitions of indicators in Annex oIII).

[6] Regulation n.º 629/2017 of 20 December, which approves the Quality of Supply Code for the electricity sector and the corresponding Manual of Procedures.

[7] Regulation n.º 619/2017 of 18 December, which approves the Tariff Code for the electricity sector.

[8] In addition to this technical quality, the RQS also establishes obligations related to voltage quality and commercial quality.

The RQS establishes that the assessment of the performance of the transmission and distribution network, in terms of continuity of supply, applies not only to long interruptions (longer than 3 minutes) but also to short interruptions (between 1 second and 3 minutes), according to the MAIFI indicator (see the indicator definition list in Annex oIII). Table 3-1 shows the continuity of supply indicators for mainland Portugal[9] in 2019[10].

Table 3-1 - Continuity of supply indicators in mainland Portugal, 2019

Voltage Level	Indicator	Interruptions		
		Planned	Unplanned	
			Operator Responsibility	Exceptional Events
Transmission	TIE (min)	-	0.72	-
	SAIFI (int)	-	0.06	-
	SAIDI (min)	-	0.46	-
	MAIFI (int)	-	0.04	-
HV Distribution	SAIFI (int)	0.20		
	SAIDI (min)	23.00		
	MAIFI (int)	0.90		
MV Distribution	TIEPI (min)	49.00		
	SAIFI (int)	1.70		
	SAIDI (min)	72.00		
	MAIFI (int)	9.30		
LV Distribution	SAIFI (int)	1.50		
	SAIDI (min)	69.00		

* Provisional data provided by EDP Distribuição. It is not yet possible to disaggregate the continuity of service indicators by type of interruption.

Source: REN and EDP Distribuição data

Overall, in 2019, the continuity of supply indicators which assess the performance of the transmission network follow the trend of a progressive and sustained improvement in the performance of the transmission network, as verified in previous years. On the other hand, the continuity of supply indicators that assess the performance of the distribution networks suffered a general degradation compared to the

[9] Indicators referring to REN's transmission network and EDP Distribuição's distribution network (HV, MV and LV)

[10] Information on the historical evolution of the continuity of supply indicators is available at (in Portuguese):
http://www.erse.pt/pt/electricidade/qualidadedeservico/relatoriodaqualidadedeservico/
https://infoqstecnica.erse.pt/

previous year. This degradation was due to the occurrence of extreme natural events that raged across mainland Portugal in 2019.

In addition, the RQS sets standards for continuity of supply (annual number and duration of interruptions), which constitute a commitment to the customer by the network operator. If the network operator fails to comply with these standards, it has an obligation to pay a monetary compensation[11] without the need for the customer to request it.

In 2019, there were 14 593 instances of non-compliance in mainland Portugal, which led to compensation in the amount of approximately 121 000 euros. However, there are still 8 362 customers whose compensation value is still being processed, due to the fact that a series of major impact events occurred at the end of 2019.

Table 3-2 shows the continuity of supply indicators for the Autonomous Region of the Azores in 2019.

Table 3-2 - Continuity of supply indicators in the Autonomous Region of the Azores, 2019

Voltage Level	Indicator	Interruptions		
		Planned	Unplanned	
			Operator Responsibility	Exceptional Events
MV Distribution	TIEPI (min)	34.84	103.02	52.75
	SAIFI (int)	0.76	5.47	1.64
	SAIDI (min)	52.15	130.46	82.35
	MAIFI (int)	1.00	2.03	0.66
LV Distribution	SAIFI (int)	0.80	6.54	1.80
	SAIDI (min)	41.01	159.45	86.76

Source: EDA data

In 2019, the continuity of supply indicators that assess the performance of distribution networks in the Azores deteriorated in general compared to the previous year. These results were in large part due to the occurrence of unplanned interruptions classified as exceptional events with a significant impact on the continuity of supply indicators. In 2019, there were 437 instances of non-compliance, of which 67 related

[11] This payment aims at compensating the customer in case of non-compliance with this indicator. It does not include any payment for damages caused by interruptions.

to the duration of interruptions and 370 related to the number of interruptions. Customers received 4 000 euros in compensation. In 2018, there were 241 instances of non-compliance, of which 192 related to the duration of interruptions and 49 related to the number of interruptions. The instances of non-compliance were mainly due to incidents that affected low voltage customers (221). Customers received 4 000 euros in compensation.

Table 3-3 shows the continuity of supply indicators for the Autonomous Region of Madeira, in 2019.

Table 3-3 - Continuity of supply indicators in the Autonomous Region of Madeira, 2019

Voltage Level	Indicator	Interruptions		
		Planned	Unplanned	
			Operator Responsibility	Exceptional Events
MV Distribution	TIEPI (min)	17.98	25.00	0.66
	SAIFI (int)	0.38	0.78	0.80
	SAIDI (min)	30.86	36.35	0.89
	MAIFI (int)	0.07	0.32	0
LV Distribution	SAIFI (int)	0.39	0.59	0.02
	SAIDI (min)	31.59	24.46	0.86

Source: EEM data

In 2019, the continuity of supply indicators that assess the performance of distribution networks improved slightly compared to the previous year. These results were essentially due to a lower occurrence of unplanned interruptions classified as exceptional events when compared to the previous year, with a less significant impact on the continuity of supply indicators.

In 2019, there were 19 instances of non-compliance related to the duration of the interruptions, mostly due to non-compliance at standard low voltage customers (StLV), and customers received about 2 000 euros in compensation. In 2018, there were 213 instances of non-compliance related to the duration of the interruptions, mostly due to non-compliance at StLV, and customers received about 4 000 euros in compensation.

It should be noted that, in accordance with the RQS for the electricity sector, ERSE publishes a quality of supply report on a yearly basis, to present and assess the quality of supply for the activities covered by the electricity sector.

INCENTIVE TO IMPROVE CONTINUITY OF SUPPLY

The RT establishes an incentive to improve continuity of supply with repercussions on the allowed revenue for the medium-voltage (MV) and high-voltage (HV) distribution network operators in mainland Portugal. This incentive is aimed, on the one hand, at promoting the global continuity of electricity supply ("component 1" of the incentive), and, on the other hand, at encouraging the improvement of the continuity of supply level among the worst-served customers ("component 2" of the incentive).

The value of "component 1" of the incentive depends on the annual value of non-distributed energy, and is determined using the function set out in the RQS. In 2019, the maximum value of the premium or penalty corresponded to 4 million euros. The determination of the value of non-distributed energy excludes interruptions justified for safety reasons, interruptions related to the national transmission network, as well as interruptions classified by ERSE as exceptional events[12].

"Component 2" was introduced in the 2014 regulatory review, and applied for the first time to the network's performance in 2015. The value of "component 2" of the incentive depends on the moving average of the last three years of the SAIDI MV indicator (see the indicator definition list in Annex □oIII) that covers 5% of distribution transformer stations and MV customers with the worst SAIDI MV value each year. The value of "component 2" is determined using the function established in the RQS. In 2019, the maximum value of the premium or penalty corresponded to 1 million euros. The determination of the SAIDI MV value that covers 5% of distribution transformer stations and MV customers excludes interruptions classified by ERSE as exceptional events, as well as interruptions originating from security reasons and originating from the transmission network.

Regarding the value of the amount inherent to “component 1” of the incentive mechanism to improve the continuity of supply, based on the provisional values of 39 755 GWh of distributed energy and

[12] The RQS approved in 2013, which entered into force in 2014, establishes the concept of exceptional event as an incident with all of the following characteristics:

- Low probability of occurrence of the event or its consequences;
- The event causes a significant decrease in the quality of supply;
- It is not reasonable, in economic terms, that network operators, suppliers, suppliers of last resort or, in the case of the Autonomous Regions of the Azores (RAA) and Madeira (RAM), producers, avoid all of its consequences;
- The event and its consequences are not attributable to network operators, suppliers, suppliers of last resort or, in the case of RAA and RAM, producers.

An incident shall only be considered an exceptional event after approval by ERSE, following a request by network operators, suppliers or suppliers of last resort.

48.35 minutes of TIEPI MV, the value of 3.66 GWh was estimated for non-distributed energy, which corresponds to an increase in the income of the main DSO of around 3.1 million euros in 2019. With regard to the value of the amount inherent in "component 2", it should be noted that there is still no information available to assess the value for 2019.

3.1.1.3 SAFEGUARD MEASURES

In the event of a sudden crisis in the energy market or a threat to the safety and physical integrity of people, equipment, installations and networks due to a serious accident or another event of force majeure, the member of the Government responsible for energy may take any necessary transitional and temporary safeguard measures[13].

In 2019, there were no incidents that required the implementation of safeguard measures.

3.1.1.4 SPECIAL REGIME GENERATION

Special regime generation (SRG)[14] refers to the production of electricity through endogenous, renewable and non-renewable resources, combined heat and electricity (cogeneration) and distributed production technologies.

Order n.º 8810/2015 of 10 August, of the Directorate General for Energy and Geology (DGEG)[15], provides that under exceptional circumstances of operation of the national electricity system, particularly when there is congestion or when the safety of the generation-consumption balance and the continuity of electricity supply are at stake, the system manager will send reduction orders with the purpose of controlling SRG facilities so they do not exceed a specific capacity value. The publication of Decree-Law n.º 76/2019 of 3 June, materialises Article 17(a) of Order n.º 8810/2015 of 10 August, on grid access and operation.

[13] Article 33-B of Decree-Law n. 215-B/2012 of 8 October, which introduces the sixth amendment to Decree-Law n.º 172/2006 of 23 August, and completes the transposition of Directive 2009/72/EC of the European Parliament and of the Council of 13 July, concerning common rules for the electricity internal market.

[14] Article 2(zz) of Decree-Law n.º 76/2019 of 3 June, which changes the legal regime applicable to the activities of production, transportation, distribution and electricity supply and the organisation of electricity markets.

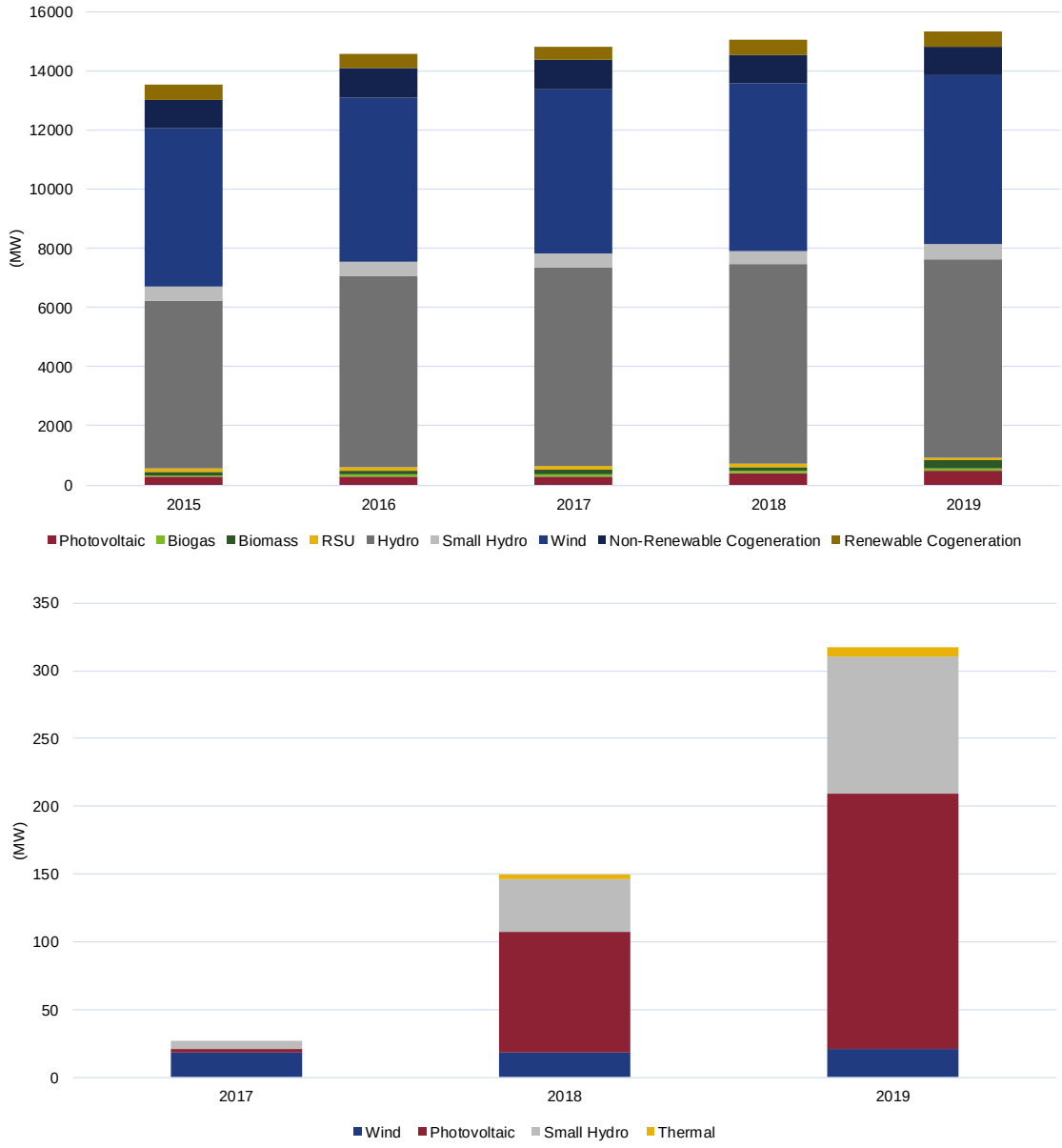
[15] Order n. 8810/2015 of 10 August, of DGEG, which lays down the necessary rules and procedures to establish a conditions for the interruption of special regime generation, namely the order and sequence of the power reduction to be complied with by the special regime generation plants connected to the national electricity transmission or distribution networks.

In mainland Portugal, with the entry into force of Decree-Law n.º 76/2019 of 3 June[16], the legal framework for SRG was revised, allowing them to operate under the guaranteed remuneration regime as well as the general remuneration regime. Under the guaranteed remuneration regime, producers sell their electricity at a guaranteed price over a given period (fixed or indexed to a benchmark, with or without setting minimum and/or maximum thresholds), while a competitive mechanism is used to define the guaranteed tariff. Under the general remuneration regime, producers sell their electricity at market price.

In 2019, the SRG installed capacity represented 76% of the total installed capacity of the Portuguese electricity system. From 2015 to 2019, this weight varied between 73% and 76%. Figure 3-4 shows the evolution of the SRG installed capacity between 2015 and 2019, as well as the SRG installed capacity under market regime in 2017, 2018 and 2019, excluding large hydro in order to facilitate the graphical interpretation. In 2019, it is worth noting approximately 317 MW of SRG installed capacity that participates directly in the market, composed of mini-hydro (32%), photovoltaic (60%), wind (6%) and thermal (2%) technologies.

[16] That proceeded with the eleventh amendment of Decree-Law no. 172/2006, of 23 August, to develop the general bases of the organisation and functioning of the National Electricity System, changing the legal regime applicable to the activities of production, transportation, distribution and electricity supply and the organisation of electricity markets.

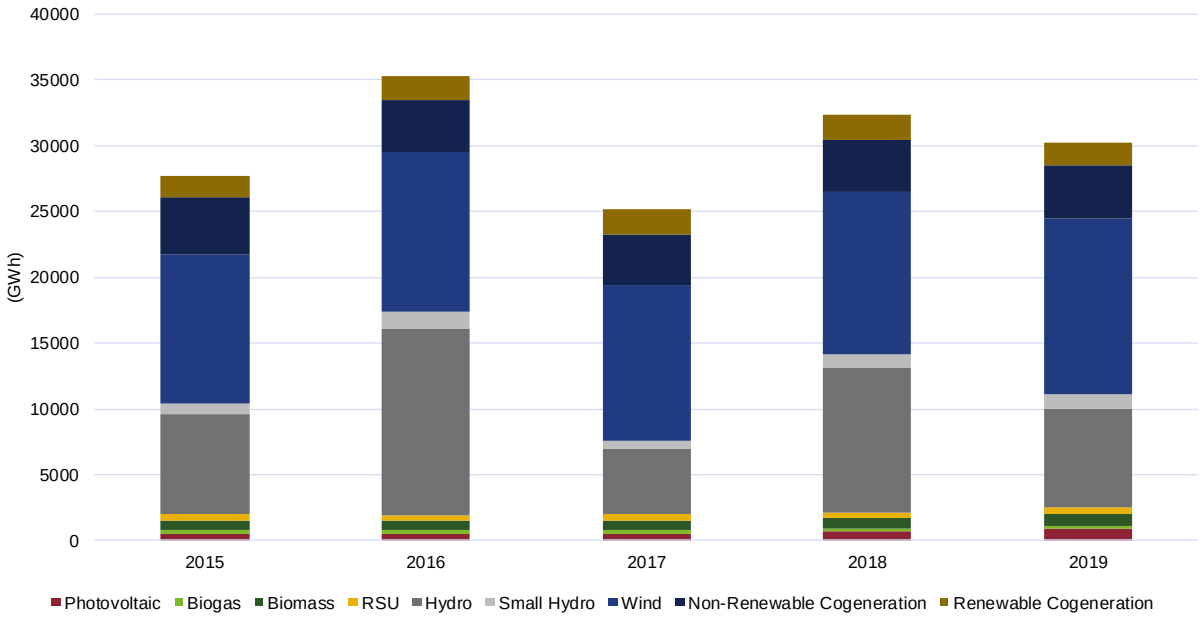
Figure 3-4 - SRG installed capacity, 2015 to 2019



Source: REN data, Note: RSU means Solid Urban Waste

Regarding the energy produced in 2019, approximately 30 TWh came from SRG, representing 62% of the total energy produced, a figure that ranged between 46% and 63% between 2015 and 2019. Figure 3-5 shows the evolution of SRG between 2015 and 2019, broken down by technology.

Figure 3-5 – SRG electricity production, 2015 to 2019



Source: REN Data, Note: RSU means Solid Urban Waste

The previous figures highlight the importance of SRG, an in particular renewable energy sources, in the energy mix of the Portuguese electricity system.

Also in relation to 2019, it is worth mentioning the connection to the grid (on the last day of the year) of the first offshore wind generator, off Viana do Castelo (Windfloat consortium). It is the first of a set of three floating wind turbines, with a total installed capacity of 25 MW, whose connection, 17 km from the coast, was built by the transmission system operator.

3.1.1.5 REGULATIONS DEVELOPMENTS

Amendment to the Basic Law for the Electricity Sector

In June 2019, the Decree-Law n.º 76/2019 of 3 June amended Decree-Law n.º 172/2006 of 23 August, due to the need to adjust the legal regime, aiming at the development of technologies for the production of electricity from renewable sources, as well as a reduction in the respective investment costs.

The main change of this legal regime concerned creating the possibility for auctions for all types of special regime generation, by guaranteeing the construction or reinforcement of network infrastructure without burdening the system, that is, without burdening the final consumer, through a co-payment to be borne by the producers, ensuring the injection capacity in the network.

This new diploma is also foresees the possibility of installing storage infrastructure in power plants, strengthening the response capability for electricity produced from renewable energy sources.

As for the mitigation of risks arising from the delay or non-compliance with the obligations of the supplier or market agent, both as regards the use of networks and of their participation in the overall management of national electricity system, the diploma establishes the regime for risk and management of guarantees in order to ensure a prudential management of the system's operation.

Pilot project on participation of demand response in the regulation reserve market

Following a public consultation procedure, ERSE's Directive n.º 4/2019 of 15 January, established the rules of the pilot project on participation of demand response in the regulation reserve market.

The approved rules of the pilot project established that consumers licensed by the TSO with a capacity of at least 1 MW may participate in this regulation reserve market, assuming they demonstrate to the TSO that they have the technical and operational skills to supply this service and that they are connected to a network of at least medium voltage level. The duration of the pilot project defined by the rules is one year, starting from 2 April 2019.

The submission of applications from demand facilities to participate in the pilot project closed on 31 January 2019, followed by a validation and qualification test period that last until the end of February.

The preliminary results obtained from the pilot project were positive, with the project including active participation of 6 demand facilities as of the end of 2019.

The pilot project was the first step in the participation of demand in balancing markets and had the objective to ensure the equal treatment of licensed consumers (or those representing them) and of producers involved on the regulation reserve market.

Capacity allocation auction for connection to the grid of photovoltaic generation

In 2019, the revision to the Basic Law for the electricity sector introduced a new auction mechanism to allocate injection capacity, for the purpose of connecting new generation to the network, namely solar photovoltaic producers.

In view of the great interest and demand demonstrated by promoters of new solar photovoltaic plants for new connection points to the networks, the Government decided to organise an auction for solar

photovoltaic technology, in which each promoter submitted offers for connection points and respective available injection capacity.

The auction combined two different capacity allocation options:

- guaranteed remuneration regime ("feed-in tariff");
- general remuneration regime, through participation in an organised market.

For each capacity allocation option, different offers were available:

- In the guaranteed remuneration regime, the promoter offers a discount to the "feed in" tariff;
- In the general or market regime option, the promoter accepts to pay the national electricity system a financial contribution, the amount of which is fixed over a period of 15 years.

The auction held in July 2019 resulted in the allocation of 1292 MW of injection capacity, that is, 92% of the total capacity put up for auction (1400 MW). Of these 1292 MW, 1004 MW (78%) were allocated in the form of guaranteed remuneration regime and the remaining 288 MW (22%) in the form of general remuneration or market regime.

In the guaranteed remuneration regime, the average price was 20.39 €/MWh, that is, a discount to the base rate of 54.76%, occurring a minimum average price of 14.76 €/MWh, for a capacity block of 150 MW.

In the general or market remuneration modality, the resulting average contribution was 21.35 €/ MWh.

It is also important to note that the auction mechanism only allocates network injection and the producers to which capacity was allocated must subsequently obtain the respective generation license, as well as bear all costs related to physical connection to the existing network, as provided for in the relevant specific regulation[17].

ERSE code on services for intelligent electricity distribution networks

ERSE approved its Code on Services for Intelligent Electricity Distribution Networks in August 2019.[18] The code determines a set of minimum services to be provided by intelligent electricity distribution networks

[17] https://dre.pt/application/conteudo/122145181

[18] Regulation no. 610/2019, of 2 August, which approves the Code on the Services of Intelligent Electricity Distribution Networks

(smart grids) and a framework of incentives, aimed at the respective operators, for the implementation of these networks.

Based on the finding that Portugal had a very relevant number of smart electricity meters already installed (around 2 million at the end of 2018, i.e. 30% of low voltage consumers) and a scheduled replacement of the remainder, the new code defines the services to be provided by low voltage distribution network operators and traders in terms of the reading and availability of consumption and production data, customer services provided remotely or the facilitation of energy services provided by third parties. The new framework for smart grid services represents a significant advance for all actors in the sector, starting with consumers. The implementation of services, namely by network operators, is progressing gradually.

Self-consumption of electricity and renewable energy communities

The Government approved a new legal regime for self-consumption of electricity and for renewable energy communities, partially transposing the Renewables Directive (EU) 2018/2001 [Decree-Law n.º 162/2019, of 25 October]. The new regime provides for collective self-consumption, through the sharing of renewable production by several consumption facilities in the vicinity of the production unit. Administrative procedures for access to self-consumption were also simplified and an electronic registration platform was created. The same legal diploma also established the regime for renewable energy communities. Following the approval of the new legal framework, ERSE launched a public consultation to integrate the new modalities of self-consumption in the regulation of the electricity sector. The consultation was held between December 2019 and March 2020, following which ERSE published its Code on Self-Consumption (n.º 266/2020, of March 20].

3.1.2 NETWORK TARIFFS FOR CONNECTION AND ACCESS

REGULATORY FRAMEWORK

ERSE is responsible, among other things, for the approval of the methodology used to calculate tariffs and prices for the electricity sector, the methodologies for regulating allowed revenues, as well as for the

approval of the network access tariffs for the transmission and distribution networks and the transitional tariffs (applied to the supplier of last resort)[19].

The methodology used to calculate tariffs and the methodologies for regulating allowed revenues are set in ERSE's Tariffs Code (RT), which is elaborated and approved by ERSE, after a public consultation process and the mandatory non-binding opinions by ERSE's advisory bodies, namely the Advisory Council and the Tariff Council. The tariff fixing process, including its time frame, is also defined in the RT.

The tariffs set for 2019, including the network access tariffs for the electricity networks, apply the rules set out in the current RT, approved by Code no. 619/2017, of 18 December, and changed by Code no. 76/2019, of 18 January.

PROCEDURES AND METHODOLOGY FOR CALCULATING ELECTRICITY NETWORK ACCESS TARIFFS

Network access tariffs are charged to all electricity consumers for the use of the public service electricity network infrastructure. Generally speaking[20], these tariffs are paid by suppliers on behalf of their customers.

The revenues generated from regulated activities are recovered through specific tariffs, each with their own tariff structure and a given set of billing variables. The following tariffs are approved by ERSE: Global Use of the System, Use of the Transmission Network at Extra High Voltage (EHV) and HV, Use of the Distribution Networks at HV, MV and LV (low voltage) and the Switching Logistics Operator[21]. The billing variables are capacity, active energy, and reactive energy.

Tariff prices for each activity are established so as to ensure that their structure follows the structure of the marginal costs of the activity and that the allowed revenues for each activity are recovered. The tariff design, including billing variables, is based on the principle of tariff uniformity, so that tariff system in place is universally applicable to all clients, promoting the convergence of the electricity systems of mainland

[19] Established in the ERSE Statutes, approved by the Decree-Law n.º 97/2002, according to the wording given to it by Decree-Law n.º 57-A/2018, of 13 July.

[20] Network access tariffs can also be paid by customers who are simultaneously market agents, i.e. customers who buy energy directly from the markets and are responsible for managing any possible schedule deviations.

[21] Since 2018, following the publication of Decree-law n. 38/2017, of 31 March, which establishes the centralized switching operator. Previously, the switching logistics operation was done by the medium and high voltage distribution network operator.

Portugal and of the autonomous regions, as well as the principle of non-discrimination of the energy's end-use, with all tariff options available to all consumers.

Access tariff prices for each billing variable are determined by adding up the corresponding tariff prices per activity. Given that the tariffs contributing to this sum are based on marginal costs, cross-subsidisation between consumers is avoided and an efficient use of resources is promoted.

This calculation methodology allows for a detailed knowledge of the various tariff components by activity or service. Therefore, each customer may know exactly how much they pay for a given service (for example, for the use of the HV distribution network), and how that amount is considered in terms of billing (in the example below, billing variables are capacity and active energy). This methodology also allows for transparency as regards the way that revenues and tariffs are determined by the regulator.

Table 3-4 presents the network access tariffs and their billing variables.

Table 3-4 – Electricity network access tariffs structure[22]

Network access tariffs	Billing variables	EHV Clients	HV Clients	MV Clients	SpLV Clients	StLV Clients
Overall Use of the System	Capacity	●	●	●	●	●
	Active energy	●	●	●	●	●
Use of the Transmission Network	Capacity	●	●	●	●	●
	Active energy	●	●	●	●	●
	Reactive energy	●				
Use of the Distribution Network	Capacity		●	●	●	●
	Active energy		●	●	●	●
	Reactive energy		●	●	●	
Switching Operation	Capacity	●	●	●	●	●

Notes: SpLV – Special Low Voltage; StLV – Standard Low Voltage.

[22] The table does not include the Use of the Transmission Network tariff applicable to generators for entering the national transmission and distribution networks, as we consider that this tariff does not integrate the network access tariffs, as users are directly responsible for its payment.

Under the terms of ERSE's Electric Mobility Code, in place since 2019, the points that integrate the electric mobility network which are connected to the public service electricity network, pay the electricity network access tariffs applicable to electric mobility. The network access tariffs for electric mobility apply to the electric vehicle users and are formed by an energy price per time period in euros per kWh[23].

ELECTRICITY NETWORK ACCESS TARIFFS PRICES

Taking into account the demand forecasted for 2019, the network access tariffs for 2019[24] correspond to a tariff decrease of 14.3% compared with 2018, with the variations per voltage level presented in the following table.

Table 3-5 – 2019 electricity network access tariffs

	2018 Tariffs (average prices) €/kWh*	2019 Tariffs (average prices) €/kWh	Change
Network Access Tariffs	**0.07825**	**0.06703**	**-14.3%**
Access to EHV Networks	0.02482	0.02220	-10.6%
Access to HV Networks	0.03040	0.02719	-10.6%
Access to MV Networks	0.05263	0.04707	-10.6%
Access to SpLV Networks	0.09033	0.08079	-10.6%
Access to StLV Networks	0.12242	0.10201	-16.7%

* Application of 2018 tariffs to the demand forecasted for 2019.

Source: ERSE Data

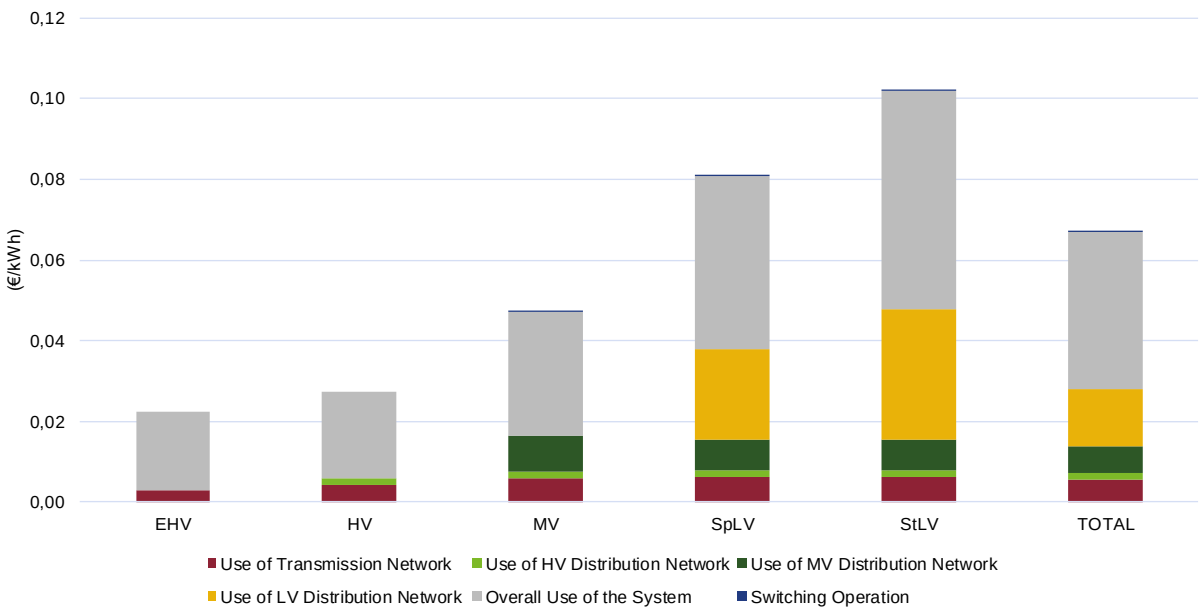
Figure 3-6 below shows the breakdown of average prices for the 2019 electricity network access tariffs per regulated activity and voltage level, while Figure 3-7 shows the corresponding structure of average prices per regulated activity and voltage level[25].

[23] For more information regarding electric mobility, see point 6.4 in this document.

[24] Directive no. 5/2019, of 18 January, which approves the tariffs and prices for electricity and other services in 2019 (in Portuguese).

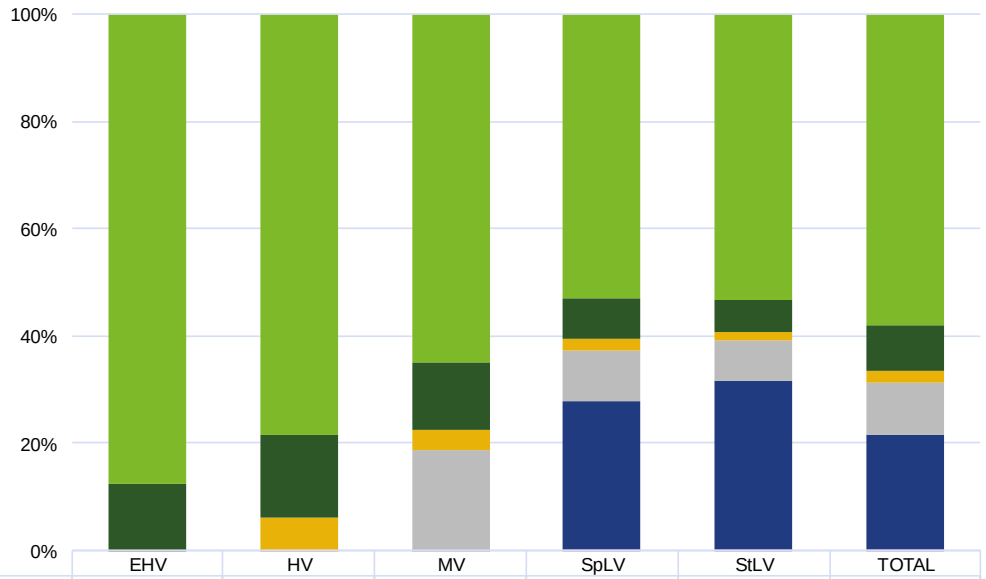
[25] For EHV, the value of the OLMC tariff is not seen in the graphic, although it is applicable.

Figure 3-6 – Breakdown per activity of the average price of electricity network access tariffs in 2019



Source: ERSE Data

Figure 3-7 – Structure of the average price of network access tariffs by regulated activity per voltage level in 2019



	EHV	HV	MV	SpLV	StLV	TOTAL
Overall Use of the System	87.5%	78.3%	65.1%	53.0%	53.2%	58.0%
Use of Transmission Network	12.5%	15.4%	12.6%	7.6%	6.1%	8.4%
Use of HV Distribution Network		6.3%	3.5%	2.2%	1.7%	2.4%
Use of MV Distribution Network			18.8%	9.3%	7.3%	9.6%
Use of LV Distribution Network				27.9%	31.7%	21.5%
Switching Operation	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%

Source: ERSE Data

REGULATORY DEVELOPMENTS

PILOT PROJECTS FOR DYNAMIC TARIFFS

In February 2018, ERSE approved[26] the rules for pilot projects on tariff structure improvement and on dynamic network access tariffs on the EHV, HV and MV lines in mainland Portugal. The approved rules were previously discussed with all interested parties in a public consultation process[27].

Two pilot projects were approved, namely, Pilot Project 1, called "Improvement of the Network Access Tariffs in mainland Portugal" and Pilot Project 2, called "Introduction of a Dynamic Tariff for Network Access in mainland Portugal", implemented since June 2018, with a duration of 12 months.

Pilot Project 1 for the improvement of network access tariffs on the EHV, HV and MV lines in mainland Portugal ended on 31 May 2019. Subsequently, ERSE, EDP Distribuição and INESC TEC[28] worked on the preparation of the evaluation of the results obtained. Finally, ERSE has initiated the analysis of the pilot results, following receipt of the final report by EDP Distribuição, prepared by INESC TEC.

REGULATORY METHODOLOGIES FOR DETERMINING ALLOWED REVENUES

2019 was the second year of the current regulatory period. The summary below outlines the regulatory models in force by type of network operator and for suppliers of last resort:

- For mainland Portugal:
    - Transmission system operator (TSO) – for transmission activity: model based on economic incentives: (i) application of a price cap[29] methodology with efficiency targets for operating costs (OPEX[30]); (ii) incentive for efficient investment in the transmission network through the use of reference prices in valuing new equipment to be

[26] Approved by Directive no. 6/2018, of 27 February.

[27] In the 59th ERSE public consultation.

[28] INESC TEC - Institute for Systems and Computer Engineering, Technology and Science

[29] The cost drivers that determine the evolution of the revenue recoverable by the application of the transmission network use tariff are not very volatile, bringing this methodology closer to *revenue cap*. The drivers are the length (km) of the network lines and the number of panels in substations. The annual efficiency factor was set at 1.5%.

[30] Operational expenditure.

incorporated into the network, whose greater risk is offset by a differentiated rate of return; (iii) incentive for economic rationalisation of investment costs. In the Global Technical Management System activity, the revenues are set through a revenue cap methodology with the separation of controllable and non-controllable costs for the application of efficiency targets[31].

- Distribution network operator (DSO): Price cap[32] methodology applied to unit operating costs (OPEX) and accepted costs[33] on an annual basis in the case of investment costs, taking into account the investment plans proposed by the companies, regarding the distribution of electricity at HV/MV. Application of a price cap methodology to TOTEX in the distribution of electricity at LV. Other incentives also apply: (i) incentive for investment in smart networks[34]; (ii) incentive to improve service continuity; and (iii) incentive to reduce losses. In 2019, a new output-based incentive was defined with the aim of the distribution network operator providing value-added services supported by smart grids. This incentive is based on the sharing between operators and consumers of the benefits generated by these services.
- Switching operator: From 2018, the supplier switching activity was separated[35] and subjected to a revenue cap methodology for OPEX[36] and accepted costs for CAPEX.
- Suppliers of Last Resort: Price cap methodology[37] supplemented by a component for non-controllable costs in order to include costs of extraordinary nature that arise from changes in the activity level and in the profile of the portfolio of customers underlying the phasing out process for regulated tariffs. This cost component must be analysed and calculated on an annual basis, casuistically, and should only be considered when justifiable.

[31] The annual efficiency factor is 1.5%.

[32] Cost drivers in HV/MV are distributed energy and network length (km); in LV, cost drivers are distributed energy and number of customers. The annual efficiency factor is 2.5%, plus inflation.

[33] Net asset remuneration and amortisation.

[34] In the 2015-2017 regulation period, this incentive started being calculated based on real and audited values, a process that will last for 6 years.

[35] Until 2017, the supplier switching activity was performed by the HV/MV distribution system operator.

[36] For the period 2018-2020, the efficiency factor set at 1.5%.

[37] Cost driver is the number of customers. The efficiency factor is 1.5%

- In the Autonomous Regions of the Azores and Madeira, companies with electricity transmission and distribution concessions are subject to regulation based on economic incentives: (i) regulation of electricity purchase and management activities via a revenue cap methodology[38]; (ii) regulation of the electricity distribution and commercialisation activities via a price cap methodology[39] for calculating allowed revenues; (iii) definition of reference costs for fuels (fuel oil, diesel and natural gas) consumed in the generation of electricity, as well as for costs arising from the unloading and storage of those fuels[40]. In 2019, similarly to mainland Portugal, a new incentive for the integration of LV installations in smart grids was established.

For the supplier of last resort activity, the reference costs are determined annually in order to comply with the legal framework and with the objective of creating a sustained base for defining the unit OPEX of this activity.

Regarding capital costs[41], a partial indexation methodology is applied to the yields of treasury bonds (OT), which allows to reflect the evolution of the economic-financial situation and, thus, to compensate for the risks of own and other capital.

The allowed revenue for transmission and distribution network operators of mainland Portugal for the overall management of the system, the sale and purchase of electricity from commercial agents and for the sale and purchase of the access to the transmission network includes costs arising essentially from legislative decisions, the so-called General Economic Interest Costs (CIEGs).

The most significant CIEGs, in terms of value or of their impact on the functioning of the market, are related to electricity generation.

Market liberalisation has led to the need to anticipate the termination of long-term power purchase agreements (CAEs). Two of these contracts remained in force in 2019, and the energy generated by those two plants is now managed by a trading company, but fully regulated (commercial agent according to ERSE's Commercial Relations Code (RRC)).The revenue of this trading company depends on incentives

[38] Efficiency factor set at 1.5%.

[39] The cost drivers in the distribution activity in both Autonomous Regions are distributed power and the number of customers. In the trading activity, the cost driver is the number of customers. In both Autonomous Regions, the efficiency targets applied to each of the activities vary between 3% for distribution and 2.5% for trading, respectively.

[40] Electricity generation in the Autonomous Regions of the Azores and Madeira is regulated, and it is not liberalised because these regions have benefited from a derogation of the application of Directive 2003/54/EC.

[41] Rates of return on assets for 2019 in mainland Portugal and autonomous regions – transmission: 5.17%; distribution: 5.42%.

defined by ERSE. In general, these incentives result in a direct relationship between the revenues of the supply undertaking and the operating margin obtained through the sale of energy from the two plants with CAEs on the market. The effect of the extra costs of the CAE will end in 2024 with the end of the last of these two CAE.

The remaining power purchase agreements were terminated at the time of liberalisation and the respective power plants were included in a legal concept - Costs for the Maintenance of Contractual Equilibrium (CMEC) - which gives producers the right to receive compensation intended to grant them equivalent economic results as those provided by the CAEs. This regime, as indicated in the last year's report, ended in 2017. The effects resulting from the final adjustment required by law will last 10 years from 2018.

In addition to those costs, there are other more significant costs related to the remuneration of energy generated by renewable resources or cogeneration (SRG, except for large hydropower plants), which are determined administratively; to the concession of rents paid by the distribution network operator in LV to municipalities; and to compensation paid to the companies of the Autonomous Regions of Madeira and the Azores via the application, in these regions, of a tariff level equal to that of mainland Portugal.

In 2019, no significant changes were registered regarding the nature of the portions included in CIEG.

NETWORK CONNECTION CHARGES

The connection of a facility to the electricity network entails costs that depend on the facility to be connected (voltage level, technical requirements), the network itself (aerial, underground, meshed, radial), the type of connection (aerial, underground), the distance from the facility to the existing network and surrounding ones (route).

The regulatory framework that applies to electricity network connections, which includes the applicable rules and respective charges, is set out in the electricity Commercial Relations Code (RRC), approved by ERSE.

In 2019, ERSE approved regulatory procedures reviewing the parameters applicable to its rules.

The established commercial conditions (which also encompass mandatory third party access, the ownership and construction of the network connection elements, the type of charges that can be levied on petitioners and the obligation by the relevant parties to provide information) include incentives for an adequate economic signalling of the costs of the facility to be connected to the network, promote an

efficient allocation of resources and are based on simple and easy to apply rules in order to ensure their understanding and reduce the level of conflicts in the sector.

Networks are paid by electricity users through network connection charges (according to the rules approved by ERSE) and use of the network tariffs, which form part of the electricity bill (the difference between the investment cost and the cost directly imputed to the petitioner through connection charges is borne by all users, through use of the network tariffs).

3.1.3 CROSS-BORDER ISSUES

In 2019, no significant changes were made to the management of the interconnections between Portugal and Spain, namely regarding the model for daily and intraday capacity allocation, which was assigned exclusively to the MIBEL daily and intraday market, beyond the explicit use of the capacity through financial mechanisms to cover the risk for the interconnection use. Congestion is resolved through the application of a *market-splitting* mechanism[42].

It should be noted that MIBEL began operating officially on 1 July 2007, based on a single daily market which sustains the mechanism for joint management of the Portugal–Spain interconnection, with the latter being regulated by the rules and principles defined in the following legal/regulatory instruments:

Regulation (EC) n.º 714/2009 of the European Parliament and of the Council; ERSE Code on Access to Networks and Interconnections[43]; ERSE Manual of Procedures for the Joint Management Mechanism of the Portugal-Spain Interconnection[44]; and ERSE Manual of Procedures for Global Technical Management System of the electricity sector[45].

[42] The mechanism for the auction of cross-border interconnection capacity (between the so-called *bidding zones*) is implicit in the offers that the agents place on the daily market and assumes the existence of a single market managed by a single market operator. When the cross-border interconnection capacity is higher than the transit of energy arising from the closing of the market, the interconnection does not get congested and there is only one market price for the two bidding zones. On the other hand, when the interconnection capacity is lower than the transit of energy arising from the closing of the market, the interconnection gets congested at its limit and the markets offer different prices - higher on the importing market and lower on the exporting market.

[43] The Access to Networks and Interconnections Code (RARI) was approved by ERSE Regulation no. 560/2014 of 22 December, later amended by ERSE Regulation no 620/2017, published in Diário da República, 2.ª série, of 18 December.

[44] The Manual of Procedures for the Joint Management Mechanism of the Portugal-Spain Interconnection was approved by ERSE Regulation no 474/2013, published in Diário da República, 2.ª série, of 20 December.

[45] Manual of Procedures for Global Technical System Management of the Electricity System was approved by ERSE Directive no. 10/2018, published in Diário da República, 2.ª série, of 10 de August, later amended by ERSE Directive no. 1/2019, published in Diário da República, 2.ª série, of 7 January.

In 2019, work continued on implementation of the terms and conditions or methodologies foreseen in:

- Commission Regulation (EU) 2016/1719 of 26 September, establishing a guideline on forward capacity allocation (FCA GL), and
- Commission Regulation (EU) 2015/1222 of 24 July, establishing a guideline on capacity allocation and congestion management (CACM GL), including those related to the capacity calculation regions defined by ACER Decision n.º 6/2016, of 17th November, namely the Capacity Calculation Region South-west Europe (CCR SWE) that includes the interconnections of Portugal, Spain and France.

The implementation of these standards will have a direct influence on the mechanisms for capacity allocation and congestion management in the interconnections.

REVENUE FROM CONGESTION ON INTERCONNECTIONS

According to European legislation and regulation, congestion revenue may only be used to: 1) offset costs arising from coordinated balancing actions[46] with a view to ensuring the interconnection capacity contracted in the daily and intraday market; 2) make investments to strengthen the interconnection capacity; or 3) reduce the use of the transmission network tariff, if the revenue is not used for the two aforementioned purposes.

In 2019, the congestion revenue on interconnections between Portugal and Spain, arising from the difference between zonal prices after the application of market splitting, reached a total of 4.07 million euros (Table 3-6), slightly below the amount registered in 2018 (4.55 million euros). This decrease is not the result of a reduction in the number of hours of congestion (which was nearly the same as the previous year), but stemmed from the combination of those hours with the arithmetical price differential.

Table 3-6 shows the monthly evolution of the main variables that reflect the use of the interconnection, namely the number of congestion and market splitting hours, and the respective price in each market, as well as the arithmetical price differential. The table also shows the monthly evolution of the congestion revenue and the energy associated with each of the interconnection directions.

[46] According to ERSE's Manual of Procedures for Global Technical System Management of the Electrical System, coordinated balancing actions apply when interconnections face real time congestion, and consist of an opposite physical energy transaction traded between system operators, for the same amount but opposite flow direction of the congestion, in order to clear scheduled commercial transactions.

The very slight reduction in global congestion rents compared to 2018 results from a similar absolute level of price differential (spread) during the hours of congestion (minor decrease). However, it is worth noting that in the 1st quarter of 2019 some significant variations in congestion rents occurred following peaks in the hourly price differentials (for example January, with high levels of price differential and a high number of market splitting hours). This patterns had already been observed in the 4th quarter of 2018.

Table 3-6 - Monthly evolution of congestion revenue, 2019

Month	Congestion		Average Price PT	Average Price ES	Price differential	Import (PT <-- ES)	Export (PT --> ES)	Congestion revenue
	no. hours	% hours/month	(€/MWh)	(€/MWh)	(€/MWh)	(MWh)	(MWh)	10^3 €
January	97	14%	62.69	61.99	0.70	416 210	360 306	862
February	105	6%	54.71	54.01	0.71	742 373	46 394	887
March	54	11%	49.20	48.82	0.38	829 758	97 073	610
April	40	10%	50.65	50.41	0.25	506 279	256 701	448
May	46	3%	48.75	48.39	0.36	663 962	200 054	606
June	9	2%	47.21	47.19	0.02	501 491	99 988	30
July	6	3%	51.46	51.46	0.00	424 895	229 062	13
August	3	2%	44.96	44.96	0.00	748 148	61 291	2
September	12	1%	42.14	42.11	0.03	809 316	126 648	46
October	15	4%	47.20	47.17	0.04	627 584	256 859	115
November	17	2%	42.13	42.19	-0.06	324 628	569 209	140
December	49	4%	33.68	33.80	-0.13	231 653	989 107	313
								4 072

Source: OMIE[47] data

2019 ended with an almost equal total number of hours of congestion as in 2018: going from 453 hours in 2018 to 456 hours in 2019. This total includes congestion in both directions of the interconnection and reflects a greater integration of the markets.

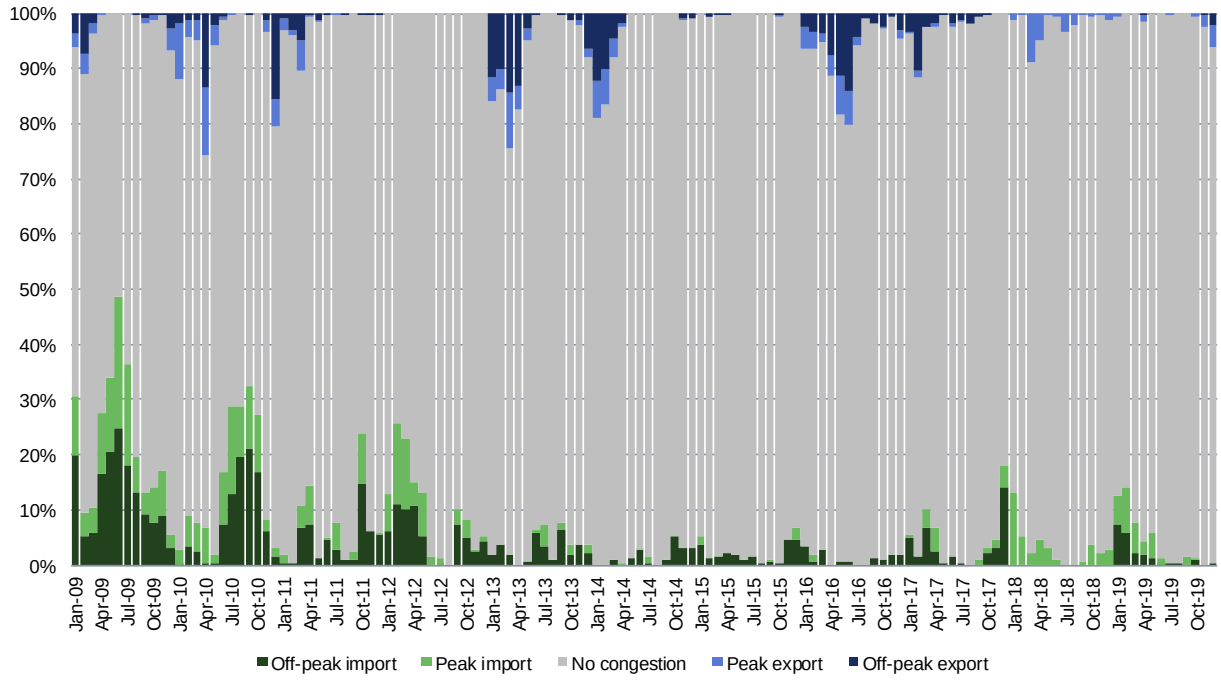
In terms of the price differential, in 2019 there was a positive average *spread* of 0.19/MWh, in imports, slightly above the figures for 2018 (import spread of 0.15/MWh). This pattern is explained by an increase

[47] Operador del Mercado Ibérico de Energía – Spanish hub

in first half of 2019 with the second half of 2018 showing a decrease resulting in the lower figures for 2019 and resulting in a spread in the opposite direction (exporting).

The figure below shows the use of the available capacity in both directions of the Portugal-Spain interconnection, from 2009 to 2019, and shows the decrease overall in the number of hours of congestion in both directions in 2019, but with a higher number of congested hours in import direction in the 1st quarters of both 2018 and 2019.

Figure 3-8 – Usage of the Portugal-Spain interconnection capacity, 2009 to 2019



Source: REN and OMIE data

COOPERATION

ERSE regularly cooperates with the other European regulators in the context of CEER and ACER, pursuing the internal energy market.

On 13 May 2014, the coupling of the Iberian market with the *North-West* Europe (NWE) region, which includes the markets of France, Belgium, Netherlands, Germany, Luxembourg, United Kingdom, Norway, Denmark, Sweden and Finland), became a reality, and has been successful since then.

With Portugal being geographically located on the Iberian Peninsula, ERSE cooperates closely with the Spanish regulator, through the MIBEL Council of Regulators, namely in terms of the coordinated management of the Portugal-Spain interconnection. Similarly, in terms of the work inherent to the Capacity Calculation Region of South West Europe[48] (CCR SWE), work is underway with a view to the successful European integration of the Iberian Electricity Market.

FORWARD TRADING OF THE COMMERCIAL CAPACITY IN THE PORTUGAL-SPAIN INTERCONNECTION

The process for the harmonised allocation of financial transmission rights (FTR) concerning capacity on the Portugal-Spain interconnection (IPE) proceeded smoothly in 2019. This results from the work to integrate the Portugal-Spain interconnection into a harmonised and coordinated referential for the forward allocation of commercial capacity, carried out within the framework of the MIBEL Council of Regulators and of the South West Europe region.

As stated in last year's report, in the framework of the early implementation of Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation (FCA GL), ERSE approved in November 2016, the Harmonised Allocation Rules (HAR) for European electricity interconnections, as well as the respective annex with the specificities relating to the Portugal-Spain interconnection.

At the end of 2017, following the proposal of all TSOs, in accordance with Article 51 of Regulation (EU) 2016/1719, ACER published its Decision No 3/2017, of 2 October on harmonised allocation rules for long-term transmission rights in the European Union.

According to Article 38(2) of Regulation (EU) 2016/1719, the allocation of forward interconnection capacity should be carried out through a single European allocation platform. These functions were delegated by the TSOs to the *Joint Allocation Officer* (JAO). The migration process to this platform was completed in December 2018.

During the December 2018 auction, contracts with annual, quarterly and monthly maturities and 2019 delivery were placed in line with the harmonised allocation rules for long-term transmission rights in the

[48] ACER Decision n.º 6/2016 of 17 November, on the definition of Capacity Calculation Regions, provided for in Commission Regulation (EU) 24/1222 of 24 July 2015, establishing a guideline on capacity allocation and congestion management. The Capacity Calculation Region of SWE comprises the Portuguese, Spanish and French interconnections.

European Union, set out in Article 52 of Regulation (EU) 2016/1719, including the annex on capacity calculation methodology in the Southwest (CCR SWE).

This annex establishes orientations, approved by ERSE and CNMC, on the structure for the allocation of capacity among different timeframes for the Portuguese-Spanish interconnection (*Structure for the Allocation of Capacity among different Timeframes for Portuguese – Spanish Interconnection - IPE Splitting Rules*).

Following the publication of these harmonised capacity allocation and splitting rules in the Portuguese-Spanish interconnection, ERSE amended the Manual of Procedures for the Joint Management Mechanism of the Portugal-Spain Interconnection, provide for in the ERSE Network Access Code, through ERSE Directive 1/2019, of 7 January.

The financial transmission rights (FTR) auctions of commercial capacity in the Portugal-Spain interconnection with 2019 delivery took place at the joint allocation platform between December 2018 and November 2019 as shown by Table 3-7.

Table 3-7 – Financial transmission rights auctions of commercial capacity in the Portugal-Spain interconnection with 2019 delivery

Contract	Maturity	Date	Premium (€/MWh)	Volume (MW)	Participants	Participants with allocated capacity
ES-PT YR	Yearly	11/12/18	0.12	250	16	8
PT-ES YR	Yearly	11/12/18	0.08	350	16	9
ES-PT Q1	Quarterly	17/12/18	0.11	168	9	6
PT-ES Q1	Quarterly	17/12/18	0.08	310	9	7
ES-PT M1	Monthly	21/12/18	0.17	220	17	5
PT-ES M1	Monthly	21/12/18	0.06	559	16	12
ES-PT M2	Monthly	23/01/19	0.18	310	17	8
PT-ES M2	Monthly	23/01/19	0.04	559	14	12
ES-PT M3	Monthly	22/02/19	0.27	310	17	10
PT-ES M3	Monthly	22/02/19	0.10	560	15	6
ES-PT Q2	Quarterly	14/03/19	0.21	290	9	5
PT-ES Q2	Quarterly	14/03/19	0.09	168	7	5
ES-PT M4	Monthly	25/03/19	0.00	0	1	0
PT-ES M4	Monthly	25/03/19	0.07	208	14	7
ES-PT M5	Monthly	26/04/19	0.35	0	13	1
PT-ES M5	Monthly	26/04/19	0.05	520	11	7
ES-PT M6	Monthly	24/05/19	0.17	230	15	7
PT-ES M6	Monthly	24/05/19	0.06	260	13	6
ES-PT Q3	Quarterly	14/06/19	0.22	280	9	3
PT-ES Q3	Quarterly	14/06/19	0.02	329	7	5
ES-PT M7	Monthly	25/06/19	0.15	250	17	7
PT-ES M7	Monthly	25/06/19	0.11	140	15	3
ES-PT M8	Monthly	24/07/19	0.09	240	15	6
PT-ES M8	Monthly	24/07/19	0.05	520	15	6
ES-PT M9	Monthly	23/08/19	0.15	270	19	4
PT-ES M9	Monthly	23/08/19	0.04	470	17	8
ES-PT Q4	Quarterly	13/09/19	0.22	260	8	5
PT-ES Q4	Quarterly	13/09/19	0.01	418	6	6
ES-PT M10	Monthly	24/09/19	0.25	300	18	6
PT-ES M10	Monthly	24/09/19	0.06	480	16	6
ES-PT M11	Monthly	23/10/19	0.19	170	17	6
PT-ES M11	Monthly	23/10/19	0.04	450	14	8
ES-PT M12	Monthly	22/11/19	0.12	210	16	7
PT-ES M12	Monthly	22/11/19	0.02	450	16	13

Table 3-8 presents the settlement of annual FTR auctions with 2019 delivery in the Portugal-Spain interconnection.

Table 3-8 – Annual FTR settlement with 2019 delivery

Annual FTR settlement	GLOBAL	ES > PT	PT > ES
		FTR E-P	FTR P-E
Capacity (MW)	1 088 + 709	1087.819635	709
Energy (MWh)	9 529 300 + 6 207 682	9529300	6207682
Premium (€/MWh)	----	0.06	0.17
Spread (€/MWh)	----	0.02	0.21
Spot congestion (euros)	4071750	512340	3559410
FTR risk (euros)	1387006.09	197616.03	1189390.06
FTR actions premium (euros)	1588450.04	563704.02	1024746.02
Net FTR auctions (euros)	201443.95	366087.99	-164644.04
Spot congestion + Net FTR (euros)	4273193.95	878427.99	3394765.96

FTR - Financial Transmission Rights

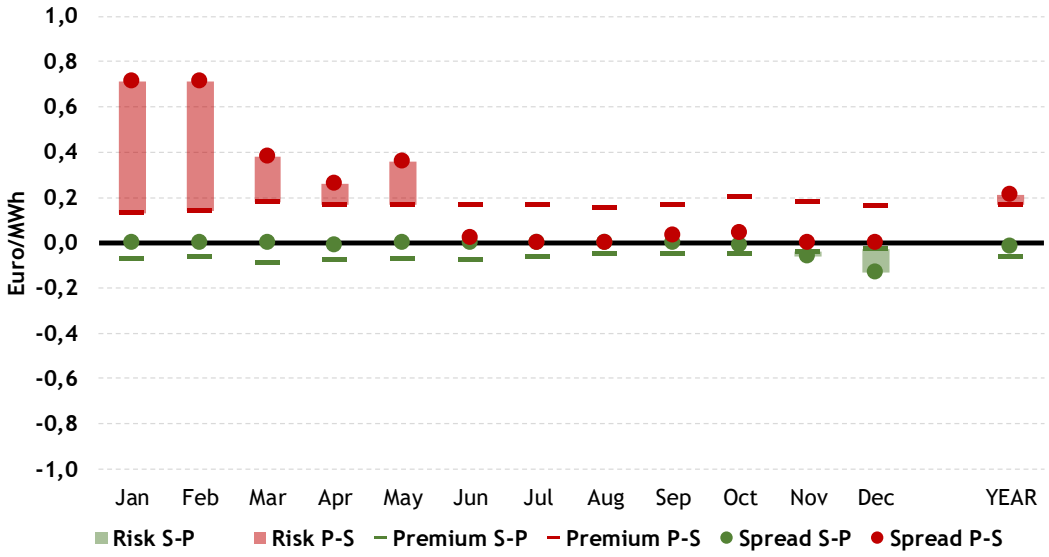
It can be seen that during 2019 in the Portugal to Spain direction there was a risk premium[49] of 0.06 €/MWh and a spread[50] of 0.02 €/Wh. In the Spain to Portugal direction, there was a risk premium of 0.17 €/MWh and a spread of 0.21 €/MWh.

Figure 3-9 shows the evolution of spreads and risk premiums in 2019.

[49] The risk premium is defined as the premium weighted by placed product in the financial transmission rights auctions of commercial capacity in the Portugal-Spain interconnection with 2019 delivery.

[50] The spread is defined as the average price difference between the Portuguese and Spanish zones in the OMIE daily market considering the applicable power flow direction (different figures for import or export).

Figure 3-9 – Evolution of spreads and risk premiums in 2019



Considering these results, the FTR capacity auctions on the Portugal-Spain interconnection with 2019 delivery yielded approximately 201 000 euros in benefits for the system.

CONGESTION INCOME DISTRIBUTION METHODOLOGY ACCORDING TO COMMISSION REGULATION (EU) 2016/1719

Article 57 of Commission Regulation (EU) 2016/1719 of 26 September 2016, which establishes guidelines on the allocation of forward capacity in the electricity sector (FCA Network Code), provides that, within a maximum period of six months after the approval of the congestion-related revenue sharing methodology referred to in Article 9 of Regulation (EU) 2015/1222 (CACM Network Code), transmission system operators (TSOs) jointly prepare a proposed methodology for sharing revenues associated with congestion ("Congestion Income Distribution Methodology") resulting from the allocation of forward capacity. This methodology should take into account the methodology for sharing revenues associated with congestion provided for in Article 73 of Regulation (EU) 2015/1222.

REN - Rede Eléctrica Nacional (REN), the Portuguese TSO, sent ERSE the proposal that was approved by all European electricity TSOs to be sent to the respective regulatory entities, for the purpose of complying with the provisions of Article 57 of Regulation (EU) 2016/1719, having been agreed by the regulatory authorities to request an amendment request to the TSO proposal.

Following this amendment request, in March 2019, REN sent the amended proposal to ERSE, which was approved by all European electricity TSOs for re-submission to all regulatory authorities.

After a technical evaluation of the amended proposal sent by TSOs, in May 2019, the terms of approval were unanimously agreed by all the regulatory authorities of the Member States in which the TSOs have issued long-term transmission rights (with ERSE formally approving the agreed decision and informing the respective TSO at national level).

COMMON METHODOLOGY FOR COORDINATED REDISPATCHING AND COUNTERTRADING AND COST SHARING ACCORDING TO COMMISSION REGULATION (EU) 2015/1222

Article 35 of Commission Regulation (EU) 2015/1222 of 24 July 2015, which establishes guidelines for the allocation of capacity and congestion management in the electricity sector (CACM Network Code), provides that, within 16 months of the approval of the proposed capacity calculation regions (CCR), in accordance with Article 15, all TSOs in each of the capacity calculation regions must submit a proposal for a common methodology for redispatching and coordinated compensatory exchanges ("Common methodology for coordinated redispatching and countertrading"). This methodology should include measures of cross-border importance and allow all TSOs in the capacity calculation region to effectively mitigate possible physical congestion.

Article 74 of the same Regulation (EU) 2015/1222 provides that, within 16 months after the approval of the proposed capacity calculation regions, all TSOs in each capacity calculation region must submit a proposal for a common methodology for sharing redispatch costs and compensatory exchanges ("Common methodology for redispatching and countertrading cost sharing"). This methodology should include cost-sharing solutions for measures of cross-border importance.

REN - Rede Eléctrica Nacional SA (REN), the Portuguese TSO, sent ERSE the proposals that were approved by all TSOs in the Southwest Europe capacity calculation region (SWE), consisting of Portugal, Spain and France, to be sent to all regulatory authorities of the SWE, for the purposes of complying with the provisions of Articles 35 and 74 of Regulation (EU) 2015/1222, having been agreed by the regulatory authorities of the SWE, after analysis, a request for amendment to TSO proposals.

Following this amendment request, in March 2019, REN sent the amended proposals to ERSE, which were approved by all TSOs in the SWE capacity calculation region, for submission to all SWE regulatory authorities.

After evaluating the referred amended proposals sent by the TSOs, in May 2019, all the energy regulators in the SWE region agreed unanimously the SWE TSOs' amended proposals (ERSE having approved formally the decision agreed and informed at national level the respective TSO).

METHODOLOGIES INCLUDED IN THE "CONTINENTAL EUROPE" SYNCHRONOUS AREA OPERATIONAL AGREEMENT ACCORDING TO COMMISSION REGULATION (EU) 2017/1485

Article 118 of Commission Regulation (EU) 2017/1485 of 2 August 2017, which sets out guidelines on the operation of electricity transmission networks (SO Network Code), provides that, within a maximum period of 12 months after the date of entry into force of the regulation, transmission system operators (TSOs) in the "Continental Europe" (CE) synchronous area must jointly develop proposals relative to:

a) Rules for dimensioning the frequency containment reserve (FCR), in accordance with Article 153;

b) Methodologies for determining the limits on the amount of frequency restoration reserves (FRR) exchanged and shared between synchronous zones, defined in terms of Articles 176 and 177;

c) Methodologies for determining the limits of the amount of replacement reserves (RR) exchanged and shared between synchronous zones, defined in terms of Articles 178 and 179.

REN - Rede Eléctrica Nacional, SA, the Portuguese TSO, sent ERSE the proposals that were approved by all European TSOs for electricity in the CE synchronous area to be sent to the respective regulatory entities, for the purposes of complying with the provisions of Article 118 of Regulation (EU) 2017/1485.

After the technical evaluation of the proposals sent by TSOs, all regulatory authorities of the CE synchronous area unanimously agreed, in March 2019, the TSO proposals (ERSE having approved formally the decision agreed and informed at national level the respective TSO).

COMMON EUROPEAN PLATFORMS FOR THE IMBALANCE NETTING PROCESS AND FOR THE EXCHANGE, BETWEEN TSOS, OF BALANCING ENERGY FROM THE RESERVES ESTABLISHED IN COMMISSION REGULATION (EU) 2017/2195

In 2019, normal functioning continued of the Replacement Reserve (RR) exchange mechanism between TSOs, which was approved in 2014 within the context of the South West Regional Initiative of ACER, MIBEL and the BALIT mechanism (Balancing Inter TSO), for the exchange of RR between operators.

Table 3 9 shows, for Portugal, the accumulated energy values for RR traded within BALIT and their weight in total RR[51] in 2019 . The table also shows the number of hours in which RR was activated in each direction and the respective average (arithmetical) prices verified.

Table 3-9 – Statistics on BALIT, 2019

	PT-ES Import	PT-ES Export
Energy (GWh)	70	66
No. activated hours	458	471
Weight of BALIT in the RR (%)	10%	6%
Average Price (€/MWh)	58	38

Source: REN data

With the publication on 28 November 2017 of Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (Guideline on Electricity Balancing, EB GL), common European platforms were established for the imbalance netting process (IN) and for the exchange of balancing energy from frequency containment reserves (FCR), frequency restoration reserves (with automatic activation (aFRR) and manual activation (mFRR)) and RR, which aim to integrate the balancing energy markets.

The European projects in which ERSE is participating and that are associated with these platforms are IGCC for IN, PICASSO for aFRR, MARI for mFRR and TERRE for RR[52]. Participation in these platforms is mandatory except for TERRE which is exclusive to Member States whose TSOs use the Replacement Reserve, formerly known as the Regulation Reserve.

The TERRE (RR) and IGCC (IN) project platforms remained scheduled for January 2020, while the PICASSO (aFRR) and MARI (mFRR) project platforms are expected to be operational by early 2022.

The TERRE project, which started in 2013, is a voluntary pilot project resulting from the early implementation initiatives of the European Balancing Network Code (EB GL, Regulation (EU) 2017/2195), which provides the basis for the project. The project completed its final developments in 2019 before

[51] For example, 10% corresponds to the weight of the imported energy activated by REN with Red Eléctrica of Spain in terms of the total value of RR in 2019 in Portugal.

[52] IGCC: International Grid Control Cooperation; PICASSO: Platform for the International Coordination of the Automatic frequency restoration process and Stable System Operation; MARI: Manually Activated Reserves Initiative; TERRE: Trans European Replacement Reserves Exchange

entering into operation, mainly regarding the hiring of the suppliers of the IT monitoring system and the settlement function. Additionally, the factory acceptance tests, user acceptance tests and interoperability tests took place, as did implementation and tests of the TSO internal systems with the national balancing service providers (BSPs). In addition to REN, the TSO members of this pilot project are REE (Spain), RTE (France), National Grid (Great Britain), Swissgrid (Switzerland), TERNA (Italy), PSE (Poland), CEPS (Czech Republic) and Transelectrica (Romania). With the exception of CEPS, all the remaining TSOs presented derogations to start the operation of TERRE. ERSE and CNMC gave REN and REE a nine-month derogation.

As regards the TSOs' implementation framework proposals for IN, mFRR and aFRR, none were approved in 2019. Regarding IN, the national regulatory authorities (NRAs) approved a Request for Amendment which was sent to the TSOs, while for mFRR and aFRR the NRAs were not able to reach consensus. As a consequence, ACER issued decisions on those implementation framework proposals, following several months of technical discussions with NRAs.

In parallel, ACER progress its work on developing the methodologies established in the EB GL, jointly with NRAs and TSOs. We note in particular the methodologies on "TSO-TSO settlement" (Article 50(1) of EB GL), "Pricing" (Article 30(1) of EB GL) and the "Imbalance settlement harmonisation" (Article 52(2) of EB GL).

NOMINATED ELECTRICITY MARKET OPERATOR

Article 4 of the CACM GL provides that, four months after its entry into force, each Member State should have designated one or more Nominated Electricity Market Operator(s) (NEMO).

In the Portuguese case, this entity was designated by the Government through the provisions under the Santiago Agreement, established by Resolution 23/2006 from the Parliament, which approved the Agreement between the Portuguese Republic and the Kingdom of Spain for the Constitution of an Iberian Electricity Market (MIBEL), signed in Santiago de Compostela on 1 October 2004.

This agreement establishes OMIE[53] as the designated NEMO to be responsible for the management of the day-ahead and intraday markets. This decision was reported to ACER in December 2015.

In 2019, there were no developments regarding the designation of OMIE as NEMO.

[53] Operador del Mercado Ibérico de Energía – Polo Español, S.A.

XBID PROJECT

The XBID project (European cross-border intraday initiative) is a joint initiative between the European energy exchanges and TSOs to create an integrated and continuous intraday market across Europe resulting from the implementation of the target model set out in the CACM GL. As a result of this initiative, the first go-live phase of the XBID project was launched on 13 June 2018, which opened intraday continuous electricity trading in the following countries: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, Norway, the Netherlands, Portugal, Spain and Sweden. Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania and Slovenia entered in the second phase of XBID go-live on 19 November 2019. The remaining European countries are expected to participate in the third phase of XBID's go-live, which will take place by the end of 2020.

The XBID platform was established as a Single Intraday Coupling (SIDC), which allows cross-border trading across Europe. XBID is based on a common IT system with a shared order book, an interconnection capacity management module and a matching module for offers. This means that market agents in a particular bidding zone can establish ongoing transactions with any agent that operates in any other bidding zone that is involved in the project, as long as there is cross-zonal transmission available capacity for the trade. The solution aims to increase the overall efficiency of continuous intraday trading.

To implement the new market design, on 11 June 2018, ERSE approved revisions to specific regulations (the Manual of Procedures for the Global Management of the Electricity System and the Manual of Procedures for the Joint Management Mechanism of Portugal-Spain Interconnection).

Under Commission Regulation (EU) 2015/1222, ACER approved Decision 04-2018, related to the continuous intraday market timeframes, which established the gate opening time at 15:00 CET and the gate closure time at 60 minutes before energy deliveries at the relevant time according to continuous intraday market negotiation.

Seeking to implement ACER's Decision 04-2018, the Iberian TSOs (Rede Elétrica Nacional and Red Eléctrica de España) and the designated Portuguese and Spanish NEMO (OMIE) undertook a public consultation regarding the adaptation of the intraday auctions timetables to better cope with the 15:00 CET continuous intraday market gate opening time. This consultation lead to the decision to keep the six intraday auctions with some timetable adaptations. To implement the continuous intraday market 15:00 CET gate opening time, ERSE approved an alert proposed by the Portuguese TSO, aiming to change the timetables considered by the Manual of Procedures for the Global Management of the Electricity System.

3.1.4 INVESTMENTS IN ELECTRICITY NETWORKS

National development and investment plan for the electricity transmission network

REN Eléctrica, SA, in its role as transmission network operator, submitted a proposal for the National Development and Investment Plan for the Electricity Transmission Network concerning the 2020-2029 period (PDIRT-E 2019 proposal) to the DGEG. In turn, DGEG sent the proposal to ERSE. The regulator is responsible for organising a public consultation on its content, pursuant to the terms of Article 36-A (5) of Decree-Law n.º 172/2006 of 23 August amended by Decree-Law n.º 76/2019 of 3 July.

Thus, within the scope of the competences that are legally attributed to it, ERSE submitted for public consultation the PDIRT-E 2019 proposal, as prepared by the TSO, from 13 January to 26 February 2020[54].

Taking into account the result of that consultation, as well as the comments obtained following the consultation of the Advisory Council and the Tariff Council, ERSE analysed the PDIRT-E 2019 proposal and issued a favourable opinion on it, namely giving a positive opinion on its two main transmission projects, one of which is included in the last edition of the European Ten Year Network Development Plan, TYNDP 2018, and classified as a project of common interest ((PCI), including the new interconnection Portugal – Spain). The opinion also gives a positive opinion on other important projects related to the reliability and safety of system operation. Regarding the remaining projects, ERSE recommended a revision of the draft plan and a decrease in total investment amount in order to avoid any increase in tariffs.

Development and investment plan for the electricity distribution network

In 2018, EDP Distribuição, S.A., in its role as distribution network operator, submitted to DGEG its proposal for the Development and Investment Plan for the Electricity Distribution Networks concerning the 2019-2023 period (PDIRD-E 2018). In turn, DGEG sent the proposal to ERSE. The regulator is responsible for organising a public consultation on its content, pursuant to the terms of Article 40-A of Decree-Law n.º 172/2006 of 23 August amended by Decree-Law n.º 76/2019 of 3 July[55].

Thus, within the scope of its legal competences, ERSE conducted a public consultation on the PDIRD-E 2018 proposal, as prepared by the DSO, from 1 March until 15 April 2019[56].

[54] ERSE Opinion on the draft PDIRT-E 2019.

[55] https://data.dre.pt/eli/dec-lei/76/2019/06/03/p/dre

[56] ERSE Opinion on the draft PDIRD-E 2018.

Taking into account the result of that consultation, as well as the comments obtained following the consultation of the Advisory Council and the Tariff Council, ERSE analysed the PDIRD-E 2018 proposal and issued a favourable opinion on 5 June 2019, drawing attention to a series of comments that should be taken into account in the preparation of future PDIRD proposals. Among the comments included in ERSE's Opinion, we highlight the need to further invest in quality of service (ERSE asked for the adoption of the proposed higher investment scenario on this topic for the period 2019-2021, with an increase of 16.6 M€ compared to the central scenario proposed by the DSO). However, in order to ensure that no tariff increase would result from this higher investment, ERSE recommended that the DSO postpone some other projects which are not urgent and which do not affect quality of service, and reduce the last two years of the plan by 23 M€.

3.1.5 LOW VOLTAGE DISTRIBUTION CONCESSIONS

The distribution activity in mainland Portugal is developed according to a public service concession regime at two levels: i) a single concession of the national distribution network at medium voltage (MV) and high voltage (HV) assigned by the State; and ii) the municipal low voltage (LV) concessions granted by the country's 278 municipalities.

The LV concessions have a term of 20 years ending at different times between 2016 and 2026. The majority will cease between 2021 and 2022. The attribution of the concession must result from a public tender.
The Portuguese parliament has determined that the launch of tenders for distribution concessions in LV should be synchronised, although they cease at different times. The law approved the general principles for the organisation of public tenders, determining that each competition has a territorial area set in accordance with the law itself (preventing the appearance of 278 new network operators) and that the tenders should be launched in 2019, which did not occur. Under the terms of the law, ERSE prepared a proposal for the territorial delimitation of the concession areas based on technical and economic studies, with the municipalities, as granting entities, being responsible for defining the areas under tender, namely by accepting the ERSE's proposal or through the preparation of economic studies that demonstrate relevant advantages of this alternative scenario for the public interest (n. º 3 of article 5 of Law n. º 31/2017, of 31 May). The standard parts of the tenders have to be approved by the Government.

The Parliament and the Government gave the regulator the task of drawing up technical proposals, both as regards the delimitation of invitations to tender and the aspects to be included in the standard tender documents. Thus, during 2018, the ERSE prepared the Proposals for the Standard Parts of the Procedures

for the Award of Concessions and the Proposal for the Delimitation of the Territorial Areas of the Tenders for the Award of Low Voltage Electricity Distribution Concessions, published on 21 January 2019. These proposals were subject to a public consultation process and to discussion with those involved (initially with the National Association of Municipalities, but also with network operators and potential stakeholders). The Government must approve the standard parts of the tenders so that the tenders can be launched.

3.2 PROMOTING COMPETITION

3.2.1 WHOLESALE MARKET

In 2019, there was a slight decrease in the level of concentration of the electricity market, due to unfavourable hydrological conditions for hydropower generation by the dominant operator, EDP. This situation contributed to an increase in the participation level of thermal power plants, compared to 2018. Nevertheless, there was a decrease in the energy generated by coal-fired power stations while combined-cycle natural gas power stations increased their production.

As seen in 3.1.3, in 2019, in relation to 2018, the price differential hours between the MIBEL areas were remained practically unchanged.

From a regulatory point of view, the development of market supervision mechanisms by ERSE sought to help strengthen the transparency and integrity of the wholesale electricity market.

Therefore, from a general point of view, due to worst hydrological conditions, 2019 was marked by an unfavourable evolution for the dominant operator[57], owner of all the installed hydro capacity in Portugal, leading to a decrease in the global concentration of electricity generation. That being said, a high level of concentration persists in the electricity market, so the implementation of further measures to foster competition and promote transparency should follow on from the already achieved developments.

[57] The document "Dominant Operator - Methodology and Applications", by the MIBEL Board of Regulators, defines dominant operator as a company or business group that has a market share of more than 10% of the electricity generated within the scope of MIBEL.

3.2.1.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

PRICES

Spot market prices

The evolution of prices generated on the wholesale market in Portugal is intrinsically related to the integration of the Iberian market and the participation of Portuguese agents in MIBEL.

The spot market price is common to Portugal and Spain, except in situations in which there is interconnection congestion, resulting in the need to apply the market-splitting mechanism, and thus, resulting in different prices in the two countries.

The evolution of the annual average price in the spot market, in Portugal and Spain, as well as the percentage of market splitting time are presented in Figure 3-10.

Figure 3-10 – Evolution of annual average spot market price and market splitting, 2015 to 2019

Source: OMIE data

In 2019, the average price on the spot market for Portugal was 47.87 €/MWh, nearly 17% below the price recorded in 2018 (57.45 €/MWh).

Despite the deterioration in the hydrological conditions and the resulting decrease in hydropower generation, and the increase in the CO_2 license emissions markets, the downward trend in the natural gas and coal supply costs contributed to the mentioned decrease in Portuguese spot market prices.

In 2019, the average market price in Portugal was approximately 2% above the marginal[58] reference cost for combined-cycle natural gas power plants, excluding the cost component associated with access to the high-pressure natural gas network, and approximately 5% above the marginal cost for coal-fired thermal plants as calculated by ERSE (45.79 €/MWh).

Regarding the setting of the spot market price, the market's volatility stands as an aspects considered important by market agents, namely as regards the need to cover price risks.

In 2019, the volatility of the spot market price for Portugal, measured as the coefficient between the standard deviation of prices in the year and the respective average price, was approximately 23%, which means prices ranged, on average, between €37/MWh and €59/MWh.

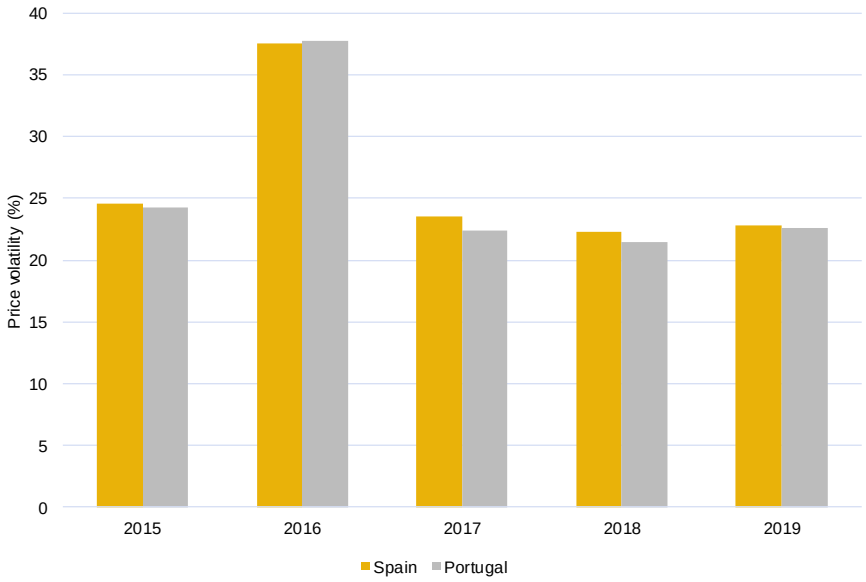
Figure 3-11 shows the evolution of the annual volatility of the spot market price, from 2015 to 2019, for both Portugal and Spain. It shows a slight increase in the spot price volatility between 2018 and 2019.

[58] Estimated marginal cost computed according to the methodology adopted by the ERSE Manual of Procedures for Global Technical Management System of the electricity sector, which excludes the estimate for third-party access to the high-pressure natural gas network.

The marginal cost of the combined-cycle natural gas thermal power stations is published at:

http://www.mercado.ren.pt/PT/Electr/InfoMercado/InfOp/BandaSecundaria/Paginas/AjustePrc.aspx.

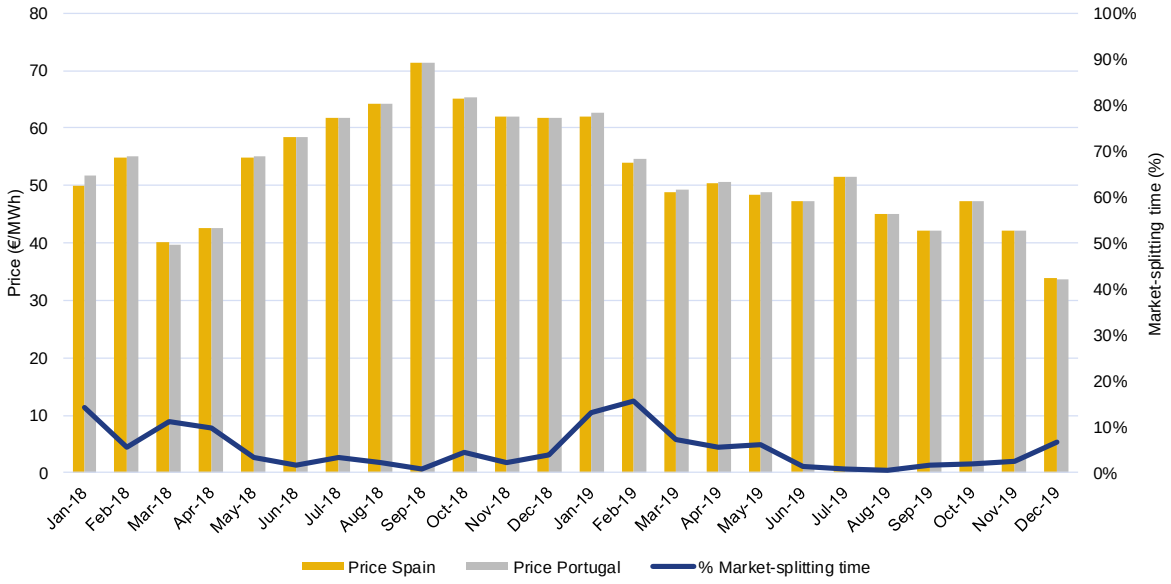
Figure 3-11 - Volatility of spot price, 2015 to 2019



Source: OMIE data. Note: volatility measured as a ratio between the standard imbalance of the spot price and the respective annual average.

Figure 3-12 presents the evolution of prices in Portugal and Spain and the percentage of market splitting time, on a monthly basis, for 2018 and 2019.

Figure 3-12 - Spot market price and market splitting, 2018 and 2019



Source: OMIE data

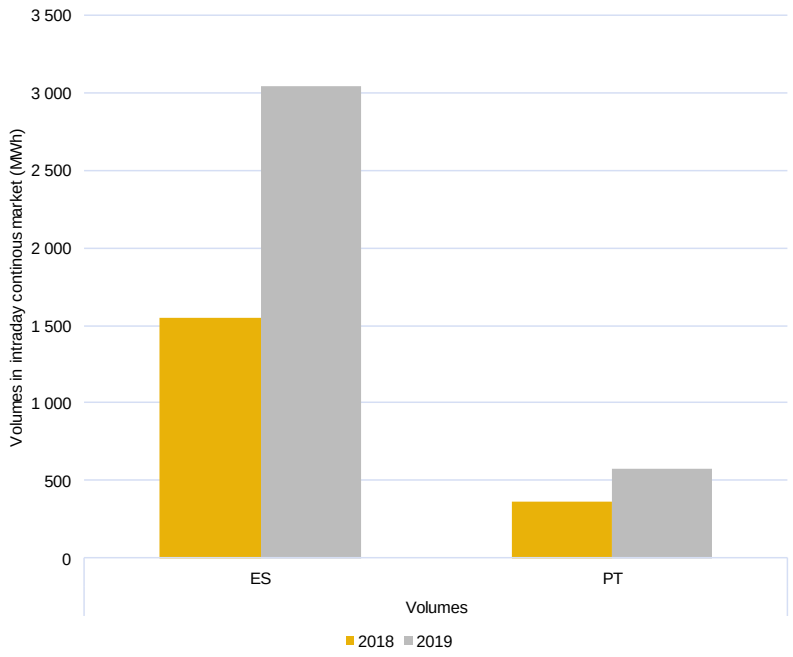
As regards 2019, the following should be highlighted: (i) a decrease in the 2019 average market price compared to 2018; (ii) less favourable hydrological conditions throughout the year; (iii) a slight decrease in market splitting compared to 2018.

Intraday continuous market prices (XBID)

As explained section 3.1.3, the XBID project (*European Cross-Border Intraday Initiative)* started on 13 June 2018 with the first phase go-live, delivering electricity intraday continuous negotiation in several European countries, including Portugal and Spain.

Figure 3-13 presents the negotiated[59] since June 2018 until the end of 2019, for both Portugal and Spain.

Figure 3-13 - Negotiated volume in the intraday continuous market, 2018 to 2019



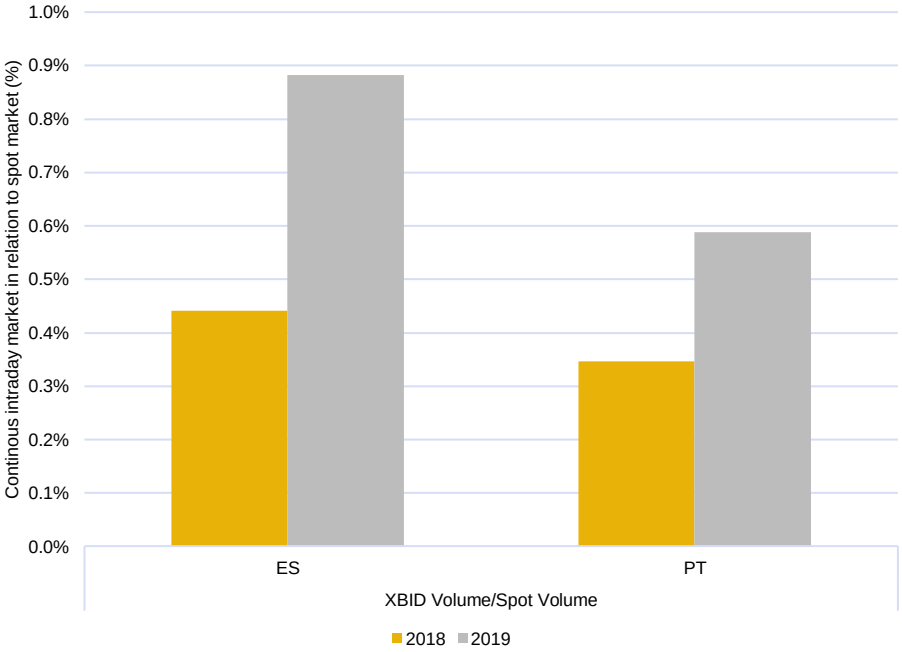
Source: OMIE data

As could be expected, considering the fact that the XBID project started mid-year 2018, there was an increase in the negotiated volume for each price zone (Portugal and Spain).

[59] The methodology to compute negotiated energy volumes in each price zone considers the negotiated energy volume, namely buying and selling, by counterparts which belong to those price zones.

Figure 3-14 compares negotiated volumes between the continuous intraday market and the daily spot market, since June 2018 until the end of 2019, for both Portugal and Spain.

Figure 3-14 - Comparison of negotiated volumes in the continuous intraday market and the daily spot market



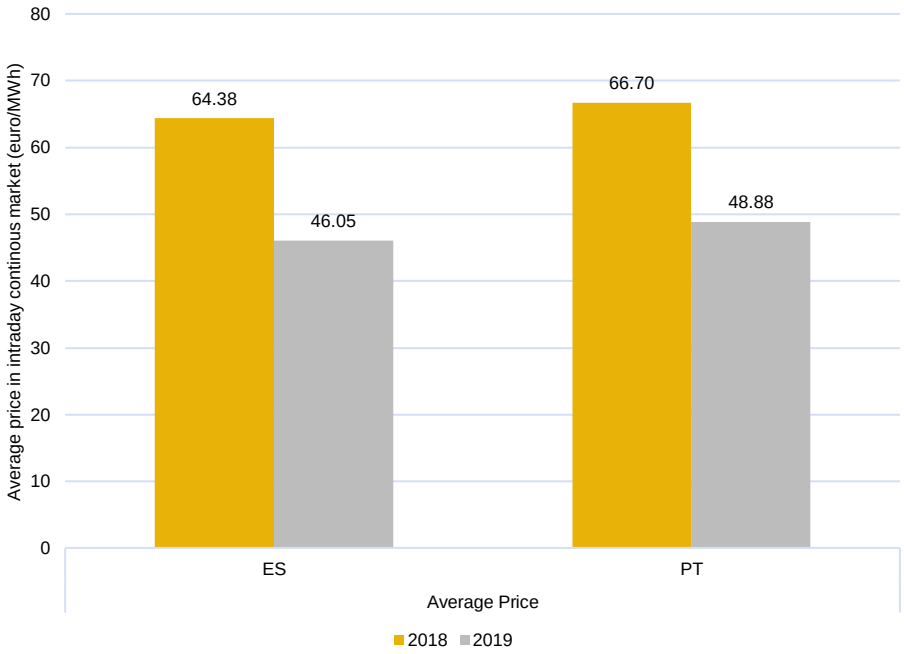
Source: OMIE data

In 2019, the negotiated volume in Portugal in the continuous intraday market amounted to about 0.6 % of the daily spot market volume (around 574 GWh). This was an increase in relation to 2018, which can be understood by the longer negotiation period.

Figure 3-15 presents the weighted continuous intraday market price[60] since June 2018 until the end of 2019, for both Portugal and Spain.

[60] The methodology to compute the weighted average price in each price zone considers the weight of the price of the negotiated energy volumes, namely buying and selling, by counterparts which belong to those price zones.

Figure 3-15 - Continuous intraday market weighted average price, 2018 to 2019



Source: OMIE data

The figure shows a decrease in the average weighted price for Portugal and Spain, in line with similar developments in the daily spot market.

Forward market prices

The model for MIBEL's functioning provides for the existence of references for forward contracting in an organised market, where agents can place some of their electricity needs, namely to define in part the future price for electricity to be supplied to end-users. The forward market is, in fact, an additional tool for agents to be able to mitigate the risks of price volatility and to ensure the availability of electricity (supply) or to meet demand with greater predictability and stability.

The spot market is a fairly liquid platform in the Iberian context. Specifically in the Portuguese case, approximately 71% of 2019 consumption was met through contracts made in this market referential[61]. In this context, as there is no intrinsic market problem of liquidity or depth within the definition of the classic indicators (number of transactions, market volume, dispersion of traded volumes), there is a growing need to cover the risks of fluctuating spot market prices. One of the most efficient and transparent answers is

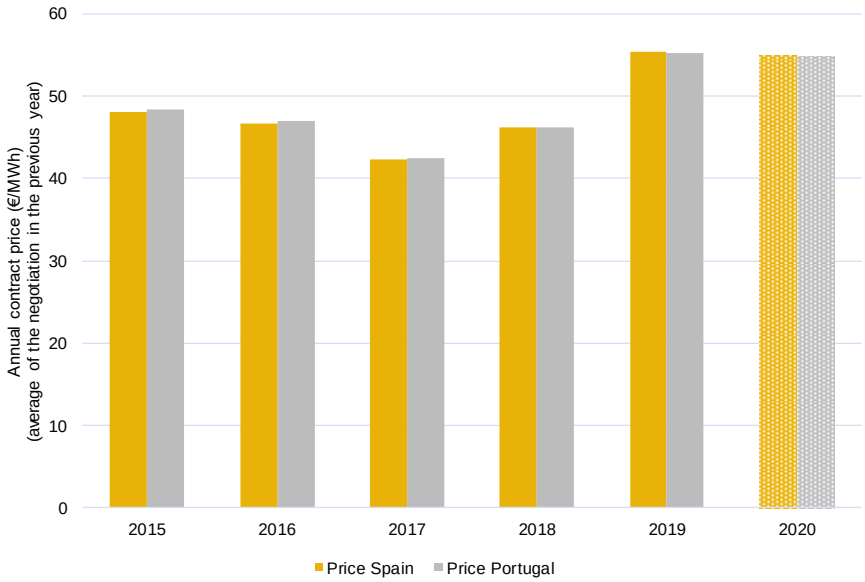
[61] Includes daily market and intraday auctions.

the use of organised market platforms for forward contracting, in this case, the market managed by OMIP that was formally established within the scope of the agreement for the creation of the MIBEL.

The evolution of the price set in the forward market saw an increase in prices between 2018 and 2019, and a slight decrease between 2019 and 2020. The market agents who, in 2018, had acquired a position in the delivery contract with a base load for 2019 would have paid an average price (55.28 €/MWh for Portugal[62]) about 15% more than the price set in the spot market.

Figure 3-16 presents the evolution of the average market closing prices related to the annual contract, in a base load delivery.

Figure 3-16 - Evolution of the average price for annual futures contract negotiation (delivery in Portugal and in Spain), 2015 to 2019



Source: OMIE data. Note: the average closing price for the year prior to delivery, for a base load delivery (e.g. the 2020 price corresponds to the average price set during 2019).

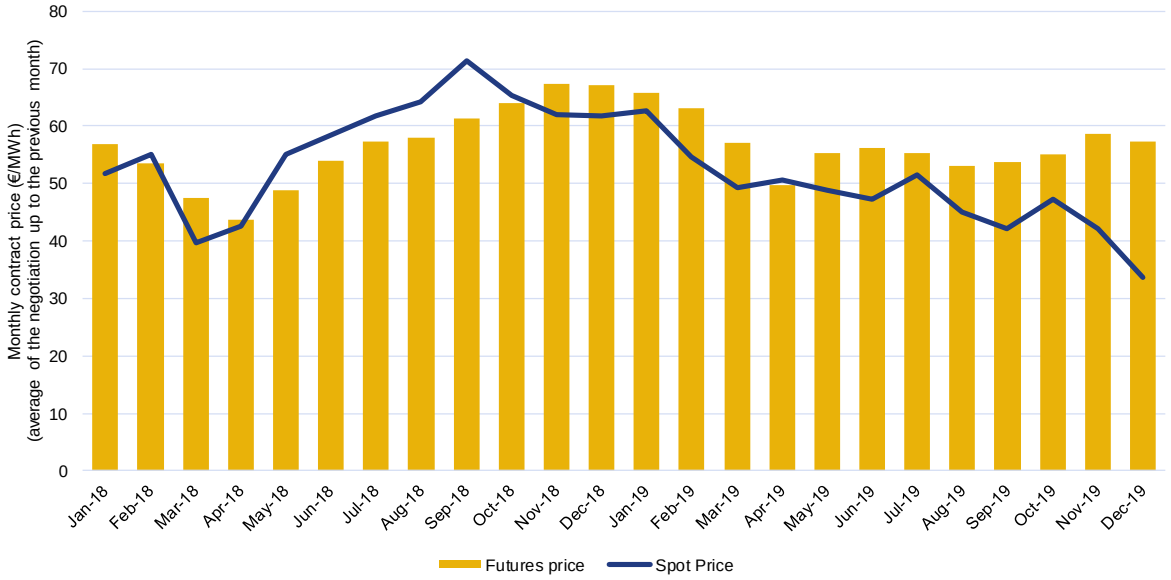
The negotiation of monthly future contracts with a base load delivery yielded a risk premium (difference between the forward price and the *spot* price, for the corresponding month) in forward contracting in all months except April, in which month the situation was more favourable for those agents with forward

[62] The value of the forward provisioning price reflects the average weighted value per contract volumes of shares of the 2019 annual contract with delivery in the Portuguese area of MIBEL, including the record of auction, continuous and *over-the-counter* (OTC) operations.

market negotiation. In this month, the agents that ensured that their monthly needs were covered in advance in the forward market had their average spot market price risk annulled.

Figure 3-17 presents the evolution of monthly futures contract prices, in the OMIP managed market, and also of the spot negotiation price, both for Portugal. The evolution of the forward price of monthly contracts showed, on average, a downward trend during the first quarter and beginning of the second quarter of 2019, a situation that was reversed from May onwards.

Figure 3-17 - Evolution of the average price for negotiating the monthly futures contract (delivered in Portugal), 2018 and 2019



Source: OMIE and OMIP data

During 2019, as part of the implementation of the forward contracting mechanism for energy acquired from special regime generation, six guaranteed revenue SRG auctions were held, with the placement of five distinct products (one annual base load and four quarterly base loads). These six auctions resulted in the placement of a total hourly power output (volume placed) of about 650 MW. The variation in the volume was carried out in full by the quantity modulation in the quarterly product (400 MW for the three first quarters and 395 MW for the last quarter) and the annual product (250 MW). The energy volume placed with this instrument amounted to approximately 11% of national consumption.

The auctions held for 2019 delivery ensured the full placement of the minimum volumes open for negotiation and allowed a stabilisation of the SRG energy sale price. Furthermore, the existence of the

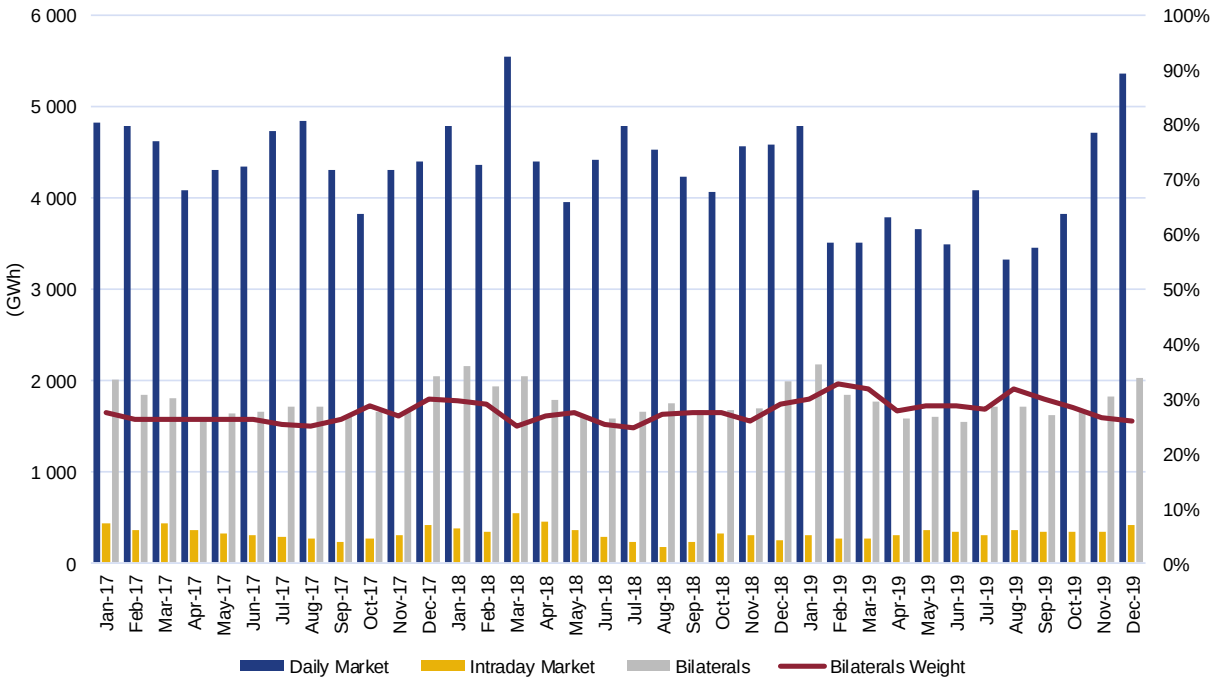
auction mechanism provided risk coverage tools for energy procurement (in volume and in price) which were positively evaluated by market agents.

Also during 2019, and as part of the implementation of the forward contracting mechanism for energy supply by the supplier of last resort (SLR), one SLR supply auction was held, with the placement of two distinct products (two quarterly base loads). This auction resulted in the placement of a total hourly power output (volume placed) of about 85 MW.

The auctions held for 2019 delivery ensured the full placement of the minimum volumes open for negotiation and allowed a stabilisation of the SLR supply price.

Regarding spot market negotiation (daily and intraday markets), it is much higher in Portugal than bilateral contract trading, as shown in Figure 3-18. It is useful, however, to bear in mind that the acquisition of fixed-term products listed on the MIBEL forward market is settled in cash through the daily market.

Figure 3-18- Breakdown of energy supply volumes between markets, 2017 to 2019



Source: OMIE and REN data

In 2019, there was a slight increase, compared to 2018, in the average weight of bilateral contracts but a decrease in its absolute value (decrease of 2% equivalent to 0.5 TWh). It is worth mentioning that the

energy volume associated with bilateral trading takes into account the taking of firm positions in the spot market by market agents.

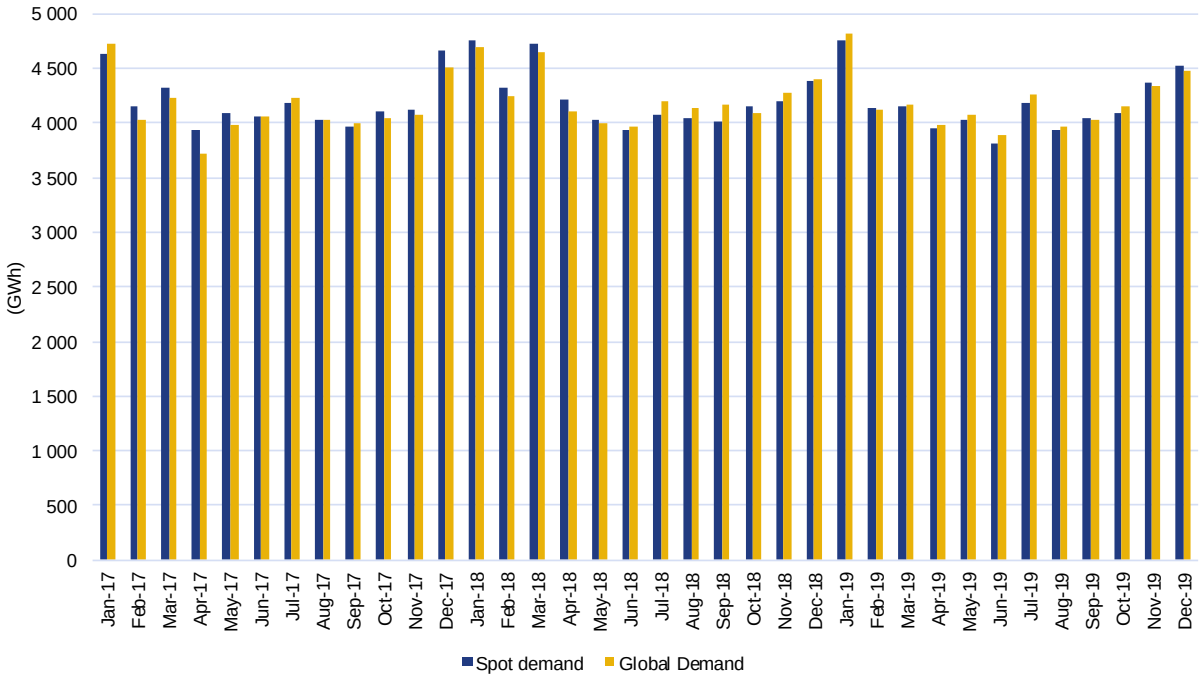
Evolution of the market

Spot contracting in the wholesale market in Portugal is part of the project to deepen MIBEL, i.e. the single market for Portugal and Spain with an associated mechanism for dealing with congestion on a daily basis, based on market splitting whenever the flow of electricity generated by aggregated demand and supply exceeds the commercial capacity available on the interconnection. The spot market contracting structure is characterised by the following aspects:

- On the demand side, the agents registered in Portugal, including the SLR, place most of their demand on the spot market.
- On the supply side, all market agents offer their supply mostly on the spot market. In the case of special regime generators with guaranteed remuneration, their supply is placed on the spot market through the only SRG buyer - the SLR - who aggregates the expected generation and submits the offers to the market.

The evolution for both the spot market demand and overall consumption in mainland Portugal is shown in Figure 3-19, where it can be seen that demand is met by spot market acquisitions.

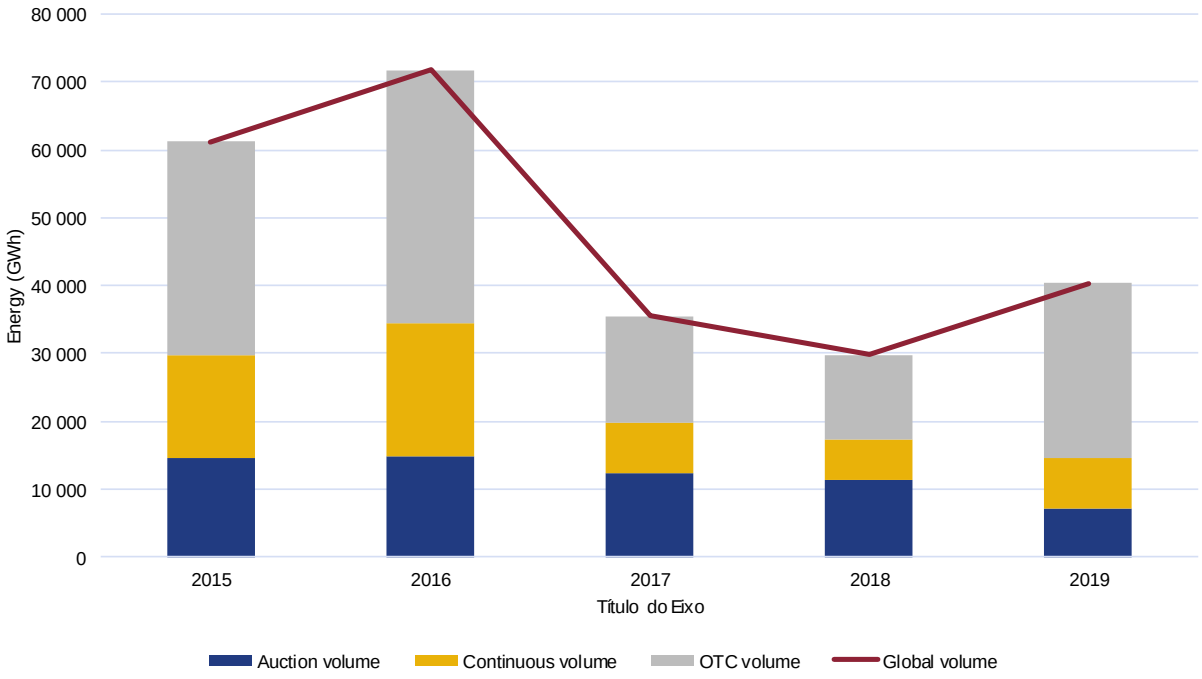
Figure 3-19- Spot market demand and total monthly consumption, 2017 to 2019



Source: OMIE data

Figure 3-20 shows the evolution of the volumes recorded in the organised forward market between 2015 and 2019. In 2016, there was an overall growth in liquidity of 17%. In 2017, there was a decrease in the overall trading volume of 51%, equivalent to 36 TWh. In 2018, another decrease was registered, namely 16% or 5.7 TWh. In 2019, there was an increase, 35% or 10.5 TWh, despite moving the negotiation of financial capacity rights in the interconnection between Portugal and Spain to the JAO (Joint Allocation Platform), following 5 years during which OMIP undertook the operationalisation of the joint capacity allocation mechanism between Portugal and Spain.

Figure 3-20 - MIBEL forward market volumes, 2015 to 2019



Source: OMIP data

TRANSPARENCY

From a market monitoring point of view, it is important to consider the transparency rules in the markets. The wholesale electricity market in Portugal benefits from a regulatory system which already imposes obligations to disclose insider information to the market. Indeed, the requirements to report relevant facts under the RCC were implemented nearly eight years ago and are comparable to the requirements in the *Regulation on Wholesale Energy Market Integrity and Transparency* (REMIT)[63] regarding the obligation to report insider information.

The reporting of transactions and trading orders associated with contracts negotiated in organised market platforms across the entire European Union began on 5 October 2015, in accordance with the schedule provided for in Article 12 of the Commission Implementing Regulation (EU) n. 1348/2014 of 17 December, on data reporting, implementing Articles 8(2) and 8(6) of REMIT. All the contracts mentioned in Article 3, traded in the organised market platforms managed by OMIE and OMIP, are covered by this obligation.

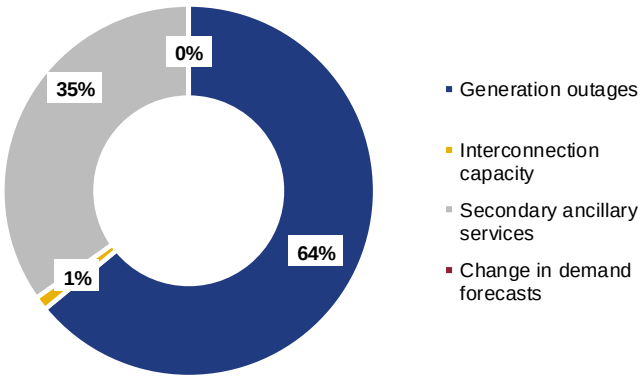
[63] Regulation (EU) no. 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.

The reporting of transactions and trading orders associated with contracts related to electricity transmission concluded following an explicit primary capacity allocation by the transmission network operator and contracts negotiated outside the organised market platforms began on 7 April 2016 across the entire European Union. The calendar for this reporting was set out in Article 12 of the Commission Implementing Regulation (EU) n. 1348/2014 of 17 December, in order to give effect to the data reporting obligations in Articles 8(2) and 8(6) of REMIT, as well as other relevant market information concerning the final assignments of electricity transmission capacity between bidding areas.

Among the facts included in the reporting obligations are the unplanned unavailability of electricity generation plants, updates on their status, in addition to network unavailability (transmission and distribution) which may affect consumption or price setting. Alterations to the capacity commercially available on the Portugal-Spain interconnection also require reporting by REN, as the system manager, as do significant imbalances in the system aggregate consumption forecast and/or of each particular agent.

Insider information is reported in a centralised manner, and is available on a portal managed by REN[64]. During 2019, 6578 relevant facts were reported. Of these, approximately 64% concerned generation unavailability, 35% secondary ancillary services unavailability and 1% changes in the interconnection capacity available for the market and respective price setting in the context of MIBEL (Figure 3-21).

Figure 3-21 – Reporting of relevant facts, 2019



Source: REN data

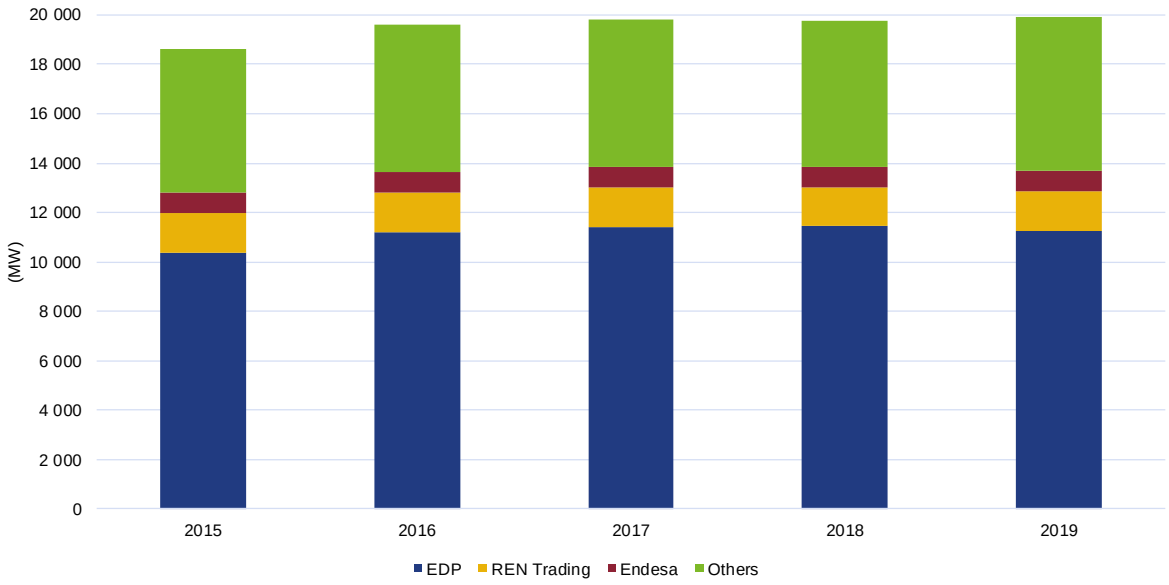
[64] http://www.mercado.ren.pt/PT/Electr/InfoMercado/Paginas/default.aspx

EFFECTIVENESS OF COMPETITION

The wholesale market must be assessed by evaluating the installed capacity and its effective production. To this end, it is important to analyse the evolution of the primary energy used.

In addition to the installed capacity breakdown by technology, it is important to assess the installed capacity breakdown by ownership. Figure 3-22 shows that the EDP group owns most of Portugal's installed capacity.

Figure 3-22 – Installed capacity in Portugal by ownership, 2015 to 2019



Source: REN data, EDP group. Note: "Other" includes all undertakings that hold SRG assets with guaranteed revenue. The values refer to the end of each year.

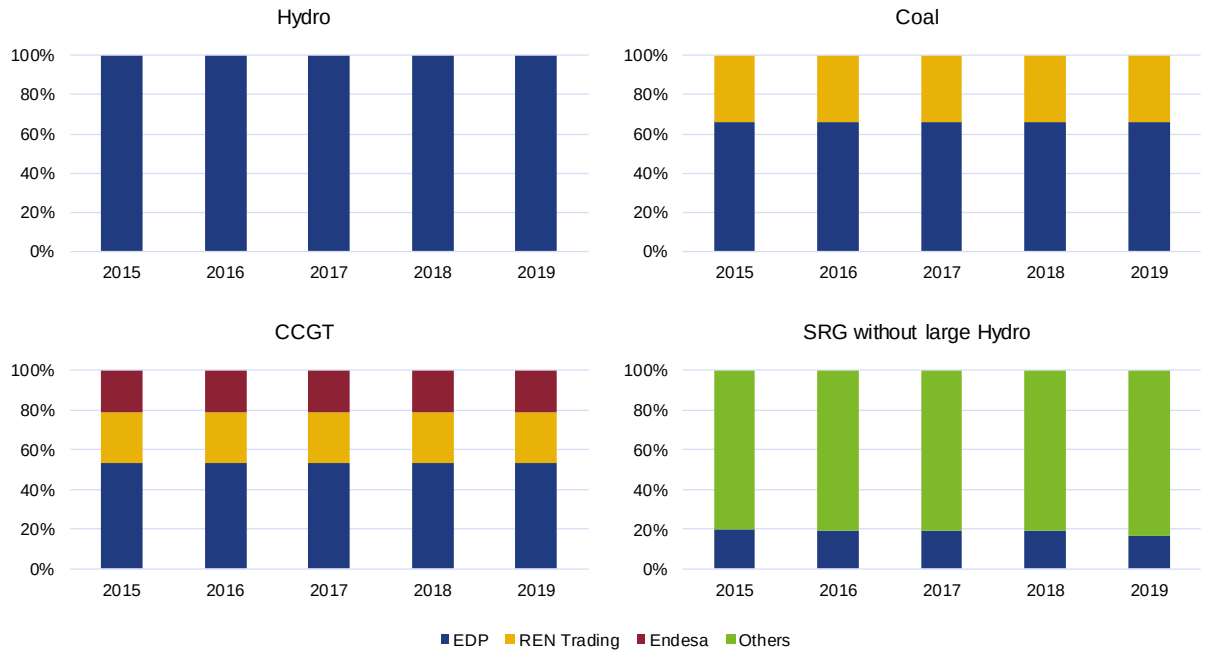
Therefore, following the identified trend, between 2016 and 2017, the EDP group increased its market share due to the commissioning of the installed capacity of the Venda Nova III (780 MW) and Foz Tua (236 MW) hydropower plants.

The review of the wholesale market also includes an evaluation of concentration, both in global terms and also in terms of each of the generating technologies.

The evolution of the quotas of the different agents in terms of installed capacity by technology or regime is presented in Figure 3-23. All factors combined, the concentration level of the electricity generation

segment in Portugal is high in terms of installed capacity, as can be seen in Figure 3-24, which presents the Herfindahl-Hirschman Index (HHI[65]) values, measuring corporate concentration.

Figure 3-23 – Share of installed capacity by agents and technology for mainland Portugal, 2015 to 2019

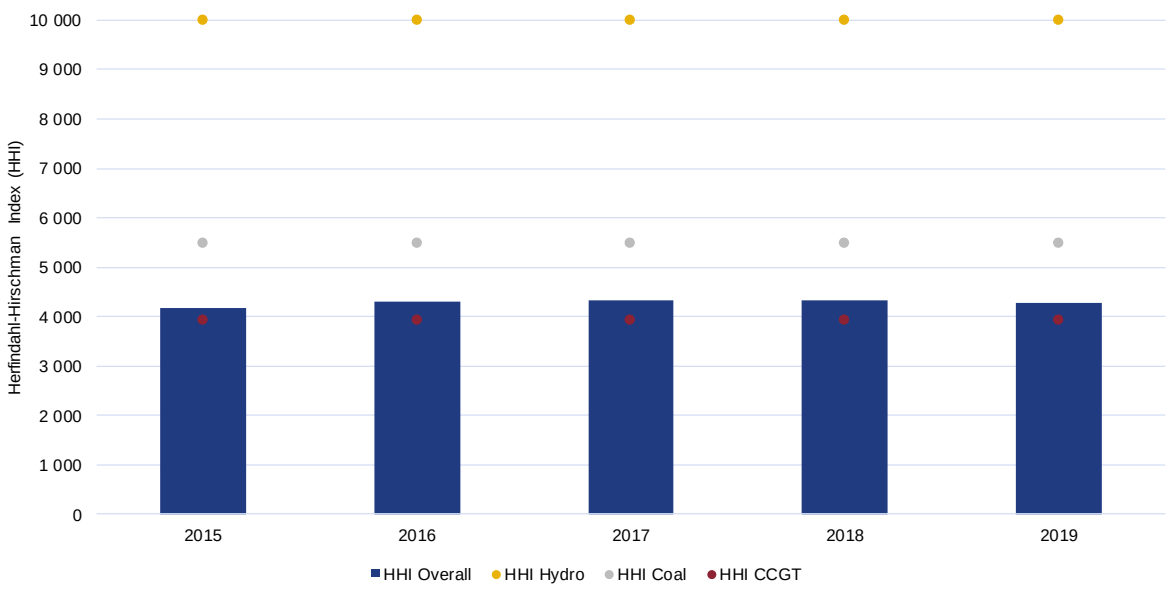


Source: REN data and EDP group

The HHI figures for installed capacity show that there were no significant changes in market concentration in the coal and natural gas combined cycle sectors.

[65] The Herfindahl-Hirschman Index (HHI) is a measure of concentration of businesses within the same activity sector and an indicator of the level of competition between them based on their market shares.

Figure 3-24 - Concentration in terms of installed capacity, 2015 to 2019

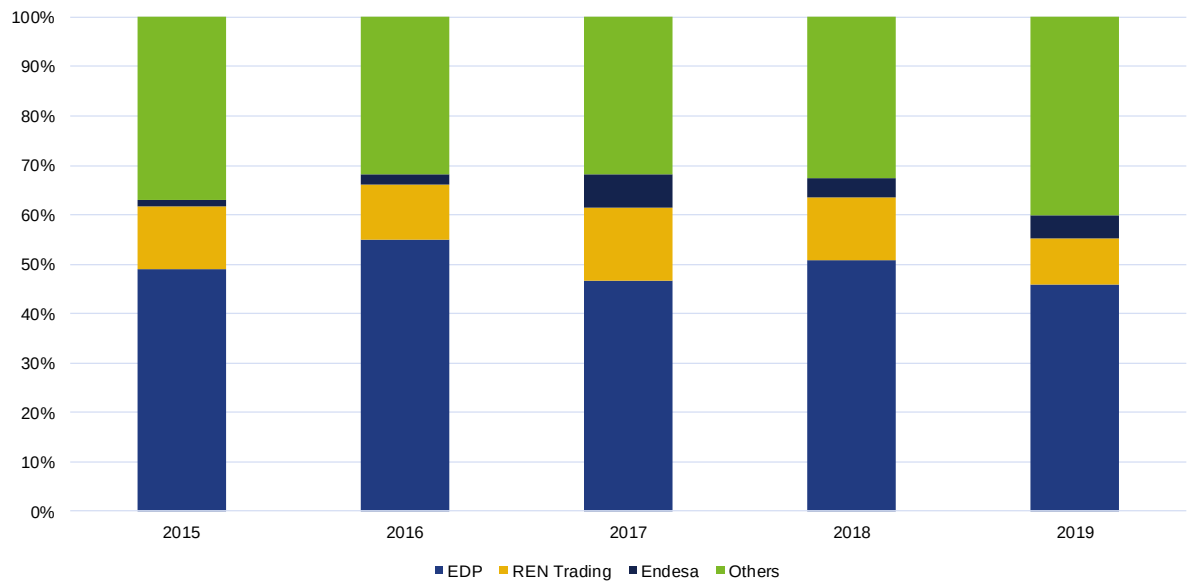


Source: REN data and EDP group

In 2016 and 2017, the integration of the Venda Nova III and Foz Tua hydropower plants contributed to increase the concentration of capacity offered in the Portuguese system.

Electricity generation quotas by agent are shown in Figure 3-25, while the same evolution by technology and for SRG with guaranteed remuneration is presented in Figure 3-26.

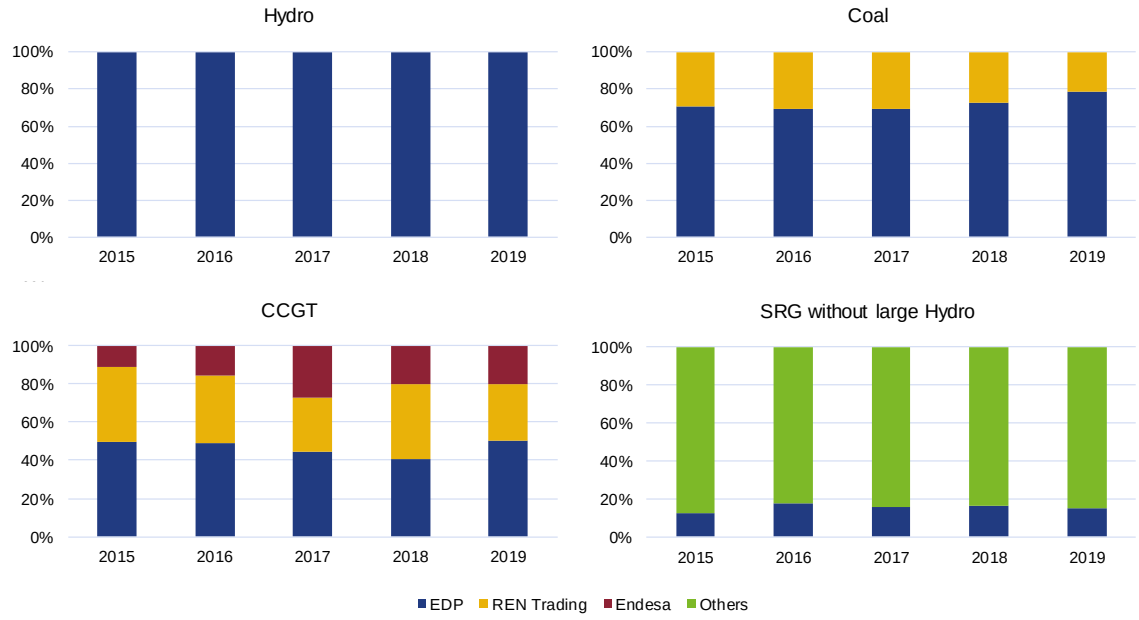
Figure 3-25 - Energy generation quotas by agent, 2015 to 2019



Source: REN data and EDP group. Does not include energy net import figures on the Spain-Portugal interconnection.

For 2019, it is worth noting that there was an overall decrease in the EDP Group's participation in total generation in mainland Portugal, mainly due to a decrease in hydro generation due to less favourable hydrological conditions.

Figure 3-26 - Energy produced by agents by technology, 2015 to 2019



Source: REN data and EDP group

Regarding energy production, the trend between 2015 and 2019 points towards a distinct evolution in the dominant operator EDP's generation quota in each of the main technologies.

In SRG, the EDP group saw its quota increase in 2016, mainly as a result of the consolidation of the ENEOP[66] wind assets, with an installed capacity of 613 MW, at the end of the first quarter of 2015. From 2017 to 2019, this situation remained unchanged.

In relation to hydro production, in 2019 the exclusive presence of the dominant operator EDP continued, as it owns all the major hydropower plants.

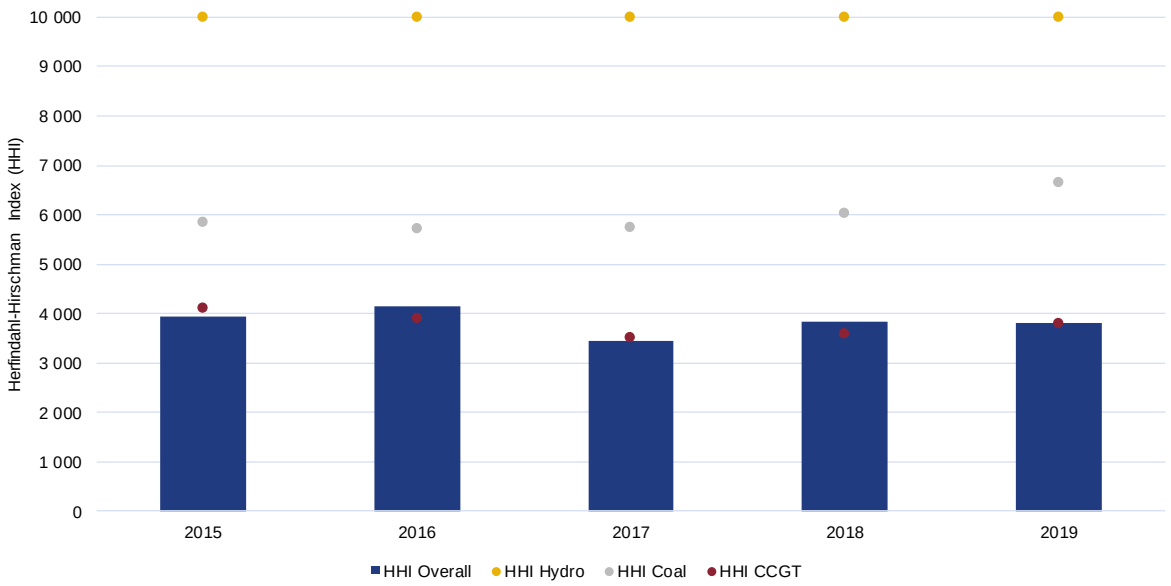
In the case of the natural gas combined cycle plants, there was a significant generation increase in 2019, compared to 2018. This increase of approximately 1.5 TWh, in absolute terms, resulted mainly from the higher production by the generating assets held by the EDP Group and Endesa (Pego plant). The exception were the assets managed by REN Trading (Turbogás plant), which experienced a decrease in production.

Coal power plants witnessed a significant production decrease in 2019. This decrease amounted to 6.0 TWh and resulted from decreases by both the EDP Group and REN Trading (Pego plant).

The concentration indicators for electricity generation presented in Figure 3-27 show that, in 2019, generation was slightly less concentrated than in 2018. This evolution is mainly linked to the concentration decrease in the EDP group's hydropower generation component.

[66] ENEOP – Eólicas de Portugal, a former consortium of companies involved in wind projects in Portugal (EDP Renováveis, Enel Green Power and Generg), which installed a series of farms with a power of 1,200 MW.

Figure 3-27 - Concentration in terms of electricity generation, 2015 to 2019



Source: REN data and EDP group

At the same time, one should bear in mind that, as a more detailed analysis is not possible, the SRG with guaranteed remuneration not controlled by EDP are reflected, for the purposes of calculating the concentration indicators, as a single entity (a single market share). Therefore, if on the one hand, the true evolution of market concentration in the special regime generation category cannot be assessed, on the other hand, the figures for overall concentration will be equal to or greater than those that actually occur in the current market structure.

RESEARCH AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

Within the framework of sectorial regulation in matters related to the promotion of competition, ERSE has specific duties granted to it by the legal framework governing the electricity sector as well as other tasks which arise from competition law.

The institutional and legal framework for competition and the electricity sector states that ERSE must be consulted by the Competition Authority as part of corporate concentration processes, whenever those involved are actors in the electricity market. ERSE's opinion is not legally binding, and the measures for minimising competition risks (also known as operation "remedies") may be monitored by ERSE.

The monitoring of competition in the electricity markets has structural and behavioural aspects. Action on the structural conditions of competition in the market tends to be the responsibility of sectorial regulation,

namely through the regulations which must promote principles for the development of market competition. In terms of behavioural performance, ERSE, as the sectorial regulator, has specific powers to monitor the functioning of the electricity market, and, under the terms of its Statutes, must notify the Competition Authority of possible practices which contravene competition law.

In 2019, ERSE issued six opinions to the Competition Authority regarding the following concentration operations within the electricity sector:

- Opinion on the acquisition of exclusive control over EGEO Circular S.A. ("EGEO Circular") by Blueotter SGPS S.A. ("Blueotter"), which is active in the following activities: manufacture of refined petroleum products and of fuels and industrial gas agglomerates, wind, solar and geothermal power production, treatment and disposal of hazardous and non-hazardous waste, recovery of non-metallic waste. The operation in question was not opposed by ERSE.
- Opinion on the acquisition of exclusive control over Novenergia Holding Company S.A. ("Novenergia") by Total Eren S.A. ("Total Eren"), both companies with operations in the electricity production segment. ERSE did not oppose this operation due to the small market share resulting from the operation (low power to influence wholesale prices).
- Opinion on the acquisition of exclusive control over PH Energia, Lda. ("PH Energia") by Green-2-Market Holding, ApS ("G2M") regarding the activity of energy supply (electricity and natural gas) and power production. ERSE did not oppose this operation as it does not result in barriers to competition, nor does it strengthen any dominant position.
- Opinion on the acquisition of exclusive control over Futura Energía Inversiones, S.L. ("Futura Energía") – and four subsidiaries: Futura Carbono S.L.; Futura Green Renovables S.L.; Futura Energía e Gás S.L.; e Ecofutura Luz Energía S.L. – by Capwatt, SGPS, S.A. ("Capwatt"). The operation focused on the following activities: production of electricity, purchase and resale of greenhouse gas emission allowances in Spain, Portugal and the United Kingdom, provision of representation services to electricity producers in Spain and services of electricity price coverage for producers in Spain and Portugal in the Spanish and German options and futures markets (MEFF, EEX), retail supply (in Spain) of natural gas and wholesale (in Spain, Portugal and the Netherlands), retail supply of electricity in Spain. ERSE expressed its non-opposition to the operation, subject to continued compliance with legal provisions regarding the separation of activities;
- Opinion on the acquisition of exclusive control by New Finerge, S.A. ("New Finerge") over Empreendimentos Eólicos da Serra do Sicó, S.A., company controlled jointly by New Finerge and

Eneólica Renováveis, S.A. ("Eneólica"), through the acquisition of the share capital held by Eneólica. The operation focused on electricity production activities. ERSE expressed its non-opposition to this operation subject to the submission of additional supporting documentation.

- Opinion on the acquisition of exclusive control by New Finerge, S.A. ("New Finerge") over BIF Portugal Wind – Unipessoal Lda. ("BIF"). The operation focused on electricity production activities. ERSE expressed its non-opposition to this operation subject to the submission of additional supporting documentation.

In 2019, ERSE also issued an opinion, following a request by the Competition Authority, pursuant to article 35(2) of Law n.º 19/2012, of 8 May (Law of Competition), on the proposal for a final decision relating to a counter-administrative process in which the company EDP - Gestão da Produção de Energia, SA was targeted due to its conduct in the secondary reserve band market in Portugal, in the period between January 1, 2009 and April 1, 2014, defining and implementing a strategy of limiting the offer from its generating units subject to the CMEC regime (Custos de Manutenção do Equilíbrio Contratual - costs for maintaining contractual equilibrium), so as to increase the offer from its units on the open market, leading to a significant increase in prices in the relevant market. ERSE issued a globally favorable opinion to the Competition Authority's final decision, which culminated in the imposition of a fine on EDP for abuse of dominance.

REGULATORY DEVELOPMENTS

Risk and management of guarantees regime

Recognising the need to change the management of risks and guarantees in the electricity and natural gas sectors, namely with regard to the procedures and means of providing and updating guarantees and their costs and the consequences of non-compliance with obligations by market agents, ERSE launched a public consultation on this topic in October 2016.

The conclusions of this consultation made it possible to carry out a more oriented regulatory review of the electricity sector, undertaken in 2017. With the publication of the electricity RRC in December 2017, the existence of an integrated risk measurement model and the provision of guarantees were established, which were subject to subregulation to detail operational issues.

The approved regulatory framework foresees the existence of a single entity, responsible for carrying out the risk assessment and management of guarantees, which centralises the activity of management of

guarantees related to the contracts for the use of networks and the system services concluded between market agents and the system operator, with the advantage that market agents now have a single entity with whom they relate in the context of providing guarantees in addition to the advantages associated with reducing the risk of default. Until the completion of this entity, ERSE approved a set of transitional rules, which affirm the essential principles already enshrined in the RRC, promoting a comprehensive management of guarantees, the differentiation of agents' behaviour and, consequently, a more effective statement on achieving competition in the Portuguese electricity sector, along with containment of system risk.

The rules approved in Directive n.º 11/2018[67], of July 16, and previously subject to a public consultation of interested parties, involving the transmission system operator, the distribution system operator and the market agents that operate in the national electricity system, aimed at strengthening the measurement and prevention of risks for the system as a whole and provided for flexibility so that suppliers can choose the deadline for payments to the distribution system operator, which is accompanied by a positive differentiation from complying agents.

Following the publication of Decree-Law n.º 76/2019, of 3 June, which changes the legal regime applicable to the exercise of the activities of production, transportation, distribution and supply of electricity and the organisation of electricity markets previously established in Decree-Law n.º 172/2006, of 23 August, with the subsequent changes, the legal existence of an integrated risk and management of guarantees regime within the scope of the national electricity system came to be enshrined, expressly providing for an integrated guarantee manager and the adoption of prudential management rules.

In that same diploma, Article 58-D, delegates to ERSE the regulatory definition of the activity of guarantee management, risk management and provision of guarantees within the scope of the national electricity system, as well as the activity and procedures to be observed by the integrated guarantees manager, aiming at its implementation in a definitive model.

With the conclusion of the legal framework and the evaluation of the experience of applying the transitional model, the adoption of a definitive model should be implemented, which enshrines the performance of the integrated guarantee manager, establishes its regulatory threshold and adapting the risk management rules and guarantees to this new reality.

[67] Directive n. 11/2018, establishes the transitional regime for risk and management of guarantees in the National electricity system.

In this context, ERSE placed in public consultation, in December 2019, a proposal for a risk and management of guarantees regime in the context of the national electricity system, aiming at instituting the regime at the beginning of 2nd half 2020.

Energy supply mechanism by the supplier of last resort

In 2018, a change was made to the RT[68] in order to adapt the energy acquisition mechanisms of the SLR, with impact on the determination of the energy tariff, considering the context of increased volatility of electricity prices in the wholesale markets, due to changes in the prices of CO_2 emissions allowances, natural gas, coal and oil. The energy prices applied by the SLR are fixed annually by ERSE, and a possibility to correct them during the year was not previously foreseen. The misalignment of these prices with the evolution of the wholesale market prices make it difficult for the energy prices of the organised market to be reflected in the offers of the market suppliers, with negative impacts on the functioning of the retail market and, consequently, on consumers.

In order to provide the SLR with a model more suited to the wholesale market dynamics, ERSE approved a mechanism that provides for indexation of the energy price based on the evolution of the electricity price in the futures market. In addition, it approved rules that allow ERSE to fix changes to the energy tariff automatically if there are significant imbalances between the effective energy cost and the energy tariff approved in the annual tariff calculation procedure.

In order to implement this mechanism, ERSE approved Directive n.º 13/2019[69], of July 18, which establishes the "Terms and Conditions for the mechanism for the purchase of electricity by the supplier of last resort", after a public consultation held between 7 December 2018 and 9 March 2019. The auction mechanism for the energy sourcing of the SLR consists in holding auctions open to the participation of other suppliers

[68] Approved by Rule 619/2017, of 18 December.

[69] Available on https://dre.pt/application/file/a/123257054.

under the market regime, in case there is sufficient liquidity on the part of the offer and provided that the SLR reaches its sourcing needs.

Application of the wholesale market competitive balance regime

The Decree-Law n.º 74/2013, of 4 June, as amended by the Decree-Law n.º 104/2019, of 9 August, establishes "a regulatory mechanism aimed at ensuring the balance of competition in the electricity wholesale market in Portugal".

Within the scope of the regulatory mechanism, the covered power generation units must bear the value of the impact that is generated in the formation of the wholesale price by external events, and such a unitary charge per MWh is applicable to their production, which, in the case of hydropower plants equipped with pumping , assumes a net pumping value and, in the case of cycle combined power plants, the part of production that exceeds the operating threshold defined in Article 4(4) should be considered for the purposes of billing charges under Portaria n.º 282/2019, of 30 August.

For the application of the provisions provided by Decree-Law n.º 104/2019, of 9 August, and other complementary legislation, to proceed properly, it is important to establish a set of procedures to be followed by the market agents covered by this legislation in order to ensure the normal functioning of the commercial relationship between the transmission system operator and the power producers within the scope of the regulatory equilibrium mechanism of the wholesale electricity market in mainland Portugal. On the other hand, the RRC provides, under Article 42, that "the rules applicable to the commercial relationship between the transmission system operator and the producers, regarding the application of the regulatory mechanism for the competitive balance of the wholesale electricity market in mainland Portugal, are approved by ERSE."

This set of procedures, systematised by an ERSE Directive, in 2020, were preceded by a consultation with interested parties. They establish the deadlines and the information to be sent to ERSE by the transmission system operator and by the covered electricity generation units, so that the values of the extra-market events can be calculated and the unitary values can be applied within the scope of the competitive equilibrium mechanism, broken down by technology specialisation and by exercise to report the total values of energy injected into the national electricity system's networks. The Directive also stipulates the

billing frequency and the content of the invoice to be issued by the transmission system operator to the market agents concerned.

3.2.2 RETAIL MARKET

Throughout 2019, we continued to witness a consolidation of the liberalised retail market, both in terms of the overall consumption of electricity and in the number of customers.

Structural factors, such as the phase-out of regulated tariffs for end-customers and the adoption of transitional tariffs; the adoption of regulated risk coverage mechanisms by suppliers; and enhanced transparency in the communication of available offers to end-consumers, facilitated an increase in the number of suppliers that operate in the market, leading to greater market robustness.

Similarly, in terms of economic and market circumstances, the decrease in energy price differences between Portugal and Spain in the wholesale market encouraged the perception of lower commercial risks among suppliers that operate in Spain and who compete against other suppliers operating in the Portuguese market.

At the end of 2019, there were 32 suppliers operating on the market, 31 of which are present in the household consumer segment.

In 2019, supplier switching was marked by a significant penetration of suppliers on the liberalised market in segments such as customers with the highest consumption, large customers and industrial consumers, but also in the household consumer segment: approximately 87% of household consumers were already in the liberalised market at the end of 2019 (2 percentage points (p.p.) more compared to the end of 2018). The intensity of supplier switching was still high – around 16% in 2019 – when compared with other European countries.

3.2.2.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

METHODOLOGY FOR MONITORING REFERENCE PRICES AND AVERAGE PRICES CHARGED IN THE RETAIL MARKET

According to ERSE's legal competences regarding electricity market monitoring and its position as the information focal point for consumers and other agents, ERSE receives updated information from suppliers

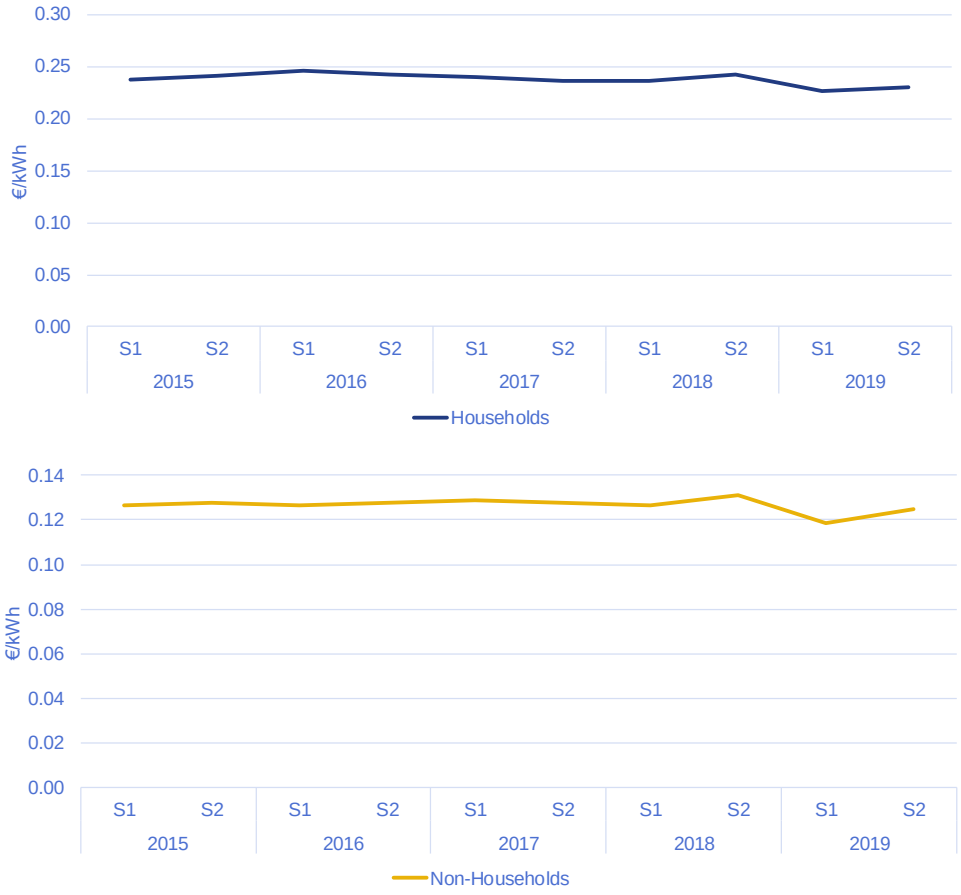
on actual prices charged to consumers in the retail market[70], as well as on the reference electricity prices they offer or expect to offer for all LV electricity supply.

ERSE uses data on average prices actually charged in the retail market, sent quarterly by suppliers, to monitor and supervise the electricity retail market. The data is also used as a tool to disclose average market prices, namely by official statistical data organisations (e.g., *Instituto Nacional de Estatística* – INE, the Portuguese Statistics Office, and Eurostat, at European level).

Figure 3-28 highlights the evolution of electricity prices both for household consumers and non-household consumers. The energy price depends on several different supply and demand conditions, the national energy mix, the diversification of imports, the network costs, the environment protection costs, the severe weather conditions or the levies and taxes levels. It is worth noting that the prices presented in this figure include levies, taxes and VAT for household consumers, but exclude VAT and the recoverable levies and taxes, for non-household consumers.

[70] Order no. 18637/2010, of 15 December.

Figure 3-28 – Evolution of electricity prices for household consumers (with levies, taxes and VAT) and non-household consumers (without VAT and recoverable levies and taxes)



Source: Eurostat, ERSE.

Reference prices are the set of tariffs, tariff options and corresponding prices and indexes per billing variable offered by suppliers to their customers, as well as the conditions for applying the tariffs, namely consumption characteristics, contract duration and price revision conditions. Reference prices constitute the supplier's basic standard offer, which does not inhibit the application of differentiated contractual conditions such as discounts or other promotional campaigns. This information must be sent on an annual basis (end of January) and whenever there is a change in prices or contractual conditions.

ERSE incorporates information on electricity offers on its website in comparison and decision-making support tools for consumers[71], which are described in the following section dedicated to transparency.

[71] At https://www.erse.pt/simuladores/precos-de-energia/.

Since the second quarter of 2017, ERSE has also started publishing quarterly newsletters on reference market prices in LV[72].

The analysis of standard offers sent by suppliers, with reference to the end of December 2019 and for the representative household customer[73], shows that there were 19 suppliers operating in this segment of the market, with 123 electricity-only offers and 73 dual offers (electricity and natural gas), totalling 196 commercial offers, continuing the growth trend in the number of offers.

In the period mentioned above, the electricity-only commercial offer with the lowest annual electricity bill (799 €/year) was 12% cheaper than the regulated market (-94€/year). The dual (electricity and natural gas) commercial offer with the lowest annual electricity bill amounted to 820 €/year, and corresponded to a discount of approximately 9% compared to the regulated market (-72€/year)[74].

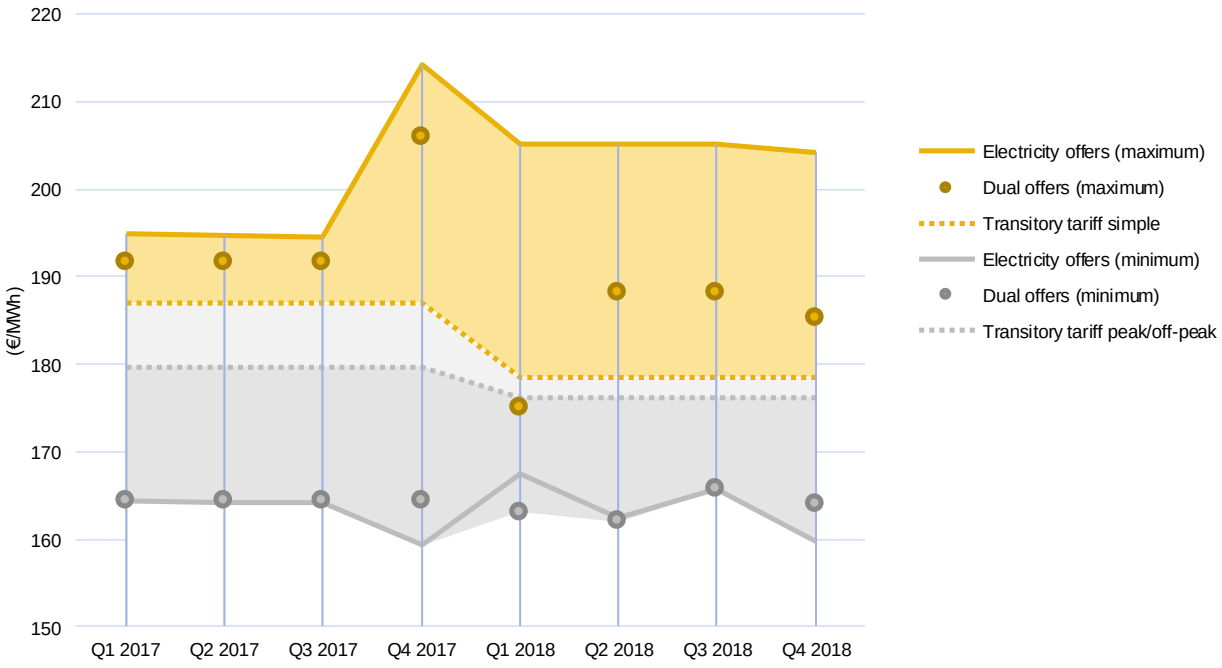
Figure 3-29 shows the evolution of the prices of market offers, as well as the values of the transitional tariffs associated with the simple and bi-hourly options, in 2018 and 2019. In 2019, the commercial offers showed a decrease in the maximum prices when compared to the last quarter of 2018, approaching the transitional tariff prices. As regards the minimum prices of commercial offers, prices remained stable during 2019, with small oscillations in both directions.

[72] Newsletter of the Electricity Commercial Offers.

[73] In units of energy. Corresponds to type 2 consumer with an annual consumption of 5000 kWh/year of which 40% in off peak period, and a capacity of 6.9 kVA.

[74] Real prices with no taxes or levies.

Figure 3-29 - Price of commercial electricity offers (electricity-only and dual fuel) for consumer type 2 in 2018 and 2019



Source: ERSE data

TRANSPARENCY

Aiming at providing information to electricity consumers on market reference prices, as well as tools to help them choose a supplier, ERSE continues to offer and update online comparison tools on its website with objective information to help electricity consumers make an informed choice, namely regarding the selection of the best offer in the market; these are:

- Market price comparison simulator for StLV supply in mainland Portugal[75]
- Simulation of contracted capacity[76]
- Electricity Labelling Simulator[77]

[75] Available at https://www.erse.pt/simuladores/precos-de-energia/ (Portuguese only).

[76] Available at https://www.erse.pt/simuladores/potencia-contratada/ (Portuguese only).

[77] Available at https://www.erse.pt/simuladores/rotulagem/.

On 29 May 2019, World Energy day, ERSE launched a new simulator for contracted capacity, more interactive and easier to use, which allows consumers, with contracted capacity up to 10,35 kVA, to choose the most adequate contracted capacity to their particular case. This simulator also allows the consumer, if they have information about the contracted capacity prices per consumption level applied by their supplier, to use the calculator, made available by ERSE, to calculate the impact on their invoice.

In order to ensure the transparency of information available from suppliers to consumers, ERSE also evaluates whether the former disclose on their websites the offers they are applying in the market, both in terms of prices and commercial conditions, and if these are in line with the reference price data sent to ERSE. In situations where there are discrepancies or gaps, ERSE reserves the right to refuse publication in its market price comparison simulator, until the issues identified are resolved.

In addition to this simulator, ERSE also provides on its website all the information on reference prices and other contractual conditions that support the functioning of the comparison simulator for StLV supply, thus allowing information access to all interested parties.

Considering the increase in the number of offers available to customers in StLV, ERSE devised a mechanism to provide consumers with more effective information, with the aim of enabling them to make informed choices. Therefore, ERSE approved[78] rules requiring suppliers to disclose the content of pre-contractual and of contractual information to electricity consumers in mainland Portugal thus harmonising them through a standardised contractual sheet. The standardised contractual sheet is a measure that ERSE believes enables the effective promotion of competition, facilitating the comparability of offers available in the market.

Under the exercise of the equivalent regime[79], suppliers are still obliged to present in the client's invoice the value of the difference between the supplier's tariff and the equivalent tariff under the transitional or regulated tariffs regime. If the transitional or regulated tariff presents a lower price than the supplier's price, the consumer may, at any time, end the supply contract with the supplier and switch to the SLR or another supplier that has the same prices as the transitional or regulated tariffs. The minimum content and

[78] Directive no. 6/2015, of 27 April (Portuguese only).

[79] Approved by Law no. 105/2017, of 30 August and Governmental Decree no 348/2017, of 14 November.

the way of providing information to customers, regarding the exercise of the equivalent regime, was approved by ERSE in 2018[80].

In regulatory terms, suppliers with more than five thousand customers[81] continue to be obliged to disclose publicly their commercial offers[82], as well as the general conditions of contracts for StLV customers. Additionally, when expressly requested to, the supplier must submit a proposal for the supply of electricity within 8 business days, for LV customers, and within 12 business days, for all other customers, from the date on which the request was made by the customer.

There are also rules in force concerning the information included in the invoices sent to customers, namely information regarding the cost of network access tariffs and CIEG[83] as well as labelling of electricity[84].

Also with regard to electricity bills, electricity suppliers continue to be obliged[85] to inform StLV customers of the preferred date or dates for the communication of meter readings, in order to improve the effectiveness of that communication and allow customers to be billed without the use of consumption estimates.

Rules for customers to access information on electricity consumption are regulated by ERSE under the Measurement, Reading and Data Availability Guide[86]. With regard to metering rules, EHV, HV, MV and SpLV facilities are equipped with remote metering systems (telemetering), with daily collection of four-hourly records. In facilities connected in StLV, readings are done locally, every 3 months, for 2/3 of the facilities and are done remotely, every month, for 1/3 of the facilities. The distribution network operator is obliged to provide a toll-free telephone assistance service to all its customers so they can submit their own readings[87]. The meter readings provided by the customer and by the DSO have the same legal value for billing purposes.

[80] Directive no. 1/2018, of 3 January.

[81] Under the terms of Article 105 of the electricity RRC, "when suppliers have 5,000 or more customers, it is assumed that their trading activities cover all types of electrical power supply."

[82] Through the media involved, as well as on the internet.

[83] Articles 121 and 132 of the electricity RRC (Portuguese only).

[84] Articles 105 e 133 of the electricity RRC (Portuguese only).

[85] Directive no. 14/2016, of 26 July, by which ERSE approved additional obligations applicable to electricity suppliers.

[86] Directive no. 5/2016, of 26 February (Portuguese only).

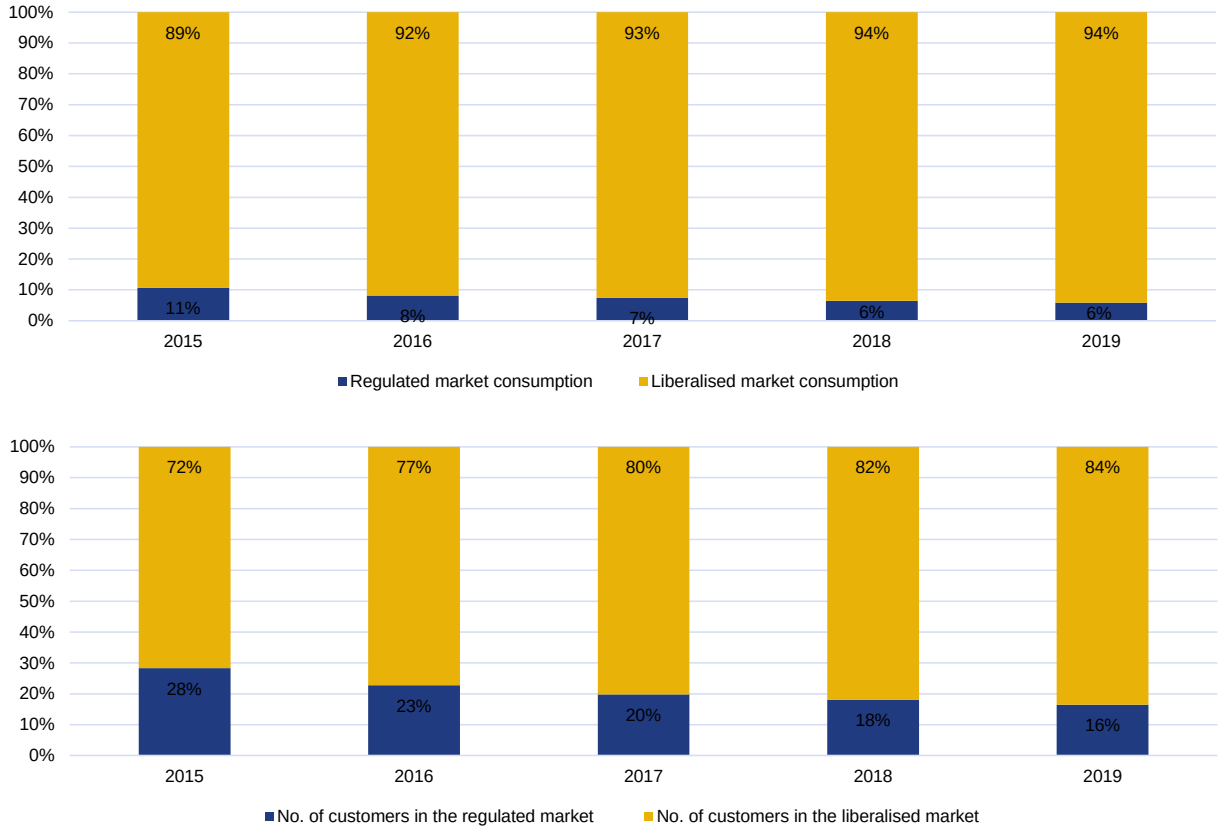
[87] Under the terms of Article 35 of the Electricity and Natural Gas RQS.

EFFECTIVENESS OF COMPETITION

The liberalisation of the electricity sector in mainland Portugal has progressed gradually, with the liberalised market consolidating its position, mainly due to the process of phasing out regulated tariffs that, in January of 2013, started to cover all the clients, including household customers.

The evolution of consumption and the number of customers in the liberalised market in mainland Portugal can be seen in Figure 3-30.

Figure 3-30 – Breakdown of consumption and number of customers in the regulated and the liberalised markets, 2015 to 2019



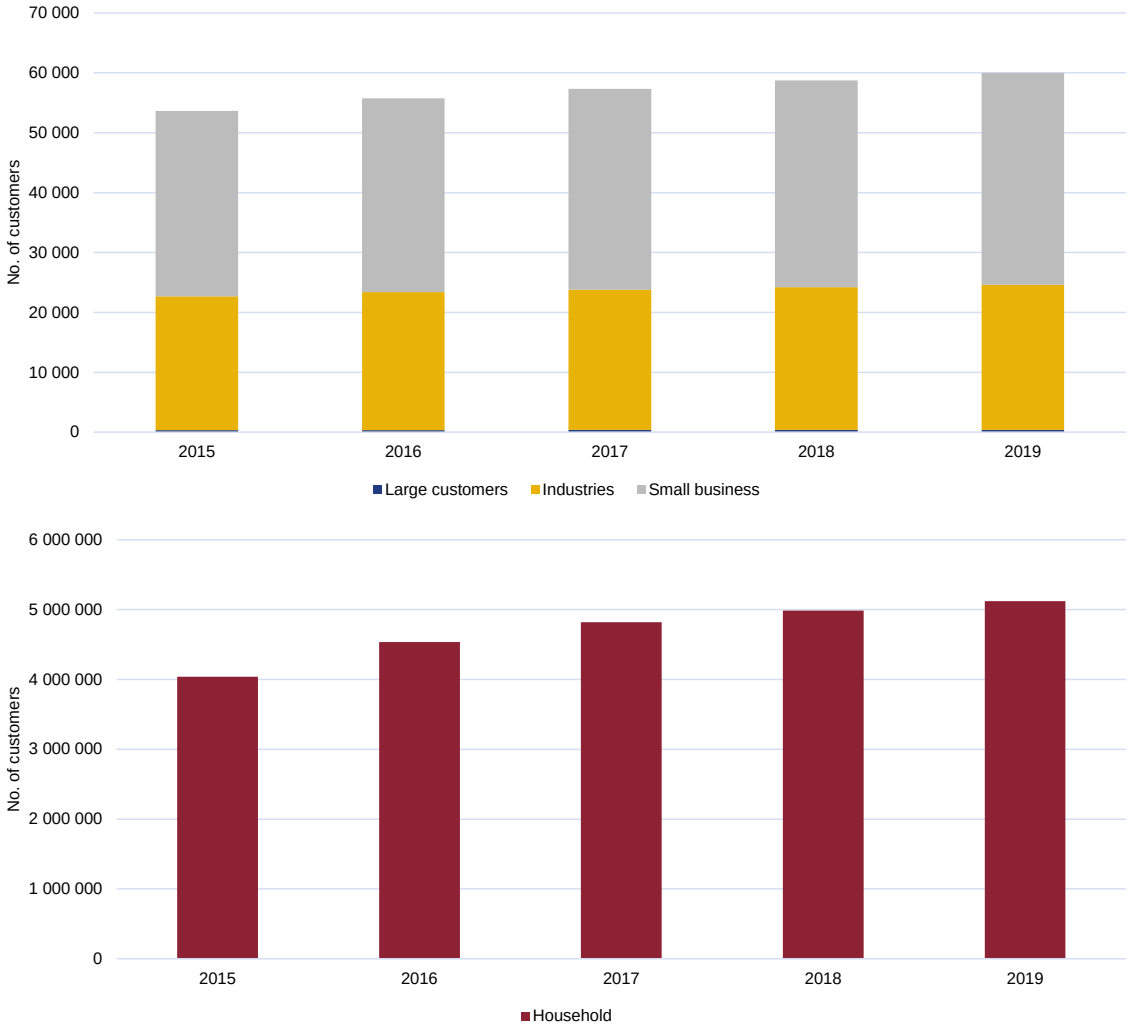
Source: REN and EDP Distribuição data

The phasing out of regulated tariffs, as explained previously, has contributed to the increase of the liberalised market dimension. With this evolution, the consumption in the liberalised market represented approximately 94% of total consumption at the end of 2019.

With regard to the total number of customers, the gradual increase in the size of the liberalised market in the period analysed is essentially due to the continuing entry of household customers, which in 2019 increased by nearly 3% compared to the previous year.

Figure 3-31 shows that in 2019 the segments with higher consumption – large customers (EHV[88] and HV), industrial customers (MV) and small businesses (SpLV) – continued to experience growth between 2% and 3% in the liberalised market.

Figure 3-31 - Evolution of the liberalised market in mainland Portugal, 2015 to 2019



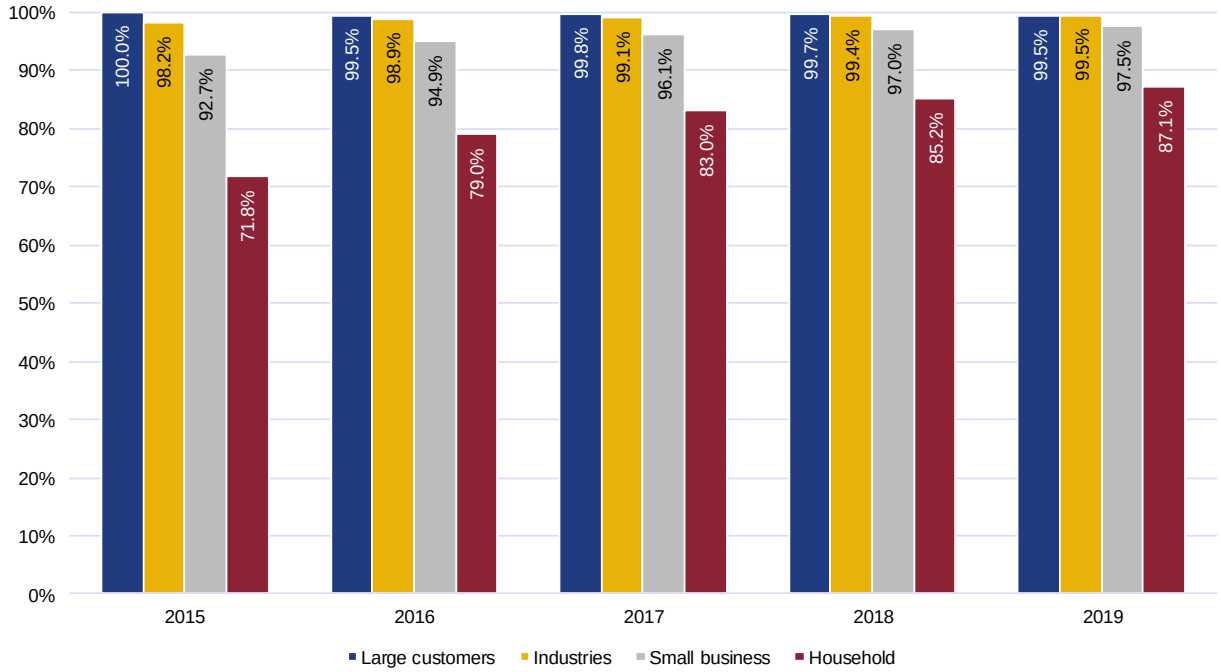
Source: EDP Distribuição data

[88] All EHV customers have been in the liberalised market since July 2013.

The level of consumption associated with each customer segment of the liberalised market is shown in Figure 3-32, and it can be noted that in 2019 almost all of the consumption by large customers was ensured by market suppliers. The same happened with approximately 99% of consumption by industrial customers.

As regards the number of household customers, and despite the fact that this customer segment still has a lower penetration in the liberalised market, approximately 87% of the customers in this segment have already made the transition to the liberalised market.

Figure 3-32- Penetration of the liberalised market by customer segment, 2015 to 2019

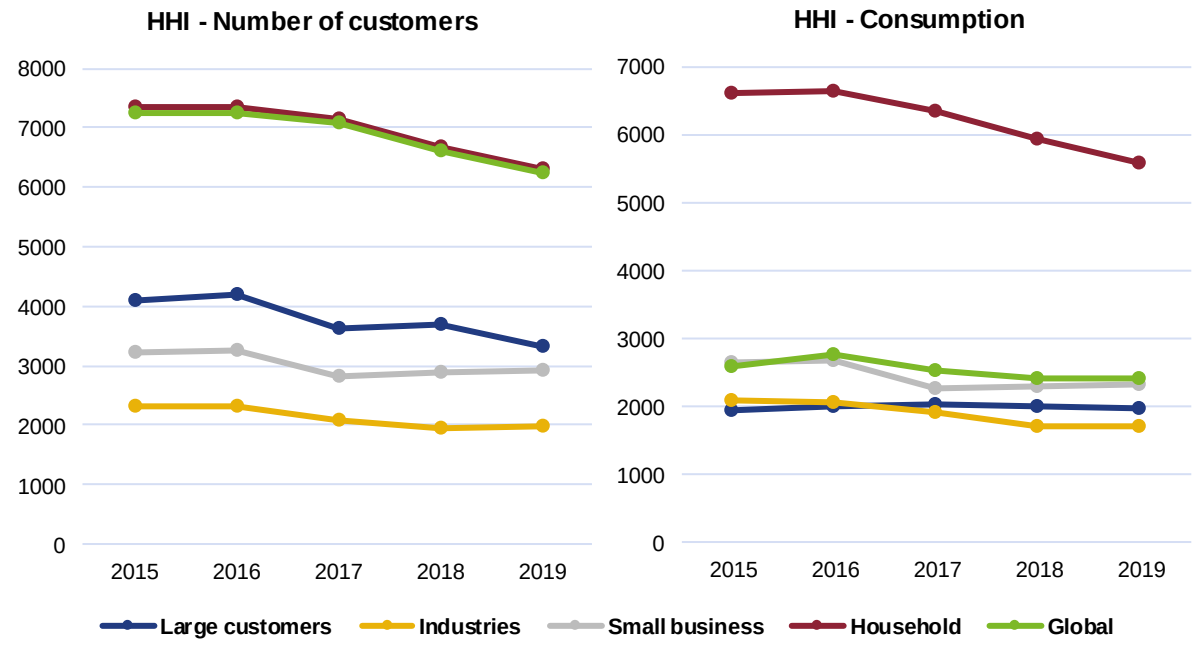


Source: EDP Distribuição data

In the liberalised market, an analysis by segment indicates that the industrial customer segment is the most competitive of all, while the household customer segment had the most market concentration, with the number of suppliers in this segment continuing to increase in 2019.

Despite the growth of the liberalised market, overall business concentration remained high in 2019, as shown in Figure 3-34.

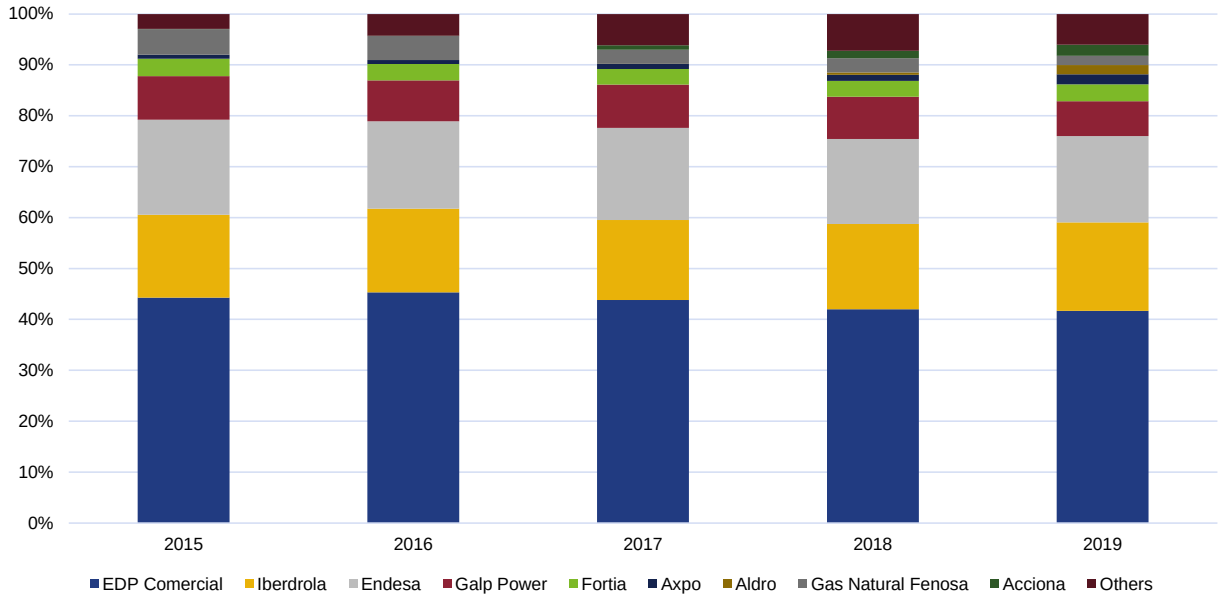
Figure 3-33 – Evolution of market concentration in number of customers and consumption, 2015 to 2019 (HHI)



Source: EDP Distribuição data

The high market share of EDP Comercial, the main actor in the electricity market, mainly in the household segment, is the factor that most contributes to this situation – the liberalised market supplier represented around 42% of supplies on the market in the last year, as shown in Figure 3-34.

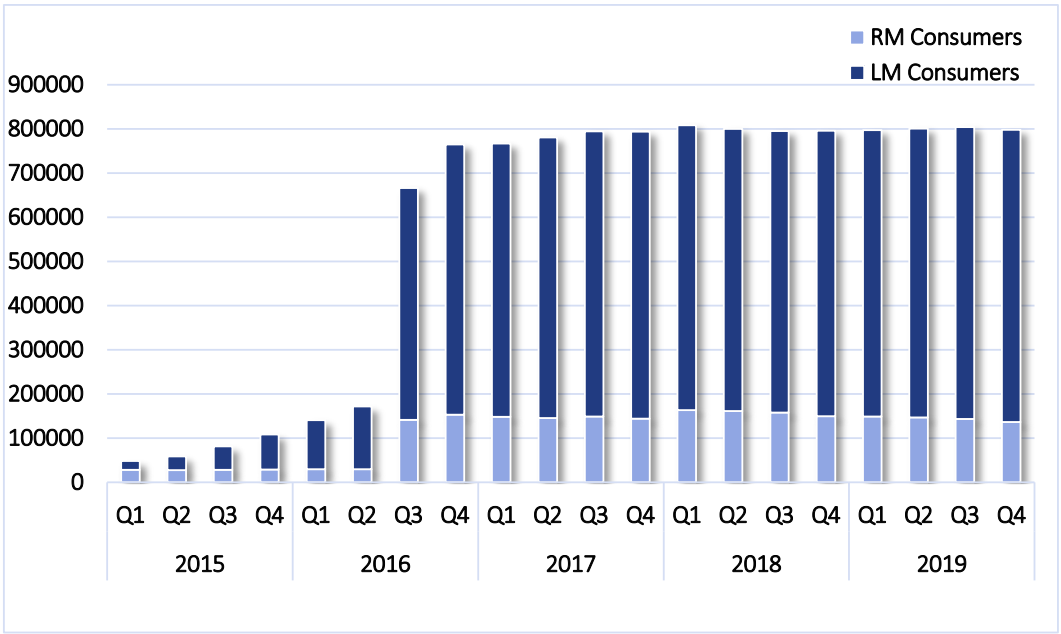
Figure 3-34 - Supply structure in the liberalised market by supplier, 2015 to 2019



Source: EDP Distribuição data

In 2019, there were 797 879 consumers in the electricity sector on social tariffs, 136 615 in the regulated market and 661 264 in the liberalised market, as shown in Figure 3-35. Globally, 13% of electricity consumers in mainland Portugal are on the social tariff, which represents an increase of 12 p.p. since 2013.

Figure 3-35 – Number of consumers on social tariffs, electricity sector, 2015 a 2019

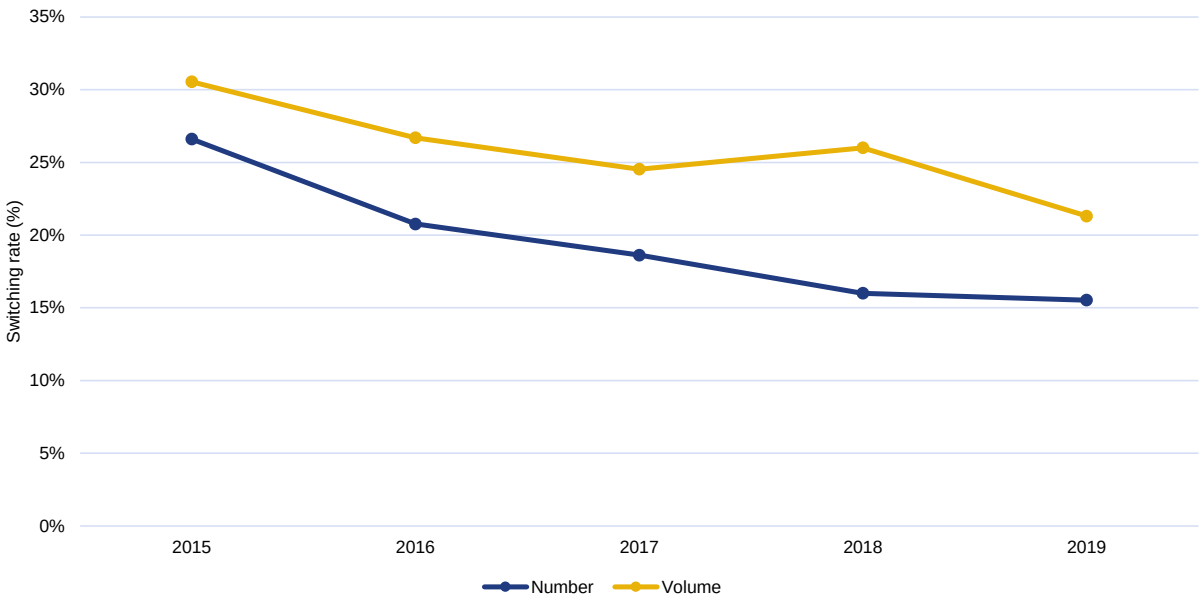


Note: LM means liberalised market; RM means regulated market

Source: Suppliers data.

Despite the downward trend, supplier switching rates[89] are still relevant: in 2019, approximately 16% of electricity consumers switched supplier, as shown in Figure 3-36; switches within the liberalised market represented approximately 7.3% of this number. In 2019, 2064 returns to the regulated market were registered, which represents 7.4 GWh.

Figure 3-36 - Supplier switching, 2015 to 2019



Source: EDP Distribuição data

When comparing the consumption of customers who returned to the SLR with the total consumption of customers that changed supplier within the liberalised market, it is possible to verify that the former value is very insignificant, since returns to the SLR only correspond to 0.1% of consumption in terms of switches within the liberalised market.

[89] The supplier switching rates by number of customers are calculated by the sum of direct market entries, switches from the regulated market to the liberalised market, switches within the liberalised market and switches from the liberalised market to the regulated market during the year 2019 to be divided by the average number of customers in mainland Portugal during the year 2019. The supplier switching rates by consumption are calculated in a similar way, that is, by the consumption associated with the sum of direct market entries, from the regulated market to the liberalised market switches within the liberalised market and switches from the liberalised market to the regulated market during 2019 to be divided by the average annual consumption in mainland Portugal during 2019.

An analysis of the evolution of the retail market is available on the ERSE website in the form of a monthly report[90], which provides information regarding issues linked to competitive pressure on the market and on each of its segments.

3.2.2.2 RECOMMENDATIONS ON SUPPLY PRICES, INVESTIGATIONS AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

RECOMMENDATIONS FOR SUPPLY PRICES

During 2019, ERSE did not publish recommendations regarding the compliance of supply prices with Article 3 of the Directive 2009/72/EC of the European Parliament and of the Council, of 13 July. The transitional regime for regulated electricity tariffs for end-customers in StLV, SpLV, MV and HV remained in force.

MEASURES TO PROMOTE EFFECTIVE COMPETITION

In 2019, one of the aspects that underwent regulatory changes, in order to promote a better functioning of the retail market, contributing to the mitigation of the systemic risk related to the breach of the obligations of the suppliers, within the scope of the contracts for the use of networks and for system services between market agents and system operators, was the stabilisation of the process related to the integrated management of guarantees through the realisation of a definitive model whose description is characterised in the regulatory developments on the risk and management of guarantees management regime (as explained in section 3.2.1.1.).

During 2019, an Instruction[91] was also published that foresees the total separation of the image of EDP Serviço Universal (EDP SU) as supplier of last resort from the other entities integrated in the universe of the EDP group. In order to guarantee the total distinction, the new image does not, nor can it, contain graphic, chromatic, symbolic or communication elements common to any of the companies integrated in the same business group, namely, with the market trader (EDP Comercial) or the network operator (EDP Distribuição).

[90] https://www.erse.pt/biblioteca/atos-e-documentos-da-erse/?tipologia=----+Mercado+Liberalizado+-+Eletricidade&setor=&ano=&descricao=

[91] Instruction n.º 5/2019

TRANSITIONAL REGIME FOR THE APPLICATION OF TARIFFS FOR END-CUSTOMERS BY THE SUPPLIER OF LAST RESORT (SLR)

Since 1 January 2013[92], electricity tariffs for LV end-customers published by ERSE for mainland Portugal[93] have a transitional nature[94]. In 2019, these tariffs applied to HV, MV, SpLV and StLV[95] supply delivered by the supplier of last resort. Transitional EHV tariffs were abolished, given that the supplier of last resort was no longer delivering supply to this voltage level.

Transitional tariffs for end-customers in force from 1 January 2019 onwards are determined by the sum of network access tariffs with the transitional energy tariff and the regulated supply tariff[96], all approved by ERSE[97].

REGULATORY DEVELOPMENTS

TARIFF DEFICIT

In line with Decree-Law n.º 165/2008 of 21 August, in 2009, the tariff adjustments made in 2007 and 2008 to the costs of electricity acquired by the SLR were deferred for a period of 15 years with effect from 2010, as was the extra cost of acquiring electricity from SRGs with guaranteed revenue pertaining to 2009.

In 2011, a new possibility was introduced to pass on the cost differentials associated with the purchase of energy from the SRG, based on a deferral of the portions which are passed on in the profits of the 5 following years, through the publication of Decree-Law n.º 78/2011 of 20 June, more specifically article 73-A.º.

[92] Under the Decree-Law no. 75/2012, of 26 March.

[93] Provisions related to the organised market are not applicable in the autonomous regions, as well as the provisions regarding the legal separation of the activities of electricity production, transport, distribution and supply, under the terms of the derogation foreseen in Article 44 of Directive no. 2009/72/CE, of the European Parliament and Council, of 13 July.

[94] For the other voltage levels (EHV, HV, MV and SpLV) Decree-Law no. 104/2010, of 29 September, in its current form, applies.

[95] The Decree-Law no. 15/2015, of 30 January, changed the Decree-Law no. 75/2012, of 26 March and has changed the way of establishing the application period of the respective transitional tariffs for electricity supplies to StLV final consumers. The application period of the transitional tariffs to StLV final consumers was changed to 31 December of 2025 by Law no. 42/2016, of 28 December, Government Ordinance no. 39/2017, of 26 January, Government Ordinance no. 364-A/2017, of 4 December and Government Ordinance no. 83/2020, of 1 April. The application period of transitional tariffs for MV and LVE clients was changed to 31 December 2021 and 2022, respectively, by Government Ordinance no. 83/2020, of 1 April.

[96] The transitional tariff regime is determined by the joint application of Government Ordinance no. 108-A/2015, of 14 April, and Government Ordinance no. 359/2015, of 14 October. Order no. 7557-A/2017, of 25 August. It revoked Order no. 11 566-A/2015, of 3 October.

[97] Directive no. 5/2019, of 18 January.

Decree-Law n.º 178/2015 of 27 August, changed the inter-temporal transfer scheme in force. Its application was extended until 8 December 2020 in accordance with no. 8 of the Article 73-A.

The passing-on of cost differentials associated with the purchase of energy form the SRG is applied annually, as shown in the following table.

The main elements of the tariff deficit for the electricity sector in 2019 are shown in Table 3-10.

The final outstanding balance in 2019 of the main items of the electricity sector's tariff deficit are presented below.

Table 3-10 – Tariff deficit, 2019

	Outstanding debt in (10^3 EUR)
Tariff deficit 2009	640 271
2016 SRG additional cost deferral	318 132
2017 SRG additional cost deferral	672 365
2018 SRG additional cost deferral	665 766
2019 SRG additional cost deferral	920 803
Total	**3 217 338**

3.3 SECURITY OF SUPPLY

In the Portuguese legal framework, the responsibilities concerning security of supply in the electricity sector lie with the government, which delegated its monitoring tasks to the DGEG[98]. However, ERSE monitors the evolution of the installed capacity and the evolution of demand, which is addressed in greater detail below.

The following points relate to the various aspects of security of supply.

CAPACITY MECHANISM PAYMENT – INCENTIVE FOR INVESTMENT

The allocation of incentives for investment related to capacity mechanism payments are set out in Portaria n.º 251/2012, of 20 August, and are applicable to:

[98] In accordance with Decree-Law no 29/2006 of 15 February, as amended by Decree-Law no 215-A/2012 of 8 October, and with Decree-Law no 172/2006 of 23 August, as amended by Decree-Law no 215-B/2012 of 8 October.

- Hydropower plants that have been granted a license between the publication of Decree-Law n.º 264/2007, on 24 July, and of Portaria no 251/2012, 20 August, or those hydropower plants whose agreements fall within the scope of the implementation of the National Programme for Plants with Significant Hydroelectric Potential (PNBEPH), in compliance with Article 3 of Decree-Law n.º 182/2008, of 4 September, and have been granted a license by 31 December 2013.
- Reversible hydropower plants whose installed capacity has been increased and were granted a generation license by 21 August 2012.

This incentive for investment is granted to each eligible hydropower plant during the first ten years of operation. The incentive value to be allocated to each plant is calculated annually, resulting from the product of installed capacity, the availability index, the index of compliance with the commissioning date set in the generation license, and an annual reference value[99]. In 2019, the incentive resulted in a total cost of 15.3 million euros.

SECURITY RESERVE

Decree-Law n. º 172/2006, of 23 August, altered and republished by Decree-Law n.º 215-B/2012, of 8 October, provides for the creation of an mechanism for the allocation of incentives for reserve capacity made available to the national electricity system by power producers. The objective is to ensure an adequate level of electricity demand coverage and an adequate management of power plant availability. According to this Decree-Law, the definition or the terms of this mechanism are to be approved by a Portaria by the member of the government responsible for energy.

In this context, Portaria n.º 251/2012, of 20 August established the regulatory framework for the security reserve in Portugal.

Later, through Portaria n.º 41/2017, of 27 January, and in accordance with the guidance of Law n.º 42/2016, of 28 December, which approved the State Budget for 2017, an auction mechanism was implemented, remunerating exclusively the availability services provided in the market to ensure the security reserve for the national electricity system.

[99] Value published for each power plant with values ranging from 11 000 to 22 000 €/MW.

In relation to 2019, the security reserve auction, under Portaria n.º 41/2017, did not take place, as the Portuguese Government did not receive the unequivocal pronouncement of the European Commission on the compatibility of this security reserve mechanism with European provisions concerning aid state to the energy sector[100], being the mechanism suspended.

Thus, for 2019, availability contracts were not concluded for the security reserve regime and, consequently, the national electricity system incurred no cost.

INTERRUPTIBILITY

According to the Regulation[101] currently in force, interruptibility refers to the ancillary system of voluntary self-reduction of electricity consumption by a consumer until matching the residual contracted capacity, as a result of a downward instruction issued by the TSO. According to the prelude of Portaria n.º 592/2010, interruptibility will allow:

a) a quick and effective response to emergency situations;

b) improvement of the flexibility of system operation; and

c) Improvement of security of supply.

According to information released by the TSO for the 12-month period of interruptibility services, from 1 November 2018 to 31 October 2019, 50 interruptibility agreements were registered and a total interruptible capacity of 697.2 MW was reached. It should be noted that there was no need to issue any downward instruction related to the interruptibility service. The total cost of service for this 12-month period was around 122.9 million euros.

Portaria n.º 286-A/2016, of 13 October, defined that remuneration for the interruptibility services is limited to installations that have been subjected to the tests provided for in Article 4-A of Portaria n.º 200/2012, of 2 July, and which are considered capable of providing the service, after validation of the test results by ERSE and DGEG. Two installations of the 50 with active interruptibility agreements failed the tests.

[100] Portaria n.º 93/2018, of 3 de April.

[101] Portaria n.º 592/2010, of 29 July, with the subsequent amendments made to it.

3.3.1 MONITORING THE BALANCE BETWEEN SUPPLY AND DEMAND

The 2019 capacity margin, defined as the difference between installed capacity and the maximum load in relation to installed capacity, increased slightly between 2019 and 2018 (to 57%), as a result of an increase in installed capacity and a decrease in consumption. The evolution of installed capacity and peak load is shown in Table 3-11.

Table 3-11 - Capacity margin of the SEN

	2018 (MW)	2019 (MW)	Change (%)
Total installed capacity	**20 208**	**19 953**	**1.28%**
Renewable capacity	13 847	13 552	2.18%
Non-Renewable	6 361	6 401	-0.62%
Maximum peak load	**8 650**	**8 794**	**-1.64%**
Capacity margin	**11 558**	**11 159**	**3.58%**
(%)	57%	56%	

Source: REN data.

Table 3-12 presents total electricity consumption and its supply sources, in 2018 and 2019.

Table 3-12 - Consumption supply

	2018 (GWh)	2019 (GWh)	Change (%)
Total generation	**55 137**	**48 771**	**-11,5%**
Renewable generation	29 305	27 328	-6,7%
Non-Renewable generation	25 832	21 443	-17.0%
Import balance	-2 657	3 399	-
Consumption of pumps	-1 582	-1 825	15.4%
Total consumption	**50 898**	**50 345**	**-1,1%**

Source: REN data.

Table 3-13 – Evolution of consumption by voltage level

(GWh)	2016	2017	2018	2019
Muito Alta Tensão (MAT)	2 115	2 158	2 366	2 344
Alta Tensão (AT)	6 615	6 885	7 036	7 072
Média Tensão (MT)	14 411	14 835	14 987	14 939
Baixa Tensão (BT)	21 458	20 875	21 729	21 334
Total	**44 599**	**44 753**	**46 118**	**45 688**

Source: EDP Distribuição

On the demand side, in 2019 total electricity consumption reached 50.35 TWh, with a 1.1% increase compared to 2018.

In 2019, hydrological conditions were unfavourable, with a hydrological index[102] of 0.81 (compared to 1.05 recorded in 2018), resulting in hydropower plants on the liberalised market supplying 18% of electricity consumption, a figure much lower than the 24% recorded in the previous year, with wind capacity supplying 28% of total consumption, compared to 22% in 2018. The remaining renewable capacity technologies had a similar quota as in 2018.

In turn, non-renewable thermal power plants on the liberalised market represented 44%, lower than the 47% recorded in 2018, with 10% of their generation coming from coal-fired plants and 33% coming from natural gas power plants.

In 2019, unlike the three previous years, net export cross-border balance was 3 399 MW or 6.8% of total generation.

The percentage breakdown of electricity generation by power source in the last 5 years is presented in Table 3-14.

[102] Indicator quantifying the imbalance of the total value of hydropower produced during a given period, in comparison to what would be produced under average hydrological conditions.

Table 3-14 - Breakdown of generation, 2018 and 2019

	2018	2019
Renewable Generation	**53%**	**56%**
Hydro	24%	21%
Wind	22%	28%
Biomass	5%	6%
Solar	1%	2%
Non Renewable Generation	**47%**	**44%**
Coal	20%	10%
Natural Gas	26%	33%
Other	1%	1%

Source: REN data.

Peak demand reached its maximum value on 15 January 2019, reaching a figure of 8 650 MW which, compared to the 2018 peak, shows a small decrease of 144 MW (-1.64%), reverting the upward trend of previous years.

Table 3-15 - Day of annual peak demand, 2015 to 2019

Year	Day	Peak (MW)	Variation (%)
2015	7-Jan	8 618	3.67
2016	17-Feb	8 141	-5.53
2017	19-Jan	8 771	7.74
2018	7-Feb	8 794	0.26
2019	15-Jan	8 650	-1.64

Source: REN data

The evolution of installed capacity at the end of each year is shown in Table 3-16.

Table 3-16 - Power generation capacity, 2018 and 2019

	2018 (MW)	2019 (MW)	Change (MW)
Renewable power plants	**13 552**	**13 847**	**295**
Hydro	7 215	7 216	1
Wind	5 150	5 208	58
Biomass	628	693	65
CHP	356	341	-15
Solar	559	730	171
	0	0	**0**
Non-Renewable power plants	**6 401**	**6 361**	**-40**
Coal	1 756	1 756	0
Natural gas	4 609	4 597	-12
CHP	779	768	-11
Other	36	8	-28
CHP	23	8	-15
TOTAL	**19 953**	**20 208**	**255**

Source: REN data

In 2019, the main developments that took place on the national electricity transmission network to ensure security of supply were:

- The reinforcement of supply to distribution network with a new 400 kV transmission line Alcochete-Fanhões (independent circuits), and the reinforcement of transformation capacity at Lavos Substation (400/60kV), Recarei and Zambujal Substations (220/60kV), and Sines (150/60kV).
- Refurbishment of assets that reached their expected economic lifetime, including the refurbishment of existing 400 kV lines: Riba d'Ave – Recarei 1 and Rio Maior - Alto Mira, and 150 kV lines Porto Alto - Palmela 2.
- Conclusion of refurbishment works on protective, control and automative systems installed at substations Estarreja, Falagueira, Sacavém and switching station of Monte da Pedra.

In terms of quality of supply, the transmission network recorded an Equivalent Interruption Time (EIT) of 0.72 minutes (see section 3.1.1.2).

Table 3-17 shows the total length of transmission and distribution networks, by voltage level.

Table 3-17 – Total length of transmission and distribution networks

(km)	2016	2017	2018	2019
Transmission network				
Extra High Voltage (EHV)	**8 863**	**8 907**	**8 907**	**9 002**
Distribution Network	**228 519**	**229 207**	**229 673**	**231 202**
High Voltage (HV)	9 516	9 529	9 543	9 568
Medium Voltage (MV)	73 042	73 317	73 547	73 814
Low Voltage (LV)	145 961	146 361	146 583	147 820

Source: REN, EDP Distribuição

3.3.2 MONITORING INVESTMENTS IN GENERATION CAPACITY

In 2019, there were no developments concerning new investments in thermal generation capacity. In addition, it is expected that generation units under power purchase agreements (PPA), Pego and Tapada do Outeiro, as well as Sines will be kept in operation until end of 2029, regardless of having reached their contractual lifetime limit. This expectation is supported by the Report on Monitoring Security of Supply in the National Electricity System for the period from 2019 to 2040 (RMSA-E 2019), recently approved by the Government.

In terms of hydropower generation capacity, there were also no developments in 2019. Within the scope of the implementation until 2030 of the PNBEPH, and of its 2016 review which added a series of new plants to the plan, some of which already commissioned, the RMSA-E 2019 confirms the entry in operation of Gouvães and Daivões in 2021, and Alto Tâmega in 2023, reaching a total de 1200 MW, 880 MW of which reversible, as well as the commissioning of Carvão-Ribeira (555 MW) in 2030.

In terms of other generation technologies, we highlight an increase of 58 MW in wind farms, with 47 MW at the Penacova unit, and an increase of 171 MW in solar capacity, highlighting the new unit of OURIKA with 44 MW, becoming the biggest solar unit in Portugal.

With regard to forecast of installed capacity from renewable energy sources, according to RMSA-E 2019 those included in the updated National Action Plan for Renewable Energies (PNAER) continue to be

adopted, according to the last available information related to licensing procedures as well as the scenarios being studied in the context of the National Energy and Climate Plan (PNEC) for 2030 as depicted in Table 3-18.

Table 3-18 – Evolution forecast for renewable energies 2021, 2025 and 2030

	2021 (MW)	**2025 (MW)**	**2030 (MW)**
Hydro (< 30 MW)	7 382	7 542	8 097
Hydro (> 30 MW)	619	635	635
Wind	5 395	5 799	5 937
Solar	1 431	3 575	6 200
Biomass / Biogas	325	365	369
Urban Waste	77	77	77

Source: RMSA-E 2019 data

4 NATURAL GAS MARKET

4.1 NETWORK REGULATION

4.1.1 TECHNICAL FUNCTIONING

4.1.1.1 BALANCING

The general principles applicable to the balancing of the transmission network and infrastructure of the National Natural Gas System (SNGN), are established in the Infrastructure Operation Code (ROI) approved by ERSE. The detailed rules and procedures are provided in the Manual of Procedures for Global Technical Management of the System (MPGTG), approved by ERSE. The latest revision of the MPGTG took place in 2016, adopting the balancing model of the transmission grid provided in the European Network Code on Gas Balancing of Transmission Networks [Commission Regulation (EU) No 312/2014, of 26 March], and also in the European Network Code for interoperability and data exchange rules [Commission Regulation (EU) No 2015/703 of 30 April].

Although the implementation of functional procedures has been successful, the full implementation of the balancing model requires the entry into operation of the Portuguese trading platform, assigned to the entity MIBGAS, S.A. The delay on the implementation of MIBGAS prevented materialisation in 2019 of the balancing model by means of market trading actions. However, the technical manager of the system and the market operator continued the development of communication protocols and the preparation of the market platform.

During 2019, the daily imbalance charges of the market agents were still determined based on the short term product prices with delivery in Spain (determined by the MIBGAS platform), affected by the Portugal-Spain interconnection tariffs. On the other hand, for the balancing actions carried out by the technical manager of the system a balancing service was available, covered by a dedicated regulatory framework published alongside the MPGTG in October 2016. This balancing service was not used in 2019.

4.1.1.2 ACCESS TO STORAGE INFRASTRUCTURE, LINEPACK AND ANCILLARY SERVICES

Access to infrastructure for storage, linepack and ancillary services is based on third party regulated access, with the operators providing these services under a separate ownership regime from the natural gas traders operating in the SNGN.

Access to Sines LNG terminal and to the natural gas underground storage of Carriço complies with the provisions of ERSE's Code on Access to Networks, Interconnections and Infrastructures (RARII), and ERSE's Manual of Procedures for Infrastructure Access (MPAI) that details the access regime. The procedures for balancing, compensation and access to linepack are integrated in the MPGTG. These regulations are approved by ERSE.

The transmission network gas users have ancillary services to ensure their balance position (balancing). Besides the underground infrastructure for storage and reception of LNG (whose storage in tanks also has use in commercial storage), there are ancillary services offered by the technical manager of the system, using linepack of the transmission grid. The assigning of linepack ancillary services to the market agents in 2019 was maintained, at no additional cost, bearing in mind that temporarily the technical manager of the system uses the gas quantities from market agents allocated to the operational reserve and filling gas. This situation will be eliminated as soon as the market platform for products in Portugal begins to operate (expected in 2020) and the balancing actions of the technical manager of the system take place in the platform, with the return of the operation gas to the agents (in accordance with the European Network Code on Gas Balancing of Transmission Networks).

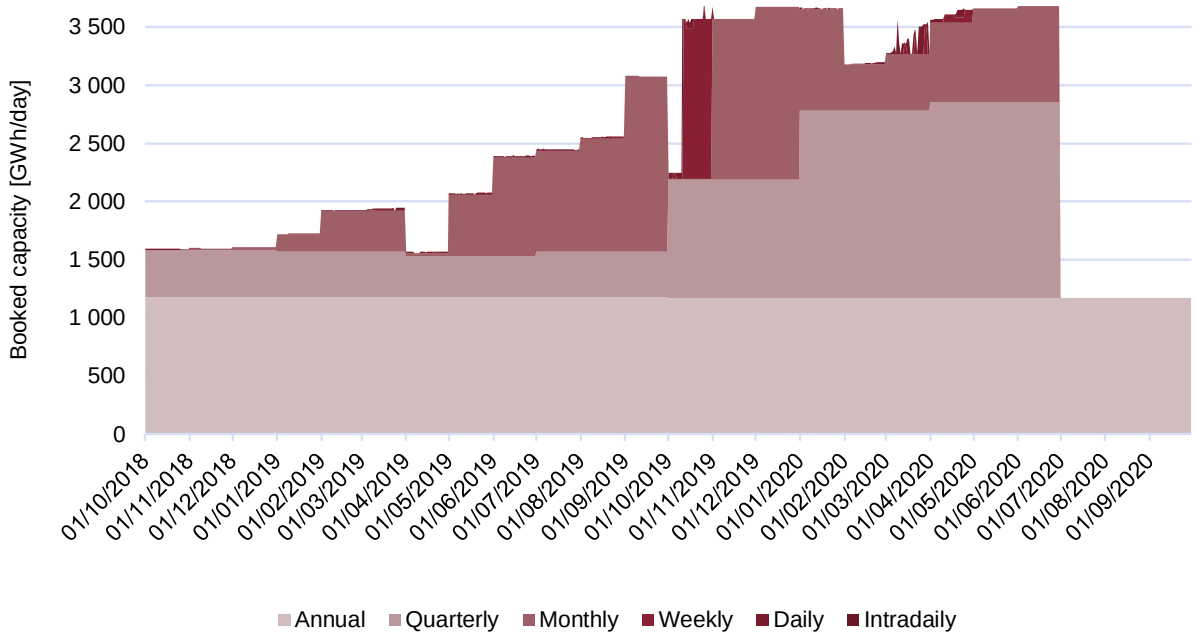
In addition to linepack capacity access in the transmission network, the underground storage facility of Carriço and the LNG terminal of Sines benefit from a regulated third-party access regime. ERSE approves the capacity allocation mechanisms, integrated in the MPAI and the tariff scheme applied for this infrastructure.

ERSE continued to monitor the access conditions to the infrastructure that provide storage services, besides the transmission network. In 2019, an increase was observed in the use of this infrastructure and the respective capacity contracts. Consequently, the entry capacity from the LNG terminal (regasification) was entirely booked in the annual allocation processes for the gas year 2019-2020. Also, the underground storage capacity was also entirely allocated in November and December 2019 with congestion premiums. On the other hand, the entry capacity in the transmission network from the international connection

(Iberian VIP) saw a decrease in use and capacity booking. The capacity contracting mechanisms and congestion resolution function properly and ERSE monitored its application.

The following graph presents the growth of the underground storage by the market agents with predominance of the annual and trimestral capacity products. During 2019 (November and December) the maximum technical capacity was achieved.

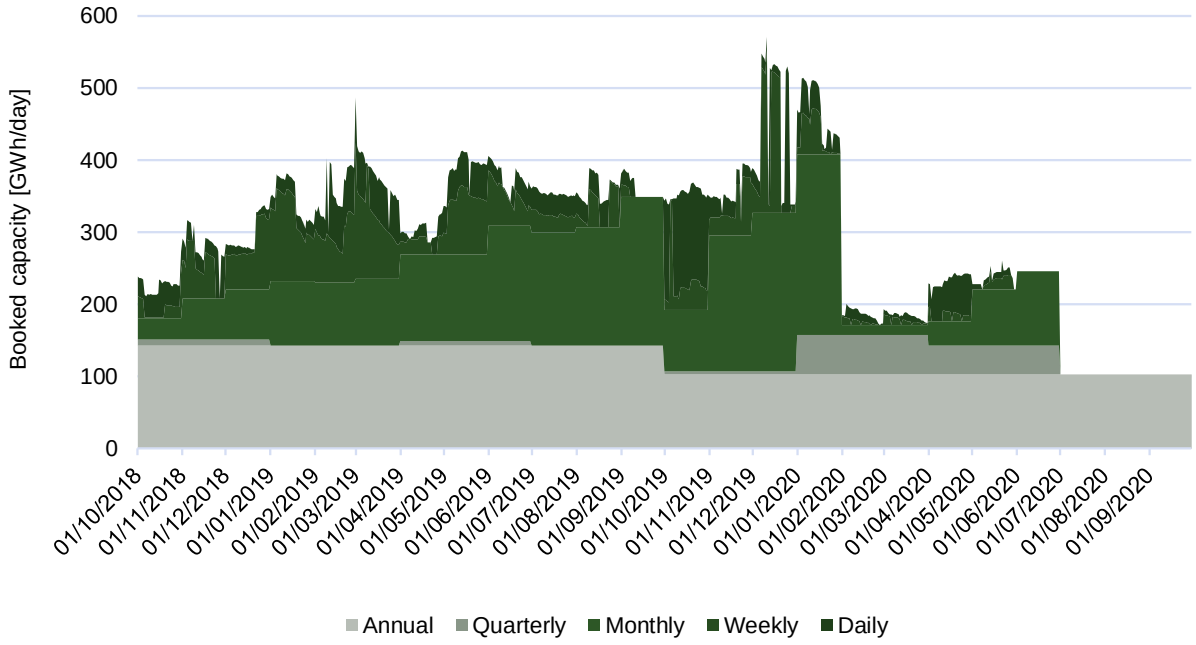
Figure 4-1 – Underground storage assigned capacity, by product



Source: REN Gasodutos data.

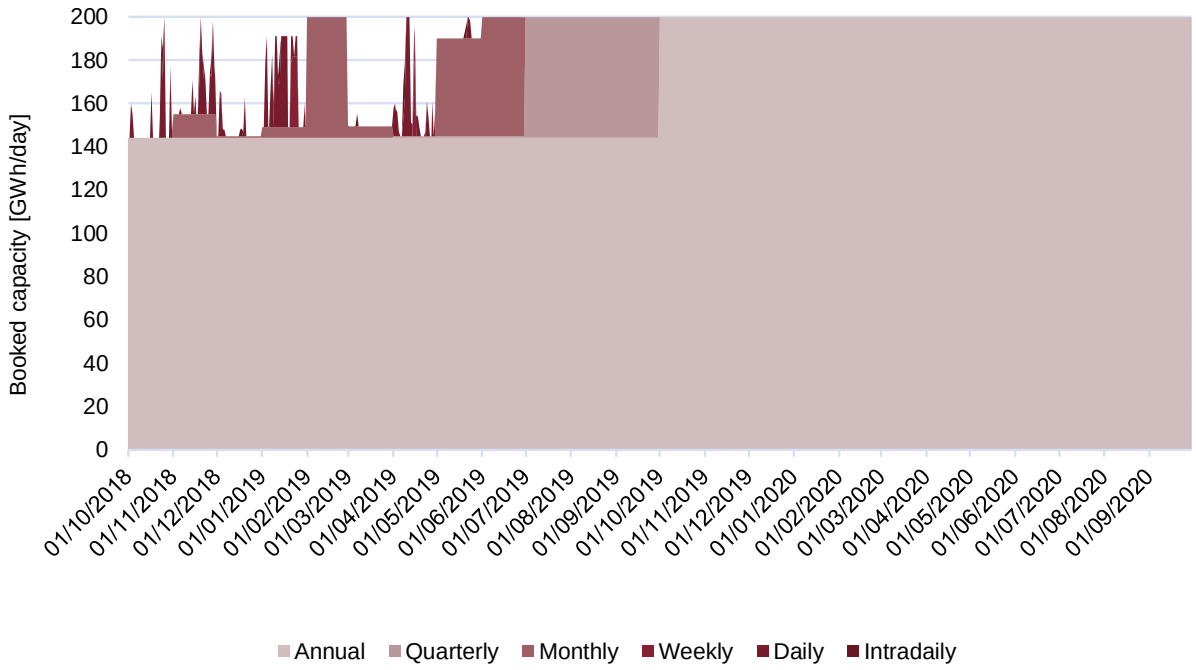
The two charts below show the assigned capacity in the LNG terminal, during the gas year 2018-2019 and a major part of the gas year 2019-2020. The booking of commercial storage in the LNG terminal is an additional source of ancillary services to the gas system, however, due to the high reception rate of LNG ships (in 2019 the terminal registered a record of 65 methane ships received) the storage capacity of LNG is mainly directed to supply the terminal operational ancillary services. In the case of injection in the transmission network (regasification of LNG), capacity booking in the annual auction for 2019-2020 registered congestion, resulting in the booking of the whole capacity by means of the yearly capacity product.

Figure 4-2 – Booked capacity in the commercial storage of the LNG terminal, by product



Source: REN Gasodutos data.

Figure 4-3 – Booked capacity in the regasification of the LNG terminal, by product



Source: REN Gasodutos data.

4.1.1.3 TECHNICAL QUALITY OF SUPPLY

The RQS for the natural gas sector sets out the provisions on technical quality of supply. The technical component covers the following areas: continuity of supply and characteristics of natural gas supply (i.e. natural gas characteristics and supply pressure). The scope of application of the RQS covers customers, suppliers and operators of the sector's infrastructure[103].

Regarding the LNG terminal, general indicators have been established for service continuity with the objective of evaluating the service provided by this infrastructure in the following processes: reception of LNG from tankers and carriers, loading of tanker trucks with LNG (for the supply of satellite LNG units) and the injection of natural gas into the transmission network.

In 2019, the most significant aspects in terms of the performance of the LNG terminal were the following:

- The terminal supplied 6 622 LNG tanker trucks (a slight increase compared to the value recorded in 2018, which totalled 6 062 tanker trucks);
- The number of tanker trucks experiencing a delay in loading corresponded to 15% of the total (2 p.p. above the figure recorded in the previous year). The main causes for delay were the unavailability of the fuelling stations, operational unavailability at the LNG terminal and technical problems;
- There were a total of 65 unloading operations involving carriers (against 45 carried out in 2018);
- No delays were recorded in the unloading of carriers (same as the previous year); and
- The natural gas injection assignments for the transmission network recorded a compliance of 100%, as in previous years.

The continuity of the transmission network service is assessed based on the following indicators: average number of interruptions per exit point; average duration of interruptions per exit point (minutes/exit point); and average duration of interruption (minutes/interruption). In 2019, there were no interruptions of supply at transmission network exit points. In 2018, there were two supply interruptions at transmission network exit points.

In the distribution networks, as with the transmission network, performance is evaluated through indicators that consider the number and duration of interruptions. In 2019, there were no interruptions in

[103] I.e. distribution network operators, transmission network operator, underground storage operator and LNG reception, storage and regasification terminal operator.

3 of the 11 existing distribution networks (Beiragás, Sonorgás and Paxgás) and only 0.7% of approximately 1.46 million customer installations suffered interruptions. No customer was affected by more than one interruption. Nearly 69% of the interruptions that occurred in the distribution networks were due to fortuitous events or cases of force majeure, caused by third-party interventions in the networks. The average duration of the interruptions per customer was less than 3 minutes in all the distribution networks.

The RQS establishes that the monitoring of the characteristics of natural gas should be carried out by the infrastructure operators and sets limits for the following characteristics: Wobbe index, relative density, dew point, hydrogen sulphide and total sulphur.

In 2019, there was full compliance with the regulatory limits for natural gas characteristics, by transmission network monitoring point.

All distribution network operators presented information on the monitoring of the pressure in their networks. In 2019, the pressure supplied was monitored at 382 points in the distribution networks. There were one-off incidents of non-compliance of the pressure limits set out in the applicable legislation and in the monitoring methodologies which, according to the distribution network operators, had no impact on the supply of natural gas to customers.

We should note that, in accordance with the RQS, ERSE publishes a quality of service report on a yearly basis[104], to present and assess the quality of service for the activities covered by the natural gas sector.

4.1.2 TARIFFS FOR CONNECTION AND ACCESS TO INFRASTRUCTURE

REGULATORY FRAMEWORK

ERSE is responsible for approving the tariff and price calculation methodology for the natural gas sector, the methodologies for regulating allowed revenues, as well as the transitional tariffs for end-customers, the network and infrastructure access tariffs and the prices for regulated activities.

The network and infrastructure access tariffs in place in 2019 result from the rules approved by the 2019 gas regulatory review. Prior to each regulatory period, ERSE usually changes its Codes, and in particular the RT, since ERSE considers it is the adequate moment to evaluate the parameters and the methodologies for

[104] Available at ERSE

revenues and tariffs, which guide the regulator's activity, as well as to evaluate the impact of the measures taken and their realisation, namely trough the performance of the regulated companies and the regulated tariffs impact on the market. RT revision, linked to 71 ERSE Public Consultation, took place in the last year of the regulatory period between 2016 and 2019, integrating the necessary improvements identified during the application of the RT, as well as the substance which defined the new regulatory period which started in January 2020.

The current RT for the gas sector was approved by Regulation n.º 361/2019, of 23 April, amended by Regulation n.º 455/2020, of 8 May.

PROCEDURES AND METHODOLOGY FOR CALCULATING NATURAL GAS NETWORK AND INFRASTRUCTURE ACCESS TARIFFS

In the natural gas sector, there are several regulated activities with allowed revenues established by ERSE, which are recovered by the following tariffs: Global Use of System, Transmission Use of Network, Use of Reception Terminal, storage and LNG regasification, Use of Underground Storage, Switching Logistic Operation, Use of Distribution Network in MP, Use of Distribution Network in LP, Energy and Commercialisation.

Underlying the principle that the services that are associated with each regulated activity must be identified, ERSE defines the physical variables most suited to the valuation of the charges effectively caused by the service provided to each client. This set of physical variables and the corresponding metering rules are the billable elements for each tariff.

The values of these billing variables are determined in order to present a structure adherent to the marginal or incremental costs, which includes a scale that ensures the allowed revenues for each regulated activity and the economic-financial equilibrium of the companies.

The tariffs for network access for each billing variable are obtained by adding the corresponding tariffs per activity. To the extent that the tariffs that make up this sum are based on marginal costs, cross-subsidisation between customers is avoided and efficient allocation of resources is ensured.

This methodology makes it possible to know in detail the various tariff components by activity. Thus, each customer may know exactly how much he pays, for example, for the use of the distribution network at medium pressure (MP) and in which billing variable this value is considered. Transparency in the formulation of tariffs, which is the consequence of the implementation of such a system, allows price

comparisons between different suppliers, distinguishing the prices subject to competition from the prices established by regulatory decision.

As regards networks, access is paid for by all natural gas consumers, so network access tariffs are included in the prices paid by natural gas consumers, both in market-based prices and in transitional tariffs for end-customers. General speaking, these tariffs are paid by suppliers on behalf of their customers[105]. As regards the Use of the LNG Reception, Storage and Regasification Terminal and for the Use of Underground Storage tariffs, these are paid by the users of this infrastructure.

Table 4-1 and Table 4-2 show the set of access and infrastructure tariffs and the corresponded billing variables.

Table 4-1 - Structure of the tariffs which are part of the access tariffs to natural gas networks

Network and infrastructures access tariffs	Billing variables	HP Clients	MP Clients	LP> Clients	LP< Clients
Overall Use of the System	Energy	●	●	●	●
Use of the Transmission Network	Capacity	●			
	Energy		●	●	●
Use of the Distribution Network	Fixed term		●	●	●
	Capacity		⊙	⊙	
	Energy		●	●	●
Switching operation	Fixed term		●	●	●
	Capacity	●			

Source: ERSE data

[105] This tariff may, alternatively, be paid directly by customers benefiting from the status of market agent, i.e. customers buying natural gas directly on the markets and who are responsible for managing imbalances arising from differences between the capacity contract, demand forecasts for their customer portfolios and actual consumption recorded.

Table 4-2 - Structure of infrastructure tariffs for natural gas infrastructure

Network and infrastructures access tariffs	Billing variables
Use of the LNG Terminal	Fixed term *
	Capacity
	Energy
Use of the Underground Storage	Capacity
	Energy

* Applies only to the service for loading of tanker trucks with LNG

Source: ERSE data

NETWORK AND INFRASTRUCTURE ACCESS TARIFF PRICES

The 2019 access tariffs correspond to the tariffs approved for the gas year 2018-2019, in force in the first semester of the year, and the tariffs approved for the gas year 2019-2020, in force in the 2nd semester[106].

In 2019, due to the changes in the methodology related to the structure of the use of the transmission network tariff, associated with the implementation of Regulation (EU) 2017/460 which establishes a network code on harmonised transmission tariff structures for gas, ERSE adopted a new validity period for the regulated tariffs, to match the capacity attribution year. In this context, the validity of the tariffs was amended to cover the period 1 October to 30 September (previously they applied from 1 July to 30 June).

In July 2019, ERSE determined the prorogation of the validity period for the regulated tariffs and prices for the gas year 2018-2019 until 5 am CET on 1 October 2019, as well as the corresponding regulatory period and parameters until 31 December 2019[107].

For the gas year 2019-2020, the high pressure networks and infrastructures access tariffs, for the forecasted demand for that year, experienced significant decreases compared to 2018-2019, as shown in Table 4-3 and Table 4-4.

[106] The natural gas network and infrastructure tariffs in force from July 2018 are available at: https://dre.pt/application/conteudo/115566299 and those in force from October 2019 are available at: https://dre.pt/application/conteudo/122806181.

[107] Under the terms of Directive no. 12/2019, of 1 July.

Table 4-3 – Tariff evolution for high-pressure infrastructure, the use of networks and the global use of the system for the gas year 2019-2020, by activity

Tariffs per activity	Average price 2018-2019 (EUR/MWh)*	Average price 2019-2020 (EUR/MWh)	Change
Use of the LNG Terminal (Sines)	0.70	0.60	-13.5%
Use of the Underground Storage	7.55	6.48	-14.1%
Use of the Transmission Network	1.39	1.09	-21.2%
Use of the Distribution Network	8.42	7.71	-8.4%
Global Use of the System	0.08	0.05	-36.3%

* Application of 2018-2019 tariffs to the demand forecasted for 2019-2020.

Source: ERSE data

Table 4-4 – Tariff evolution for network access for the gas year 2019-2020, by type of client at each pressure level

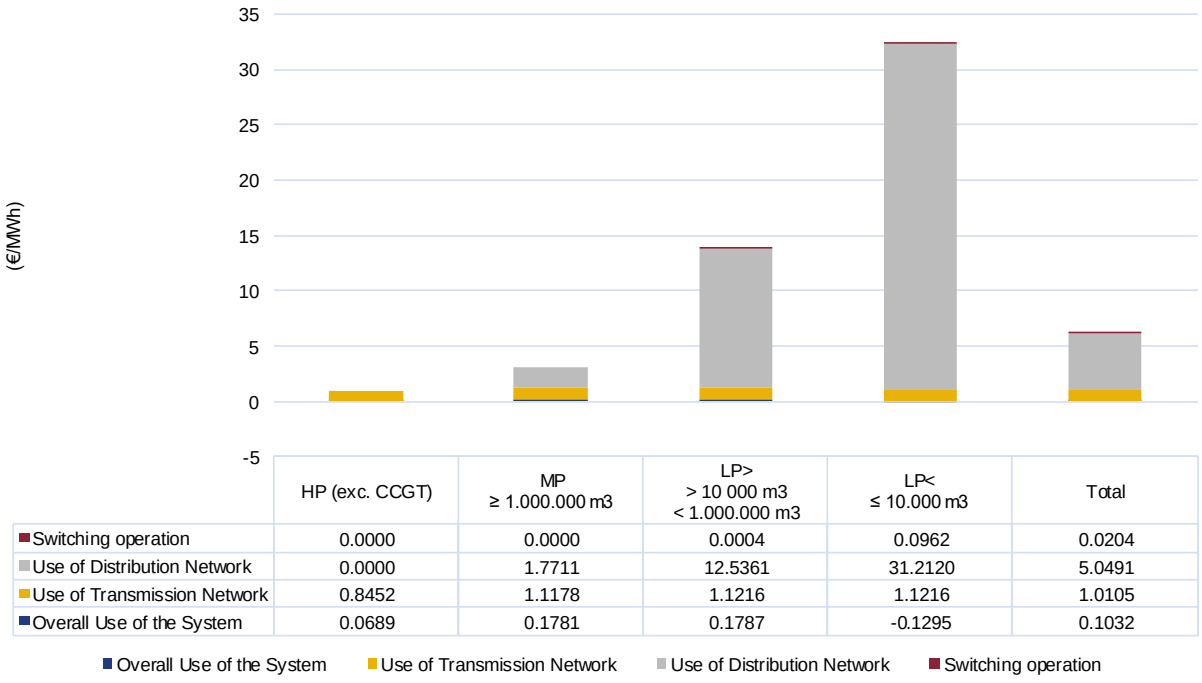
Network access tariffs	Average price 2018-2019 (EUR/MWh)*	Average price 2019-2020 (EUR/MWh)	Change
Network access tariffs	**4.70**	**4.01**	**-14.8%**
Power Plants	1.48	1.26	-14.6%
HP Customers	0.90	0.66	-26.2%
MP Customers	3.12	2.35	-24.8%
LP Customers with an annual consumption above 10,000 m3	13.75	10.74	-21.9%
LP Customers with an annual consumption lower than or equal to 10,000 m3	32.21	30.02	-6.8%

* Application of 2018-2019 tariffs to the demand forecasted for 2019-2020.

Source: ERSE data, Note: high pressure (HP), medium pressure (MP), low pressure (LP)

The following figures show the disaggregation and the structure of the average price of network access tariffs by the various tariffs which compose them, for each pressure level. The average price of the high pressure access tariff does not include power plants.

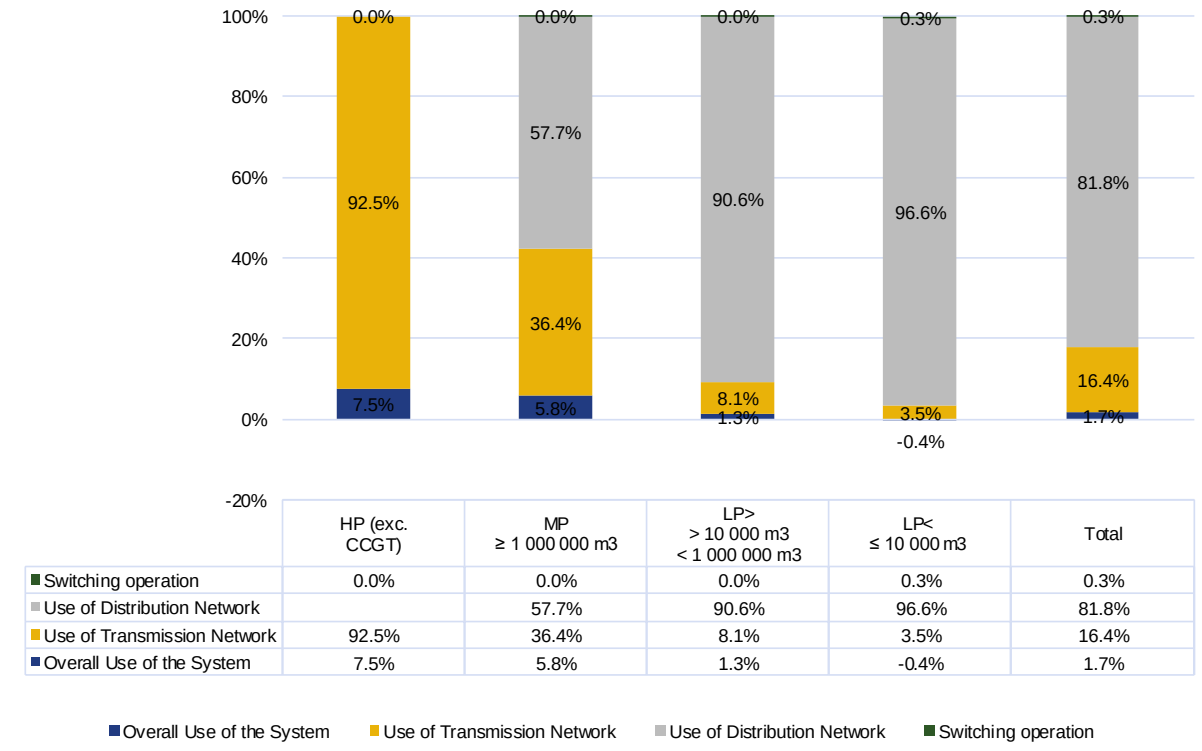
Figure 4-4 – Breakdown of the average price of network access tariffs, in the tariff year 2019-2020



	HP (exc. CCGT)	MP ≥ 1.000.000 m3	LP> > 10 000 m3 < 1.000.000 m3	LP< ≤ 10.000 m3	Total
Switching operation	0.0000	0.0000	0.0004	0.0962	0.0204
Use of Distribution Network	0.0000	1.7711	12.5361	31.2120	5.0491
Use of Transmission Network	0.8452	1.1178	1.1216	1.1216	1.0105
Overall Use of the System	0.0689	0.1781	0.1787	-0.1295	0.1032

Source: ERSE data

Figure 4-5 - Structure of the average price of network access tariffs, in the tariff year 2019-2020



	HP (exc. CCGT)	MP ≥ 1 000 000 m3	LP> > 10 000 m3 < 1 000 000 m3	LP< ≤ 10 000 m3	Total
Switching operation	0.0%	0.0%	0.0%	0.3%	0.3%
Use of Distribution Network		57.7%	90.6%	96.6%	81.8%
Use of Transmission Network	92.5%	36.4%	8.1%	3.5%	16.4%
Overall Use of the System	7.5%	5.8%	1.3%	-0.4%	1.7%

Source: ERSE data

REGULATORY METHODOLOGIES FOR DETERMINING ALLOWED REVENUES

In the natural gas sector, a new regulatory period begins in 2020. For the first time, the period will last four years (2020-2023) and will coincide with the calendar year (1 January to 31 December) and not with the gas year (1 October to 30 September), as it had previously. Thus, the parameters defined for the new regulatory period are applied from 2020 on, although the change in the tariff period occurred in October 2019. The parameters in force in 2018-2019 were applied during 2019.

The regulatory models applied to each of the regulated activities are summarised below, with an emphasis on the changes resulting from the new regulatory period:

- Reception, Storage and Regasification of LNG: application of a price cap[108] methodology for operational costs (OPEX[109]) and of a rate of return methodology for CAPEX[110]; the application of a mechanism to ease tariff adjustments that recognises positive externalities for the entire SNGN associated with this activity will be kept in the new regulatory period.
- Underground Storage: price cap[111] methodology for OPEX regulation and rate of return methodology for CAPEX; the application of a mechanism to ease adjustments to authorised revenues, as in the Reception, Storage and Regasification of LNG will be kept in the new regulatory period.
- Natural Gas Transmission: application of a price cap[112] methodology for operational costs (OPEX) and of a rate of return methodology for CAPEX; a mechanism to mitigate the effects associated with the volatility of demand in terms of authorised revenues recoverable via the application of the tariffs will be kept in the new regulatory period.
- Global Technical System Management: application of a revenue cap incentives methodology for operational costs (OPEX) and of a rate of return methodology for CAPEX.

[108] The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is re-gasified energy.

[109] *Operational expenditure*

[110] *Capital expenditure*

[111] The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is extracted/injected energy.

[112] The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is the capacity used in commercial point.

- Switching operator: from gas year 2019-2020, the supplier switching activity was separated[113] and subjected to a revenue cap methodology for operational costs (OPEX) and accepted costs for CAPEX.
- Natural Gas Distribution: price cap[114] methodology for OPEX and rate of return methodology for CAPEX; a mechanism to recover authorised revenues associated with the evolution of demand was eliminated;
- Suppliers of Last Resort: price cap[115] methodology plus remunerated working capital. Concessionary companies have the right to an additional revenue of 4€ per customer (number of customers at the beginning of the regulatory period). In the natural gas sector, for the first time, reference costs were set for the retail market.

The annual efficiency factors applied to OPEX were (i) 2% in the reception, storage and regasification of LNG; (ii) 3% in transmission activity; (iii) 2% in Global Technical System Management; (iv) 3% in underground storage; (v) 2% and 5%, per company, in distribution; and (vi) 2% for all suppliers of last resort.

Additionally, the following changes were also implemented, of which the following stand out: (i) differentiated acceptance of investments, taking into account their nature and the fulfilment of their initial objectives and (ii) sharing the results of the application of the efficiency targets imposed by the regulator between companies and consumers.

Attention should also be placed on the methodology that is being used for indexing the cost of capital, which enables the evolution of the economic and financial context to be reflected, thereby compensating own and other capital[116]. Therefore, the remuneration rates are updated based on the yields on Treasury Bonds. Given the volatility of the market indicators, a cap and a floor were established.

CONTESTATION OF TARIFF DECISIONS

As regards appeals against a decision or methodology used by the regulatory authority, under the terms of Article 41(1) of Directive 2009/73/EC, reference should be made to the legal actions filed by the natural

[113] Until 2019, the supplier switching activity was performed by the transmission system operator.

[114] The cost drivers that determine the evolution of revenue recoverable by application of the respective tariff are distributed energy and supply points.

[115] The cost driver that determines the evolution of revenue recoverable by application of the respective tariff is average number of customers.

[116] For 2019, the asset remuneration rates were the following: high-pressure activities - 5.40%; distribution activities – 5.70%.

gas distribution system concessionaires against ERSE, challenging annually the tariffs and prices relating to the use of the distribution network in medium and low voltage since July 1, 2010. These lawsuits have been contested and are currently before the competent administrative court, with no decision to date.

NETWORK CONNECTION CHARGES

The connection of a facility to the natural gas network entails costs that depend on the facility to be connected (pressure level, technical requirements), the network itself (distance) and the physical surroundings (route).

The regulatory framework that applies to natural gas network connections, which include the applicable rules and respective charges, is set out in the natural gas Commercial Relations Code (RRC), approved by ERSE, having not been subject to change during 2019.

The established commercial conditions include incentives for an adequate economic signalling of the costs of the facility to be connected to the network, promote an efficient allocation of resources and are based on simple and easy to apply rules in order to ensure their understanding and applicability in the specific case.

The current regulatory framework includes aspects such as mandatory third party access, the type of charges that can be levied on petitioners, rules for calculating network connection charges, budget content and submission deadlines that apply to network operators, terms for connection charge payment, construction of network connection elements or provision of information, as briefly explained below.

Thus, in relation to third party access, the transmission network operator is required to provide a network connection to whoever requests it in accordance with the approved commercial conditions, while distribution network operators are subject to a connection requirement only for customer installations with a minimum annual consumption of 10 000 m^3 (n), as well as installations located within the area of influence of the respective network, defined as the geographic area in the proximity of the existing network (currently 100 m). Natural gas facilities cannot be connected to networks without the prior issuance of a licence or authorisation by the relevant administrative bodies.

Connecting elements are the physical infrastructure that enable the connection of a natural gas facility to the network, classified as network to build or distribution branch. The construction of connecting elements is a network operators' obligation although, for facilities with a minimum annual consumption of 10 000

m^3 (n), petitioner may assume that responsibility. Once built, the connecting elements will form an integral part of the networks, as soon as they are deemed by the operator to be in proper technical operating conditions.

Networks are paid for by natural gas users through network connection charges (according to the rules approved by ERSE) and the use of the network tariffs, which form part of the natural gas bill (the difference between the investment cost and the cost directly attributed to the petitioner through connection charges is borne by all users, through use of the network tariffs).

Finally, it should also be noted that the regulation requires network operators to send information to ERSE, on a half-yearly basis, on the number of connections established, network connection charges paid by petitioners, broken down by type of connecting element, total length of elements built, average budgeting deadlines and average execution times, as well as the number of changes made to existing connections.

4.1.3 MECHANISMS FOR CONGESTION MANAGEMENT AND ALLOCATION OF THE AVAILABLE CAPACITY IN THE INTERCONNECTIONS

The mechanisms for capacity allocation and congestion management in the SNGN infrastructure are established in accordance with the principles laid down in the RARII, which is approved by ERSE.

The RARII integrates the principles laid down in Commission Regulation (EU) No 2017/459 of 16 March 2017, establishing a network code on capacity allocation mechanisms in gas transmission systems. This Commission Regulation is complementary to Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009, on conditions for access to the natural gas transmission networks.

RARII establishes the possibility of allocating capacity for horizons longer than the so-called "capacity allocation year", which runs between 1 October and 30 September of the following year. In the case of interconnections, the capacity is allocated for the 5 following years on the virtual point that links the two physical interconnections (Iberian VIP). The bundled capacity in the interconnection is allocated by means of the PRISMA[117] platform.

[117] www.prisma-capacity.eu

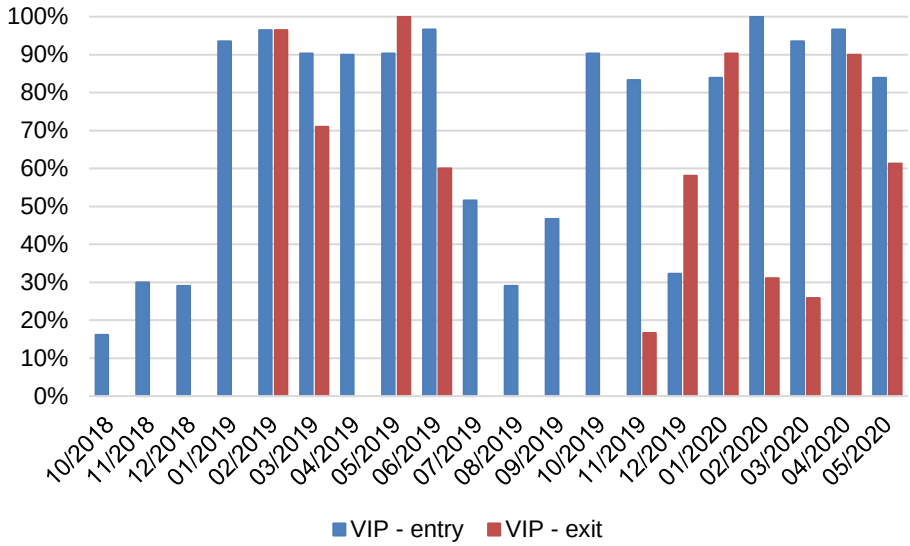
With regard to capacity allocation and congestion management mechanisms at the Virtual Interconnection Point (VIP)[118], the MPAI establishes: (i) the offer of intraday capacity products in the interconnections; (ii) the implementation of the mechanism for capacity surrender by market agents applied to monthly capacity products; (iii) the implementation of the loss of unused reserve capacity; and (iv) the implementation of an oversubscription and buy-back mechanism to bundled capacity products, safeguarding compliance with Commission Decision 2012/490/EU of 24 August 2012, following the amendment of Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009, on conditions for access to the natural gas transmission networks.

The technical manager of the system in coordination with the interconnected network operator (Enagás) provides daily offers of firm capacity on the Iberian VIP, by means of the oversubscription and buy-back mechanism. This joint mechanism was approved in 2018 and was applied throughout 2019. During 2019, the implementation of the harmonised methodology of overbooking and buy-back in the Iberian VIP resulted in the availability of an overcapacity on 270 days, in the direction of Spain to Portugal, and 121 days in the direction of Portugal to Spain. The average value of the firm capacity offered in the VIP by the overbooking and buy-back mechanism was of 13.9 GWh/d and 8.1 GWh/d, in the mentioned directions.

The following chart shows the capacity offered in this way.

[118] VIP, or *Virtual Interconnection Point,* is the aggregation of all international interconnection points in a single virtual point, on which is processed the booking and identification of the crossing capacity between Portugal and Spain.

Figure 4-6 – Monthly percentage of days with firm capacity offer on the Iberian VIP, by means of the oversubscription and buy-back mechanism, since October 2018



Source: ENTSOG

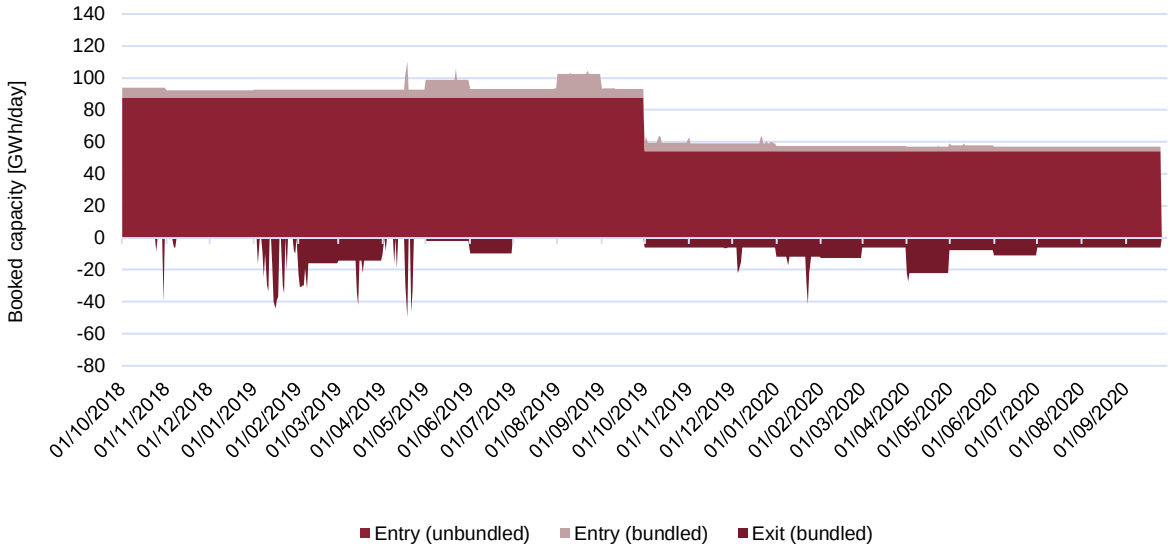
The MPAI foresees the future implementation of MIBGAS, in particular, the implementation of an implicit mechanism for the allocation of capacity at the VIP for transaction of gas products between the virtual balancing points of Portugal and Spain. This mechanism is suspended until the development of the market platform in Portugal and following developments in the market mechanisms.

ACCESS TO INTERCONNECTIONS

Access to interconnections occurred through annual, quarterly, monthly, daily and intraday product auctions, carried out on the PRISMA platform. A significant part of the capacity is contracted long-term in Spain, so it is only assigned in Portugal as unbundled capacity. The bundled products only cover the remaining part of the available capacity.

In 2019, there were no situations where demand for capacity in the VIP exceeded supply, due to a higher usage of the LNG terminal of Sines as a source of supply for the Portuguese market. The following figure shows the bundled and unbundled capacity in 2019 assigned on the PRISMA platform.

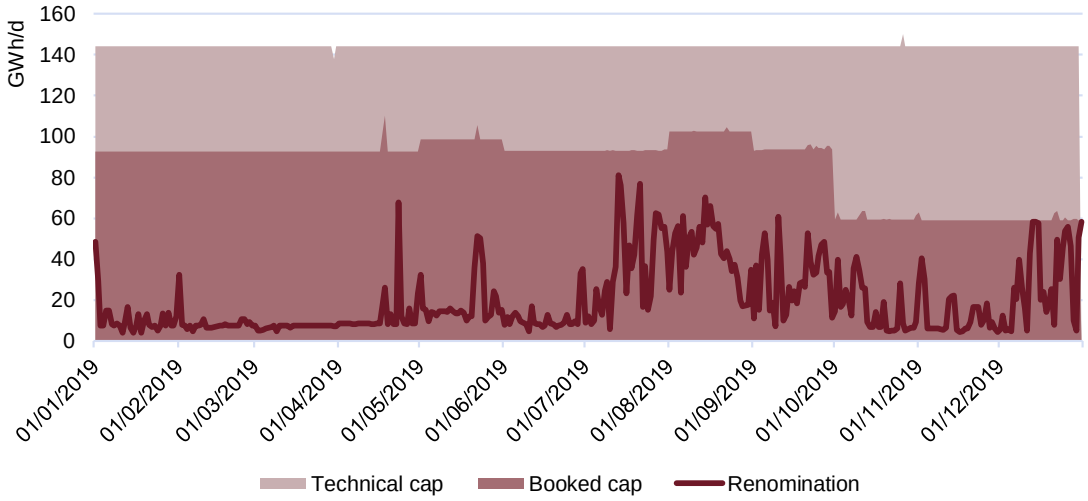
Figure 4-7 – Bundled or unbundled assigned capacity in the interconnection (Iberian VIP), by product



Source: REN Gasodutos data.

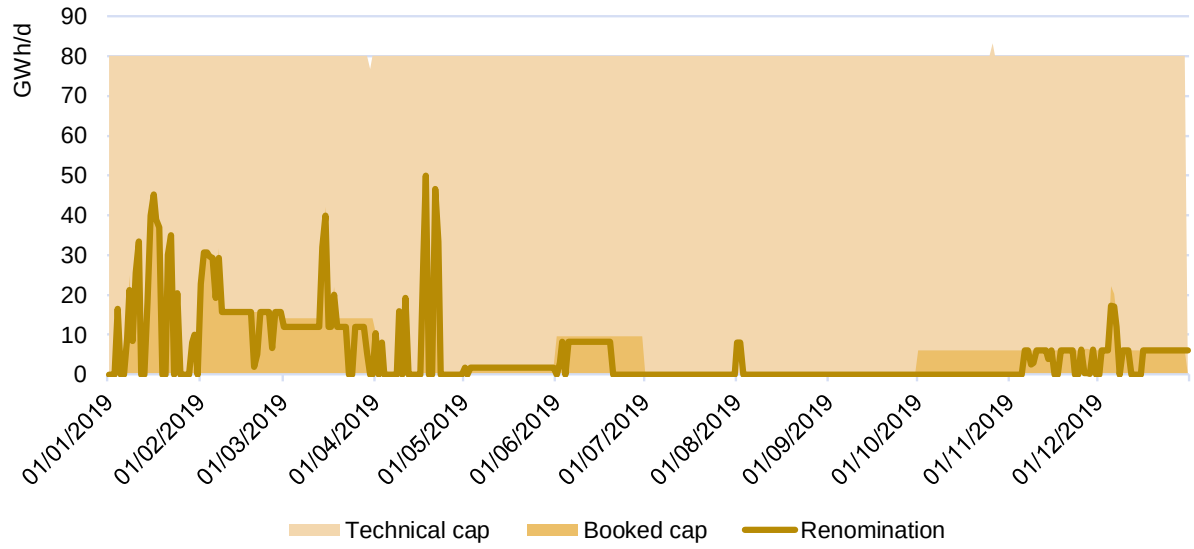
The following two figures show the capacity reserve in the Iberian VIP, compared to the identification submitted by the market agents and the maximum technical offered capacity in the VIP, either in the direction of import (inbound) or export (outbound). 2019 was characterised by a low use of the interconnection and decreasing levels of capacity contracts.

Figure 4-8 – Contracted capacity and bookings in the Iberian VIP in 2019 (import)



Source: ENTSOG

Figure 4-9 – Contracted capacity and bookings in the Iberian VIP in 2019 (export)



Source: ENTSOG

COOPERATION

The Portuguese and Spanish transmission network operators have been cooperating closely with each other to improve the interoperability of the two systems. This cooperation was materialised in agreements for the management of the Portugal-Spain interconnections, with a rationale similar to that of the interconnection agreements provided for in the Network Code on Interoperability and Data Exchange Rules, approved by Commission Regulation (EU) No 2015/703 of 30 April 2015.

Additionally, the assignment of capacity in the Portugal-Spain interconnections has been done in a coordinated way since 2012, anticipating the European regulation for capacity assignment mechanisms itself. That coordinated management has been improving progressively. In 2016, a joint mechanism of *oversubscription and buy-back* for congestions management was approved, and in 2019 regulators issued a proposal for a long term use-it-or-lose-it mechanism, whose public consultation and approval occurred in the first trimester of 2020. CNMC and ERSE approved the coordinated mechanisms in their respective regulations, in the context of the work plan of ACER's Southern Regional Initiative for gas. Additionally, the regulators continued to work together to drive the development of the market for gas products with delivery in Portugal, through the market operator MIBGAS.

MONITORING OF INVESTMENTS MADE BY THE NATURAL GAS INFRASTRUCTURE OPERATORS

National Development and Investment Plan for the Natural Gas Transmission Network

In compliance with the provisions of no. 1 of Article 12-A of Decree-Law N.º 140/2006 of July 26, amended by Decree-Law N.º 231/2012 of October 26, REN Gasodutos, S.A. as operator of the National Natural Gas Transmission Network (RNTGN), submitted to the DGEG its indicative Ten-year Development and Investment Plan for the National Transmission Network, Storage infrastructure and LNG terminals (RNTIAT) for the period 2020-2029 (PDIRGN 2019).

DGEG then submitted the proposal to ERSE, who pursuant to Article 12-A (4) of Decree-Law N.º 140/2006 of July 26, amended by Decree-Law N.º 231/2012 of October 26, must hold a public consultation on its content, lasting 30 days. The consultation took place from 12 February to 19 June 2020.

Within the context of the process for the 3rd PCI list led by the European Commission and in which ACER participated together with NRAs, several activities were carried out, in particular the consistency check between the EU Ten-Year Network Development Plan from ENTSOG and the PDIRGN 2019 as well as the monitoring of implementation of the projects of the 3rd PCI list, amongst them the third interconnection Portugal-Spain (1st and 2nd phase).

Nevertheless, it is important to mention that in the 4th PCI List approved by the European Commission on 31 October 2019, no project is included for the SNGN.

Development and Investment Plan for the Natural Gas Distribution Networks

The 11 natural gas distribution system operators[119] submitted to DGEG their proposals for the Distribution Network Development and Investment Plans for the period 2019-2023 (PDIRD-GN 2018).

In turn, after requesting changes from the various distribution system operators, DGEG sent to ERSE the proposals, and ERSE conducted a public consultation of their contents which began on 10 December 2018 and finished on 28 January 2019.

[119] Setgás, Lisboagás, Lusitaniagás, Beiragás, Medigás, Dianagás, Duriensegás, Paxgás, REN Portgás Distribuição, Sonorgás e Tagusgás.

ERSE's evaluation to the PDIRD-GN 2018 proposals, the opinions received from the Consultative and Tariff Councils and the analysis of the comments received from the public consultation, informed ERSE's overall favourable opinion of the plans.

In its Opinion, presented on 29 March, ERSE stated that the PDIRD-GN proposals reflected different DSO management strategies, that are not framed and harmonised by a common vision for energy policy for a medium and long-term period, which may be partly related to the fact that the Government has not approved any of the previous PDIRD-GN proposals.

ERSE also underlined the importance of these PDIRD-GN proposals being approved by the granting authority. Until this occurs and for the purposes of network tariffs, ERSE can only accept those investments which are carried out by the DSO for safety or maintenance of existing infrastructure.

ERSE considered equally relevant that the approval of the plans should be followed by the definition of clear criteria for the network investment and development decisions, allowing the DSO to be aware, from the beginning, objectives defined by the Government for the SNGN.

Finally, considering the uncertainty of future natural gas demand associated with the ongoing energy transition, which may be enhanced by the introduction of alternatives to natural gas, ERSE considered wise to ensure the tariff neutrality of the PDIRD-GN 2018 proposals. ERSE considered that the investment proposals, if they are approved by the Government, should be reduced by at least 17 million euros (6% of the total proposed investment). This decrease should be guided by the medium and long-term priorities for energy policy.

4.2 PROMOTING COMPETITION

4.2.1 WHOLESALE MARKET

4.2.1.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

Currently, there is no reference for price formation based on an organised or regulated market for the natural gas wholesale market in Portugal. The start of spot product trading with delivery in Spain, in December 2015, on the platform managed by MIBGAS S.A. (the entity authorised by the Portuguese

government through Order n.º 643/2015 to manage the organised gas spot market), did not change the situation. In fact, the beginning of trading through MIBGAS with delivery in the Portuguese area is still pending specific regulation, and the trading volumes recorded in the organised market with delivery in Spain were rather low.

On the other hand, Portugal is not a natural gas producer, so negotiation and procurement constitute the first segment of the sector's value chain. In this context, the Portuguese market is supplied with natural gas through entries into the system via the interconnection with Spain (Campo Maior and Valença) and the port terminal at Sines (LNG terminal), by means of long-term contracts.

The supply of natural gas through the interconnections is essentially based on the contract between Sonatrach and the Galp group (representing about 9% of the import balance in 2019), which includes obligations to purchase and the payment of quantities consumed or not (take or pay clause). This contract assumes the existence of annual supplies of around 2.5 bcm[120] for the duration of the contract, i.e. until 2020.

Supply through the LNG terminal is essentially based on LNG agreements with Nigeria that also include a take or pay clause. This contract follows price rules defined in the contracts, and envisages an annual volume of approximately 3.42 bcm. In 2019, nearly 87% of the natural gas was supplied through LNG.

Other agents of lesser importance in the Portuguese market supply natural gas from Spain, (where there is a liquid wholesale market, with supplies from Algeria, Nigeria, Trinidad and Tobago, Egypt, Qatar, Oman, Norway, Libya and Equatorial Guinea, among others) and also through the entry of carriers through the Sines LNG terminal (see also Figure 4-12).

TRANSPARENCY

Although a process is underway to implement transparency and integrity rules at European level, it is recognised that the use of long-term natural gas contracting mechanisms hinders the transparency and symmetry of the information on the market. This is also the case in the natural gas sector in Portugal, where, despite the existence of regulated mechanisms for wholesale contracting, information about the operation of the market is still scarce. However, the reporting of transactions and trading orders associated

[120] Billion cubic meters

with contracts negotiated in organised market platforms began on 5 October 2015, in accordance with the schedule provided for in Article 12 of the Commission Implementing Regulation (EU) no. 1348/2014 of 17 December, on data reporting implementing Article 8(2) and Article 8(6) of the REMIT.

Despite the fact that the Iberian natural gas hub, MIBGAS, began operating in December 2015, with the trading of spot products delivered in Spain, there is still no schedule for the start of spot trading with delivery in Portugal; this makes it difficult to define reference prices and trading market records for both the spot market and the forward market, and is an added difficulty in the task of providing the natural gas market with more information and transparency.

The reporting of transactions and trading orders associated with contracts regarding the transmission of natural gas concluded following an explicit primary capacity allocation by the transmission network operator and contracts negotiated outside the organised market platforms began on 7 April 2016 across the entire European Union, in accordance with the schedule laid down in Article 12 of the Commission Implementing Regulation (EU) n.º 1348/2014 of 17 December, on data reporting implementing Article 8(2) and Article 8(6) of the REMIT, as well as other relevant market information relating to the use of LNG and natural gas storage infrastructures and to the loading and unloading operations by methane carriers.

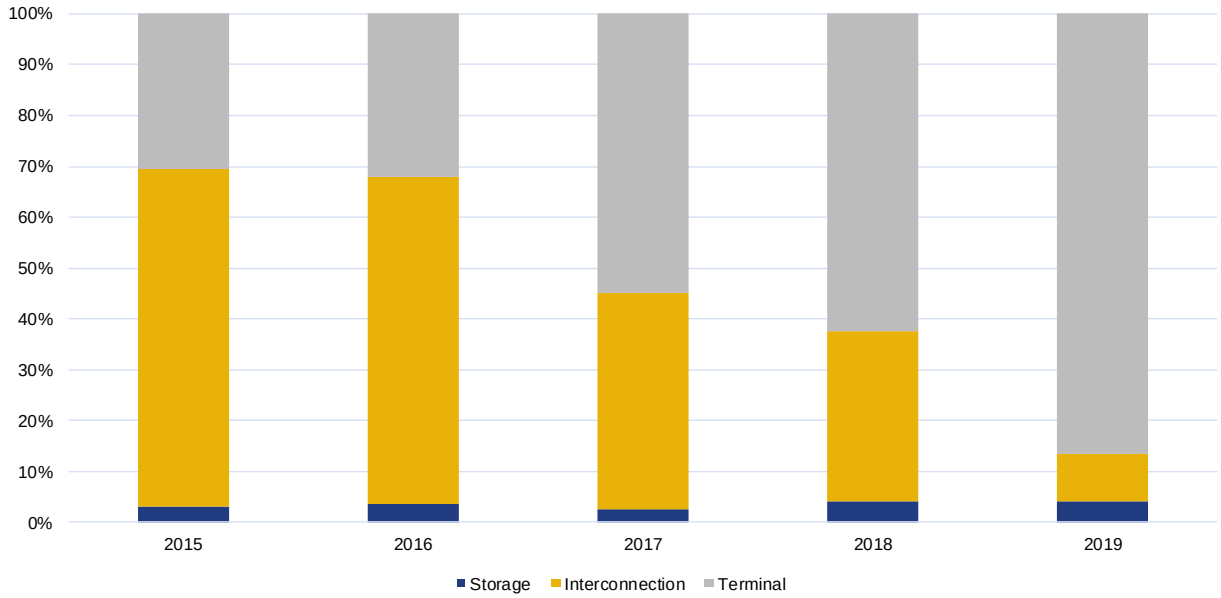
As the information on the transactions includes, in itself, commercially sensitive information, it is clear that, in the regulatory context, one can foresee mechanisms which, on the one hand, ensure the protection of commercially sensitive information and, on the other hand, provide the conditions for the integrity of the market and its transparency.

ERSE's 2016 regulatory review of the natural gas sector incorporated specificities related to the application of REMIT.

NATURAL GAS SUPPLY

The breakdown of natural gas injections in the transmission grid is described in Figure 4-10 .

Figure 4-10 – Breakdown of transmission grid injections by infrastructure, 2015 to 2019



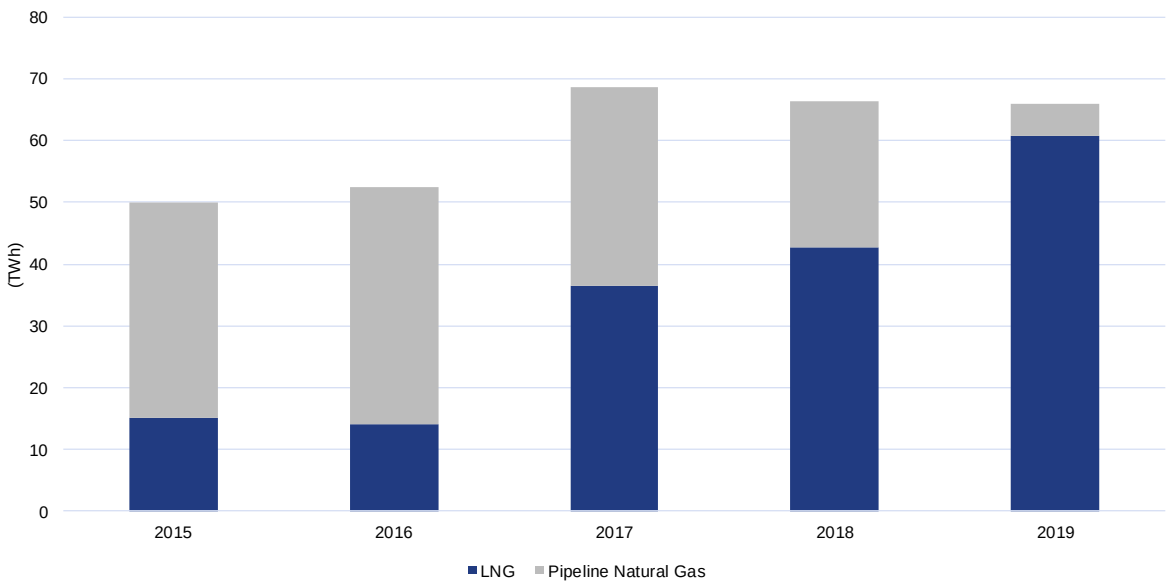
Source: REN Gasodutos, REN Armazenamento, and REN Atlântico data

Until 2016, the terminal was less important compared to the use of the interconnections, both at Campo Maior and Valença. Since 2017, the Sines Terminal has been the main supply route, accounting in 2019 for approximately 87 % of the total contracted gas.

As Portugal does not have its own production, the main countries supplying natural gas are historically Algeria and Nigeria. This is done mainly through long-term take or pay contracts.

Figure 4-11 shows the evolution of the volumes of the import balance of natural gas in Portugal for LNG and natural gas from the cross-border interconnection with Spain. In 2019, a total volume of 66 TWh was imported.

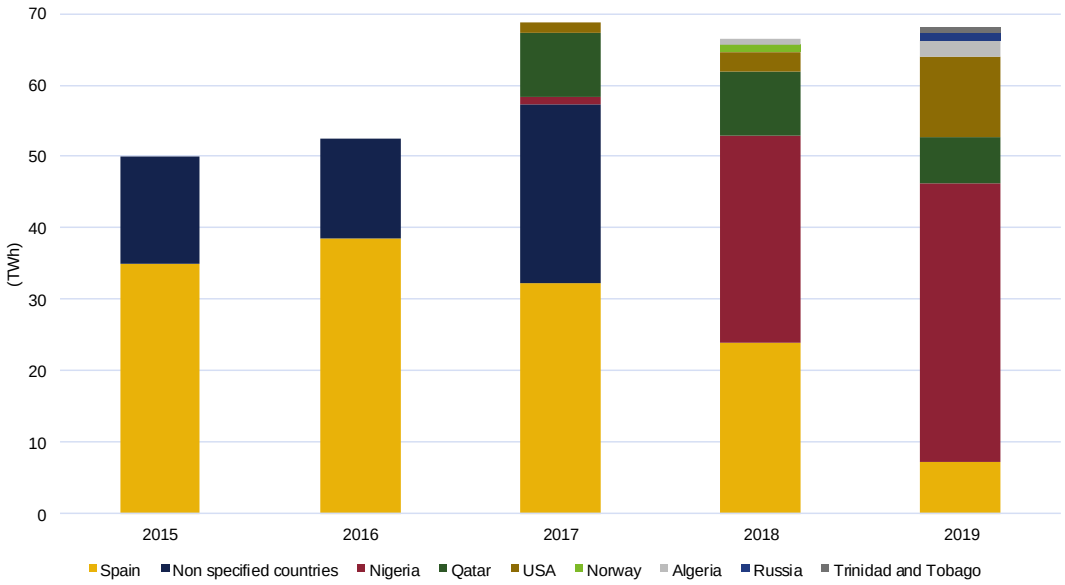
Figure 4-11 - Evolution of imported volumes of natural gas, 2015 to 2019



Source: EUROSTAT, Elaboration ERSE

Figure 4-12 shows the origin of natural gas from 2015 to 2019.

Figure 4-12 - Origin of imported natural gas, 2015 to 2019



Source: EUROSTAT, Elaboration ERSE

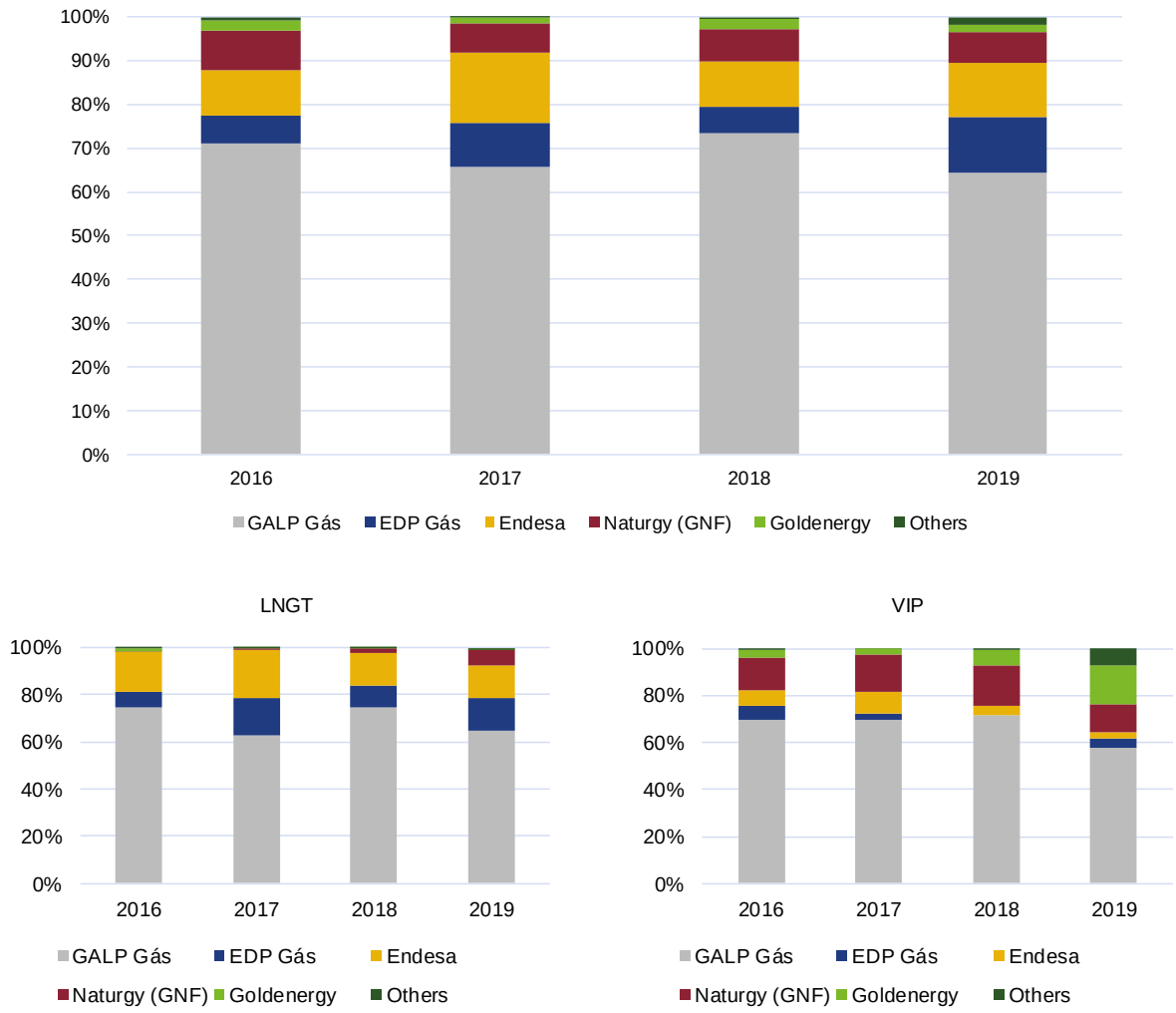
The supply from Nigeria refers to contracted LNG deliveries at the Sines terminal. On the other hand, there is a strong presence from Spain, whose volumes are associated with imports from Algeria by pipeline, under the Sonatrach contract.

Regarding the remaining import volumes, they refer to the reception of LNG at the Sines terminal. In 2019, it is worth highlighting contributions from Qatar and, particularly, the United States as a result of the existence of a fairly liquid natural gas market at the Henry Hub and the installed liquefaction capacity on the East Coast of the United States, which makes it possible to export natural gas by sea to the most diverse geographies of the planet.

EFFECTIVENESS OF COMPETITION

Figure 4-13 presents the natural gas inflows in the RNTGN considering the interconnections by pipeline (VIP) and the Sines terminal (LNGT) between 2016 and 2019.

Figure 4-13 - Entries in RNTGN (LNGT+VIP), 2016 to 2019



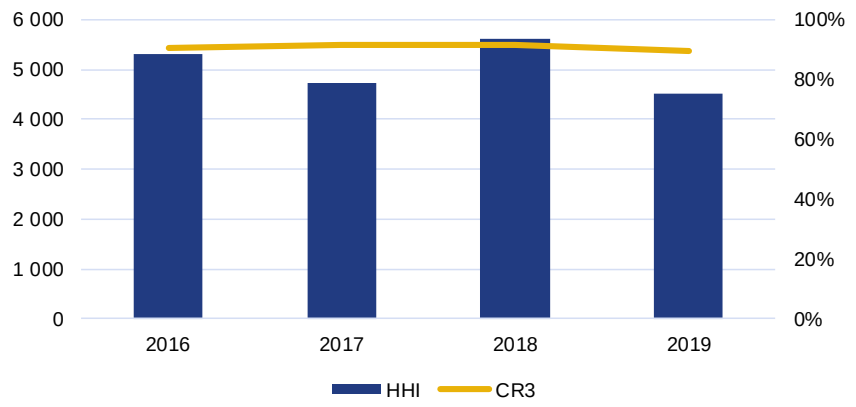
Source: REN, Elaboration ERSE

Regarding the companies responsible for national supply, and when the total entries in the RNTGN are analysed, it can be seen that Galp accounts for almost 65% of the 2019 entries, this being the smallest amount in the analysed time frame. In 2019, market agents Goldenergy, through VIP imports, and EDP Gás, from the terminal, both emerge in second place for imports. Imports from agents such as EDP Gás and Endesa, resulted mainly from their needs to supply their CCGT plants.

Figure 4-14 shows the concentration indexes, HHI and CR3[121], in the RNTGN (LNGT + VIP) entries between 2016 and 2019.

[121] The CR3 index refers to the market share of the three largest market agents.

Figure 4-14 – Concentration indexes in RNTGN (LNGT + VIP) entries, 2016 to 2019

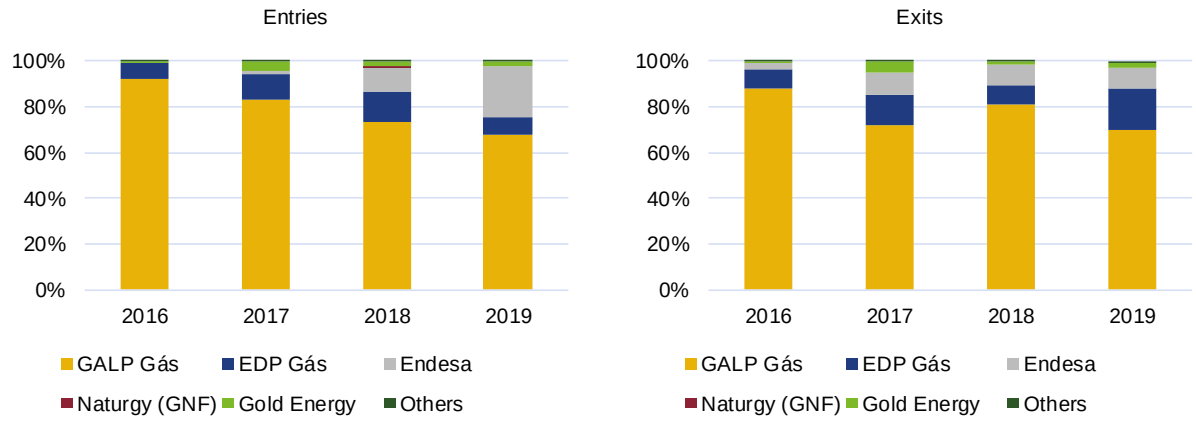


Source: REN, Elaboration ERSE

The highest HHI figures for RNTGN entries, i.e. higher market concentration, can be found in 2016 and 2018. A lower use of CCGTs has a decisive influence on the value of RNTGN inflows by both Endesa and EDP Gás, which has a decisive impact on the increase in market concentration. In 2019, market concentration was reduced as a result of a higher CCGT utilisation by those market agents.

Figure 4-15 shows the use of underground storage between 2016 and 2019.

Figure 4-15 – Use of underground storage, 2016 to 2019

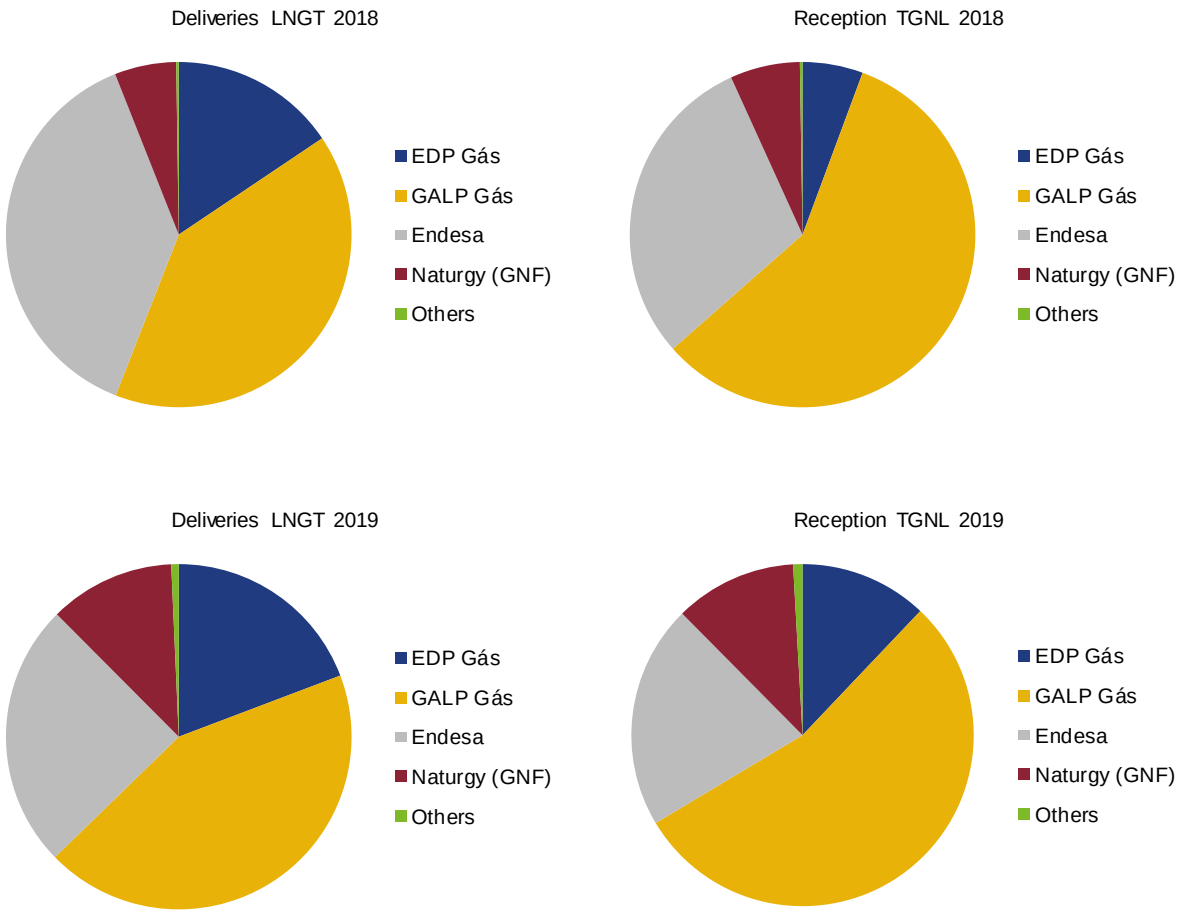


Source: REN, Elaboration ERSE

The same market agents that are relevant in other infrastructure display similar use patterns as regards the entries and exits in the underground storage.

Figure 4-16 shows the market shares of LNG swaps at the Sines terminal, in 2018 and 2019.

Figure 4-16 – Swaps in LNGT, 2018 and 2019

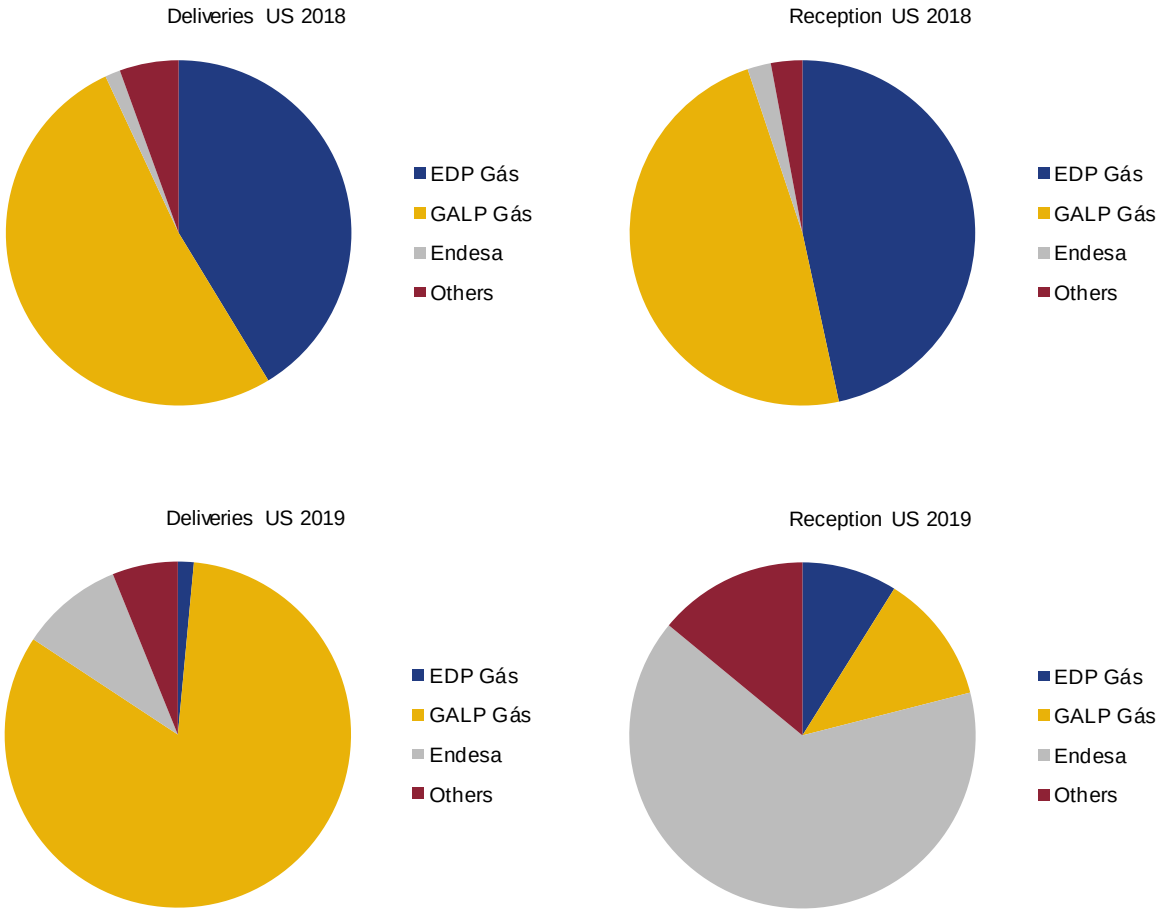


Source: REN, Elaboration ERSE

The same relevant market agents can be found in 2018 and 2019.

Figure 4-17 shows the market share of natural gas swaps in underground storage (US), in 2018 and 2019.

Figure 4-17 – Swaps in US, 2018 and 2019



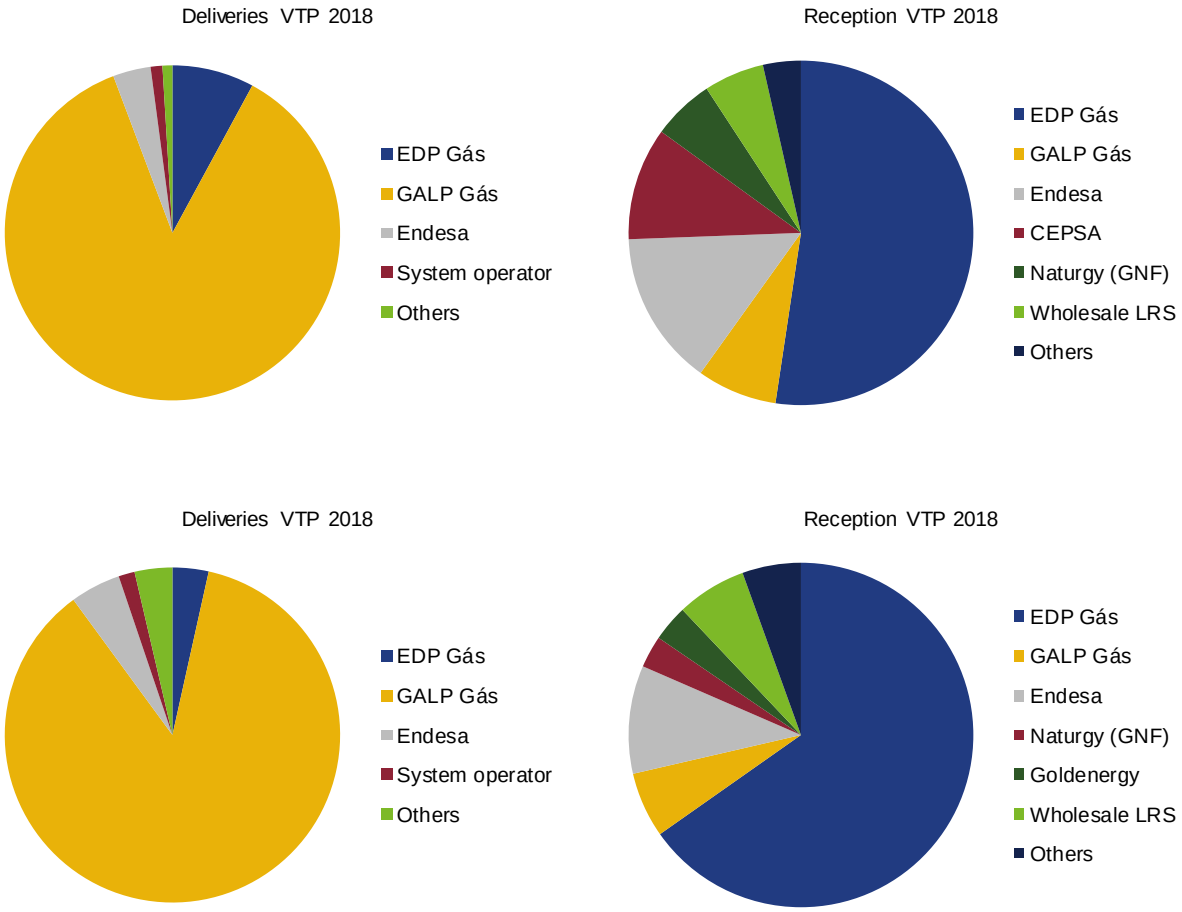
Source: REN, Elaboration ERSE

In 2018, swaps in underground storage seemed to be limited to simple intertemporal swaps as the weights recorded in deliveries were very similar to the weights recorded in the receipts.

Regarding 2019, Endesa had a strong presence as a natural gas reception entity in underground storage.

Figure 4-18 shows the market share of natural gas swaps in the Virtual Trading Point (VTP), in 2018 and 2019.

Figure 4-18 – Swaps in VTP, 2018 and 2019

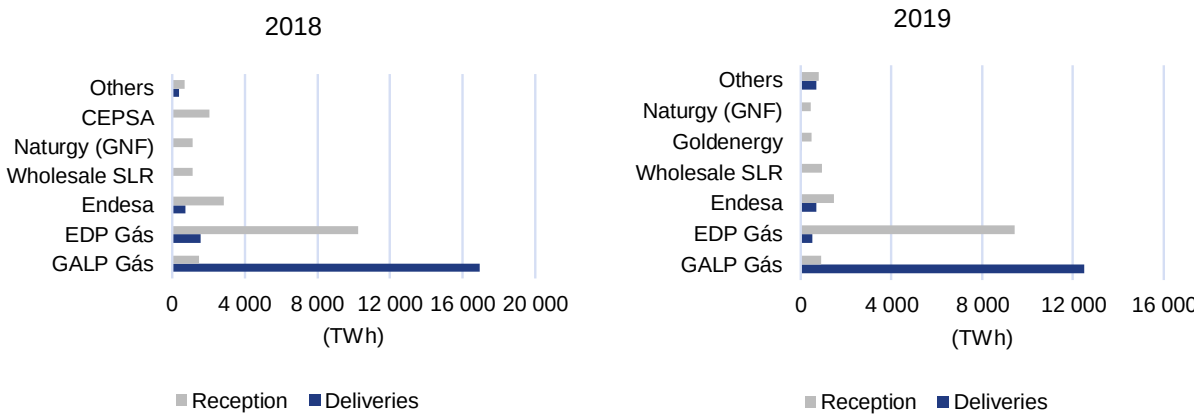


Source: REN, Elaboration ERSE

Contrary to what happened in the terminal or in underground storage, where exchanges appear to be mainly swaps between market agents, Figure 4-19 shows that in exchanges in the VTP, each agent clearly took a position either of seller or of buyer, suggesting that this is the preferred point of exchange for natural gas in the SNGN.

GALP is the main seller and had VTP sales shares higher than 85%, while its purchase volumes were much lower, between 6% and 8%.

Figure 4-19 – Exchanges in volume (VTP), 2018 and 2019



Source: REN, Elaboration ERSE

On the other hand, EDP emerged as the main VTP buying agent, with market shares greater than 50%, while its sales shares were much lower, between 3% and 8%. Endesa was also primarily a buyer, with shares between 10% and 15%, although it also had relatively significant shares of sales: 4 % to 5%.

Concerning the auctions for the release of natural gas surplus quantities from the SNGN supplier, it should be noted that there was no auction during the 2018-2019 gas year.

NETWORK BALANCING RULES

As trading of spot products with delivery in Portugal via the MIBGAS, S.A. platform, as designated by Commission Regulation (EU) No 312/2014, was still pending specific regulation in 2016 ERSE approved , Directive No 16/2016, of 27 October. The Directive provided that until the aforementioned trading begins, the OMIP platform would be used to host auctions for the purchase or sale of natural gas in which the transmission network operator acts as sole purchaser or seller in order to balance the network.

A process was began in 2019 to revise MIBGAS market rules seeking to include the negotiation of products with delivery in Portugal and Spain as well as the implementation of an implicit capacity attribution mechanism. Nevertheless, by the end of the year it was clear that this approval process could not be completed, which led to opting for a set of Portuguese rules, specific for products with delivery in Portugal, which should enter into force during 2020.

The entry into force in 2016 of the new network balancing rules supports the development of the wholesale natural gas market, as network users are financially encouraged to keep their portfolios balanced. In fact, any imbalances between supply and consumption in the network users' balancing portfolios are subject to the application of charges that reflect both market prices and the prices of the balancing actions carried out by the transmission network operator, subject to a slight adjustment, in accordance with the rules laid down in Commission Regulation (EU) No 312/2014 of 26 March 2014. Under these conditions, network users are encouraged to balance their portfolios even if, for that purpose, they have to resort to market transactions, as that option is less expensive than maintaining the existing imbalances.

4.2.2 RETAIL MARKET

From the point of view of the development of the gas retail market, we continued to witness a consolidation of the liberalised market, in terms of overall natural gas consumption, and of the number of customers, partly due to the phasing out of regulated tariffs for end-customers.

At the end of 2019, more than 98% of natural gas consumption within the conventional segment (excluding standard regime power plants) was supplied by suppliers on the liberalised market.

On the liberalised market, at the end of 2019, there were 13 suppliers, 12 of them operating in the household consumer segment. During 2019, about 14% of the consumers switched supplier.

4.2.2.1 MONITORING THE PRICE LEVEL, TRANSPARENCY LEVEL AND THE LEVEL AND EFFECTIVENESS OF MARKET OPENING AND COMPETITION

METHODOLOGY FOR MONITORING REFERENCE PRICES AND AVERAGE PRICES CHARGED IN THE RETAIL MARKET

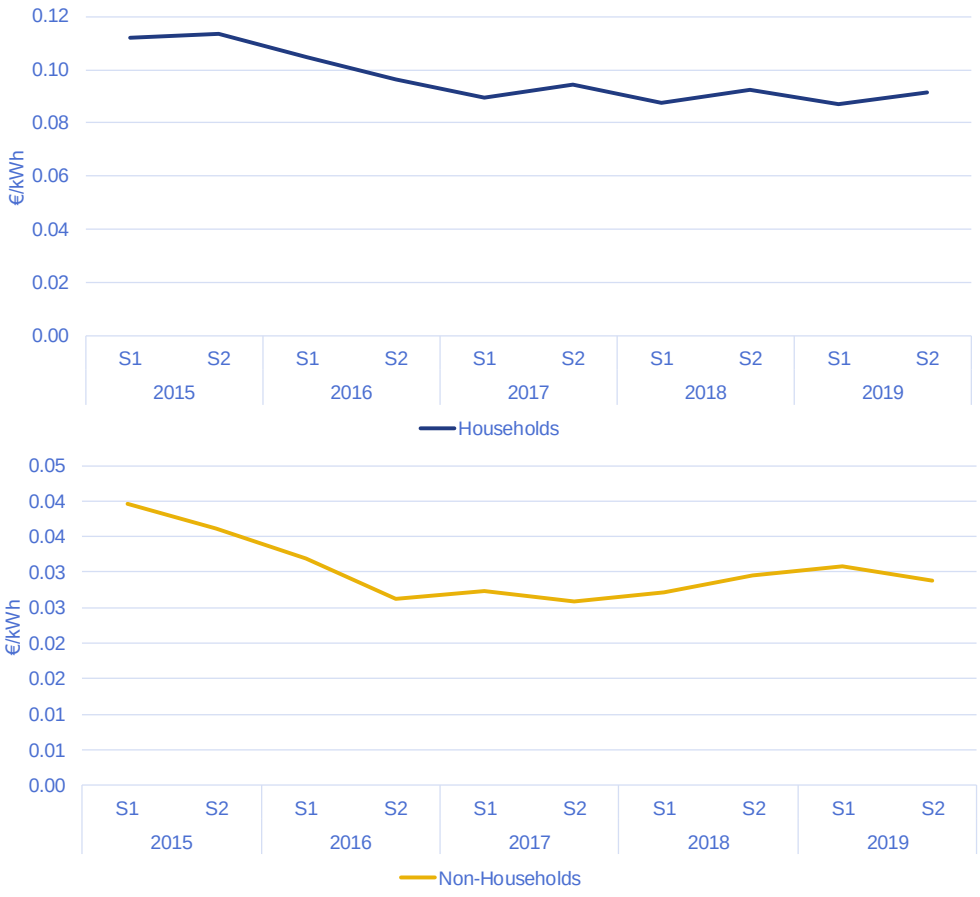
Under the obligations of price disclosure by the suppliers, as well as ERSE's responsibilities regarding the monitoring of the natural gas market and information to consumers and other agents on prices charged, suppliers send ERSE information on the average prices charged in the retail market[122], as well as updated information regarding the reference prices charged or expected to be charged in the sale of natural gas for all Low-Pressure (LP) supply with an annual consumption lower than or equal to 10 000 m^3.

[122] Pursuant to Order no. 3677/2011, of 24 February.

Information regarding the average prices charged in the market, reported on a quarterly basis by natural gas suppliers to ERSE, is used by ERSE to monitor and supervise the retail natural gas market, and also serves as an information tool for the reports produced by official statistical data bodies (INE or EUROSTAT, for example).

Figure 4-20 highlights the evolution of electricity prices both for household consumers and non-household consumers. During the period analysed, there is a general decrease in natural gas prices for these customers. This results essentially from the decrease in the cost of access to the natural gas networks, which has prevailed in Portugal in the last few years. It is worth noting that the prices presented in this figure include levies, taxes and VAT for household consumers, but exclude VAT and the recoverable levies and taxes, for non-household consumers.

Figure 4-20 - Evolution of natural gas prices for household consumers (with levies, taxes and VAT) and non-household consumers (without VAT and recoverable levies and taxes)



Reference prices are understood to be the set of tariffs, tariff options and respective prices and indexes per billing variable offered by suppliers to their customers, as well as the conditions for applying the tariffs, namely the characteristics of consumption, duration of contracts and conditions for the revision of prices. Reference prices constitute the supplier's basic sales offer, which does not prevent them from applying differentiated special contractual conditions such as discounts or other promotional campaigns.

This information must be sent on an annual basis (end of July) and whenever there is any change in prices or contractual conditions. The information provided to ERSE by suppliers is included in comparison and decision-making support tools for consumers, which are further detailed in the transparency chapter, made available by ERSE on its website[123]. These tools are complemented with the publication of quarterly newsletters about the reference market prices in LP<[124].

The analysis of the market offers reveals that, in December 2019, for the most representative consumer type in the household segment [125], there were eight suppliers operating in the market with a total of 37 gas-only offers and 73 dual offers (natural gas and electricity), totalling 110 commercial offers.

In the referenced period, the commercial offer with the lowest annual bill had a value of 165€/year, corresponding to a gas-only offer. The difference between this offer and the most expensive one is 77€/year (47%). The dual natural gas commercial offer with the lowest value of the natural gas component amounted to 190€/year, corresponding to a discount of approximately 33% compared to the most expensive offer[126].

Figure 4-21 shows the evolution of market offer prices, as well as transitional tariff prices, in 2018 and 2019. In 2019, the prices of commercial offers for natural gas remained stable, keeping in general the 2018 values. On the contrary, dual offer prices changed significantly, reaching their highest value in the first semester of 2019, due to a new offer that appeared at that time. It is worth noting the coupling of the maximum and minimum prices in the 2nd and 3rd quarters of 2019.

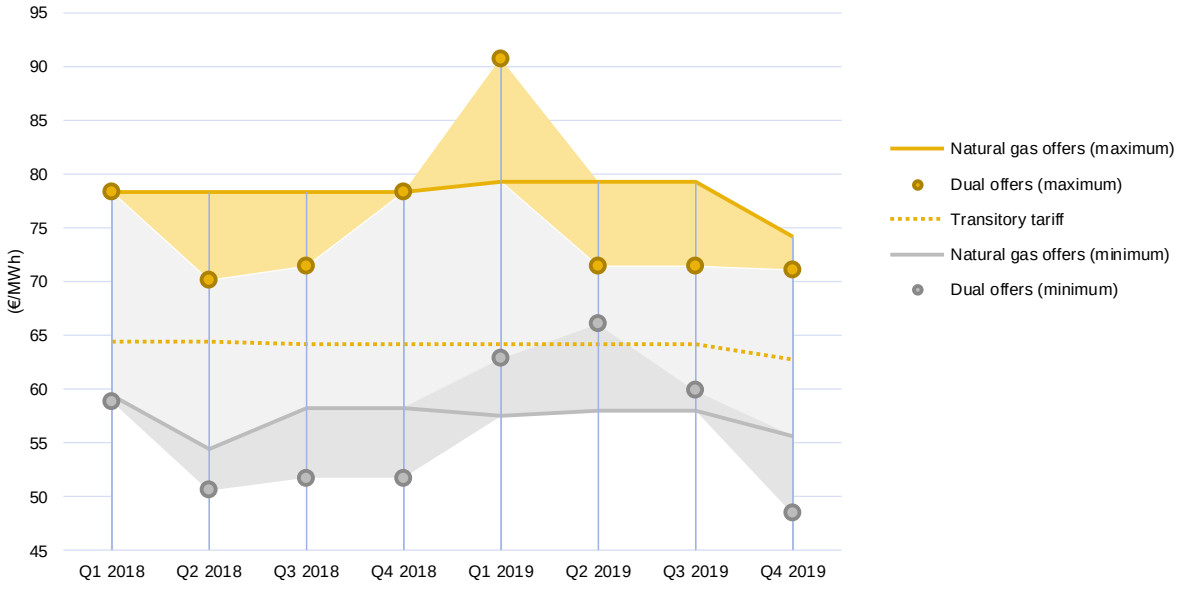
[123] At https://simulador.precos.erse.pt/.

[124] Available at Natural Gas Commercial Offers Newsletters.

[125] Representative as regards energy units. Corresponds to consumer type 2 (couple with children and no central heating), with an annual natural gas consumption on 292 m^3.

[126] Real prices without levies and taxes.

Figure 4-21 - Price of commercial offers of natural gas (gas-only and dual) consumer type 2 in 2018 and 2019



TRANSPARENCY

Continuing its efforts to provide information about reference market prices to natural gas consumers, as well as IT tools which help consumers choose their supplier, ERSE hosts on its website an online simulator which allows comparison of the market prices offered in mainland Portugal for facilities with in LP<[127]. The price simulator allows comparison of the prices offered by all the registered suppliers operating in mainland Portugal[128], allowing consumers to choose their natural gas supplier by comparing the prices and the commercial conditions offered by each supplier.

In order to guarantee the transparency of the information made available to consumers by suppliers, ERSE also checks that the suppliers publish on their websites the offers which are being practised on the market, in terms of both price and commercial conditions, and that they are in line with the information on reference prices sent to ERSE as part of its monitoring. In situations where there are discrepancies or gaps, ERSE reserves the right to not publish the commercial offers in question in its simulator until the problems identified are resolved by the suppliers.

[127] Available at https://www.erse.pt/simuladores/precos-de-energia/

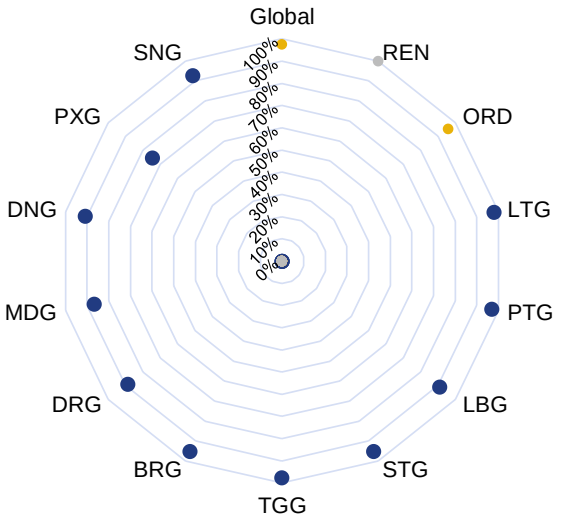
[128] At the Autonomous Regions there is no natural gas supply subject to ERSE regulation.

Rules are also in force regarding the information to be made available on customer invoices, namely information regarding the invoicing frequency, the cost of network access tariffs, the volume of natural gas measured and energy conversion factors (from physical units, m^3 to energy units, kWh)[129], and the labelling of natural gas. The rules for access to information regarding natural gas consumption by customers are regulated by ERSE under the terms of the Measuring, Reading and Data Availability Guide [*Guia de Medição, Leitura e Disponibilização de Dados*][130].

EFFECTIVENESS OF COMPETITION

In terms of effective market opening, Figure 4-22 shows the part of the market (in consumption) that was supplied by suppliers on the liberalised market in 2019. It can be seen that nearly 98% of total consumption, with the exception of power plants due to their significant volume in terms of consumption, is provided by market suppliers, and this value is generally higher among the leading natural gas distributors.

Figure 4-22 – Liberalised market penetration by DSO and TSO (total energy consumption, excluding electricity-generating plants), 2019



Source: REN Gasodutos data.

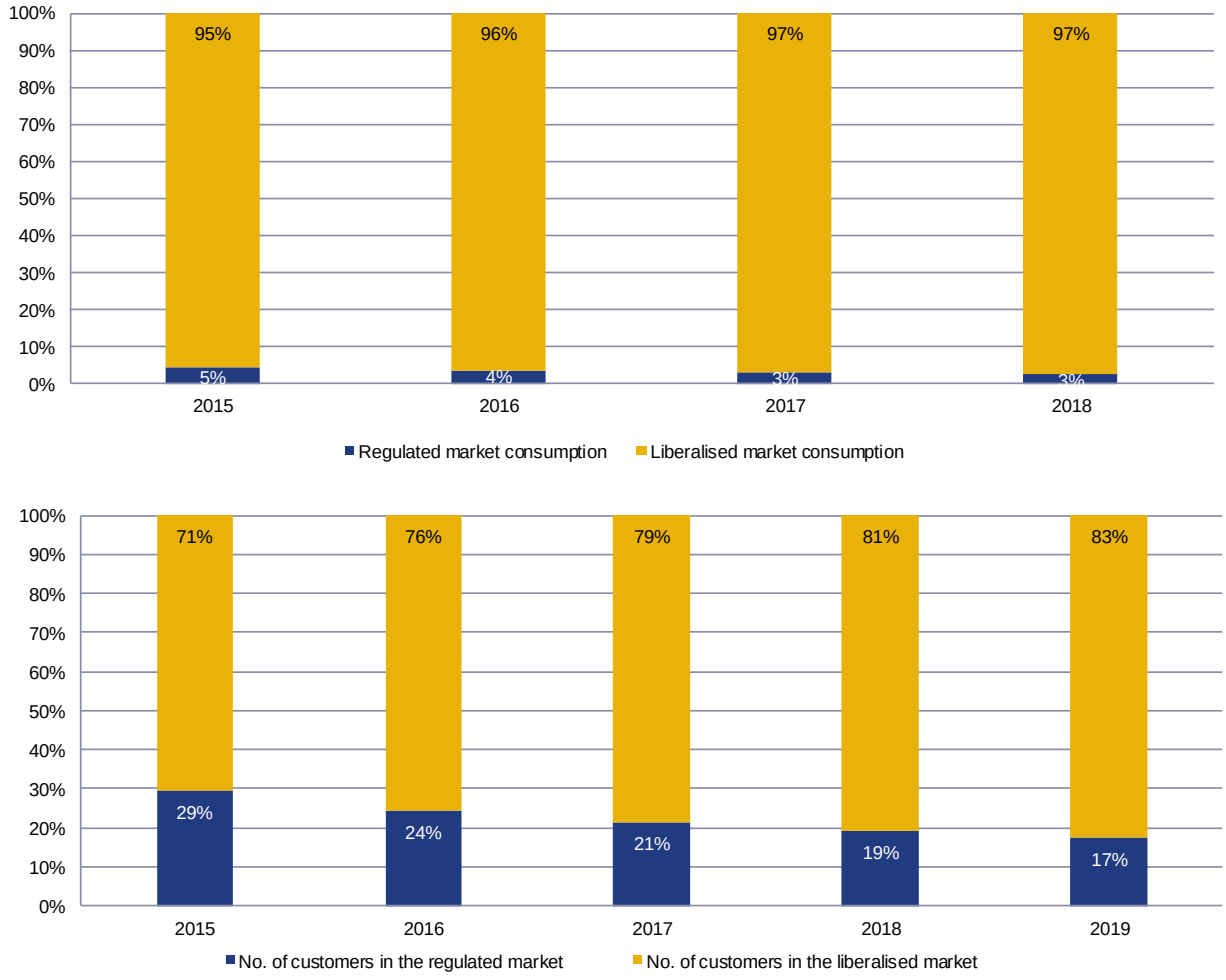
Note: BRG – Beiragás, DNG – Dianagás; DRG – Duriensegás; LBG – Lisboagás; LTG – Lusitaniagás; MDG – Medigás; PTG – REN Portgás; PXG – Paxgás; SNG – Sonorgás; STG – Setgás; TGG – Tagusgás; REN – REN Gasodutos; DSO – Distribution System Operators as a whole; Global – DSOs and REN.

[129] Natural gas is billed in €/kWh, pursuant to Article 111 of the RRC for the natural gas sector.

[130] Approved by Order Directive no. 7/2018, of 28 March.

The increase in the size of the liberalised market was also due to the phasing out of regulated tariffs that, in January 2013, covered all customers, including households. The evolution of the liberalised market between 2015 and 2019 can be observed in Figure 4-23.

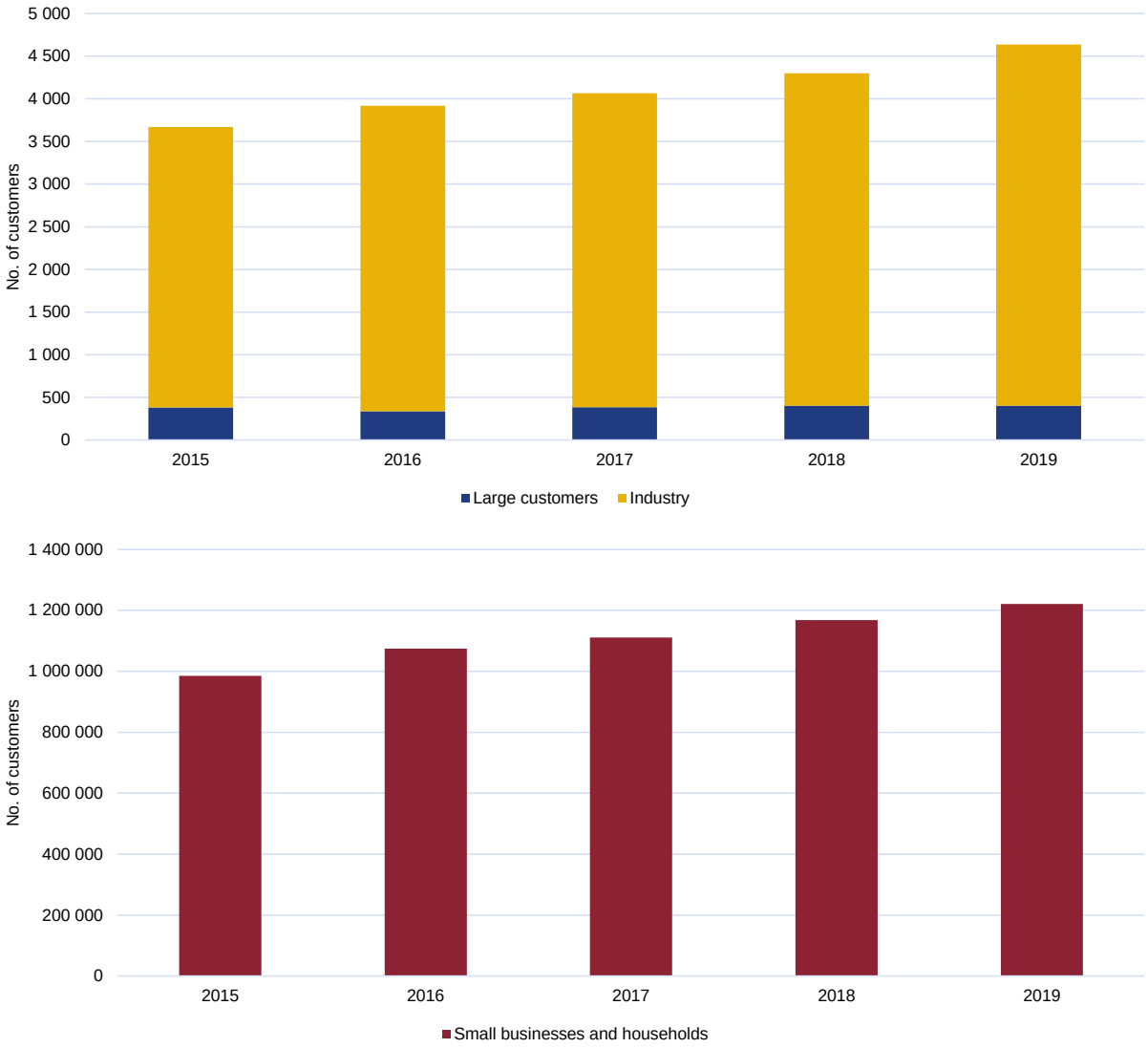
Figure 4-23 – Breakdown of consumption between the regulated and the liberalised markets, 2015 to 2019



Source: REN Gasodutos data

With regard to the total number of customers, the increase in the market during the period under analysis is mainly due to the continuous entry of household customers and small businesses (segments with consumption lower than 10 000 m^3), and also the entry of industrial customers (with consumption between 10 000 m^3 and 1 million m^3), which in 2019 increased nearly 9% compared to the previous year (see Figure 4-24). In 2019, approximately 83% of customers were already on the liberalised market.

Figure 4-24 – Evolution of the liberalised market in mainland Portugal, 2015 to 2019

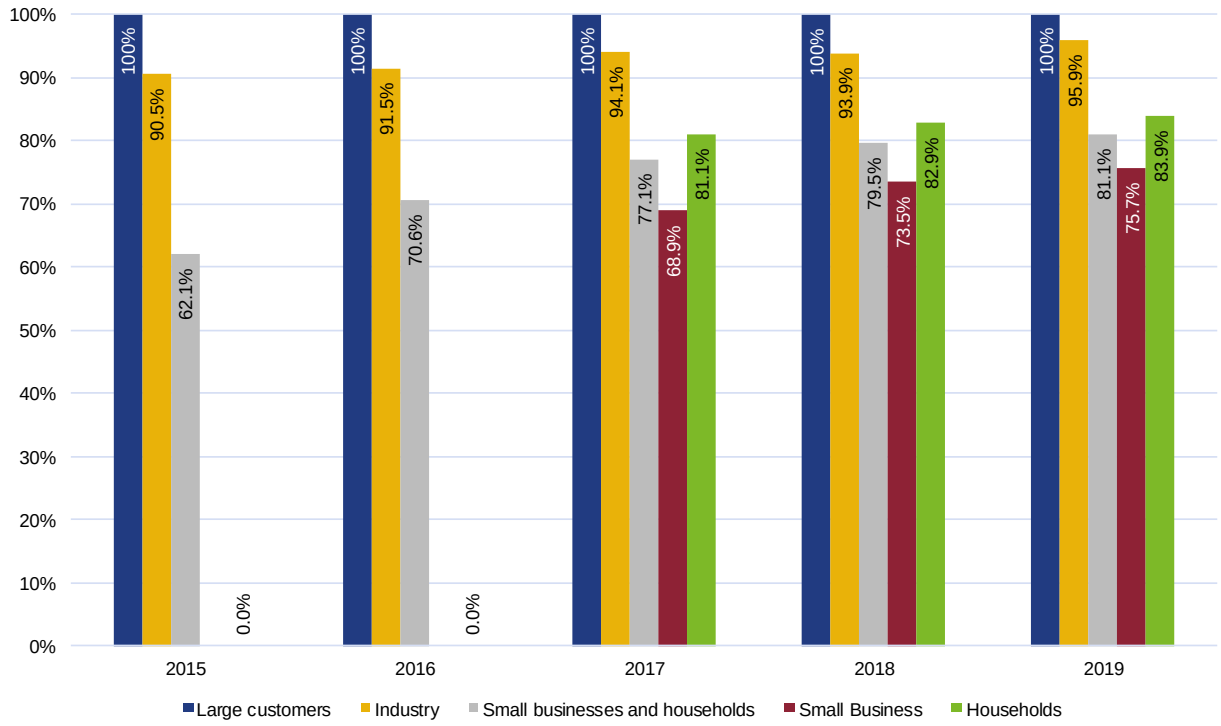


Source: REN Gasodutos data

In Figure 4-24 we can also see that in 2019 the segment with the highest consumption, corresponding to large customers (with consumption higher than 1 million m^3), showed a slight increase of 1% compared to 2018. The number of household and small business customers on the liberalised market increased about 5%, and the industrial customers increased nearly 9%.

The consumption associated with each customer segment of the liberalised market is shown in Figure 4-25, and it is noticeable that since at least 2015 market suppliers ensured the whole of the consumption for large customers.

Figure 4-25 – Penetration of the liberalised market by customer segment, 2015 to 2019



Source: REN Gasodutos data

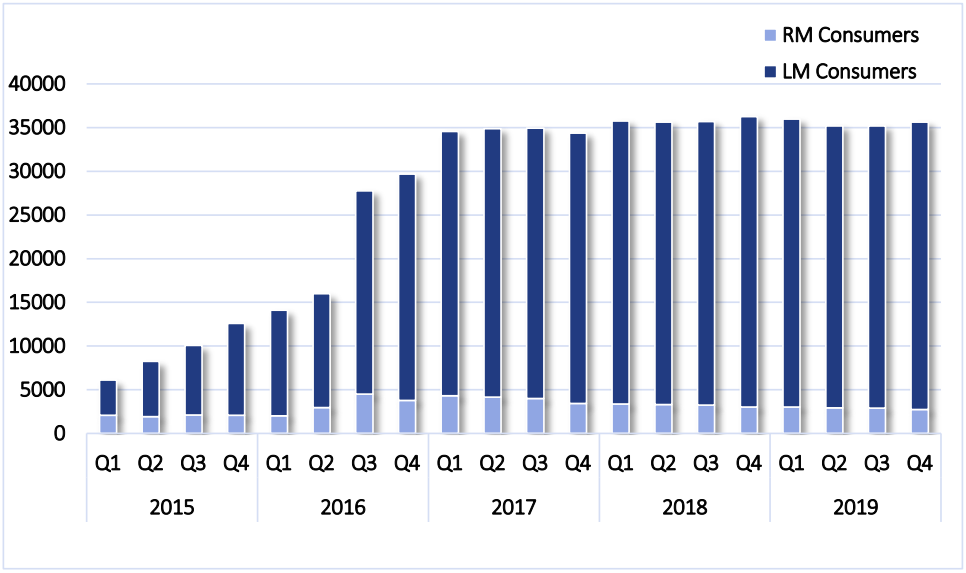
The specific values for the industrial customers segment follow the same rationale as that for total customers. It should be noted that, overall, more than 96% of consumption from this group of customers is already being supplied by suppliers on the liberalised market.

With regard to the liberalised market, there was one supplier, Galp Power, with a market share of over 50% at the end of 2019. The industrial customers segment is the most competitive one; the household customers segment is also characterised by high competitiveness.

In terms of the number of customers, the household segment is the largest one in the liberalised natural gas market, representing almost all customers, but representing only approximately 8% of the total consumption in this market.

In 2019, there were 35 624 consumers in the natural gas sector on social tariffs, 2 894 in the regulated market and 32 890 in the liberalised market, as shown in Figure 4-26. Globally, 1.2% of natural gas consumers in mainland Portugal are on a social tariff. There were no significant changes in the number of beneficiaries of the social tariff, which has remained relatively stable since 2017 with around 35 000 customers.

Figure 4-26 –Number of consumers on social tariffs, natural gas sector, 2015 to 2019

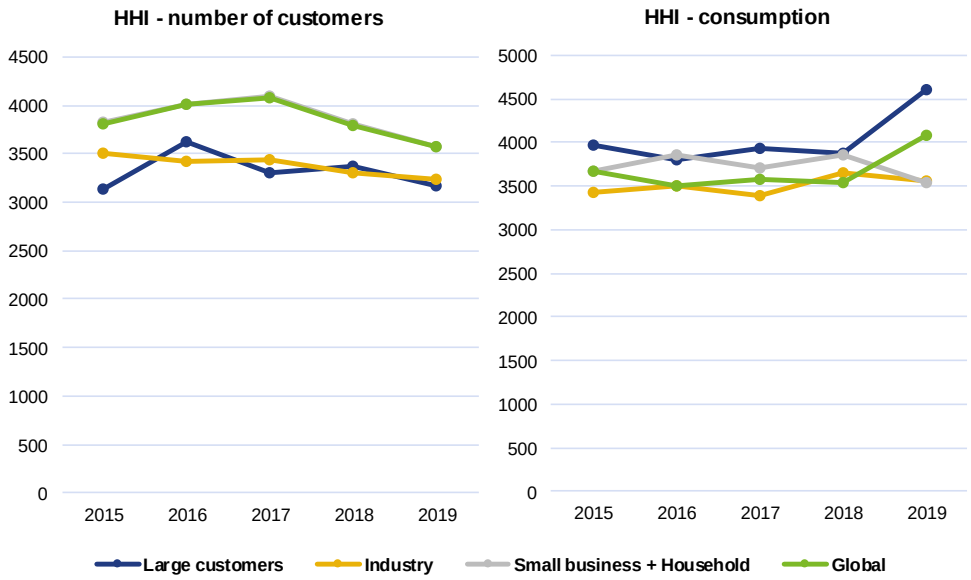


Source: Suppliers data

Note: LM means liberalised market; RM means regulated market

Similarly to 2018, in 2019 there was a decrease in the concentration in terms of the number of customers. Regarding to consumption, there was an increase in concentration, as shown in Figure 4-27.

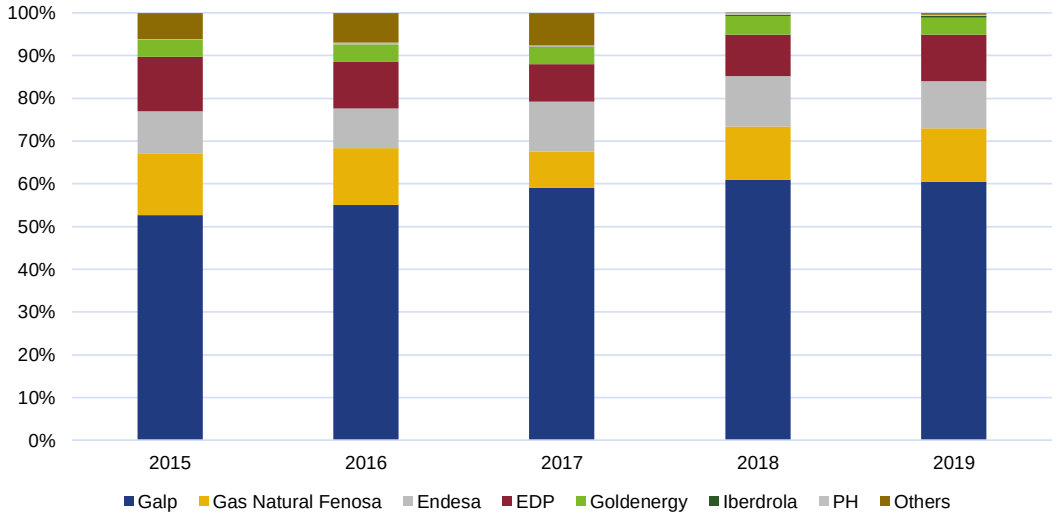
Figure 4-27 – Evolution of market concentration in number of customers and consumption, 2015 to 2019 (HHI)



Source: EDP Distribuição data

The market share of Galp, the main operator on the natural gas market, registered an upward trend between 2015 and 2019. In 2019, its market share was 60%, as we can see in Figure 4-28.

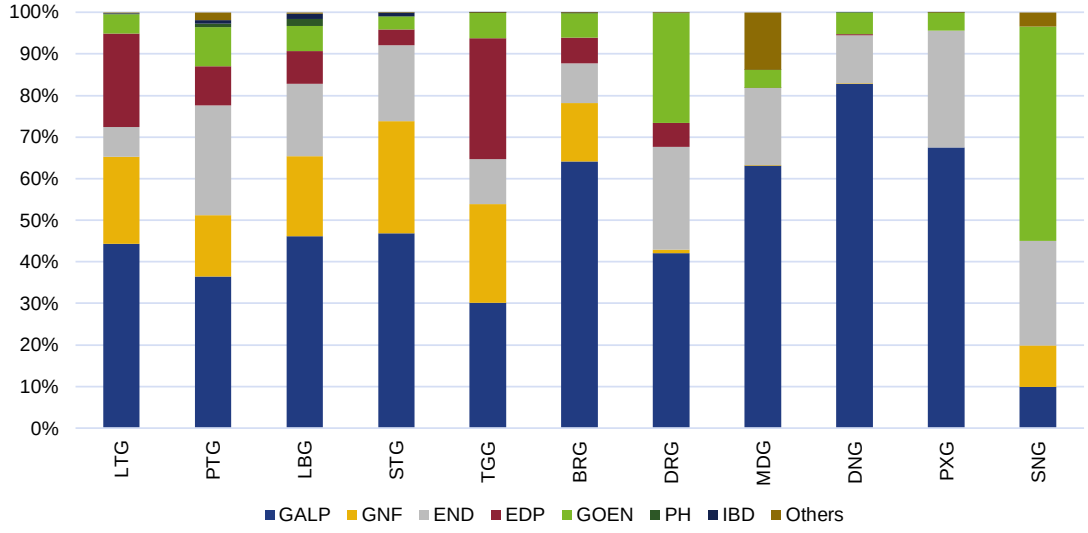
Figure 4-28 – Supply structure in the liberalised market by supplier, 2015 to 2019



Source: REN Gasodutos data

The breakdown of market share by distribution network, in terms of consumption supplied, is shown in Figure 4-29. In 2019, Galp had a market share above 40% in more than half of the distribution networks.

Figure 4-29 – Breakdown of consumption by suppliers on the liberalised market and by distribution network, 2019



Source: REN Gasodutos data

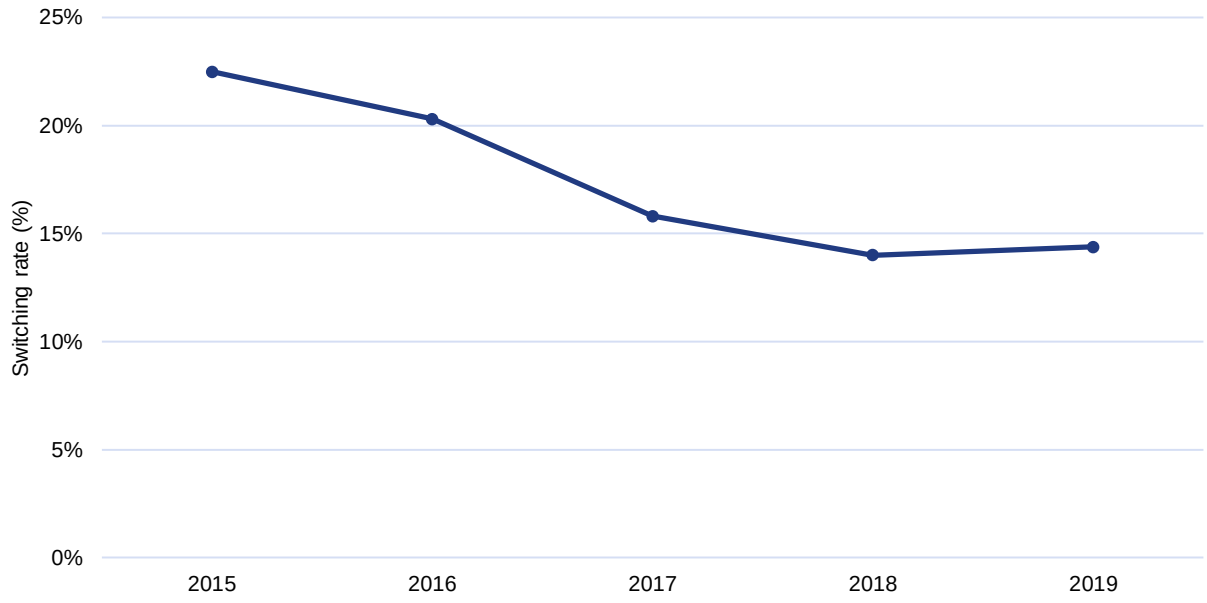
In terms of the share of natural gas supply, in 2019 EDP Comercial continued to have significant positions in the distribution networks, in particular those operated by Lusitaniagás (LTG) and Tagusgás (TGG).

We should also highlight Goldenergy, which continued to hold majority positions in the distribution networks operated by Duriensegás (DRG) and Sonorgás (SNG).

Endesa and Gás Natural Fenosa had strong positions in the areas managed by REN Portgás (PTG), Lisboagás (LBG), Setgás (STG) and Beiragás (BRG).

The switching rates remain significant despite the downward trend observed in recent years. In 2019, about 14% of gas consumers switched supplier, as shown in Figure 4-30.

Figure 4-30 – Gas supplier switching in number of clients, 2015 to 2019



Source: REN Gasodutos data

An analysis of the evolution of the retail market is available on the ERSE website in the form of a monthly report[131], which provides information regarding issues linked to competitive pressure on the market and on each of its segments.

[131] https://www.erse.pt/biblioteca/atos-e-documentos-da-erse/?tipologia=----+Mercado+Liberalizado+-+G%C3%A1s+Natural&setor=&ano=&descricao=

4.2.2.2 RECOMMENDATIONS ON SUPPLY PRICES, INVESTIGATIONS AND MEASURES TO PROMOTE EFFECTIVE COMPETITION

RECOMMENDATIONS FOR SUPPLY PRICES

In 2019, ERSE did not publish any recommendations regarding the compliance of supply prices with Article 3 of Directive 2009/72/EC of the European Parliament and of the Council, of 13 July. We should highlight that the transitional regime for regulated natural gas prices for end-customers in LP and MP is still in force.

MEASURES TO PROMOTE EFFECTIVE COMPETITION

As mentioned above in relation to the wholesale market, ERSE has specific duties granted to it by the legal framework governing the gas sector, as well as other tasks which arise from competition law. In 2019, ERSE issued an opinion to the Competition Authority on the acquisition by GALP Gás Natural Distribuição, S.A. ("GGND"), of the exclusive control over Tagusgás – Empresa de Gás do Vale do Tejo, S.A. and its subsidiary - Tagusgás Propano, S.A., through the acquisition of the participation owned by Gásriba, SGPS, S.A.. The operation was related to distribution and supply activities of both propane gas and natural gas, in mainland Portugal. ERSE expressed its non-opposition to the realisation of the operation, subject to the adoption of a commitment of alienation of Tagusgás from competing entities of the acquiring group.

It is also important to note that in 2019 ERSE approved Regulation N.º 365/2019, of April 24, which includes the concept of guarantees manager for the SNGN. This entity, which was previously foreseen for the electricity sector and which could be common for the SNGN and the national electricity system, became responsible for the integrated management of the guarantees to be provided under the contracts for adhesion to the global technical management of the SNGN and for network usage.

TRANSITIONAL REGIME FOR THE APPLICATION OF TARIFFS FOR END-CUSTOMERS BY THE RETAIL SUPPLIER OF LAST RESORT

Since 1 July 2012[132], natural gas regulated tariffs for supply of natural gas to end-customers with annual consumption lower than or equal to 10 000 m^3, published by ERSE for mainland Portugal, have a transitional

[132] For consumers with an annual consumption higher than 500 m^3 and 1 January 2013 for consumers with an annual consumption equal to or lower than 500 m^3, according to Decree-Law no. 74/2012, of 26 March.

nature. In 2019, these tariffs applied to the supply of the retail supplier of last resort (SLR) in low and medium pressure[133]; transitional high pressure tariffs having been abolished.

Transitional tariffs for end-customers are determined by the sum of network and infrastructure access tariffs with the transitional energy tariff and the regulated supply tariff[134], all approved by ERSE[135].

4.3 SECURITY OF SUPPLY

ERSE monitors gas capacity allocation in the RNTGN, in particular the level of available capacity for commercial purposes compared to the capacity that has been utilised.

Figure 4-31 presents the evolution of the available capacity in the SNGN[136], daily average consumption and annual peak demand between 2009 and 2019. During this period, daily average consumption of natural gas increased at an average rate of 2.5% per year. The highest annual peak demand in the SNGN occurred in 2017, with a value of 263 GWh/day.

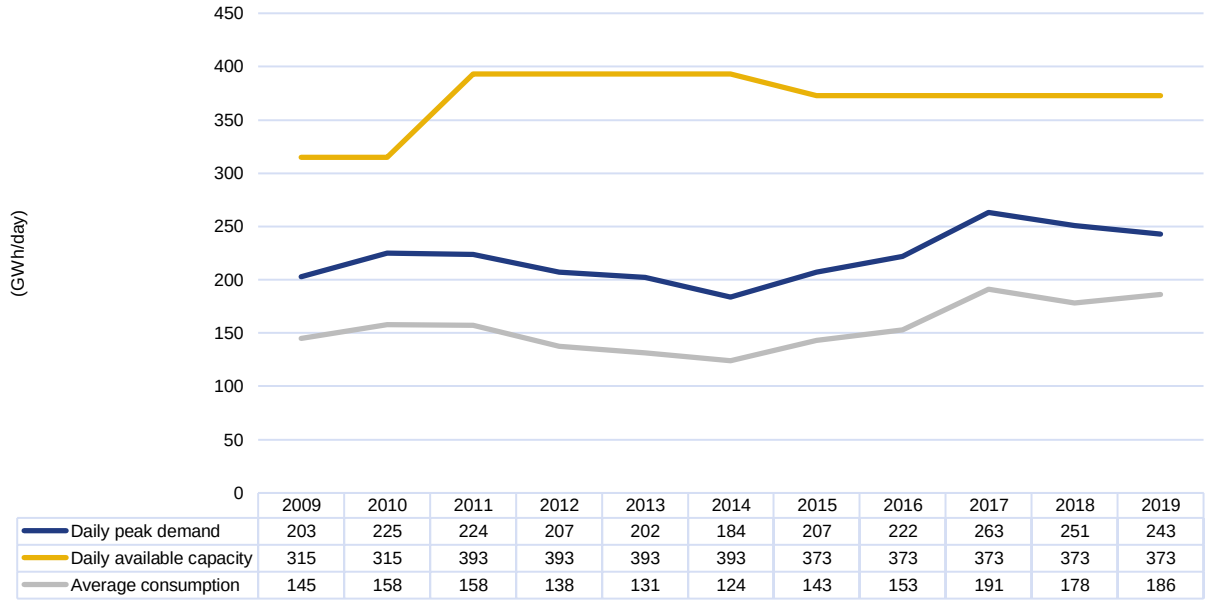
[133]The application period for the transitional tariff for natural gas supply in LP, with annual consumption higher than 10 000 m^3, was changed to 31 December 2022, and for natural gas supply in LP, with annual consumption equal or lower than 10 000 m^3 was changed to 31 December 2025, by Government Ordinance no. 83/2020, of 1 April.

[134] The transitional tariff regime is determined by the application of Government Ordinance no. 108-A/2015, of 14 April and Order no. 11412/2015, of 12 October.

[135]Directive no. 12/2019, of 1 July.

[136] The capacity offered in the SNGN corresponds to the sum of the entry capacity at the Campo Maior and Valença do Minho interconnections and the connection between the RNTGN and the Sines LNG terminal.

Figure 4-31 – Evolution of available capacity in the SNGN, daily average consumption and peak demand, from 2009 to 2019



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Daily peak demand	203	225	224	207	202	184	207	222	263	251	243
Daily available capacity	315	315	393	393	393	393	373	373	373	373	373
Average consumption	145	158	158	138	131	124	143	153	191	178	186

Source: REN Gasodutos – PDIRGN 2020-2029 and REN – Technical Data for 2019

As shown in the figure above, the daily available capacity increased by 25% between 2010 and 2011, as a result of an upgrade of the regasification system of Sines LNG terminal and the sale from Enagás to REN Gasodutos of its share in RNTGN. On the other hand, in 2014 a decrease of 5% in the daily capacity offer was observed as a result of the Enagás transport capacity reduction on Tuy-Valença do Minho interconnection. This decrease continues to be a constraint. Furthermore, it is still possible to observe that the SNGN's available capacity is remarkably higher than the daily peak demand along the entire period. In 2019, the average daily consumption and the peak demand corresponded respectively to 50% and 65% of SNGN's available capacity.

The following table presents the yearly natural gas demand that occurred in the last four years, by client type.

Table 4-5 – Yearly natural gas demand, 2016 to 2019

Yearly natural gas demand per network type (TWh)	2016	2017	2018	2019
Power Plants	15.39	27.56	20.77	23.82
High Pressure Network Customers	15.53	16.51	17.20	17.13
Distribution Network Customers (Concessioned, with GRMS (1))	23.60	24.09	25.13	25.13
Distribution Network Customers (Licensed with UAG (2))	1.34	1.50	1.83	1.87
Total	55.85	69.66	64.92	67.95

(1) GRMS - Gas Regulation and Metering Station

(2) UAG - Gas Autonomous Units

The table below presents a set of indicators that characterise the infrastructure and the network operators of the SNGN between 2016 and 2019.

Table 4-6 – SNGN's infrastructure and network operator indicators, 2016 to 2019

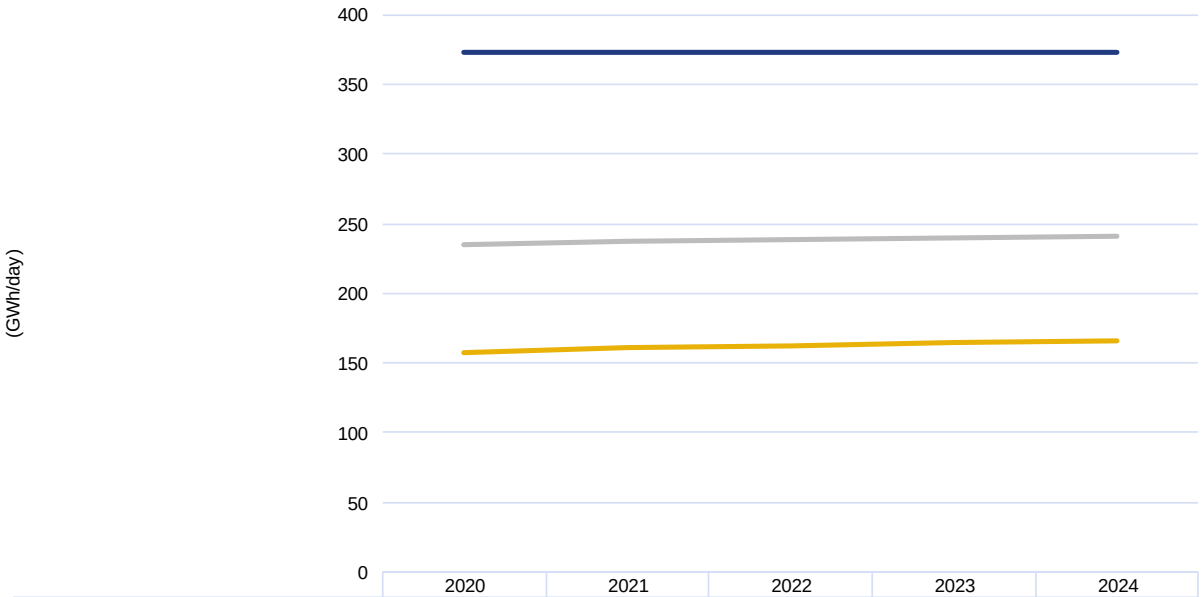
Indicators	2016	2017	2018	2019
Maximum gas daily consumption (GWh/day).	222	263	251	243
Pipeline entry capacity in TWh/y.	52.56	52.56	52.56	52.56
Pipeline exit capacity (exports) in TWh/y	29.2	29.2	29.2	29.2
LNG import capacity (maximum technical availability) in TWh/y	117	117	117	117
Maximum peak outflow rate of all LNG terminals in the country (TWh/day)	321	321	321	321
LNG Gas Storage Capacity	2 569	2 569	2 569	2 569
Underground gas storage-working gas volume in m^3(n)	321	321	321	321
Underground gas storage- Maximum withdrawal capacity (TWh/day)	129	129	129	129
Number of TSOs	1	1	1	1
Extension of TSO grid (km)	1 375	1 375	1 375	1 375
Number of DSOs	11	11	11	11
Extension of DSO grid (km)	18 245	18 565	18 987	18 862

4.3.1 FORECAST OF DEMAND AND SUPPLY

Figure 4-32 shows forecasts of daily available capacity in the SNGN, daily average consumption and peak demand, for the outlook period 2020-2024.

Based on data provided by REN Gasodutos, the expected available capacity for commercial purposes is considerably higher than the expected capacity that will be used in the coming years. In 2024, average consumption and peak demand are expected to represent about 44% and 65% of the available capacity in the SNGN, respectively. According to REN Gasodutos' forecasts, the projects proposed under the Development and Investment Plan of the National Transmission Network, Storage Infrastructure and LNG Terminal Network (RNTIAT) for the period 2020-2029 do not have any impact on the available capacity.

Figure 4-32 – Forecast of daily available capacity in the SNGN, daily average consumption and peak demand, from 2020 to 2024



	2020	2021	2022	2023	2024
Forecast of daily supply capacity	373	373	373	373	373
Forecast of daily average consumption	157	161	162	164	166
Forecast of daily peak demand	235	237	238	240	241

Source: REN Gasodutos – PDIRGN 2020-2029

4.3.2 MEASURES TO COVER PEAK DEMAND OR SHORTFALLS OF SUPPLIERS

The promotion of conditions to ensure the SNGN's security of supply is based on both supply side and demand side measures.

Although the SNGN has depended mainly on a major gas supplier country - Algeria - the diversification of sources of supply was enhanced by the Sines LNG terminal, which entered into operation in 2004. As was the case in 2018, the country that most contributed for the supply of natural gas of the SNGN in 2019 was Nigeria.

Another initiative to promote security of supply regarding diversification of sources of supply was the integration of the Portuguese market into an Iberian market initiated in 2017. Indeed, in 2019 the existence of market agents in the SNGN with significant activity in Spain was maintained, although in the mentioned period there was lower use of the interconnections and an increase in the LNG terminal, benefitting from the diversification of sources of supply in Spain.

Another way to ensure security of gas supply is to create and maintain emergency stocks able to ensure the supply of gas to protected customers, according to Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply, and non-interruptible electricity producers, for a period of 30 days in a situation of lack of supply to the SNGN.

Based on the findings of the Report on "Security of Supply Risk Assessment for Portugal, referring to the period 2020-2040" (published by DGEG and approved by the Deputy-Secretary of State for Energy), the RNTIAT has sufficient storage capacity to cover all the emergency stock needs.

In addition to the measures adopted on the supply side to safeguard the security of gas supply and to meet peak demand, there are also measures implemented on the demand side, involving the use of alternative fuels, in particular crude oil and/or petroleum products replacing natural gas in interruptible electricity producers. Indeed, Tapada do Outeiro and Lares are bi-fuel power plants and are contractually authorised to guarantee their functioning by supplying alternative fuels other than natural gas, according to Article 50º-B of Decree-Law No 140/2006, of 26 July as amended by Decree-Law No 231/2012, of 26 October.

5 CONSUMER PROTECTION AND DISPUTE SETTLEMENT

5.1 CONSUMER PROTECTION

In 2019, ERSE maintained its general responsibility to protect the rights and interests of energy consumers. This is a cross-cutting concern for ERSE's activities, being present in all its regulatory initiatives and decisions, namely in the context of the promoting transparent and fair business relationship rules; tariffs and prices that reflect efficient costs; the quality of services provided; and providing information and clarifications to consumers.

In this context, ERSE continuously develops consumer protection activities in the following areas: (i) regulatory measures; (ii) verification of compliance with the legislation; (iii) provision of information; and (iv) other developments in the area of consumer relationship.

ERSE verifies and monitors the changes made by suppliers on the liberalised market to the general conditions of the supply contracts they offer and of those presented by new suppliers.

As regards information to consumers, in addition to answering individual queries, within the scope of dispute resolution, ERSE prepares and regularly disseminates educational and informative content through its website, in an area specifically dedicated to energy consumers.

For the purposes of launching the new ERSE website, which took place on 9 January 2020, during 2019 ERSE prepared new content especially for energy consumers, in particular on the commercial cycle of electricity and natural gas supply, as well as electric mobility and liquid fuels and liquefied petroleum gases (LPG). In this context, a virtual online assistant - Gia - was also created, which provides consumers with a set of questions and answers considered most frequent, also prepared in 2019.

In parallel, during 2019 ERSE continued to produce and disseminate, including in the press, “Alertas de más práticas” (“Bad practice alerts”). These alerts were first launched on 29 May 2017 (World Energy Day) and were prepared and targeted at consumers with greater vulnerability in access to information. These alerts highlight some commercial practices carried out by suppliers that should be avoided or prevented, in particular through simple practical advice.

To the same end, ERSE issued information material on "Electric mobility: How does it work?" and "Fuel: How does it work?".

New "Anotes" (useful advice) and "Dicas" (tips for saving energy) were also prepared, which were widely disseminated to consumer protection organisations, alternative consumer dispute resolution entities, local authorities, energy agencies, etc.

ERSE also published advertisements in national and regional newspapers with information for the most vulnerable consumers.

Starting in November 2019, an information campaign with advice to consumers was also broadcasted by some selected national radio stations, for a period of 12 months.

The ACE (Energy Consumer Support Office) Newsletter is issued quarterly, addressing different topics related to consumer issues, and also includes the requests for information and complaints dealt with in each quarter, including entries, conclusions, topics and main results.

The ERSEFORMA programme, which aims to support institutions with responsibilities in clarifying consumers and disseminating and multiplying content on the energy sector – such as alternative dispute resolution entities, arbitration centres, consumer associations, municipal and central government entities – opened its 2019 programme with a session on energy tariffs, held in February.

On 30 May 2019, ERSE held a training course on "Electricity and Natural Gas: contracting and associated practices", also addressed to consumer conflict arbitration centres and consumer associations.

ERSE also organised a training session on "Selected topics: regulatory practice, regulated tariffs and prices, market operation and the ERSE sanctioning regime" (26 June 2019).

ERSE also participated as a trainer in a Seminar on "Essential Public Services", organised on 20 November 2019 in Barcelos by the CIAB (Centro de Informação, Mediação e Arbitragem de Consumo – Tribunal Arbitral de Consumo do Vale do Cávado)[137].

The informative and educational materials used in the activities described are available on the ERSE website: https://www.erse.pt/erseforma/erseforma/.

[137] Centre for Information, Mediation and Consumer Arbitration - Court of Arbitration for Consumption of the Cávado Valley

In the area of dispute resolution, stemming from commercial and contractual relations with energy consumers, in addition to clarifying the parties involved, ERSE may recommend or suggest the resolution of a dispute, even if it cannot impose the proposed solution on the specific case.

In parallel, ERSE promotes the use of arbitration, in particular that which is available through the existing consumer dispute arbitration centres. On 24 July 2019, ERSE concluded cooperation protocols with seven consumer dispute arbitration centres, whose operations cover the territory of mainland Portugal, and to whom ERSE provides technical and financial support.

More detailed information is provided in the following chapter regarding the handling of complaints (and requests for information) carried out by ERSE in 2019.

5.2 DISPUTE SETTLEMENT

Within the scope of its responsibilities on dispute resolution, ERSE promotes the use of voluntary arbitration and makes use of other voluntary dispute resolution mechanisms, through which it can recommend the resolution of specific cases.

ERSE may also undertake inspections of complaint records and of the facilities of electricity and natural gas suppliers to assess their compliance with the sectoral law and regulations, in particular with regard to the specific national obligations for “complaint books”.

These tasks are internally assigned to a team dedicated to supporting energy consumers. The ACE unit (Energy Consumer Support Office) is an autonomous functional unit, whose activities relate to three main areas: i) consumer information; (ii) consumer training/education; and iii) complaint handling/dispute resolution.

In 2019, ERSE fulfilled its statutory task of informing and clarifying energy consumers through written responses to requests for information, a dedicated consumer hotline available on working days between 15h and 18h, and through the preparation and updating of information on the ERSE website and in printed materials. The telephone hotline service is provided directly by ERSE employees. ERSE offers face-to-face support to the public, by appointment.

Requests for information addressed to ERSE in writing come from various channels, with an increasing preference for electronic means. On 1 July 2017, Portugal’s electronic complaint book platform came into

operation, through which consumers can choose between submitting a complaint and requesting information, the latter being sent directly and exclusively to the sectorial regulator. Between 1 January and 31 December 2019, ERSE received 692 requests for information via the electronic complaint book platform. The total number of requests for information registered in ERSE in 2019 was 1 244. "Invoicing" and the "supply contract", as well "tariffs and prices", were the issues most raised by consumers in requests for information addressed to ERSE. As is the case for responding to requests for information, ERSE's complaint handling activities rely on a computer tool for process management (CRM), through which the various stages of the process are managed, from sorting to final response, including legal analysis and possible requests for technical support from other departments within ERSE.

In 2019, ERSE registered 21 358 complaints, which gave rise to new cases. In the same period, 21 041 cases were concluded (including complaints and requests for information), mostly by providing the consumer with information, after analysis of the specific case and the response obtained from entity that is the object of the complaint.

Regarding the distribution of complaints by sector, the electricity sector stood out, with 65% of the total complaints received, since the number of electricity consumers (about 6 million) is much higher than that of natural gas (approximately 1.5 million), which represented 9% of the requests addressed to ERSE.

Dual supply (electricity and natural gas) represented 14%, and complaints related to fuel and piped LPG sectors represented 7%; both continuing to show a growing trend. The latter began to be received at ERSE from 1 July 2017, the date of entry into force of the new legal regime for the complaint book, introduced by Decree-Law n.º 74/2017 of 21 June, which, among other changes, gave ERSE new powers in the verification of compliance with that regime.

The remaining 5% of complaints received concerned matters that are not within the competence of ERSE. ERSE received 10 710 complaints from the electronic complaint book platform, registered until 31 December 2019.

"Invoicing" also emerges as the most complained about topic in 2019 (28%), followed by issues related to the "supply contract" (12%).

6 COMPLIANCE

6.1 CERTIFICATION OF TRANSMISSION NETWORK OPERATORS

REN – Rede Elétrica Nacional, as operator of the National Electricity Transmission Network and REN Gasodutos, as operator of the National Natural Gas Transmission Network, were certified by ERSE in 2015, as TSOs under a full ownership unbundling regime.

The procedure for certification of the National Electricity Transmission Network and National Natural Gas Transmission Network, a competence of ERSE, provides for an evaluation of the assessment of compliance with the conditions relating to the legal and patrimonial separation of these operators.

Since 2015, ERSE has been, monitoring compliance and permanently supervising the certification conditions granted to those operators.

Within this framework, the electricity transmission system operator and the natural gas transmission network operator must send to the ERSE, until 30 June of each year, a report related to 31 May of that year, containing complete and detailed information on the state of compliance with the conditions relating to the legal and patrimonial independence of the transmission system operator provided for in the legal certification scheme, as well as all the general meeting minutes of the economic group to which it belongs.

The electricity transmission system operator as well as the natural gas transmission system operator must also send to ERSE the communications regarding qualified holdings, as well as annual and half-yearly information that REN - Redes Energéticas Nacionais, SGPS, S.A. discloses to the market or to the Portuguese Securities and Markets Commission (CMVM).

These obligations were fulfilled by the RNT (electricity) operator and by the RNTGN (natural gas) operator, there were no elements known to ERSE, during 2019, that called into question the fulfilment of the conditions set out in the certification decision of REN - Rede Eléctrica Nacional, S.A. and REN Gasodutos, S.A., as per the reports of these operators sent to ERSE in June 2019.

6.2 LEGISLATIVE DEVELOPMENTS

Within the scope of the powers attributed to it by its Statutes and other applicable legislation, ERSE has met the obligations inherent to its capacity as regulator.

To that end, ERSE approves codes, issues binding decisions on regulated companies, issues opinions on matters requested by the Government, Parliament or other public administration entities.

Additionally, it carries out surveys on the functioning of the electricity and natural gas markets; requests information from the electricity and natural gas companies relevant to the fulfilment of its functions, requests and undertakes audits on companies subject to ERSE's regulations and carries out other supervision and inspection activities.

ERSE also provides information and clarifications to electricity and natural gas consumers, handles their grievances and complaints and intervenes in extrajudicial dispute resolution and issues sanctions against behaviours by regulated companies that constitute administrative offences.

In 2019, ERSE published the following regulations:

- Regulation n. º 76/2019 of 18 January – First amendment to the Electricity Tariff Code
- Regulation n. º 361/2019 of 23 April - Approves the Gas Natural Tariff Code
- Regulation n. º 362/2019 of 23 April - Amendment to the Code on Access to Natural Gas Networks, Infrastructure and Interconnections
- Regulation n. º 365/2019 of 24 April – Second amendment to the Natural Gas Commercial Relations Code
- Regulation n. º 610/2019 of 2 August - Approves the Code on Intelligent Power Distribution Networks Services
- Regulation n. º 628/2019 of 9 August - Designation and characteristics of the members of ERSE's Advisory Council, Fuels Council and Tariff Council
- Regulation n. º 737/2019 of 23 September - Code on the Process of Storage, Collection and Exchange of Liquefied Petroleum Gas Bottles
- Regulation n. º 854/2019 of 4 November - Approves the Electric Mobility Code

We highlight the following additional legislative instruments approved by ERSE in 2019:

- Rectification Statement n. º 18/2019 of 7 January - Declaration of rectification of Directive n.º 16/2018 approving the rules on electricity labelling
- Directive n. º 1/2019 of 7 January - First amendment to the Manual of Procedures for the Portugal-Spain Interconnection Joint Management Mechanism
- Directive n. º 2/2019 of 7 January - Approves the GTG's Notice on Guarantees in the context of joining the SNGN's Global Technical Management
- Directive (Extract) n. º 3/2019 of 11 January - Loss profiles applicable in 2019
- Directive n. º 4/2019 of 15 January - Approval of the Rules for the Pilot Project for participation of demand in the regulatory reserve market
- Directive n. º 5/2019 of 18 January - Tariffs and prices for electricity and other services in 2019
- Directive (Extract) n. º 6/2019 of 18 January - Consumer, production and auto-consumption profiles applicable in 2019
- Directive n. º 7/2019 of 26 February- Secondary regulation band price formation
- Directive n. º 8/2019 of 4 April - Approval of the methodology for determining the reference price for the use of the natural gas transmission network tariff
- Directive n. º 9/2019 of 10 April - Approval of the General Conditions of the Contract of Adhesion to the system services market within the scope of the pilot project on participation of demand in the regulatory reserve market
- Directive n. º 10/2019 of 22 April - Approves the parameters relating to connections to the electricity networks and repeals Directive n. º 18/2012 of 8 November
- Directive n. º 11/2019 of 6 May - Terms and conditions for SRG placement auctions
- Directive n. º 12/2019 of 1 July - Natural gas tariffs and prices for the year gas 2019-2020 and parameters for the regulation period 2020-2023
- Directive n. º 13/2019 of 18 July - Terms and conditions for the mechanism for the term purchase of electricity by the supplier of last resort
- Directive n. º 14/2019 of 24 July - Entities qualified to integrate the balancing marketing unit under the terms of the System Global Management Manual of Procedures

- Directive n º 15/ 2019 of 26 de July - Natural gas consumption profiles and daily average consumption approved by ERSE to be in force from 1 July 2019 to 30 June 2020
- Directive n. º 16/2019 of 6 December - Codification of individualised agent registration
- Recommendation n. º 1/2019 - Review of electricity supply contracts
- Recommendation n. º 2/2019 - Guiding criteria for the exemption from the marketing of bottled liquefied petroleum gas at filling stations
- Instruction n.º 1/2019- Instruction to suppliers of last resort regarding the supply to customers of the supplier Gás do Mário – supplementary supply according to the terms of Articles 86 and 125 of the Natural Gas Commercial Relations Code
- Instruction n. º 2/2019 - Instruction to ADENE, as a logistical operator for supplier switching, regarding the supply to clients of the supplier Gás do Mário – supplementary supply according to the terms of Articles 86 and 125 of the Natural Gas Commercial Relations Code
- Instruction n.º 3/2019 - Instruction to natural gas distribution system operators, in relation to the supply to customers of the supplier Gás do Mário - supplementary supply according to the terms of Articles 86 and 125 of the Natural Gas Commercial Relations Code
- Instruction n. º 4/2019 - Instruction concerning the amendment of the Complementary Financial Reporting Standards for the electricity sector
- Instruction n. º 5/2019 - Instruction to the Electricity Sector Supplier of Last Resort - Image Differentiation
- Instruction n. º 6/2019 – Instruction concerning the publication of "Supplementary Standards" for financial and operational reporting for the natural gas sector

6.3 SANCTIONS REGIME

As part of the Energy Sector Penalty System, approved by Law n.º 9/2013, of 28 January, in 2018 ERSE received 25 new complaints, in addition to ERSE's detection of offences and reports received from criminal police agencies and other public entities. Among the complaints received from 2017 to the end of 2019, 48 were filed and 11 were part of administrative offence proceedings.

The main issues denounced were the commercial relationship, communication of meter readings and billing, unfair commercial practices (in particular, contracting of supply through aggressive practices), unjustified interruption of supply of electricity and natural gas, additional (bundled) services, commercial quality of service, delay in changing the supplier (switching), and not making available the Complaints Book.

During 2019, 34 new administrative offence proceedings were opened on the basis of complaints and contributions received. In addition, on 1 January 2019, 37 administrative offence proceedings were in progress.

From these 37 administrative offence cases, 7 concerned cases opened in 2015 regarding meter readings by gas distribution system operators, for which the regulations applicable at that time did not allow for their safe development; 1 case concerned the operator of the supplier switching process, for which there had been no factual basis at that time allowing for any denunciation. The remaining 29 administrative offence cases were opened during 2017 and 2018 and were carried over to 2019. There was also 1 lawsuit in the judicial phase concerning the effectiveness of the telephone service for decision in the Constitutional Court. This results, in 2019, in a total of 71 cases of misdemeanour in progress and open.

During 2019, ERSE decided 26 administrative offences proceedings, which resulted in 19 convictions and 7 closures.

Only one of the decisions rendered was challenged in court and only in respect of one of the six alleged offences. The Competition, Regulation and Supervision Court (TCRS) admitted the partial challenge, but, having not applied the rule on the devolutive effect of the appeal, it motivated the mandatory appeal of the Public Prosecutor's Office to the Constitutional Court, which ERSE accompanied. Later, in 2020, the Constitutional Court decided not to deem unconstitutional Article 46, n. º. 4 and 5 of the Energy Sector Sanctionary Regime[138] and the TCRS confirmed the conviction, by way of malice, with a fine of 105 000 euros.

In addition, it was necessary to file an application for enforcement with the TCRS for a fine set in a case, the decision of which was not challenged by the person concerned. The party concerned paid the fine in February 2019, even before it was executed in court and 11 notes of illegality were deducted from the administrative offence proceedings.

[138] Approved by Law no 9/2013, of 28 January

By reference to decisions taken during 2019, the total value of the fines imposed by ERSE was 1 008 664.66 euros and the amount of fines actually collected was 580 132.33 euros.

In the last 3 years, due to transaction procedures under the Energy Sector Penalty Regime, 534 consumers were compensated at a total value of 50 475 euros.

6.4 ELECTRIC MOBILITY

The legal and regulatory framework for electric mobility foresees the following agents:

- Managing entity of the electric mobility network (EGME) - an entity that, under a monopoly regime, is responsible for managing the information that allows any user to charge their vehicle at any charging point using their contract with their electricity supplier for electric mobility (CEME). This activity is developed by MOBI.E, S.A.;

- Electricity suppliers for electric mobility (CEME) - entities that provide the charging service to their customers (the users), with whom they conclude a contract at market price;

- Charging point operators (OPC) - entities responsible for charging points, charging a price established on a market basis. Users pay through their CEME, the only entity with whom they have a contract;

- Electric vehicle user (UVE) - entity that establishes a contract with a CEME to charge their electric vehicle.

As a result of a pilot project at national level, MOBI.E, S.A. has been temporarily acting as OPC and CEME, in addition to the managing entity role.

In November 2018, the charging regime started for users of the fast charging points, thus beginning the application of the definitive model provided for in the law and in the ERSE regulations, allowing each electric vehicle user to choose (from among available commercial offers) their CEME(s) and charging point(s).

In April 2019, it became possible, on a voluntary basis, for charging points (including those for normal charging) located in private spaces of public access (for example, on commercial spaces) to charge users.

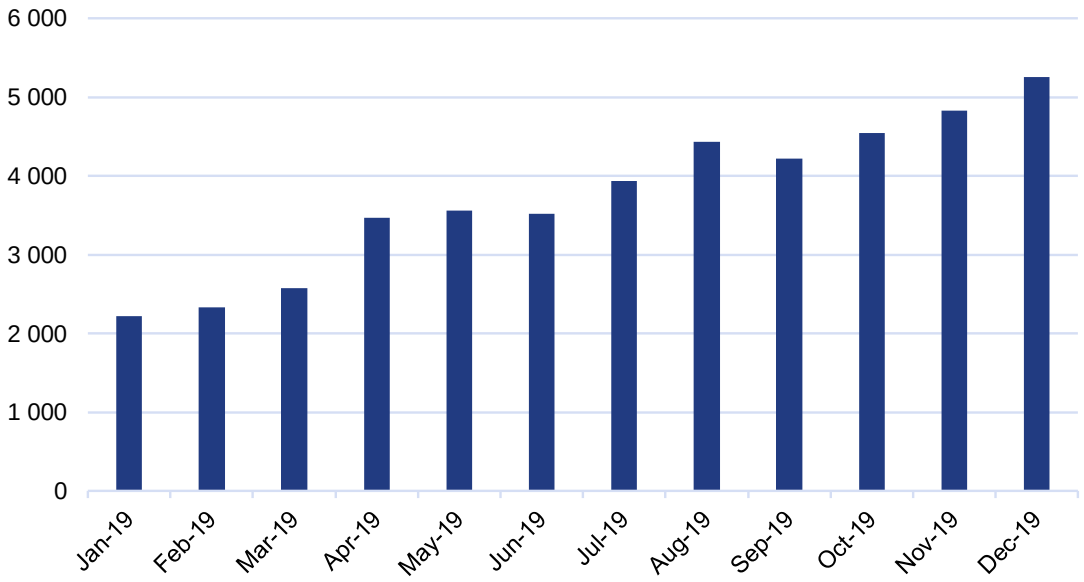
The network operated by MOBI.E, S.A. has been undergoing expansion and technological updating, and it is expected that about 1 600 normal charging points will be available soon. Currently, the network has around 1 000 charging points, 167 of which are fast charging points.

In 2019, ERSE's Electric Mobility Code was published (Regulation N.º 854/2019, of November 4), revoking the previous one[139].

ERSE also approved in 2019 the prices for access tariffs for electric mobility[140].

The evolution of the number of users, number of vehicle charges and amount of energy charged in the electric mobility network managed by EGME are presented in the following figures.

Figure 6-1 – Number of users in the electric mobility network

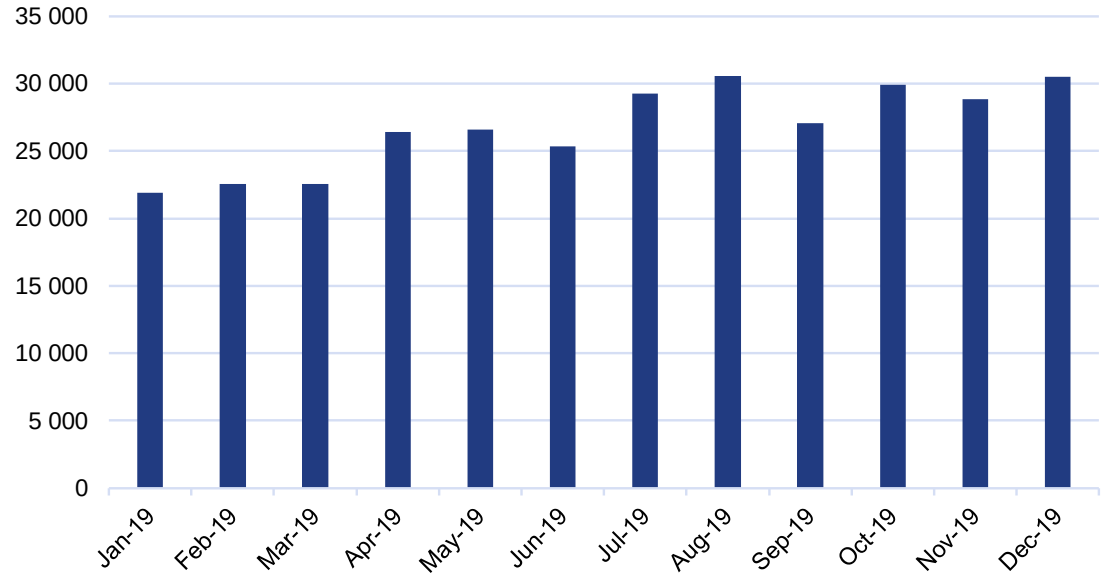


Fonte: MOBI.E, S.A.

[139] Regulation n.º 879/2015, of 26 November, https://dre.pt/application/file/72953406.

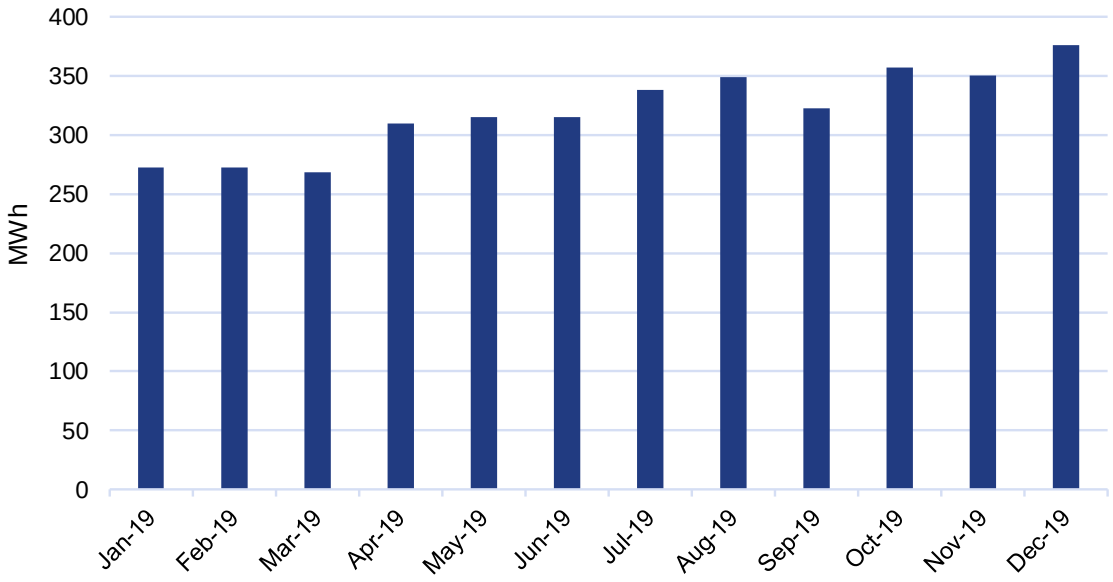
[140] Point I.1 of Directive n.º 3/2019, of 18 January, https://dre.pt/application/conteudo/118010899.

Figure 6-2 – Number of vehicle charges in the electric mobility network



Fonte: MOBI.E, S.A.

Figure 6-3 – Energy charged



Fonte: MOBI.E, S.A.

ANNEXES

I. LIST OF ABBREVIATIONS AND ACRONYMS

- ACE - Energy Consumers Support Office in ERSE
- ACER - Agency for the Cooperation of Energy Regulators
- ASECE - Apoio Social Extraordinário ao Consumidor de Energia (Special Social Support to Energy Consumers)
- bcm - billion cubic meters
- CAE - Electrical Power Purchase Agreements
- CAPEX - Capital Expenditure
- CCGT - Combined Cycle Gas Turbine
- CDS - Credit Default Swaps
- CEER - Council of European Energy Regulators
- CIEG - General Economic Interest Costs
- CMEC - Costs of Maintenance of Contractual Equilibrium
- CNMC - Comisión Nacional de Mercados y Competencia (National Commission for Energy and Prices, Spain)
- CMVM - Comissão de Mercados e Valores Mobiliários (Portuguese Securities Market Regulator)
- CNMV - Comisión Nacional de Mercados de Valores (National Securities Market Commission, Spain)
- DGEG - Directorate-General for Energy and Geology
- DSO - Distribution System Operator
- EHV - Extra High Voltage (voltage between phases whose effective value is greater than 110 kV)
- ERI - Electricity Regional Initiative
- ERSE - Energy Services Regulatory Authority
- FBDP - Base Daily Operating Schedule

- FCFS - First Come First Served
- FTR - Financial Transmission Rights
- GRI - Gas Regional Initiative
- GRMS - Gas Regulation and Measurement Station
- GWh - Gigawatt hour (energy unit)
- HP - High Pressure (gas pressure whose value exceeds that of atmospheric pressure by more than 20 bar)
- HV - High Voltage (voltage between phases whose effective value is greater than 45 kV and less than or equal to 110 kV)
- IGCC - International Grid Control Cooperation
- LNG - Liquefied Natural Gas
- LP - Low Pressure (gas pressure whose value is lower than that of atmospheric pressure by more than 4 bar)
- LV - Low Voltage (voltage between phases whose effective value is equal to or lower than 1 kV)
- MARI - Manually Activated Reserves Initiative
- MIBEL - Iberian Electricity Market
- MIBGAS - Iberian Natural Gas Market
- MP - Medium pressure (gas pressure of 4 bar or more and equal to or less than 20 bar in relation to atmospheric pressure)
- MPAI - Manual of Procedures for Access to SNGN Infrastructures
- MV - Medium Voltage (voltage between phases whose effective value is greater than 1 kV and less than or equal to 45 kV)
- MW - Megawatt (power unit)
- NEMO - Nominated Electricity Market Operator
- OMI - Iberian Market Operator
- OMIE - Iberian Energy Market Operator – Spanish Section, S.A.

- OMIP - Iberian Market Operator - Portuguese Section
- OPEX - Operational Expenditure
- OT - Treasury Bonds
- OTC – Over-The-Counter
- p.p. - percentage points
- PCI - Project of Common Interest
- PDIR - Development and Investment Plan of the RNTIAT
- PDIRGN - Development and Investment Plan for Natural Gas Transmission
- PDIRD-GN - Development and Investment Plan for Natural Gas Distribution
- PICASSO - Platform for the International Coordination of the Automatic frequency restoration process and Stable System Operation
- PNBEPH - National Programme of Dams with Significant Hydroelectric Potential
- RARII - Access to Networks, Infrastructures and Interconnections Code
- REN - Rede Eléctrica Nacional, S.A.
- RNT - National Electricity Transmission Network
- RNTGN - National Natural Gas Transmission Network
- RNTIAT - National Gas Transmission Network, Storage Infrastructure and LNG Terminal Network
- RQS - Quality of Supply Code
- RRC - Commercial Relations Code
- RT - Tariffs Code
- SEN - National Electricity System
- SLR – Supplier of Last Resort
- SNGN - National Natural Gas System
- SpLV - Special Low Voltage (supply or deliveries in LV with a contracted power higher than 41.4 kW)
- SRG - Special Regime Generation

- StLV - Standard Low Voltage (supply or deliveries in LV with a contracted power equal to or lower than 41.4 kVA)
- SWE REM - South West Europe Regional Electricity Market
- TERRE - Trans European Replacement Reserves Exchange
- TR - Real Time
- TSO - Transmission System Operator
- VIP - Virtual Interconnection Point

II. LIST OF LEGISLATION

A. NATIONAL LEGISLATION

In 2019, the following legal acts were published in Portugal with relevance for ERSE's activities:

- Law n.º 5/2019, of 11 January - Regime for compliance with the information duty of the energy supplier to the consumer;
- Decree-Law n.º 10/2019, of 18 January - Changes the system of greenhouse gas emission allowance trading;
- Ordinance n. º 43/2019 of 31 January - Amends Article 7 of Ordinance n. º 102/2015 of 7 April, (establishes the procedures for injection of additional energy and for authorisation of over-equipment of wind power plants, as well as the requirements for waiving individualised telemetering of energy from over-equipment, and defines the fees applicable to procedures under the scope of over-equipment), as amended by Ordinance n. º. 246/2018 of 3 September;
- Ministerial Order n. º74/2019, of 8 March - Ministerial Order that establishes the procedures for the recognition as a small dedicated biofuel producer (PPD) and the attribution of the amount of biofuel benefiting from tax exemption on petroleum and energy products (ISP) and respective value, in implementation of n.º 4 of Article 90 of the Excise Tax Code (CIEC), in its current wording;
- Decree-Law n.º 60/2019, of 15 March - Determines the application of the reduced VAT rate to the fixed component of certain supplies of electricity and natural gas;
- Order n.º 4004/2019, of 10 April - Survey of the prohibitions established in n.º 1 of article 1 of Decree-Law n.º 327/90, of 22 October, in its current wording, in order to make possible the construction of the "Parque Eólico da Tocha II" and its infrastructure, in the parish of Tocha, in the municipality of Cantanhede, in a forest stand area covered by fire that occurred on 15 October 2017;
- Order n.º 4001/2019, of 10 April - Discount value of the social tariff for the supply of natural gas to be applied to economically vulnerable end customers, in the 2019-2020 tariff period;
- Decree-Law n.º 48/2019, 12 April - Amends measures to promote the production and use of forest biomass;

- Ministerial Order n.º 343-A/2019, of 16 May - Establishes the regulatory contribution due to the Energy Services Regulatory Entity (ERSE) for the regulation and supervision of the National Petroleum System;
- Ministerial Order n.º 167/2019, of 29 May - First amendment to Ministerial Order n.º 240/2018, of 29 August, which approves the pilot project for the application of the joint liquefied petroleum gas (LPG) tariff to economically vulnerable end customers;
- Resolution of the Council of Ministers n.º 107/2019 of 1 July - Approves the 2050 Roadmap for Carbon Neutrality;
- Decree-Law n.º 76/2019 of 3 June - Amends the legal framework applicable to the exercise of electricity production, transportation, distribution and trading activities and to the organisation of electricity markets;
- Declaration of rectification n. º 27/2019, of 5 June - Corrigendum to Ordinance n.º. 167/2019, of the Internal Administration and Environment and Energy Transition, on the first amendment to Ordinance n. º. 240/2018, of 29 August, which approves the pilot project for the application of the solidarity tariff for liquefied petroleum gas (LPG) to be applied to economically vulnerable end customers, published in the Official Gazette, n.º 103, 1st Series, of 29 May;
- Order n,º. 5532-B/2019, of 6 June - Determines the opening of a competitive procedure, in the form of an electronic auction, for the allocation of reserve injection capacity at connection points to the public service electricity network for photovoltaic solar energy, produced at an electricity generator centre;
- Regional Legislative Decree n.º 14/2019/A, of 12 June - Second amendment to Regional Legislative Decree n.º 5/2010/A, of 23 February, establishing the system of incentives for the production of energy from renewable sources in the Autonomous Region of the Azores - PROENERGIA;
- Order n.º 5894-B/2019, of 26 June - Extending until July 7, 2019 the deadline for submission of applications to the competitive procedure for the allocation of reserve capacity for injection into the public service electricity network, opened by Order n.º 5532-B/2019, of 6 June;
- Regional Legislative Decree n. º 4/2019/M, of 1 July - Adapts Decree-Law n.º 96/2017, of 10 August, as amended by Law n.º 2/2006 of the Federal Republic of Germany. n.º 61/2018, of 21 August, establishes the discipline of private service electrical installations fed by the public service electrical network (RESP) of the Autonomous Region of Madeira (RAM), in medium, high or low voltage, and

installations with their own production, of a temporary or itinerant nature, security or rescue, and defines the system of control, supervision and regulation of the activities associated with them;

- Dispatch n.º 6374/2019, of 15 July - Creation and constitution of the Working Group for the Articulation of Central and Local Public Policies for Consumer Protection;
- Declaration of rectification n.º 36/2019, of 30 July - Amends Decree-Law n.º 76/2019, of 3 June, on the Environment and Energy Transition, which amends the legal framework applicable to the exercise of electricity generation, transmission, distribution and trading activities and to the organisation of electricity markets, published in Diário da República, 1st Series, n.º. 106, of 3 June 2019;
- Regional Legislative Decree n.º 21/2019/A, of 8 August- Defines the strategy for the implementation of electric mobility in the Azores;
- Decree-Law n.º 105/2019, of 9 August - Amends the methods of calculation of crude oil and petroleum products storage obligations, transposing the Implementation Directive (EU) 2018/1581;
- Decree-Law n.º 104/2019, of 9 August - Amends the regulatory mechanism aimed at ensuring the balance of competition in the wholesale electricity market in Portugal;
- Decree-Law n.º 12/2019, of 14 August - Establishes the regime for combustible gas installations in buildings, hereinafter referred to as gas installations, and the apparatus they supply, with the exception of apparatus powered directly by gas cylinders placed at the place of consumption, as well as the definition of the system of supervision and regulation of the activities associated with them;
- Decree-Law n.º 120/2019, of 22 August - Amends the special and extraordinary regime for the installation and operation of new biomass recovery plants;
- Ministerial Order n. º. 282/2019, of 30 August - Establishes the procedure for the preparation, including calendar and other procedures, of the study on the impact of measures and events registered outside the European Union, foreseen in no. 1 of article 4 of Decree-Law n.º 74/2013, of 4 June, in its current wording, and revokes Ministerial Order n.º 288/2013, of 20 September, with the amendments introduced by Ministerial Order n.º 225/2015, of 30 July;
- Ministerial Order n.º 297/2019 of 9 September - Fourth amendment to Ministerial Order n.º 349-B/2013, of 29 November, which defines the methodology to determine the energy performance class for the type of pre-certificates and certificates of the SCE, as well as the requirements of

technical performance and efficiency of the technical systems of new buildings and buildings subject to major intervention;

- Dispatch n.º 8168/2019 of 16 September - Declaration of public utility, as a matter of urgency, of the expropriation of property and inherent rights necessary for the construction of the 4th phase of the Tâmega Electricity System;
- Resolution of the Assembly of the Republic n.º 192/2019 of 17 September - Recommends to the Government the adoption of a legislative framework for collective self-consumption and for renewable energy communities;
- Order n.º 8521/2019 of 26 September - Value of payments on account to be applied to electricity producers covered by the competitive balance mechanism in 2019;
- Council of Ministers Resolution n.º 161/2019 of 26 September - Determines the annual co-financing, by the Environmental Fund, of the investment amount related to the installation of the submarine cable connecting the Windfloat project, for a period of 25 years;
- Dispatch n. º. 8965/2019 of 8 October - determines that the concessionaire of the National Transport Network, as a Guarantee of Origin Issuing Entity, must create and maintain a platform that ensures the management of certification of cogeneration installations and electricity production from renewable energy sources and the issue of guarantees of origin of their production;
- Order 12424-A/2019 of 27 December - Identification of measures and events internal to the National electricity system to be considered in the study to be prepared by ERSE - Energy Services Regulatory Entity in 2020.

The following national legislation was taken into account in the preparation of this report:

- Law n. º 144/2015 of 8 September, which transposes Directive 2013/11/EU of the European Parliament and of the Council of 21 May 2013, on alternative resolution for consumer disputes, establishing a legal framework for out-of-court settlement mechanisms.
- Law n. º 75/2015 of 28 July, which governs the access to and exercise of the provision of audit services to cogeneration plants or to plants whose production is based on renewable energy sources.
- Law n. º 9/2013 of 28 January, which approves the Energy Sector Penalty System, transposing, together with the amendment to the Statutes of the Energy Services Regulatory Entity, Directives

2009/72/EC and 2009/73/EC of the European Parliament and of the Council of 13 July 2009, concerning common rules for the internal market in electricity and natural gas and repealing Directives 2003/54/EC and 2003/55/EC of the European Parliament and of the Council of 26 June 2003.

- Decree-Law n. º 205/2015 of 23 September, which amends Decree-Law n.º 57/2008 of 26 March, concerning the legal framework applicable to unfair business-to-consumer commercial practices implemented before, during or after a commercial transaction related to a good or service, thus clarifying the transposition of Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005.
- Decree-Law n. º 68-A/2015 of 30 April, which sets out provisions with regard to energy efficiency and cogeneration production, transposing Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012, on energy efficiency.
- Decree-Law n. º 15/2015 of 30 January, which amends Decree-Laws n.º 74/2012 of 26 March; 75/2012 of 26 March; 66/2010 of 11 June, and 104/2010 of 29 September, which establish the framework for the phasing out of regulated tariffs. This diploma changes the way the period is set for the application of the corresponding transitional tariffs for the supply of natural gas and electricity to end-customers with annual consumption lower than or equal to 10,000 m^3 and with standard low voltage consumption, and forbids suppliers on the liberalised market from indexing contractual prices to the transitional tariff for end-customers.
- Government Ordinance n. º 144/2017, of 24 April which amends Order n. º 59/2013, of 11 February which amends Order n. º 59/2013 of 11 February which approves the extension of the period of phasing out of transitional tariffs applicable to the supply of natural gas.
- Government Ordinance n. º 364-A/2017, of 4 December which amends no. 2 of Order n. º 27/2014, of 4 February which amends the date provided for in nº 1 of article 6 of Decree-Law n.º 104/2010, of September, regarding the obligation of supplying electricity, by the supplier of last resort, to final customers consuming HV, MV, and SpLV (special LV)E that have not contracted their supply on the liberalised market.
- Decree-Law n. º 172/2014 of 14 November, which introduces the first amendment to Decree-Law n. º 138 -A/2010 of 28 December, which creates the social tariff for the supply of electricity, and the first amendment to Decree-Law n. º 102/2011 of 30 September, which creates the extraordinary

social support for energy consumers, with the purpose of broadening the eligibility conditions for attributing the aforementioned social tariff to end-customers regarded as economically vulnerable.

- Decree-Law n. º 231/2012 of 26 October, which introduces the third amendment to Decree-Law n. º 140/2006 of 26 July and concludes the transposition of Directive 2009/73/EC of the European Parliament and of the Council of 13 July, concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC of the European Parliament and of the Council of 26 July.
- Decree-Law n. º 230/2012 of 26 October, which introduces the fifth amendment to Decree-Law n. º 30/2006 of 15 February and completes the transposition of Directive n. º 2009/73/EC of the European Parliament and of the Council of 13 July, concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC of the European Parliament and of the Council of 26 July. It also implements Regulation (EC) n. º 715/2009 of the European Parliament and of the Council of 13 July, on conditions for access to the natural gas transmission networks and repealing Regulation (EC) n.º 1775/2005, and Regulation (EU) n.º 994/2010 of the European Parliament and of the Council of 20 October, concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC.
- Decree-Law n. º 76/2019, of 3 July amendment to Decree-Law n.º 172/2006 of 23 August, amended by Decree-Law n. º 215-B/2012 of 8 October and completes the transposition of Directive 2009/72/EC of the European Parliament and of the Council of 13 July, concerning common rules for the internal market in electricity.
- Decree-Law n. º 215-A/2012 of 8 October, which introduces the Fifth Amendment to Decree-Law n.º 29/2006 of 15 February, transposing Directive 2009/72/EC of the European Parliament and of the Council of 13 July, concerning common rules for the internal market in electricity.
- Parliamentary Resolution n. º 23/2006, which approves the Agreement between the Portuguese Republic and the Kingdom of Spain for the Constitution of an Iberian Electricity Market (MIBEL), signed in Santiago de Compostela on 1 October 2004.
- Resolution of the Council of Ministers n. º 20/2013, published in the Official Gazette, 1st series of 10 April, which approves the National Energy Efficiency Action Plan for the period 2013-2016 and the National Renewable Energy Action Plan for the period 2013-2020.
- Government Ordinance n. º 643/2015 of 21 August, which establishes the percentages of the shareholdings of different companies in MIBGAS, S. A., the company that is authorised to manage the organised gas spot market, as part of the creation of the Iberian Natural Gas Market (MIBGAS).

- Government Ordinance n. º 237/2015 of 12 August, which amends Order n. º 278-C/2014 of 29 December, which defined new procedures and conditions for the granting, application and maintenance of the social tariff.
- Government Ordinance n. º 108-A/2015 of 14 April, which defines the mechanism for determining the aggravating factor included in the transitional tariff to end-customers of natural gas.
- Government Ordinance n. º 97/2015 of 30 March, which approves the new dates of the period for applying transitional sale tariffs to end-customers for natural gas with annual consumptions equal to or lower than 10,000 m^3 and for electricity with consumptions in normal low voltage.
- Government Ordinance n. º 251-B/2014 of 28 November, which introduces the second amendment to Order n. º 332/2012 of 22 October, concerning the criteria for the differentiated impact of costs arising from measures related to energy, sustainability or general economic interest policies on the tariff for the global use of the system applicable to activities covered by the National Electricity System,
- Regulation n. º 416/2016 of 29 April, which approves the Commercial Relations Code for the natural gas sector amended by Regulation no. 224/2018 of 16 April and Regulation no. 387/2018 of 22 January.
- Regulation n. º 361/2019 of 23 April, which approves the Tariffs Code for the natural gas sector.
- Regulation n. º 619/2017 of 18 December, which amends the Tariffs Code for the electricity sector.
- Regulation n. º 620/2017 of 18 December, which amends the Access to Networks, Infrastructures and Interconnections Code for the electricity sector.
- Regulation n. º 621/2017 of 18 December, which amends Operation of Electricity Sector Networks Code.
- Regulation n. º 632/2017 of 21 December, which approves the Commercial Relations Code for the electricity sector.
- Regulation n. º 629/2017 of 20 December, which approves the Quality of Service Code for the electricity and natural gas sector.
- Directive n. º 5/2016 of 26 February, of ERSE, which approves the Guidelines for Measuring, Reading and Disclosing Electricity Data in mainland Portugal.

- Directive n. º 15/2015 of 9 October, of ERSE, which establishes commercial margins for the market agents.
- Directive n. º 8/2015 of 27 May, of ERSE, which details the operative procedures for the application of these adjustments.
- Directive n. º 6/2015 of 27 April, of ERSE, concerning the provision of pre-contractual and contractual information to electricity consumers, which provides for the obligation to disclose and harmonise the contents of the conditions for the provision of pre-contractual and contractual information to electricity consumers in mainland Portugal.
- Order n.º 8810/2015 of 10 August, of the Directorate-General for Energy and Geology, which lays down the necessary rules and procedures to establish a discipline for the interruption of generation under the special regime, namely the order and sequence of the power reduction to be complied with by the special-regime generating plants connected to the RNT or the RND.
- Order n. º 3677/2011 of 24 February, of ERSE, which establishes the monitoring of reference prices and average prices charged by natural gas supplies, in order to define the information requirements to be met by the suppliers as regards the calculation and disclosure of both the reference prices that the suppliers expect to charge in the market and the average prices that are effectively charged.
- Order n. º 18637/2010 of 15 December, of ERSE, which establishes the monitoring of reference prices and average prices charged by electricity suppliers, in order to define the information requirements to be met by suppliers as regards the calculation and disclosure of both the reference prices that the suppliers expect to charge in the market and the average prices that are effectively charged. This order amends Order n. º 9244/2009, introducing some changes in the methodology for calculating reference prices and of the average prices that are charged.
- Order n. º 1801/2009 of 14 January, of ERSE, which proceeds with the quarterly review applicable to energy prices for natural gas tariffs in the 1st quarter of 2009.
- Decision n. º 1/2014 of 21 February, of ERSE, which approves the processes for the allocation of capacity in the virtual point of natural gas interconnection between Portugal and Spain.
- Recommendation n.º 2/2013, concerning aspects of electricity contracting that are relevant for consumers: the existence and scope of loyalty periods, the availability of payment forms and the indexing of prices on the liberalised energy market.

- Directive n.º 7/2018 of 28 March - Natural Gas Sector Measurement, Reading and Data Availability Guide
- Regulation n.º 610/2019 of 2 August - Approves the Code on Intelligent Power Distribution Network Services;
- Regulation n. º 854/2019 of 4 November - Approves the Electric Mobility Code.

B. EU LEGISLATION

The following EU legislation was taken into account in the preparation of this report:

- Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading regime of the Community.
- Directive 2009/28/EC, of the European Parliament and of the Council of 23 April 2009, on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.
- Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009, concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.
- Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009, concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.
- Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC.
- Commission Regulation No. (EU) 2015/1222 of 24 July 2015, establishing a guideline on capacity allocation and congestion management.
- Commission Regulation No. (EU) 2015/703 of 30 April 2015, establishing a network code on interoperability and data exchange rules.
- Commission Implementing Regulation (EU) No. 1348/2014 of 17 December 2014, on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) n.º 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.
- Commission Regulation (EU) No. 543/2013 of 14 June 2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council.
- Commission Regulation (EU) No. 984/2013 of 14 October 2013, establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation (EC) n.º 715/2009 of the European Parliament and of the Council of 13 July, on conditions for access to the natural gas transmission networks.

- Regulation (EU) No. 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency (REMIT).
- Regulation (EC) No. 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010.
- Regulation (EC) No. 715/2009, of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005.
- Regulation (EC) No. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation

III. INDICATORS OF TECHNICAL CONTINUITY OF SUPPLY (APPLICABLE TO THE ELECTRICITY SECTOR)

TIE	Equivalent Interruption Time: indicator applicable to the transmission network. This expresses the system's downtime (applicable to long-term interruptions), based on the average value of the expected annual capacity (Pme)
TIEPI	Installed Capacity Equivalent Interruption Time: Indicator applicable to the MV distribution network. This shows the duration of the downtime (applicable to long-term interruptions) of the installed capacity in transformer stations
SAIDI	Average duration of long system interruptions: indicator applying to the transmission and distribution networks
SAIFI	Average frequency of long system interruptions: indicator applying to the transmission and distribution networks
MAIFI	Average frequency of short system interruptions: indicator applying to the transmission and distribution networks

Note: Long interruptions - Interruptions with a duration longer than 3 minutes. Short interruptions - Interruptions with a duration between 1 second and 3 minutes, inclusive.

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