



**Evolution of  
the electricity  
market  
Annual report**

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**2019**

## Annual report 2019 / Contents

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2. Intraday auction market
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5. International exchanges
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# Annual report 2019

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## Executive summary / Market results

- ▶ During 2019, the total amount of energy negotiated on the day-ahead and intraday markets was 267 TWh, 4% less than that negotiated in 2018. of those 267 TWh, 229 TWh were negotiated on the day-ahead market and 38 TWh on the intraday markets.
- ▶ The average arithmetic price of the day-ahead market on the MIBEL was 47.78 €/MWh, some 16.7% lower than that of 2018. The average price on the intraday auction market was very similar at 48.16 €/MWh, and the weighted average price on the intraday continuous market was a little lower at 46.12 €/MWh.
- ▶ In 2019, the market shares in Spain for technology on the Daily Operations Base Program (Programa diario base de funcionamiento, PDBF) have highlighted the reduction of supplies from coal thermal power units in 2018, with 3.1% versus 11.4% in the previous year, and the increase of energy from the combined cycle of 12.6%, which went from 3.1% to 15.7%. Additionally, particularly noteworthy provisions of wind and hydraulic energy can be seen during the last two months of the year, in accordance with the weather (see figures 1.9 and 1.10).

The same trend can be seen in the Portuguese area, though not as significantly. With respect to 2018, coal thermal power units have decreased their supply by 10.1 percentage points to stay at 10.7%, and combined cycle and wind energy have increased 4.8 and 5.4 percentage points, providing a total of 23.0% and 28.1%, respectively.

## Annual report 2019

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### Executive summary / Market results

- ▶ The technologies that most hours have marked marginal are, in order, hydraulic, renewables-cogeneration-waste, and combined cycles at 41%, 28%, and 27%, respectively.
- ▶ In regard to the international exchanges of energies and in comparison to the previous year, it can be seen that the MIBEL zone continues to be a net importer, even though its volume has decreased by 11%. It must be noted that in 2019, the exchange of energy on the market with Morocco was a net importer.
- ▶ The first full year of the intraday continuous market's operation meant for agents the most flexible, efficient tool, enabling them to adjust the scheduling of their units up to one hour before the delivery of real energy, minimizing their possible misalignments and their costs.

In this sense, we can see that, on the one hand, renewable technologies are those that use this market the most. Wind energy is highly active in the last hour of negotiation before the delivery of energy in real-time. On the other hand, and in terms of international exchanges, in contrast to what happens on the day-ahead market on which the MIBEL zone turns out to be a general importer, on the intraday continuous market, there is more negotiation as an exporter, as long as the commercial capacity of the interconnections allows it (see figure 3.14).

# Annual report 2019

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## Executive summary / Market results

### Relevant facts

- ▶ Over the course of the entire year, various changes in the topology corresponding to the day-ahead market came about, primarily including new interconnections in the European field (ElecLink link, the cable between France and Great Britain, and the COBRA cable link between Holland and Denmark).
- ▶ On November 12, OMIE moved forward with the opening of negotiation of the intraday continuous market at 3 p.m., providing more flexibility to agents from Spain and Portugal by allowing them to modify their position after the negotiation of the day-ahead market.
- ▶ On November 19, seven countries were incorporated into the European intraday continuous market (Poland, the Czech Republic, Slovenia, Croatia, Hungary, Romania, and Bulgaria), expanding to operate in the energy of 21 countries and managed by 10 assigned market operators. It is notable that, since its start, only 3 market operators have been in charge of the coordination of the European intraday continuous market, with one of them being OMIE.

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### Executive summary / Economic results

- ▶ The economic volume of purchases in the markets managed by OMIE in 2019 was €12,979 million, 19.6% lower than the previous year.
- ▶ The economic volume of purchases in the Spanish zone during 2019 was €10,308 million, while in the Portuguese zone it was €2.672 million, reducing respectively by 20.4% and 16.7% compared to previous year.
- ▶ The final average price of the national demand of the Spanish electricity system for 2019 was 53.43 €/MWh, 17% less than the previous year.
- ▶ The congestion revenue from the Spain-France interconnection in 2019 was €168 million, 21.4% lower than the previous year. There were price difference between both zones 77.2% of the hours.
- ▶ The congestion revenue from the Spain-Portugal interconnection in 2019 was €4 million, 17.4% lower than the previous year. There were price difference between the zones 5.2% of the hours.

## Annual report 2019

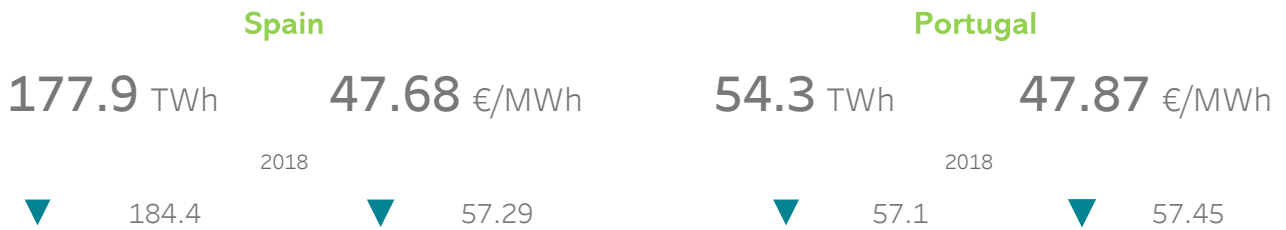
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### Executive summary / Economic results

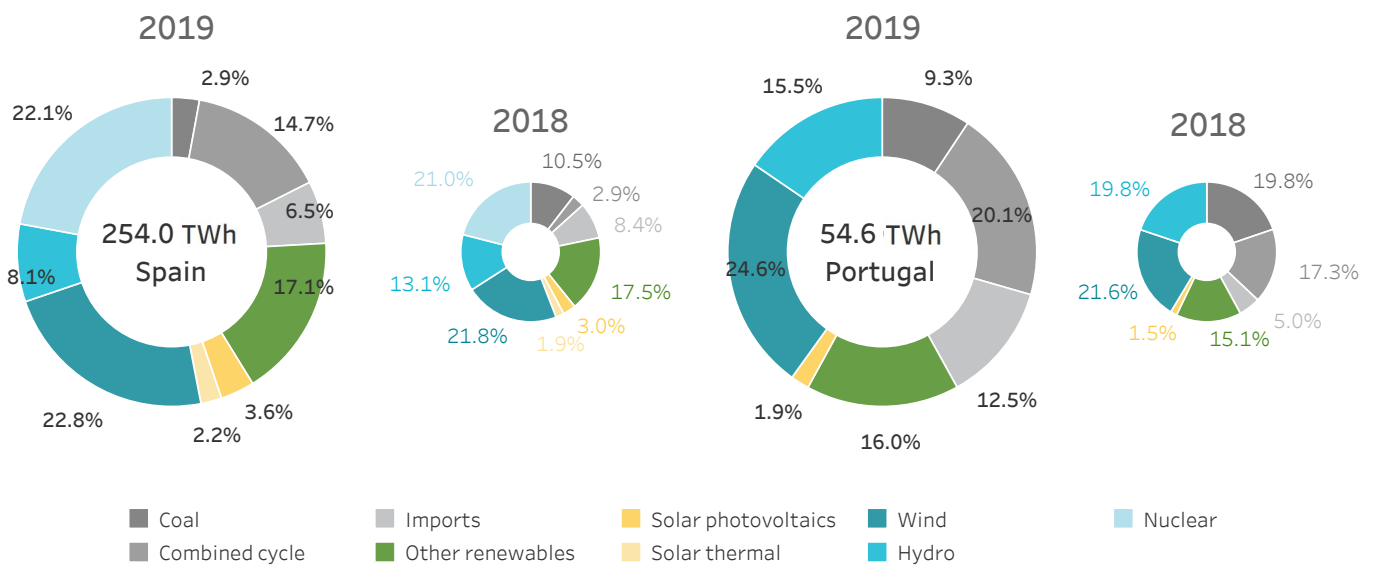
- ▶ The economic volume of the energy exchanges from MIBEL through the interconnection with France has risen to €693 million for imports and €179 million for exports, reducing respectively by 27.8% and 25.0% compared to the previous year.
- ▶ Through the interconnection with Morocco, the economic volume of imports has risen to €53 million and that of exports to €14 million, having an increase of 656.0% in the first case and a reduction of 93.2% in the second compared to last year.
- ▶ In 2019, the weekly average payments made to creditor agents on the market was €152 million/week.
- ▶ The settlement system of the market has efficiently managed the continuous participation increase in the market of direct consumers and retailers in the recent years, keeping this tendency during last year. In 2019, the number of debtor agents has risen to about 350, while creditor agents stayed at 80.
- ▶ During 2019, 151,076 purchase invoices and 54,570 sales invoices were issued for energy markets managed by OMIE, increasing respectively by 9.1% and 15.8% compared to the previous year.

## Day-ahead market

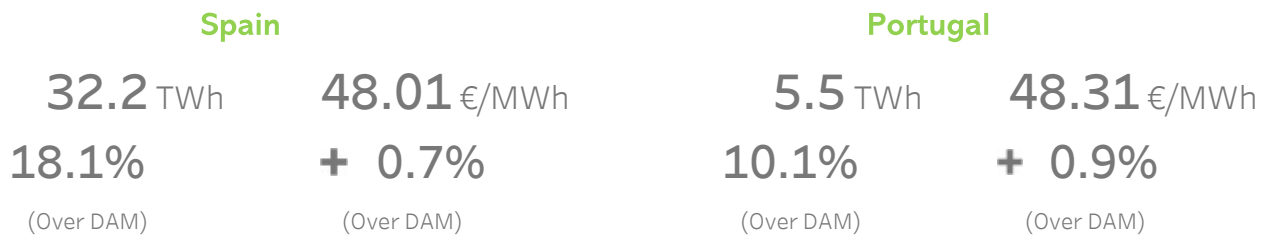
Energy and price day-ahead matched program (Programa Diario Base de Casación, PDBC)



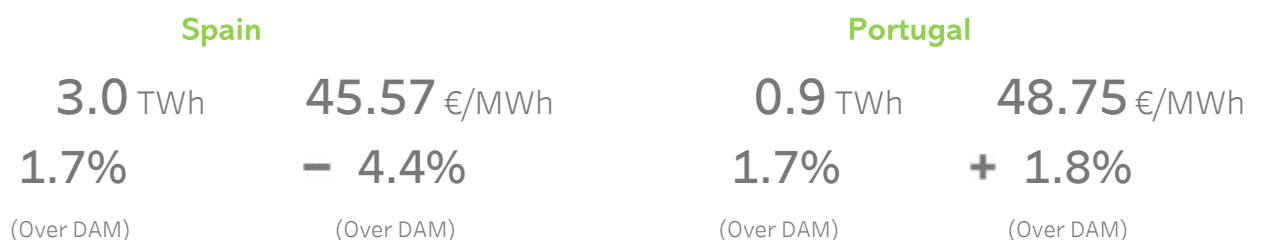
Tecnology day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)



## Intraday auction market



## Intraday continuous market



For the intraday continuous market, the energy and trades for each country include all the trades in which at least one of the agents involved in the trade belongs to that country.

The prices shown for the day-ahead market and the intraday auctions market are arithmetic average prices.

The prices shown for the intraday continuous market are weighted average prices.



## Economic volume 2019

### Spain

### Portugal

#### Day-ahead market

**8,692** Millions of €  
 10,864 M€ Last year  
 ▼ 19.99% Variation 2019 - 2018

**2,466** Millions of €  
 2,968 M€ Last year  
 ▼ 16.90% Variation 2019 - 2018

#### Intraday auctions market

**1,473** Millions of €  
 1,971 M€ Last year  
 ▼ 25.30% Variation 2019 - 2018

**186** Millions of €  
 224 M€ Last year  
 ▼ 16.87% Variation 2019 - 2018

#### Continuous intraday market

**143** Millions of €  
 109 M€ Last year  
 ▲ 31.78% Variation 2019 - 2018

**19** Millions of €  
 14 M€ Last year  
 ▲ 39.16% Variation 2019 - 2018

### Spain-Portugal

### Spain-France

#### Congestion revenue

**4** Millions of €  
 5 M€ Last year  
 ▼ 17.42% Variation 2019 - 2018

**168** Millions of €  
 221 M€ Last year  
 ▼ 24.10% Variation 2019 - 2018

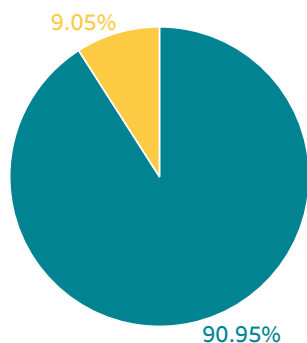
#### % Hours with price difference

**5.17 %**

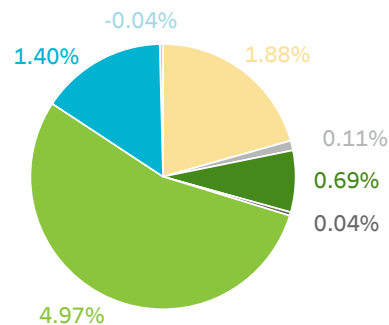
**77.24 %**

## Final average price of the Spanish electricity system

### Components - National demand



- Day-ahead market
- Others:
  - Constraints
  - Upward reserve power
  - Regulation band
  - Intraday market
  - Technical operation
  - Capacity payments
  - Interruptibility service



### National demand

**53.43** €/MWh

64.35 €/MWh Last year  
 ▼ 16.97% Variation 2019 - 2018

### Free market

**53.20** €/MWh

64.20 €/MWh Last year  
 ▼ 17.13% Variation 2019 - 2018

### Reference retailers

**55.38** €/MWh

65.57 €/MWh Last year  
 ▼ 15.54% Variation 2019 - 2018

The economic volume values include purchases for each country, including in the case of Spain the exports received from the French and Moroccan interconnectors.

## Annual report 2019

# 1.

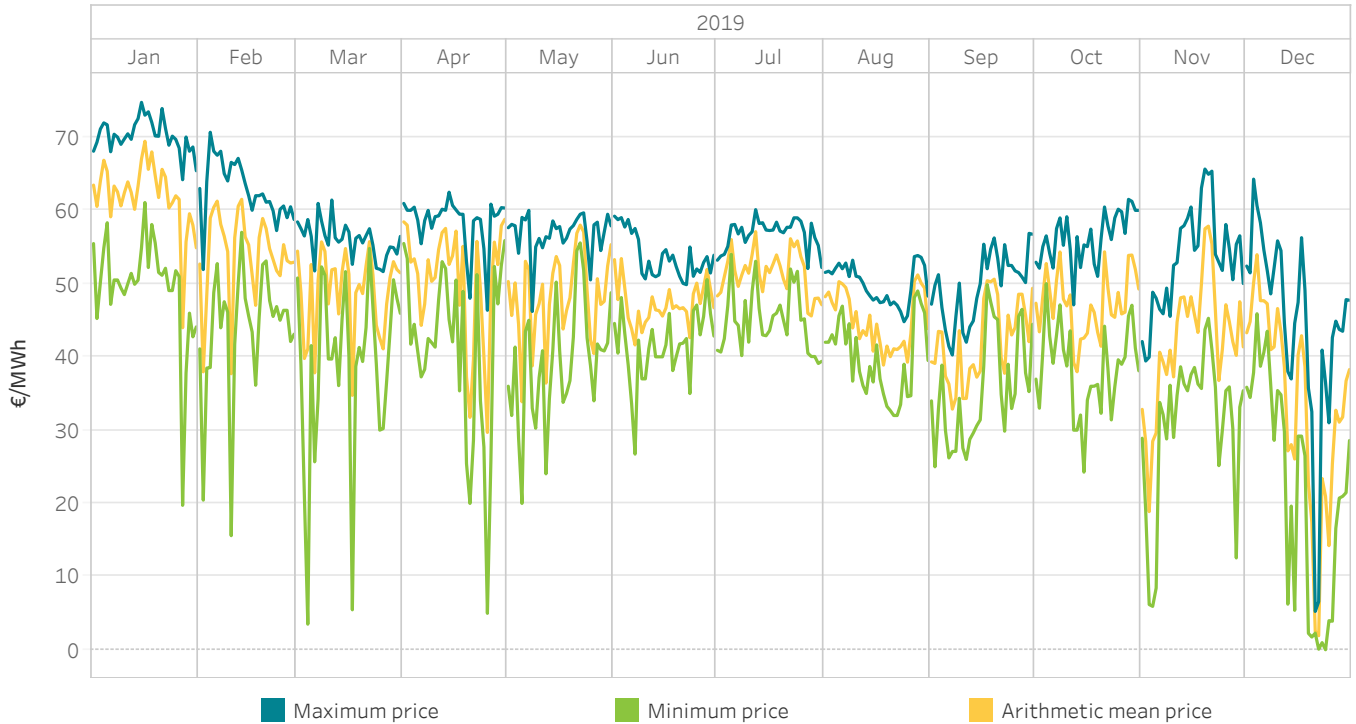
## Day-ahead market

- Prices and energies on the day-ahead market
- Technologies on the day-ahead market
- Matched energy for acquisition units



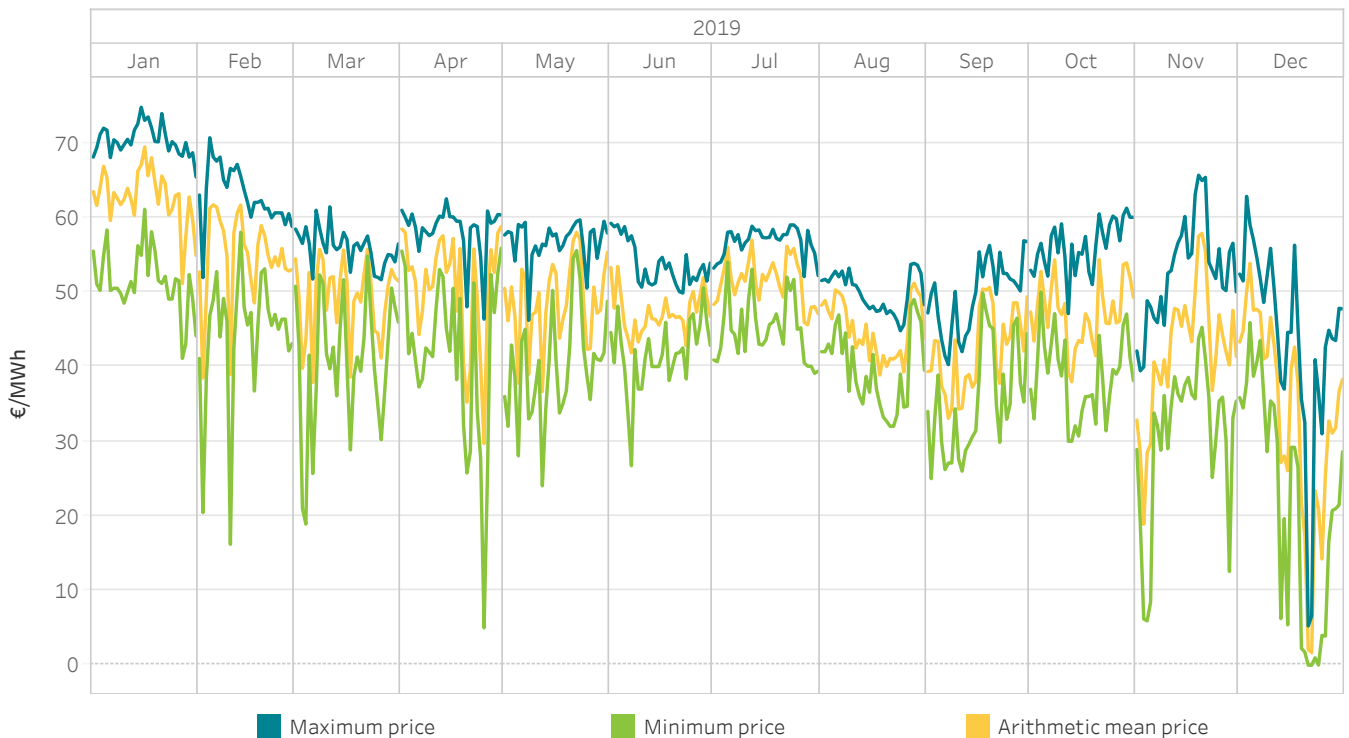
## 1.1 Maximum, minimum and arithmetic mean price on the day-ahead market

In Spain

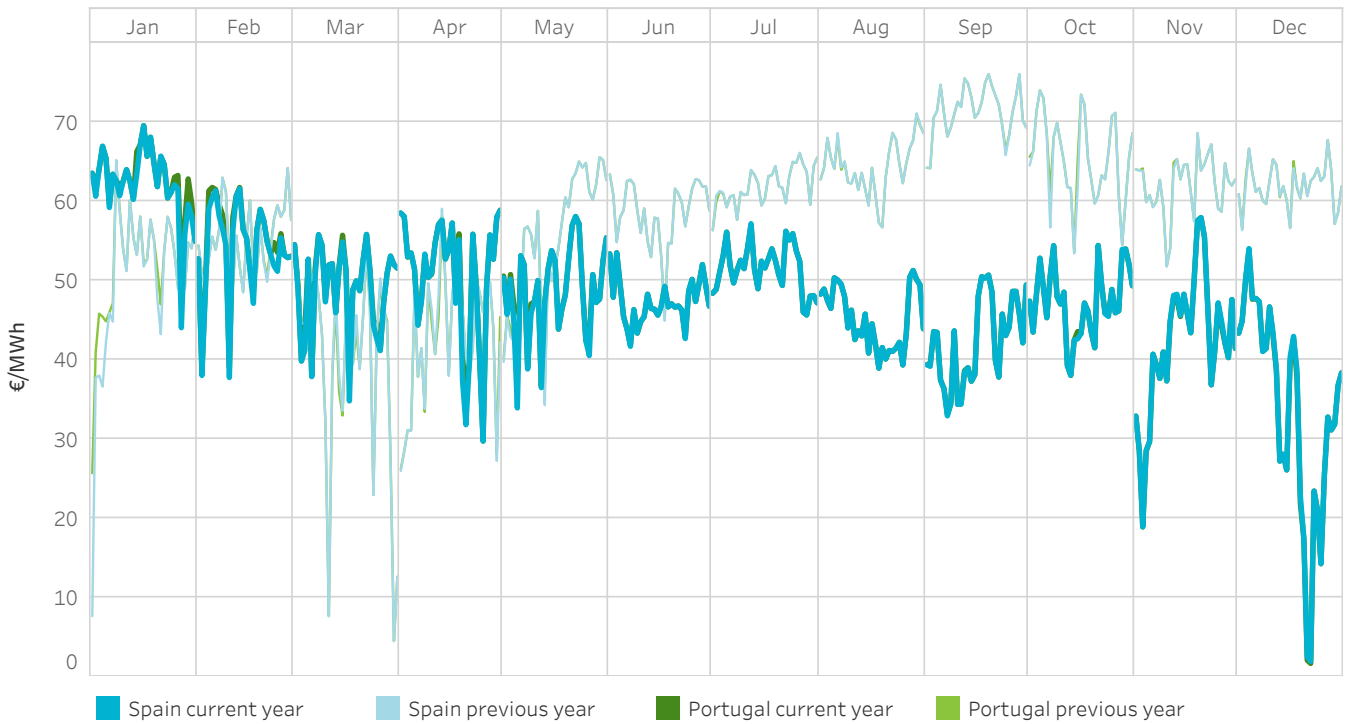


## 1.2 Maximum, minimum and arithmetic mean price on the day-ahead market

In Portugal



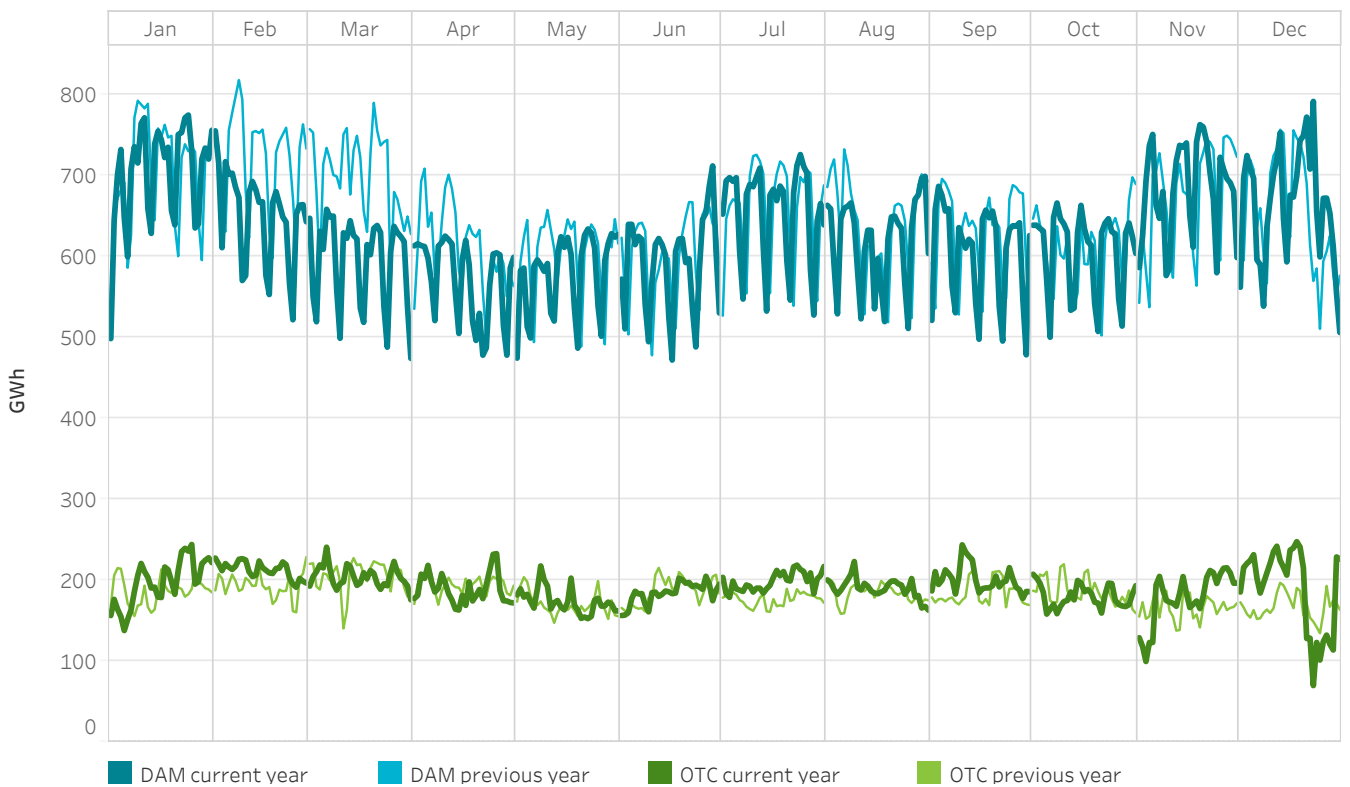
### 1.3 Day-ahead arithmetic mean prices for 2019 compared to 2018 In Spain and Portugal



### 1.4 Energy negotiated on the day-ahead market and over the counter contracts (OTC) for 2019 compared to 2018 In Spain and Portugal

In Spain and Portugal

The negotiated energy is calculated as the addition of the acquisitions plus the net exports.



## 1.5 Prices [€/MWh] and energies [GWh] on the day-ahead market In Spain

Year of study	Month of study	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2019	January	61.99	74.74	19.74	16,831.6	6,116.4
	February	54.01	70.66	15.60	14,107.9	5,934.1
	March	48.82	61.41	3.52	14,227.0	6,304.6
	April	50.41	62.48	5.00	13,202.3	5,655.3
	May	48.39	60.00	20.00	13,966.6	5,375.3
	June	47.19	59.21	26.73	13,998.6	5,509.2
	July	51.46	60.10	39.10	16,131.8	6,136.3
	August	44.96	53.84	32.00	15,229.7	5,870.0
	September	42.11	56.86	25.00	14,162.5	6,005.8
	October	47.17	61.50	24.27	14,685.4	5,558.3
	November	42.19	65.64	5.95	15,875.4	5,334.5
	December	33.81	64.26	0.03	15,517.9	5,869.4
<b>Interannual results</b>		<b>47.68</b>	<b>74.74</b>	<b>0.03</b>	<b>177,936.8</b>	<b>69,669.1</b>

Year of estudio	Period	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2018	January-December	57.29	84.13	2.06	184,354.8	66,844.7
2019	January-December	47.68	74.74	0.03	177,936.8	69,669.1

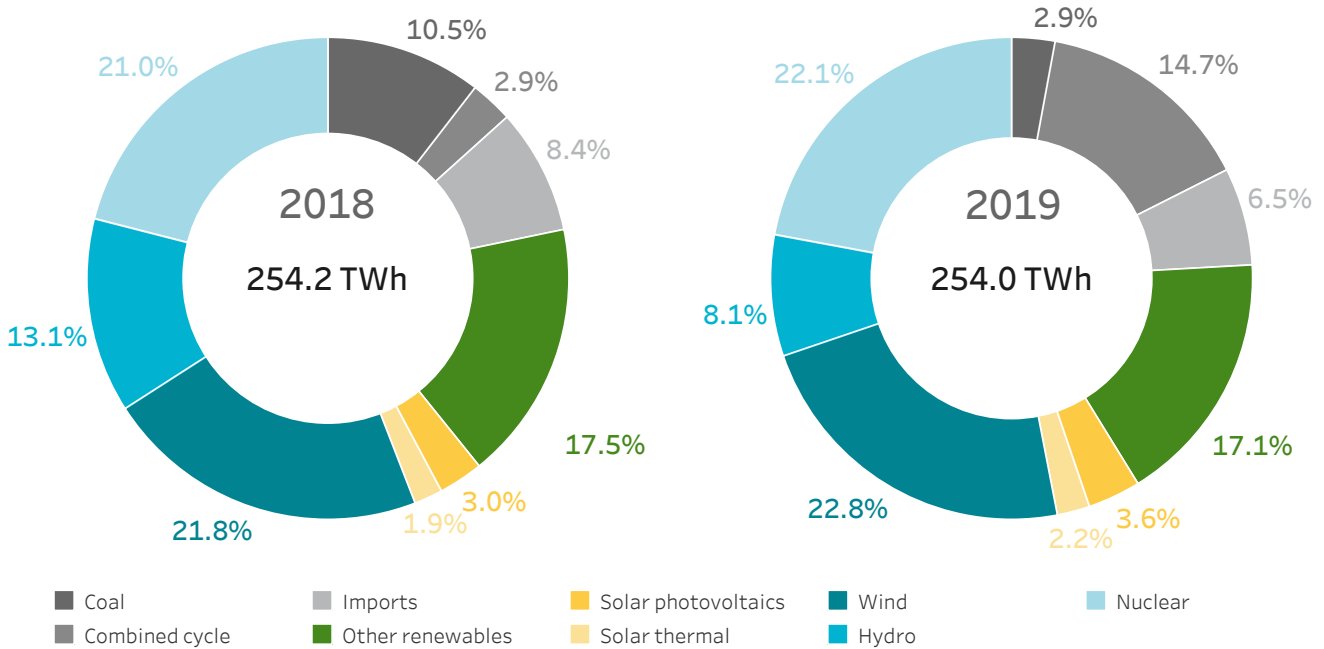
## 1.6 Prices [€/MWh] and energies [GWh] on the day-ahead market In Portugal

Year of study	Month of study	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2019	January	62.69	74.74	41.10	5,199.8	25.5
	February	54.71	70.66	16.20	4,258.9	23.2
	March	49.20	61.41	18.91	4,341.0	23.8
	April	50.66	62.48	5.00	4,288.3	23.0
	May	48.75	59.66	24.04	4,313.3	23.2
	June	47.21	59.21	26.73	3,999.2	22.7
	July	51.46	58.98	39.10	4,505.9	22.4
	August	44.96	53.84	32.00	4,076.4	23.0
	September	42.14	56.86	25.00	4,262.7	23.0
	October	47.21	61.23	30.00	4,457.5	26.1
	November	42.13	65.64	5.95	5,031.1	26.2
	December	33.68	62.81	0.01	5,597.0	28.2
<b>Interannual results</b>		<b>47.87</b>	<b>74.74</b>	<b>0.01</b>	<b>54,330.9</b>	<b>290.4</b>

Year of estudio	Period	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2018	January-December	57.45	84.13	2.30	57,103.3	17.9
2019	January-December	47.87	74.74	0.01	54,330.9	290.4

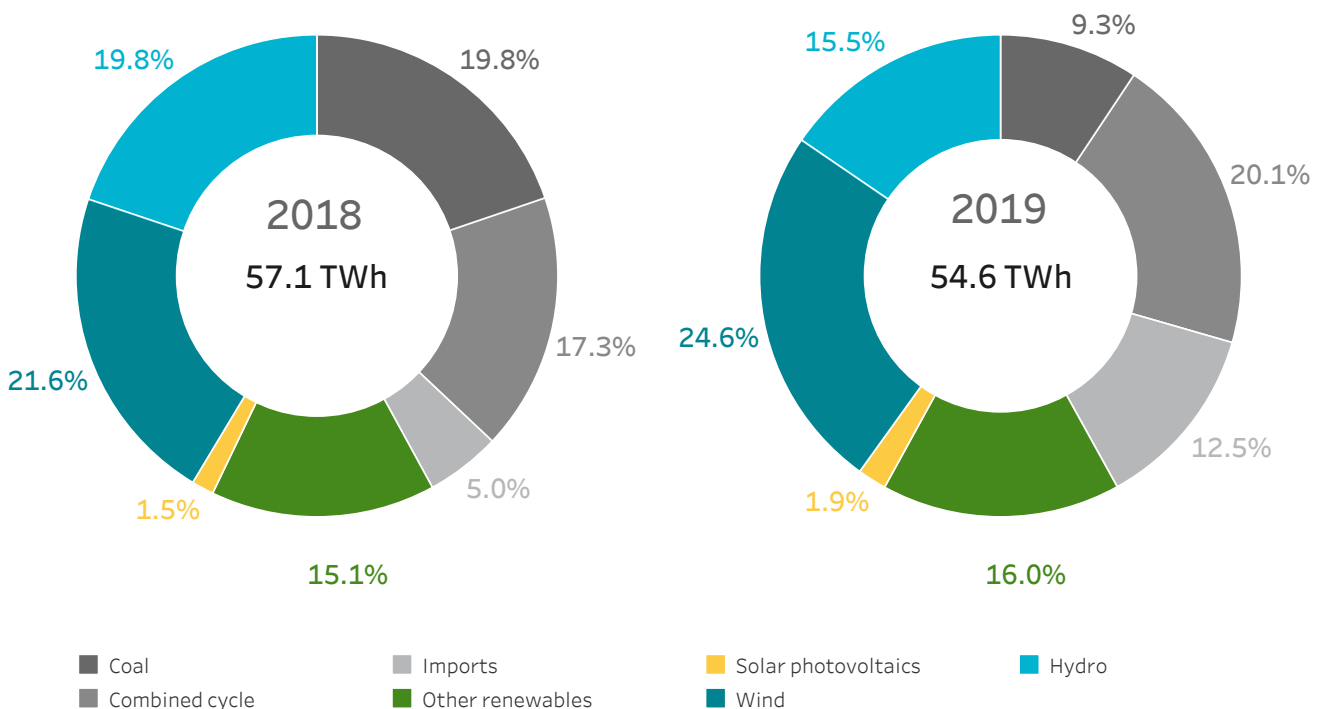
### 1.7 Technologies in the day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)

In Spain



### 1.8 Technologies in the day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)

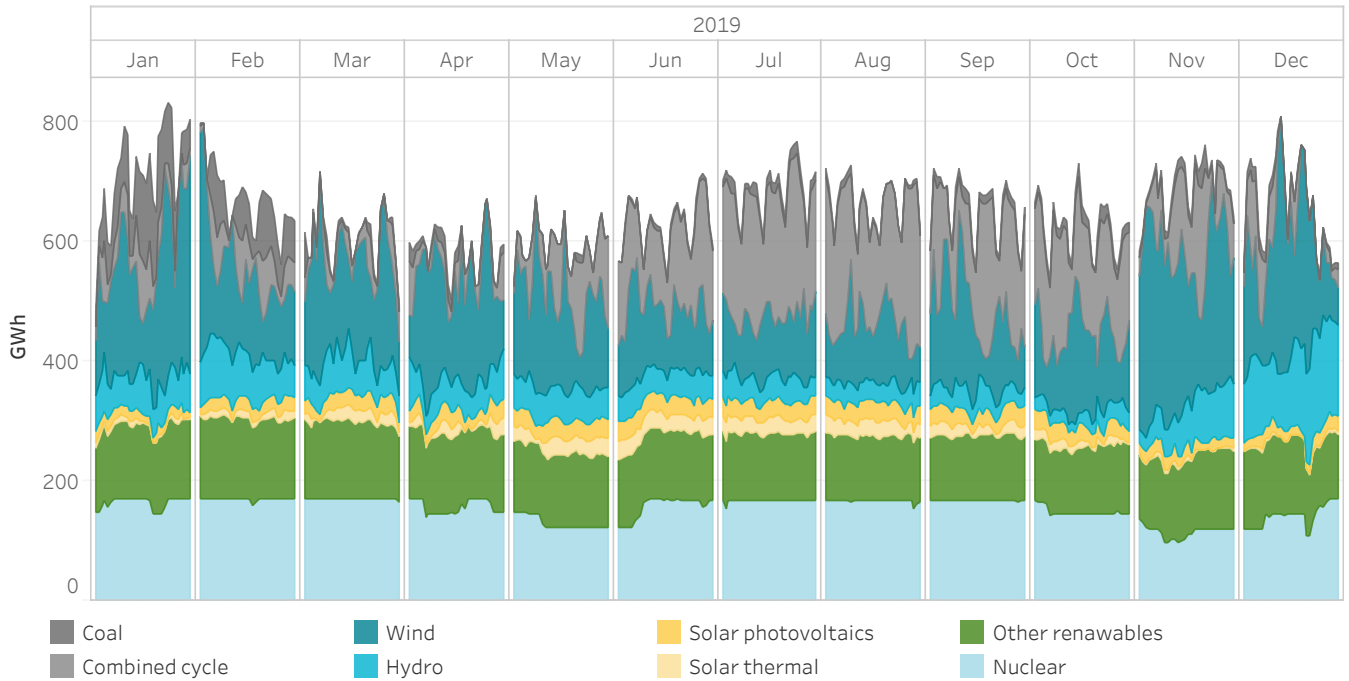
In Portugal



### 1.9 Energy classified by technology in the day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)

In Spain

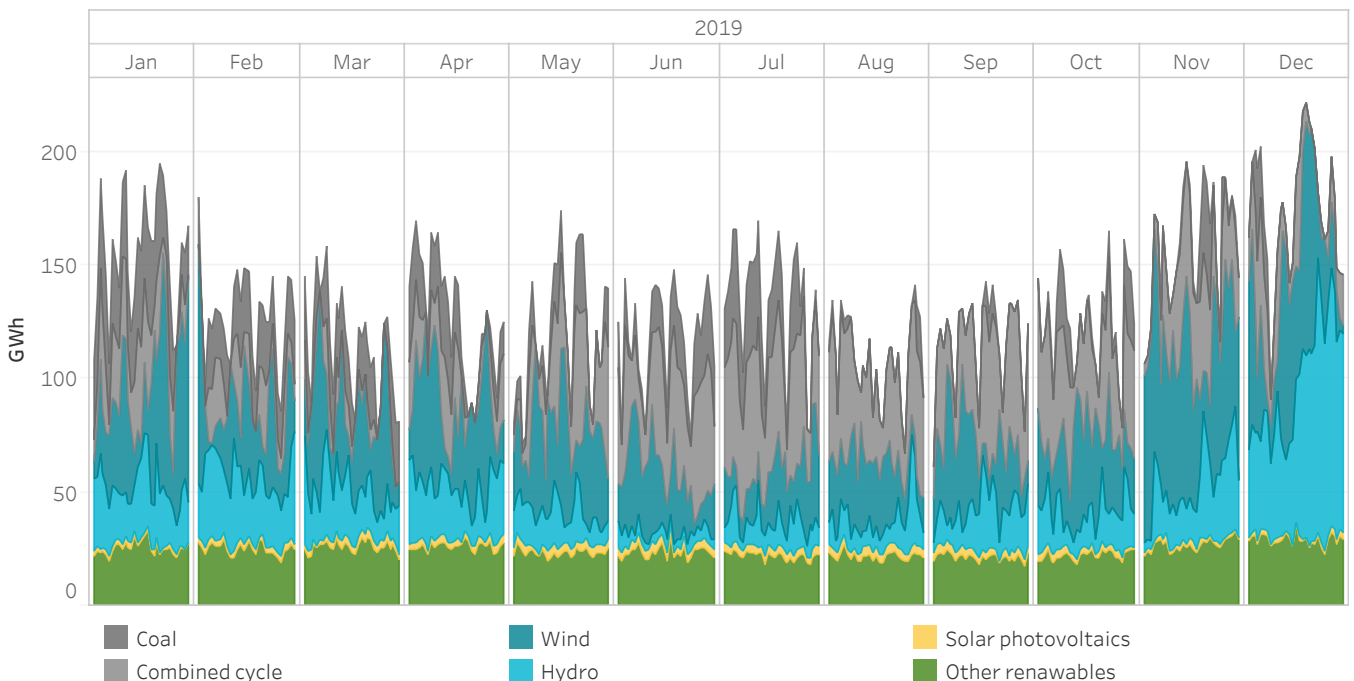
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



### 1.10 Energy classified by technology in the day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)

In Portugal

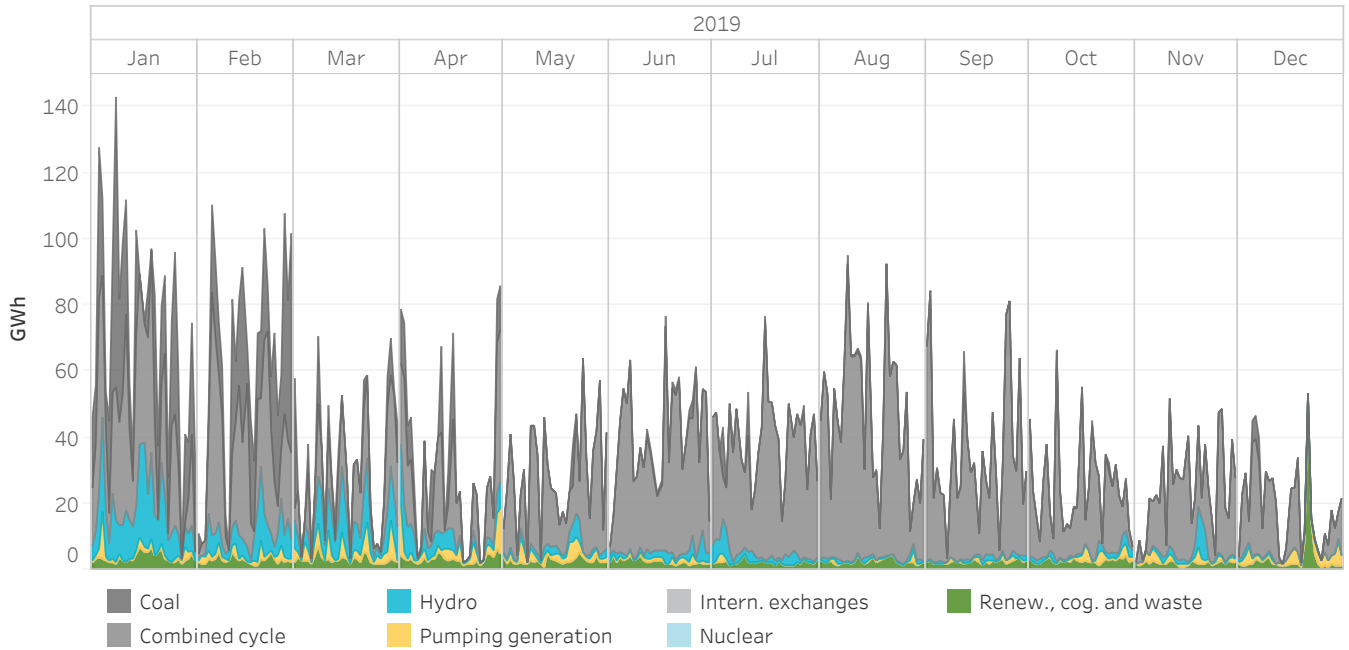
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



### 1.11 Energy classified by technology at 95% of the marginal day-ahead market price

In Spain

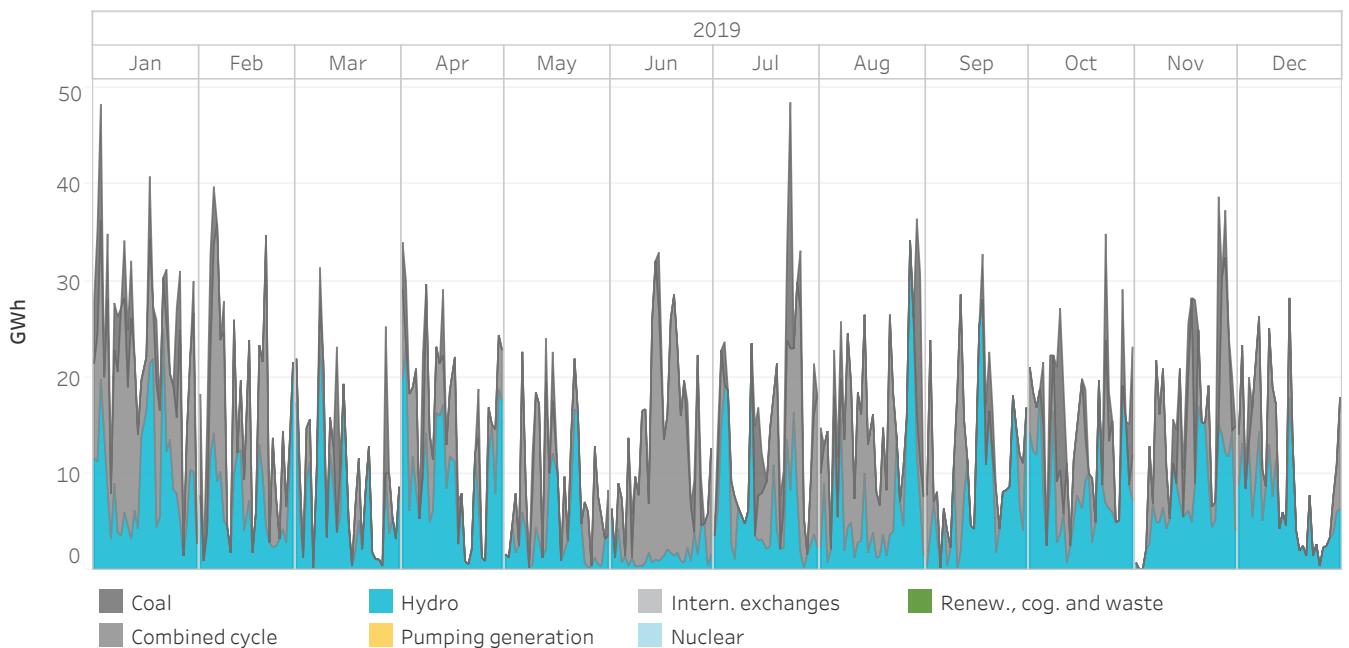
Energy matched classified by technology in the day-ahead market with bid price offered at a price greater than or equal to the 95% of the marginal price, including complex bids. The graph does not show the technologies setting the marginal price. This information is shown in graph 1.13.



### 1.12 Energy classified by technology at 95% of the marginal day-ahead market price

In Portugal

Energy matched classified by technology in the day-ahead market with bid price offered at a price greater than or equal to the 95% of the marginal price, including complex bids. The graph does not show the technologies setting the marginal price. This information is shown in graph 1.14.

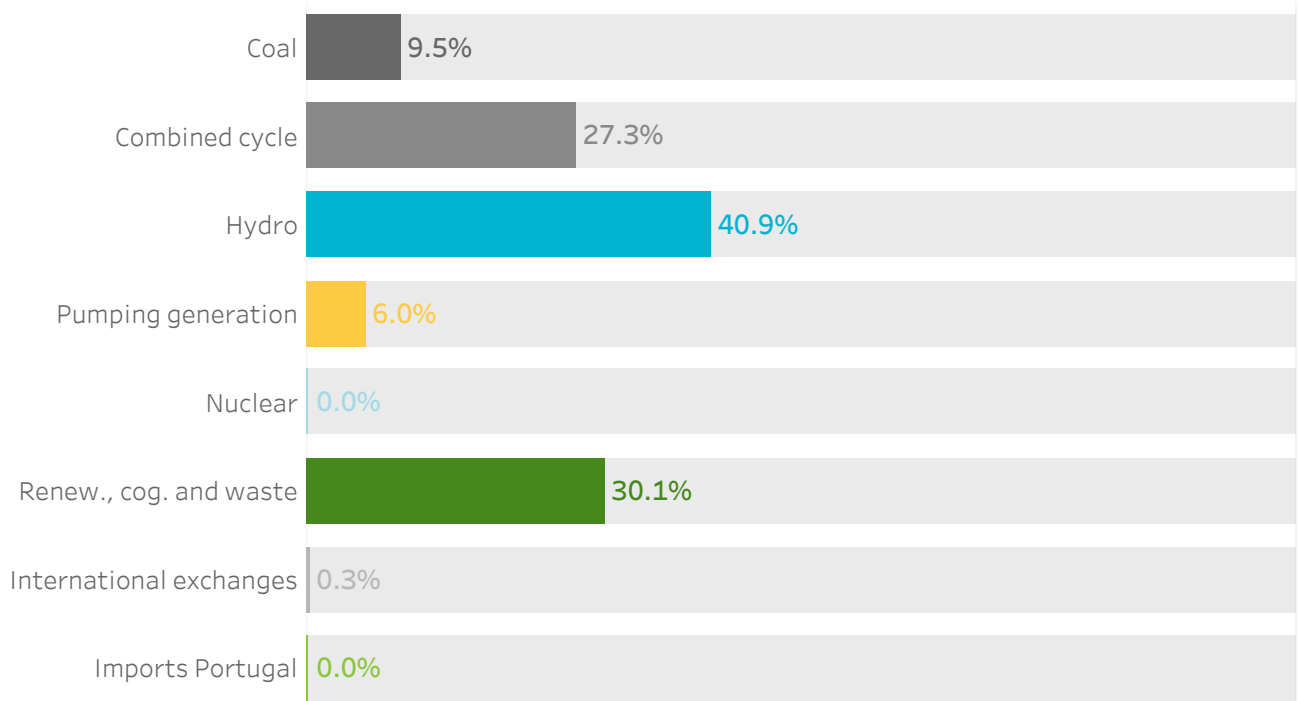




### 1.13 Percentage of hours in which each technology sets a price

In Spain

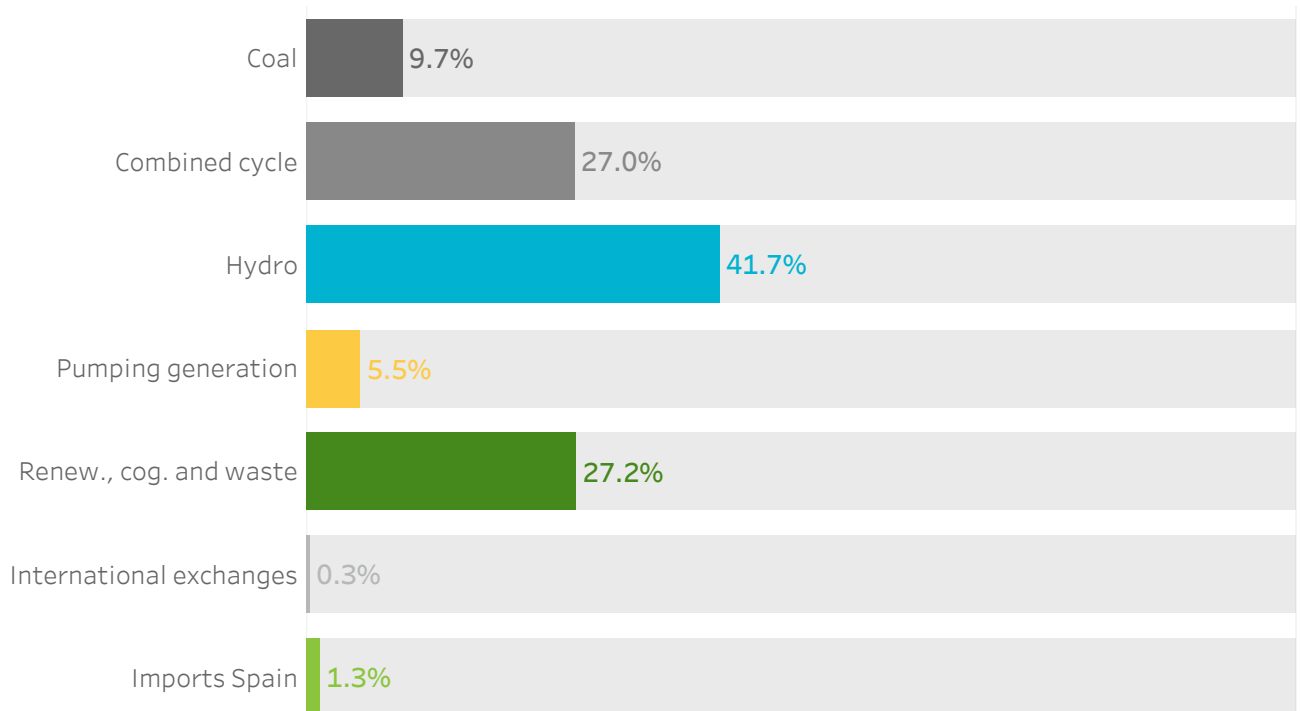
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



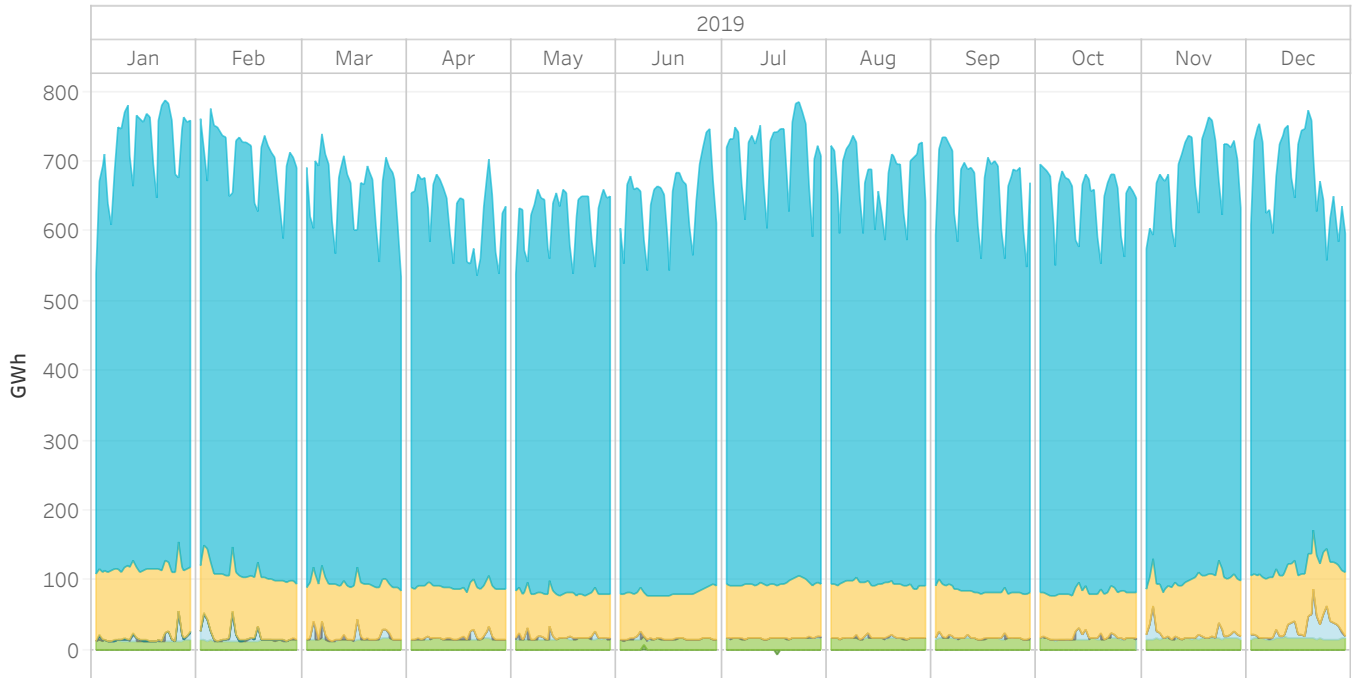
### 1.14 Percentage of hours in which each technology sets a price

In Portugal

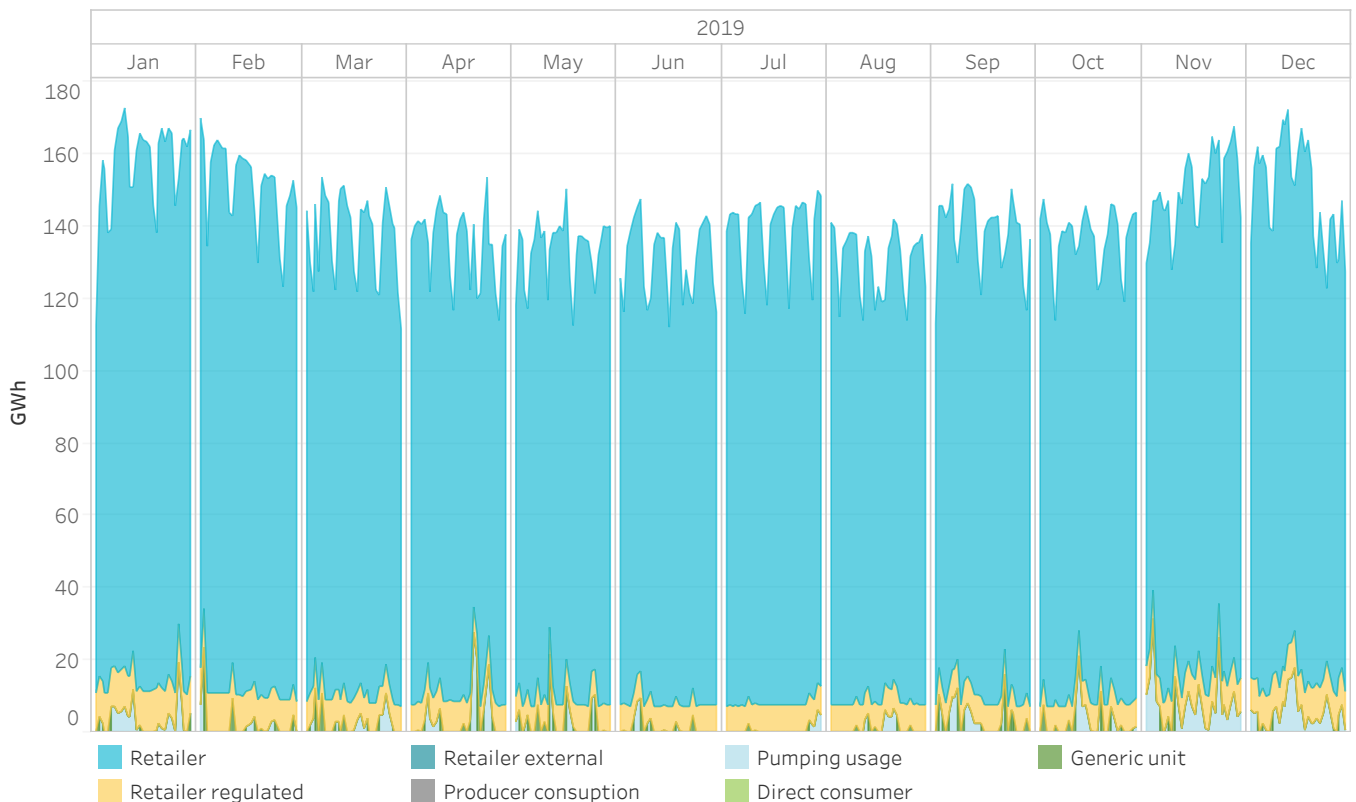
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



### 1.15 Matched energy for acquisition units in the day-ahead operational program (Programa Diario Base de Funcionamiento, PDBF) In Spain



### 1.16 Matched energy for acquisition units in the day-ahead operational program (Programa Diario Base de Funcionamiento, PDBF) In Portugal



# 2.

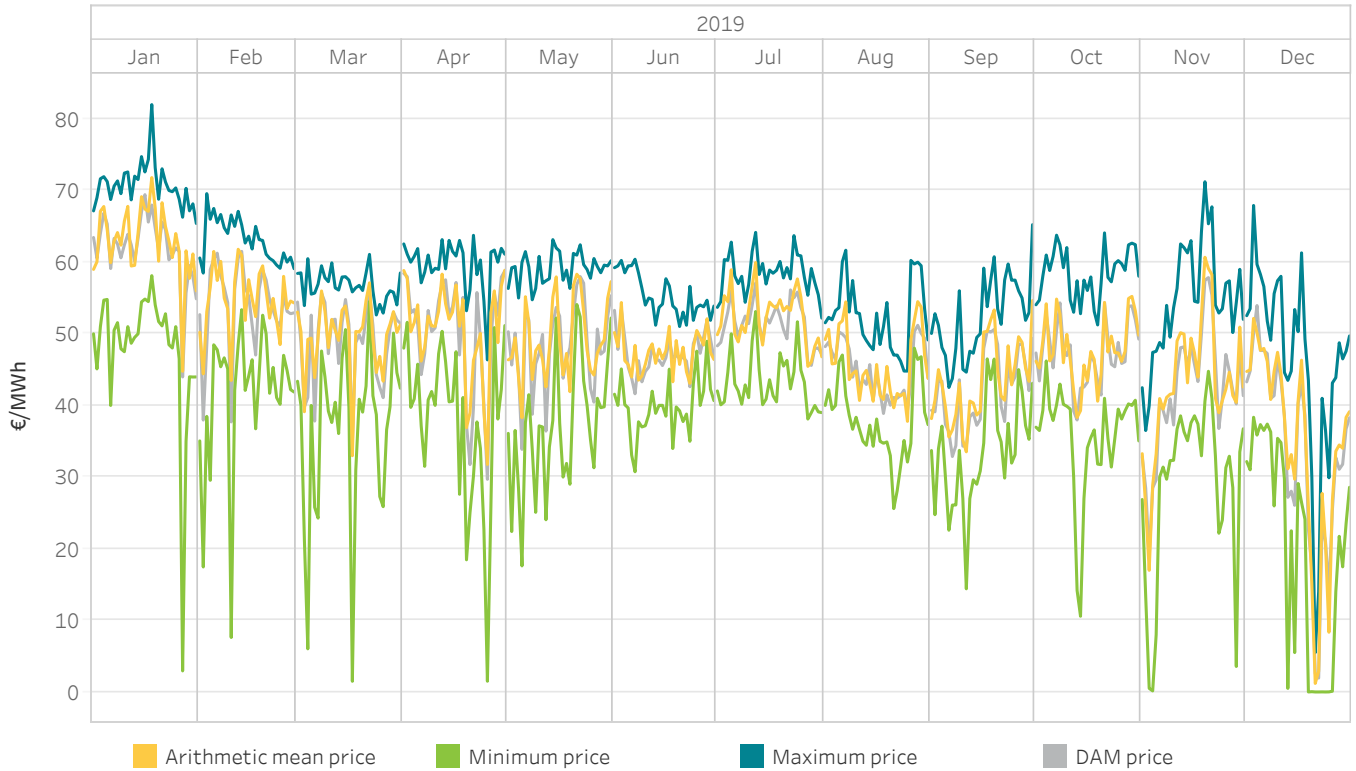
## Intraday auction market

- Prices and energies on the intraday auction market
- Technologies on the intraday auction market



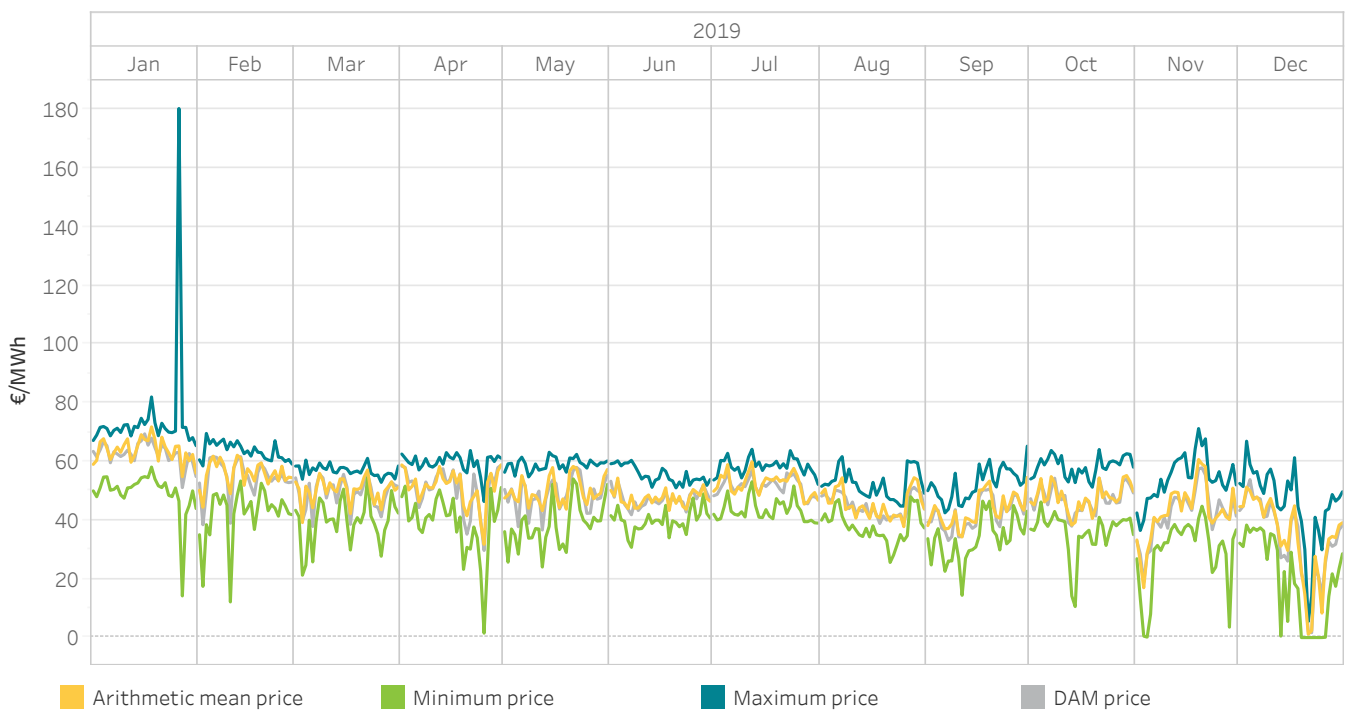
## 2.1 Maximum, minimum and arithmetic mean prices on the intraday auction market

In Spain



## 2.2 Maximum, minimum and arithmetic mean prices on the intraday auction market

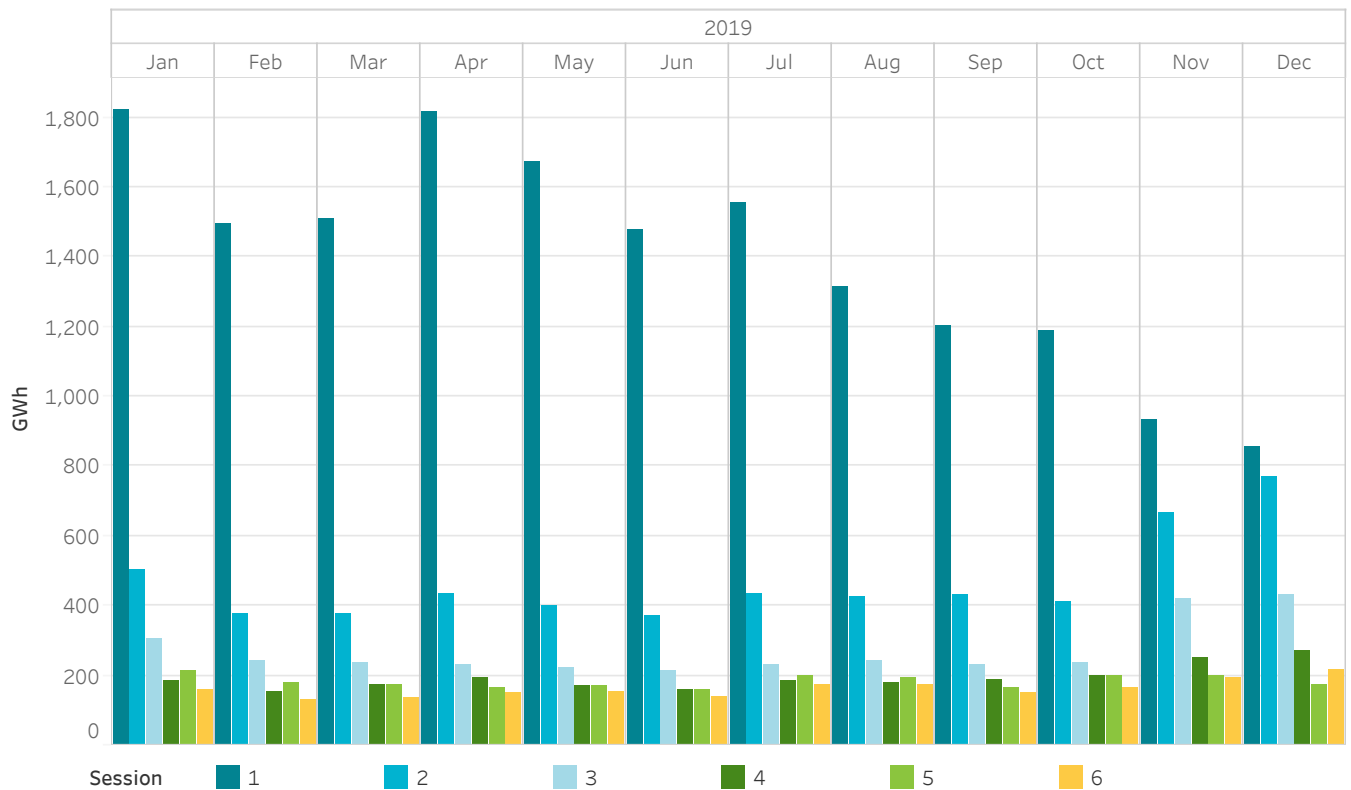
In Portugal



## 2.3 Monthly energy by session on the intraday auction market

In Spain

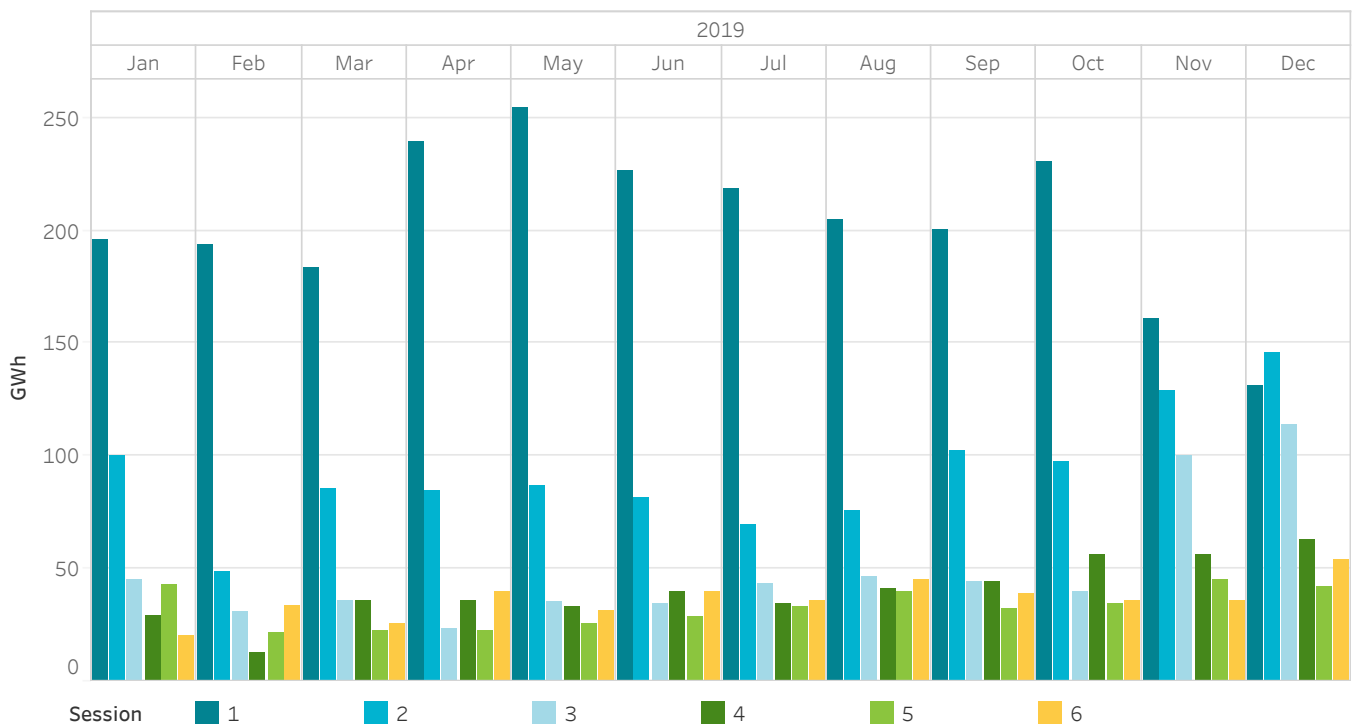
The negotiated energy is calculated as the addition of the acquisitions made in Spain plus the net exports.



## 2.4 Monthly energy by session on the intraday auction market

In Portugal

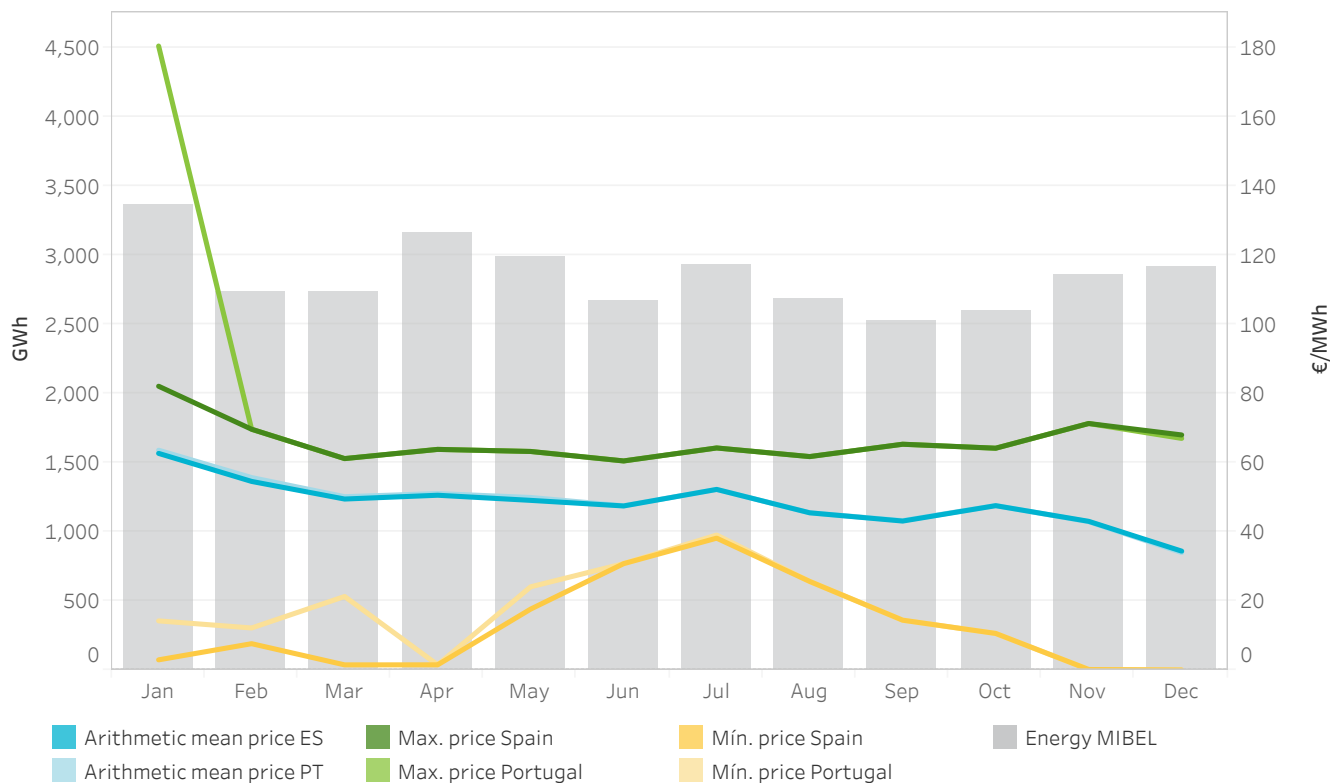
The negotiated energy is calculated as the addition of the acquisitions made in Portugal plus the net exports.



## 2.5 Prices and energy in the intraday auction markets

In Spain, Portugal and MIBEL

The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.



## 2.6 Prices [€/MWh] and energy [GWh] in the intraday auction markets

In Spain, Portugal and MIBEL

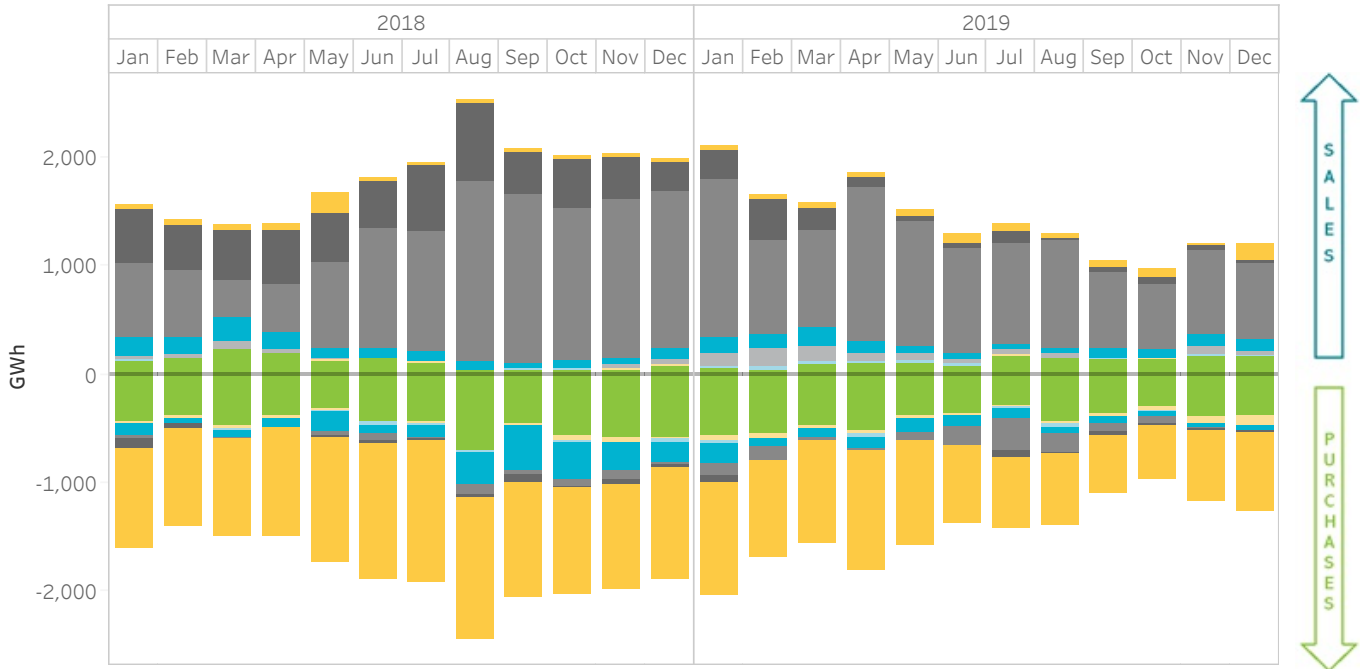
The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.

	Arithmetic mean price ES	Arithmetic mean price PT	Max. price Spain	Max. price Portugal	Mín. price Spain	Mín. price Portugal	Energy Spain	Energy Portugal	Energy MIBEL
January	62.62	63.54	82.00	180.30	2.94	14.20	3,186.7	433.6	3,364.9
February	54.49	55.60	69.57	69.57	7.61	12.15	2,580.5	342.4	2,726.2
March	49.40	50.08	61.09	61.09	1.49	21.25	2,603.7	389.5	2,732.9
April	50.50	50.99	63.75	63.75	1.50	1.50	2,993.0	447.8	3,153.6
May	49.02	49.85	63.15	63.15	17.60	24.04	2,800.1	466.9	2,978.9
June	47.41	47.45	60.41	60.41	30.74	30.74	2,529.3	452.5	2,668.1
July	52.18	52.19	64.16	64.16	38.10	39.00	2,781.1	435.0	2,923.1
August	45.43	45.43	61.67	61.67	25.60	25.60	2,526.3	455.2	2,674.5
September	43.04	43.16	65.24	65.24	14.40	14.40	2,369.6	463.9	2,515.4
October	47.49	47.53	64.09	64.09	10.57	10.57	2,402.1	497.7	2,590.1
November	42.96	42.87	71.23	71.23	0.15	0.15	2,665.8	526.8	2,845.5
December	34.35	33.94	67.92	66.92	0.00	0.00	2,718.8	553.6	2,913.4
Annual total	48.01	48.31	82.00	180.30	0.00	0.00	32,157.1	5,464.8	34,086.4

## 2.7 Energy negotiated on the intraday auction market classified by technology

In Spain

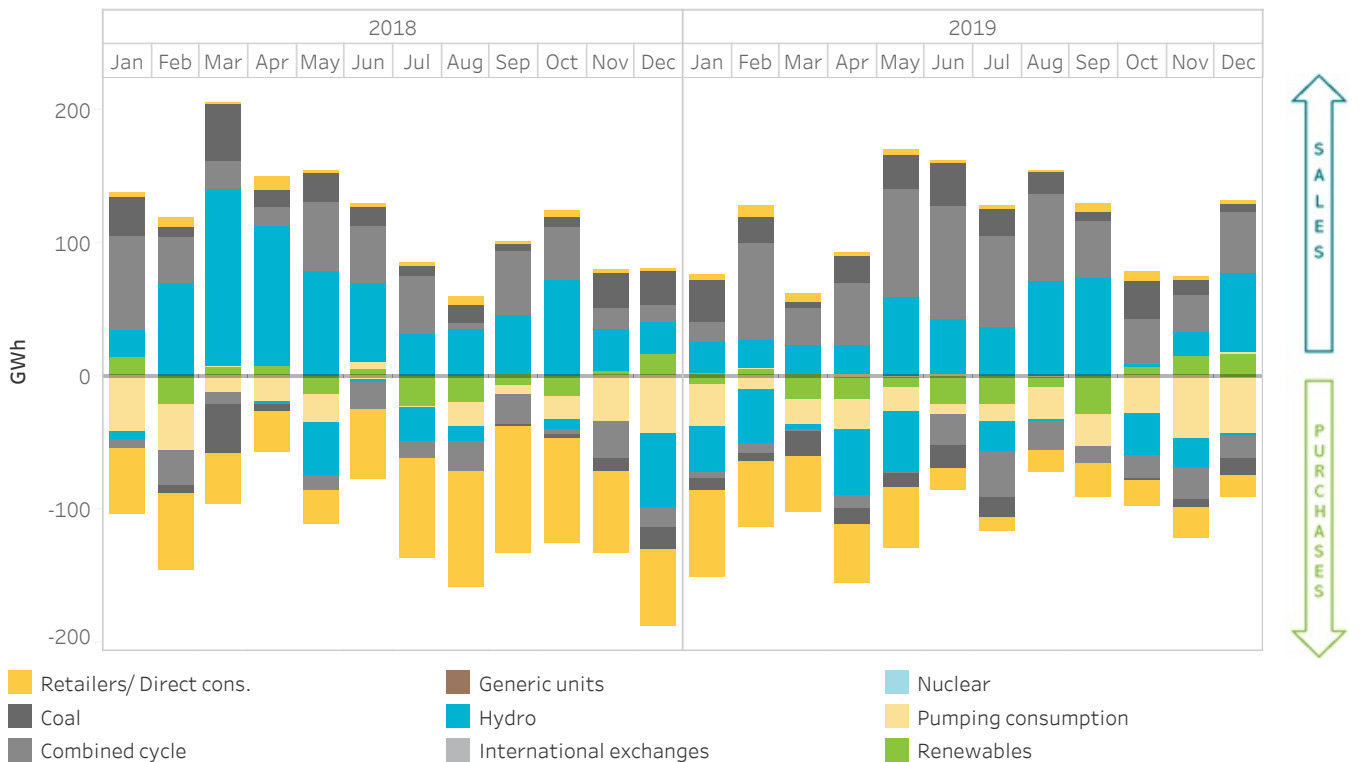
The positive values represent energy sales and the negative values represent energy purchases.



## 2.8 Energy negotiated on the intraday auction market classified by technology

In Portugal

The positive values represent energy sales and the negative values represent energy purchases.



# 3. Intraday continuous market

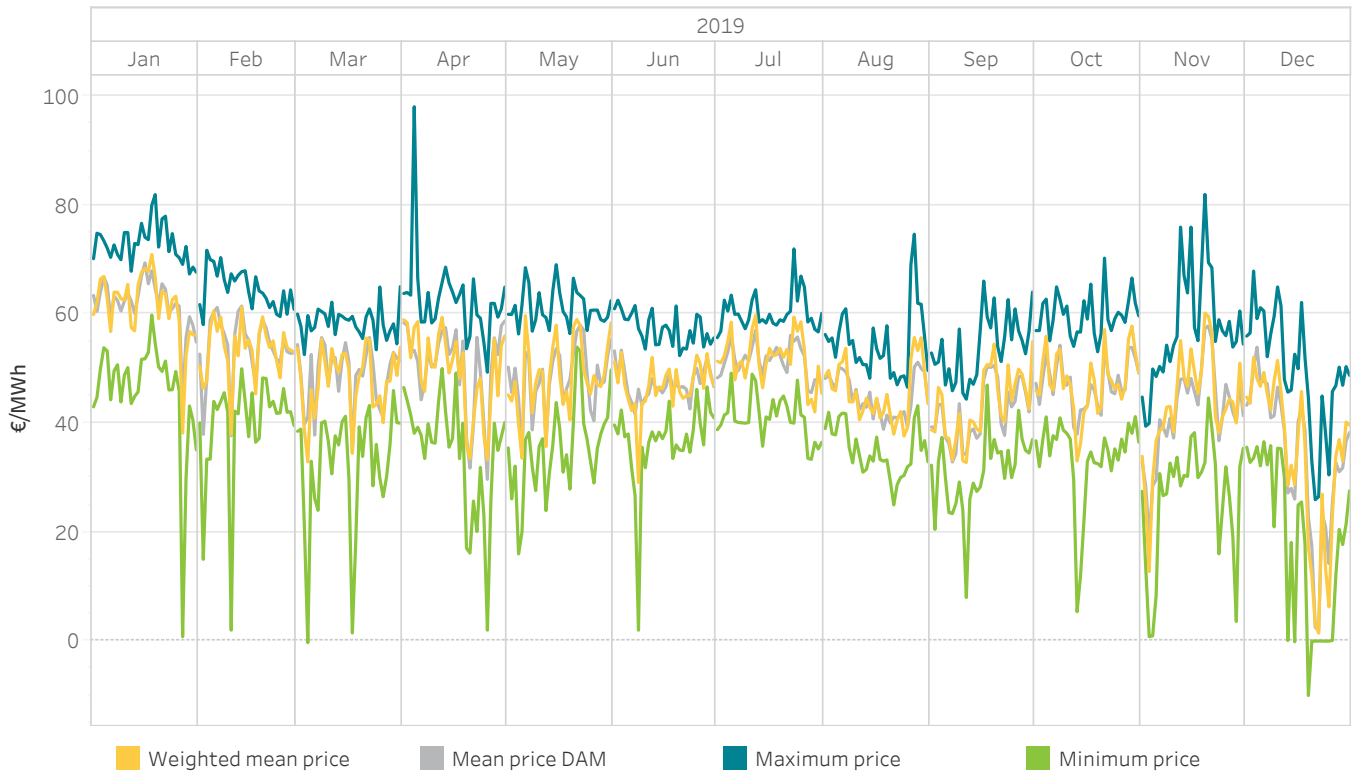
- Prices and energies on the intraday continuous market
- Technologies on the intraday continuous market
- Negotiation on the intraday continuous market





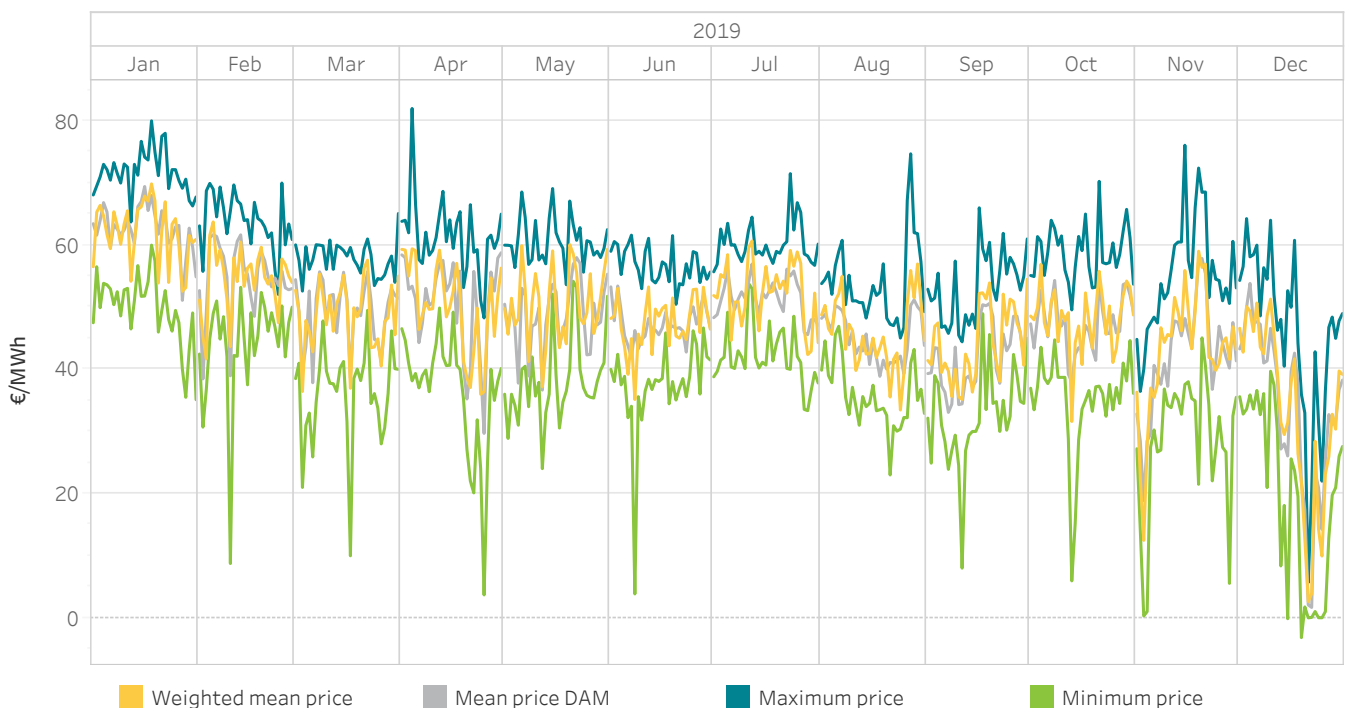
### 3.1 Maximum, minimum and weighted mean price on the intraday continuous market

In España

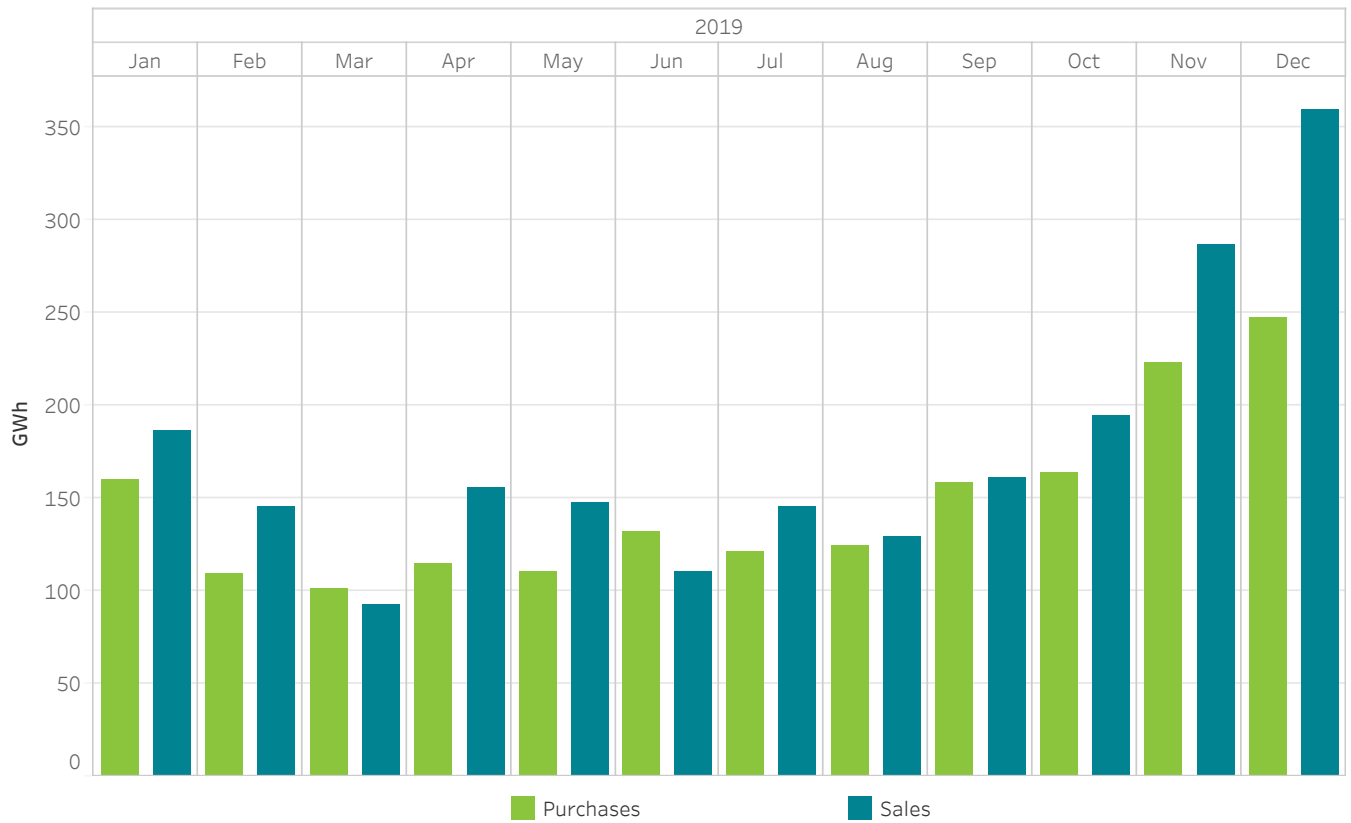


### 3.2 Maximum, minimum and weighted mean price on the intraday continuous market

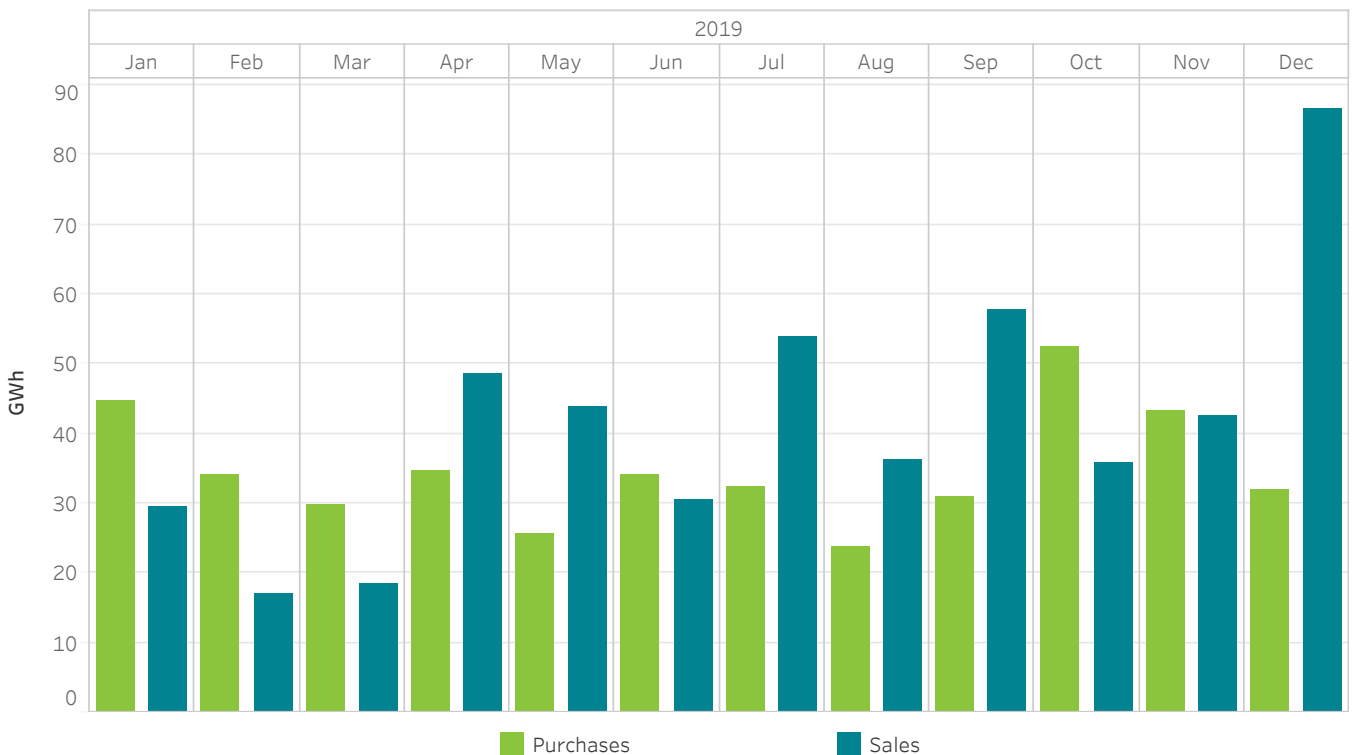
In Portugal



### 3.3 Monthly energy negotiated on the intraday continuous market In Spain



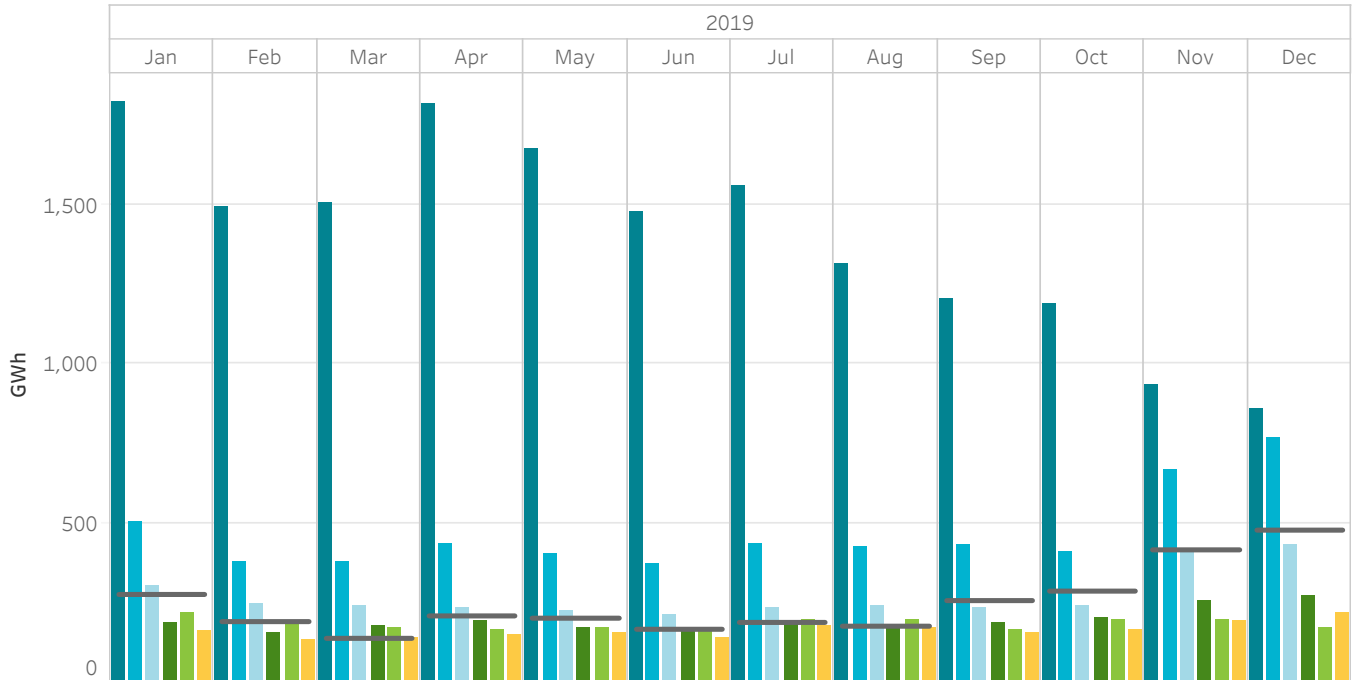
### 3.4 Monthly energy negotiated on the intraday continuous market In Portugal



### 3.5 Energy negotiated on the intraday continuous market compared to auction sessions

In Spain

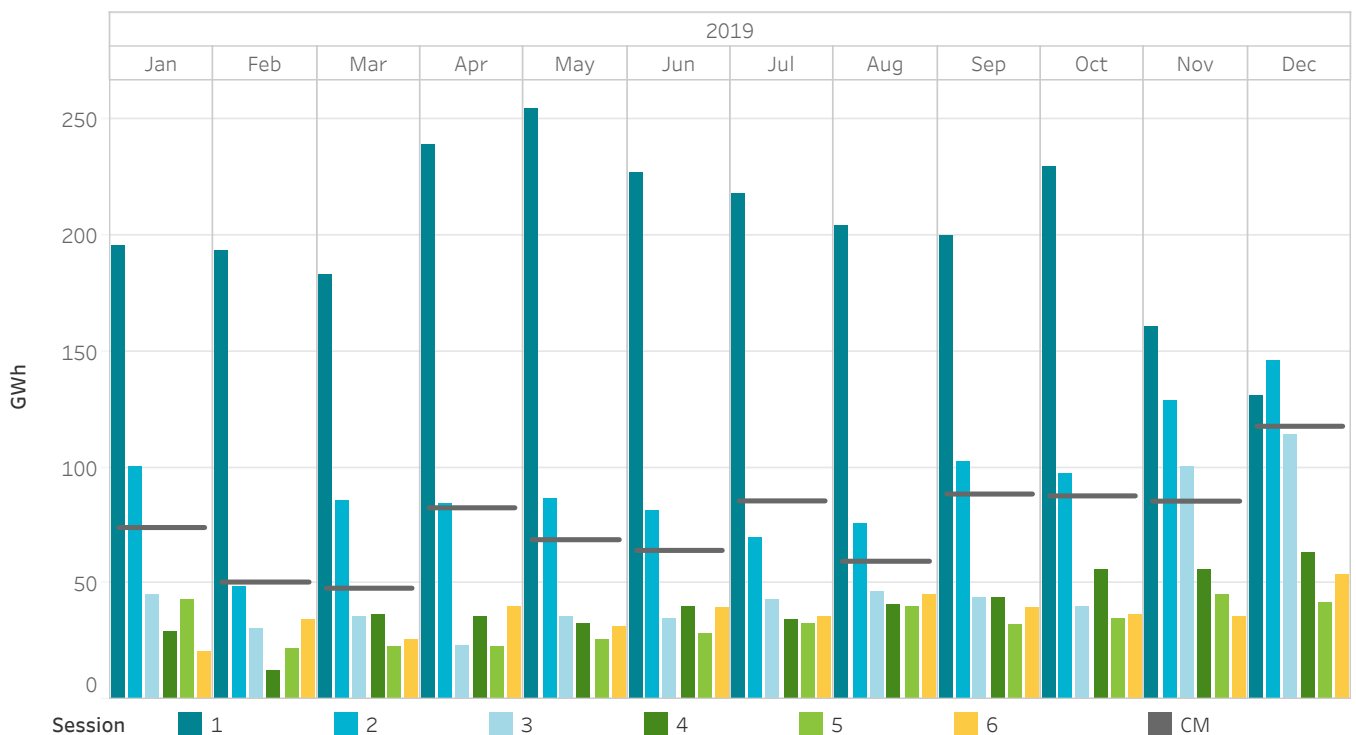
The negotiated energy is calculated as the addition of the acquisitions made in Spain plus the net exports.



### 3.6 Energy negotiated on the intraday continuous market compared to auction sessions

In Portugal

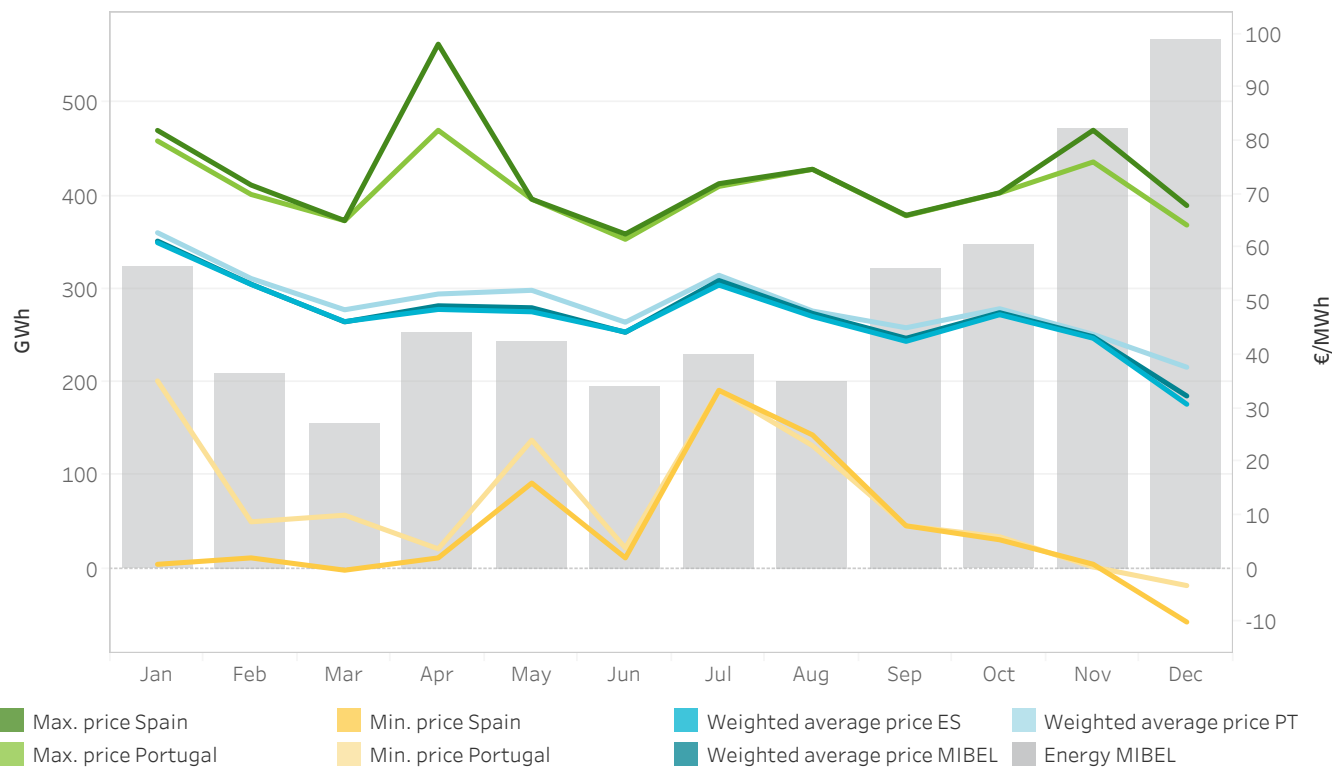
The negotiated energy is calculated as the addition of the acquisitions made in Portugal plus the net exports.



### 3.7 Prices and energies on the intraday continuous market

In Spain, Portugal and MIBEL

The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.



### 3.8 Prices [€/MWh] and energies [GWh] on the intraday continuous market

In Spain, Portugal and MIBEL

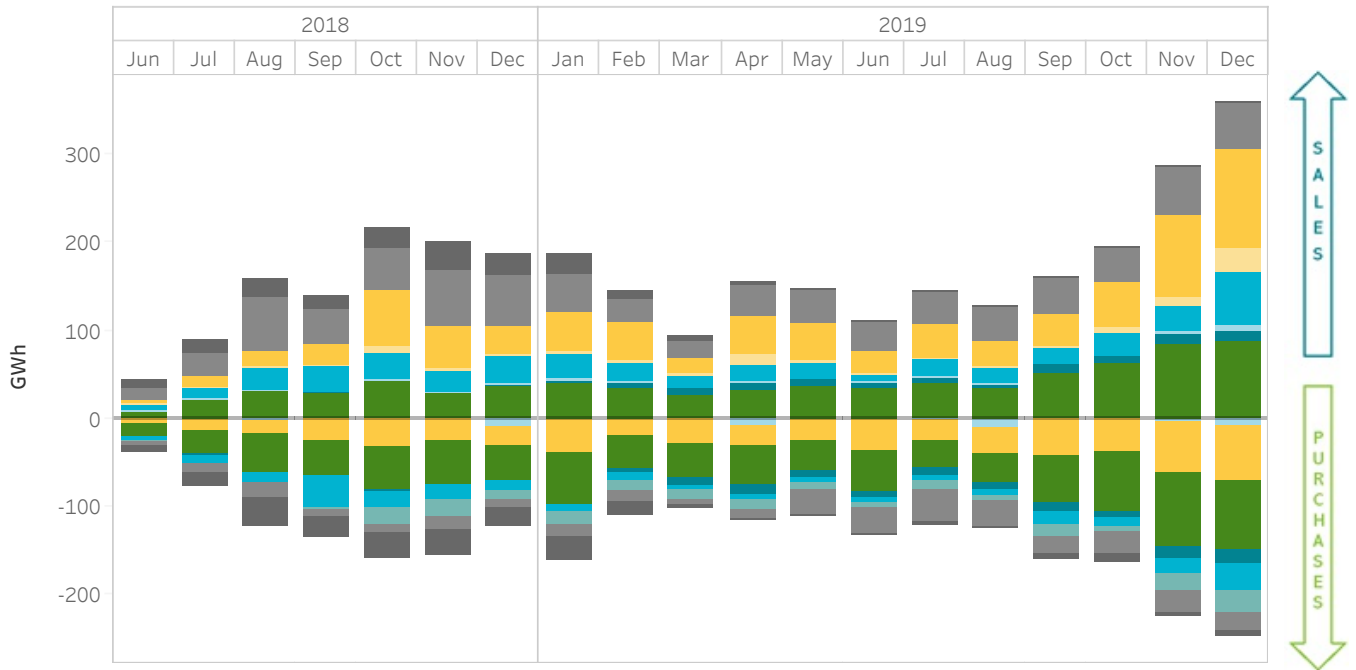
The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.

	Precio medio ponderado ES	Precio medio ponderado PT	Max. price Spain	Max. price Portugal	Min. price Spain	Min. price Portugal	Energy Spain	Energy Portugal	Energy MIBEL
January	60.97	62.83	81.97	80.00	0.80	35.11	275.6	74.1	323.5
February	53.16	54.26	71.75	69.99	2.00	8.75	190.2	50.6	208.6
March	46.20	48.42	65.09	65.09	-0.30	9.99	137.6	47.9	155.3
April	48.48	51.36	98.10	81.99	2.00	3.69	208.1	82.6	252.2
May	48.04	52.06	69.10	69.10	16.00	24.02	201.0	68.9	243.1
June	44.27	46.09	62.58	61.60	2.00	3.85	166.2	64.3	195.4
July	53.04	54.87	72.00	71.50	33.35	33.35	187.7	85.6	229.6
August	47.16	48.18	74.70	74.69	25.00	23.00	175.9	59.6	199.5
September	42.51	45.05	66.09	66.00	8.00	8.00	256.3	88.6	322.1
October	47.50	48.60	70.30	70.26	5.39	5.95	286.2	87.8	346.2
November	43.09	43.81	82.00	76.07	0.81	0.30	415.9	85.5	470.9
December	30.75	37.67	67.92	64.26	-10.00	-3.18	477.9	117.8	568.0
<b>Annual tot.</b>	<b>45.57</b>	<b>48.75</b>	<b>98.10</b>	<b>81.99</b>	<b>-10.00</b>	<b>-3.18</b>	<b>2,978.6</b>	<b>913.4</b>	<b>3,514.5</b>

### 3.9 Transactions classified by technologies on the intraday continuous market

In Spain

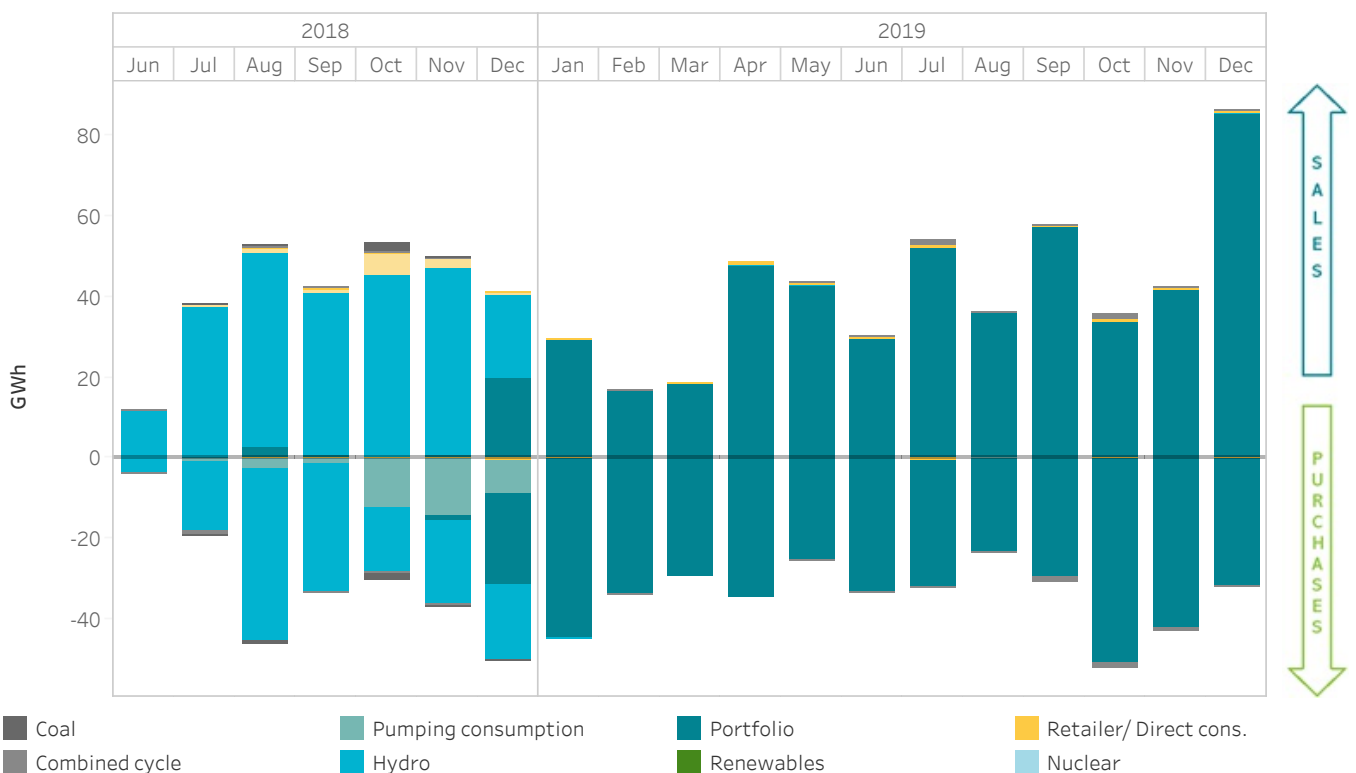
The positive values represent energy sales and the negative values represent energy purchases.



### 3.10 Transactions classified by technologies on the intraday continuous market

In Portugal

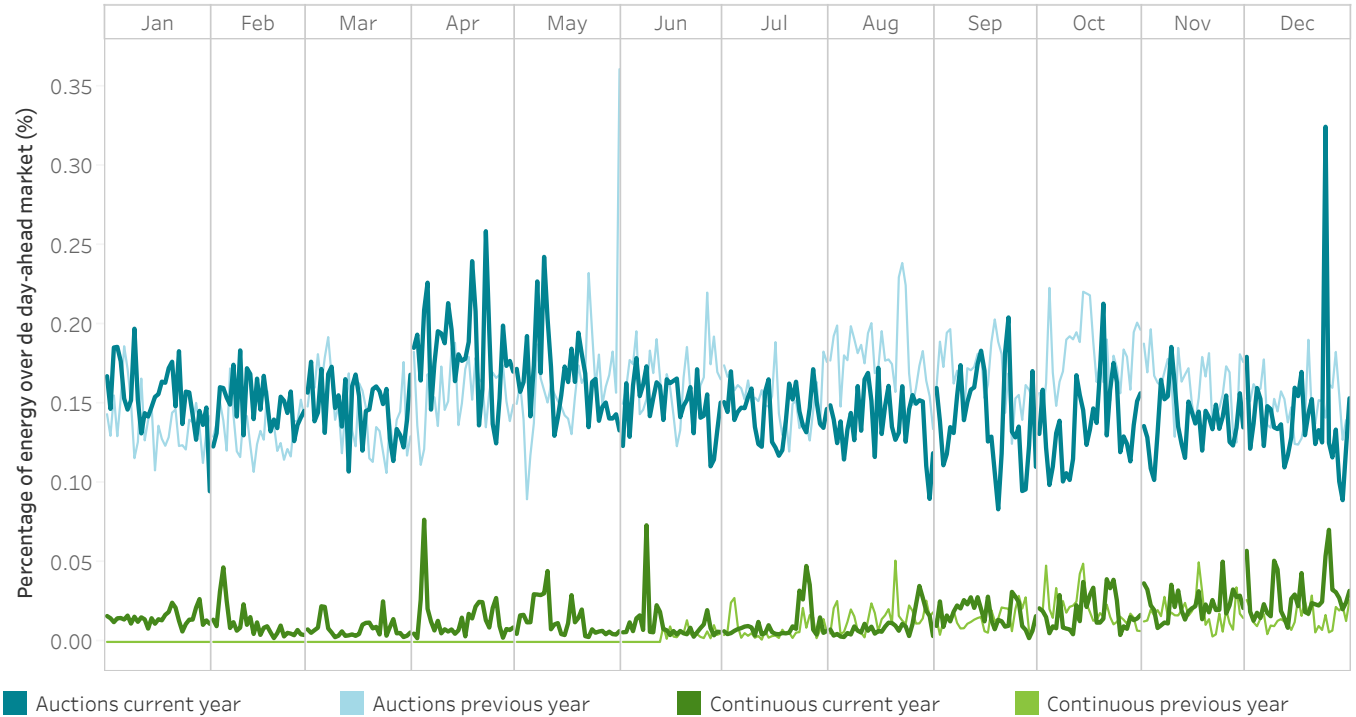
The positive values represent energy sales and the negative values represent energy purchases.



### 3.11 Percentage of energy negotiated on the intraday markets over the energy negotiated on the day-ahead market

MIBEL

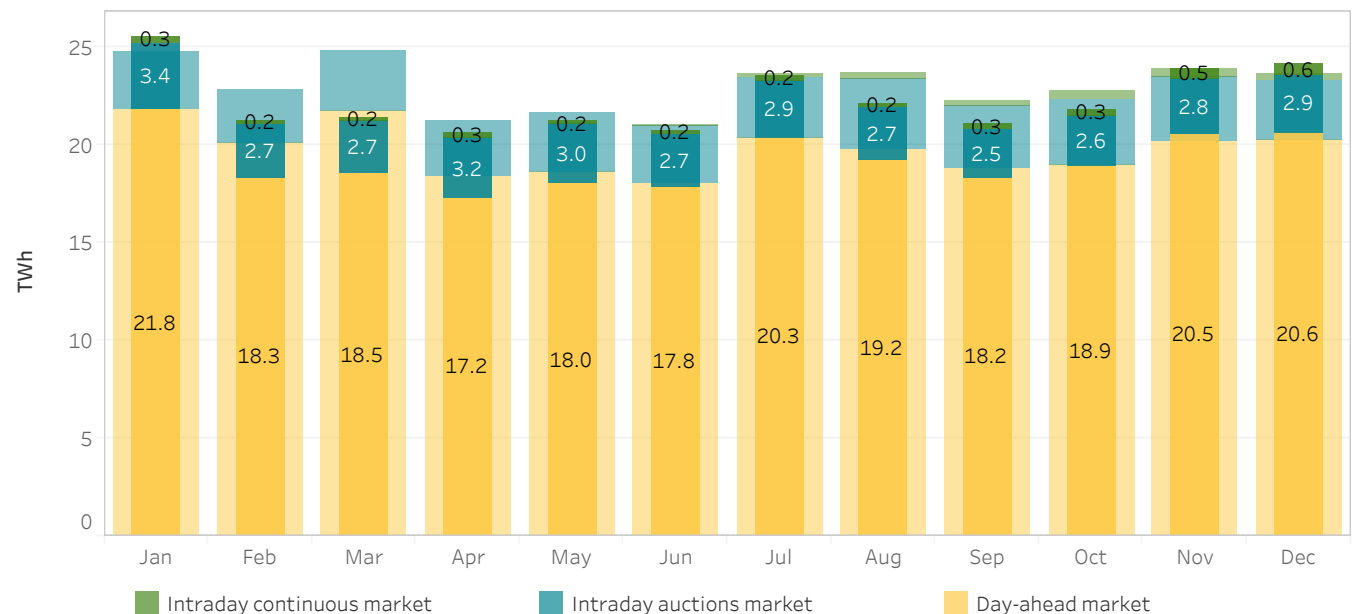
The energy negotiated is calculated as the sum of acquisitions and net exports from each area. The intraday continuous market started on the 13/06/2018.



### 3.12 Energy negotiated on the intraday markets compared to the day-ahead market

MIBEL

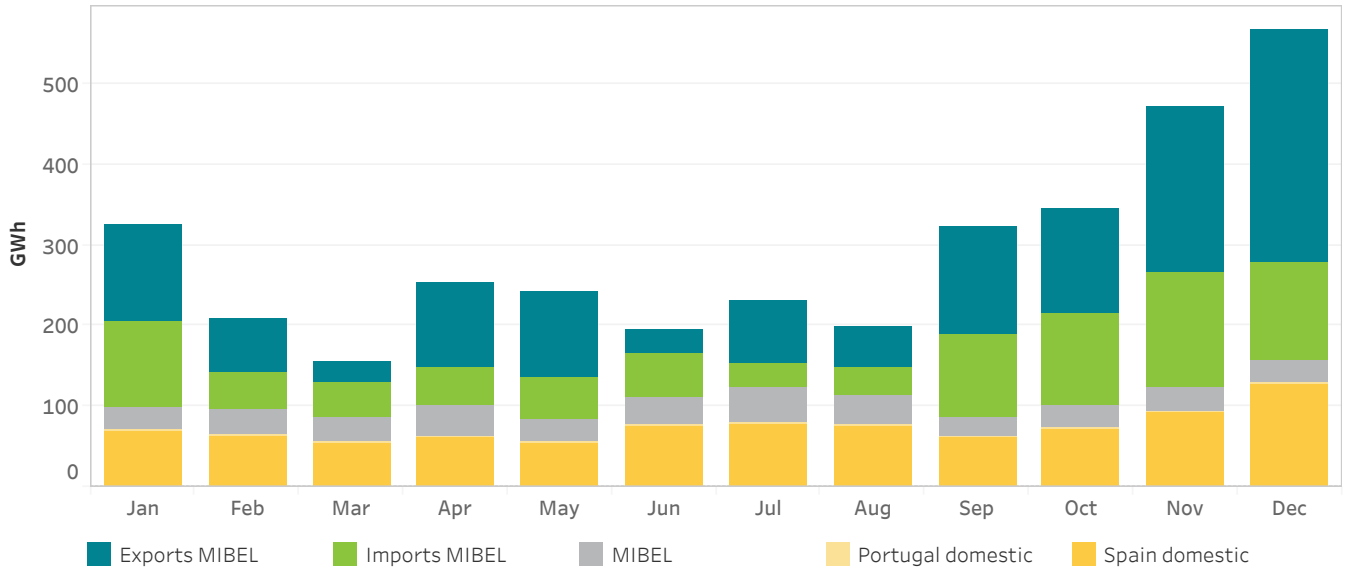
The energy negotiated is calculated as the sum of acquisitions and net exports from each area. The light-colored columns indicate values of the series for the same period from the prior year. The intraday continuous market started on the 13/06/2018.



### 3.13 Energy negotiated on the intraday continuous market by negotiation area

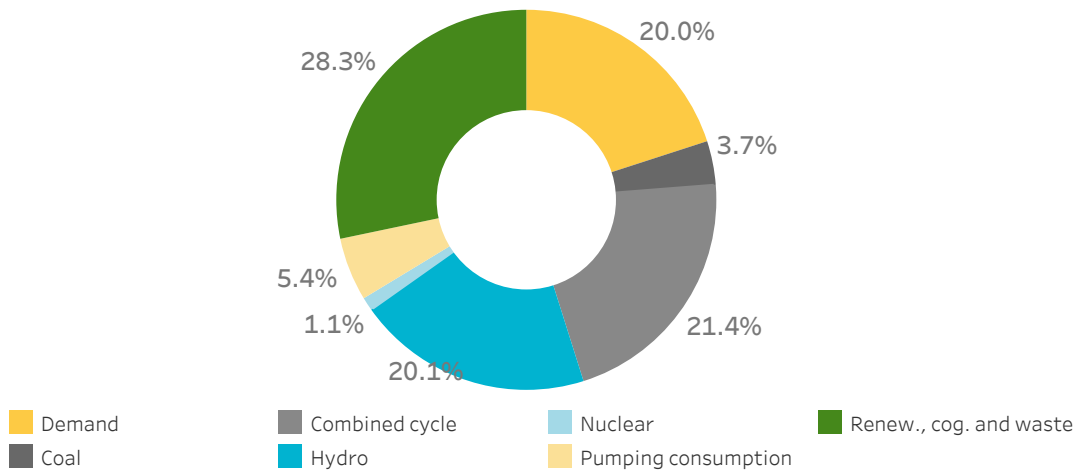
In Spain, Portugal and MIBEL

The energy negotiated is calculated as the sum of acquisitions and net exports from each area

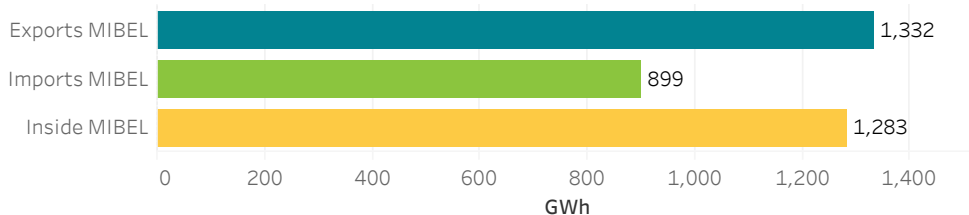


### 3.14 Technologies in the intraday continuous program (Programa Intradiario Básico de Casación Incremental Continuo, PIBCIC) and energy volume by negotiation area

MIBEL



Volume of negotiated energy by area in the MIBEL



# 4.

## Economic market results

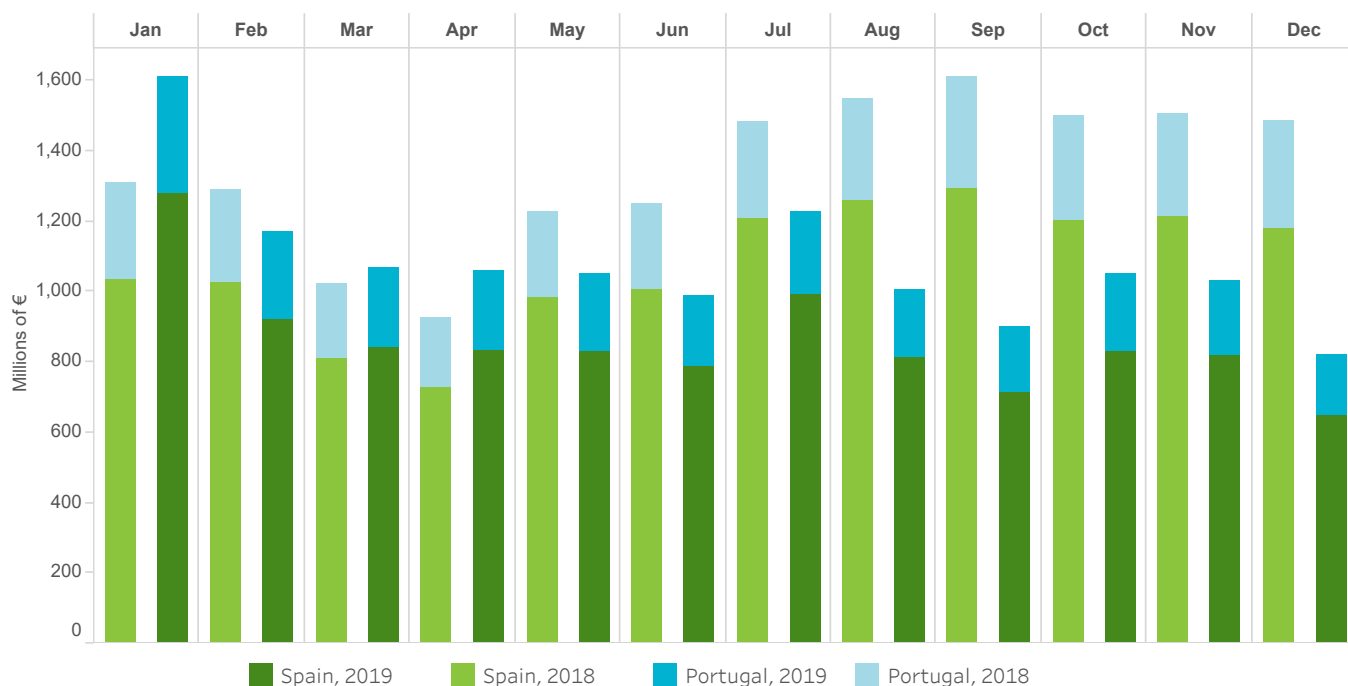
- Economic purchase volume on the MIBEL
- Congestion economic management
- Final price components





## 4.1 Economic volume of the purchases negotiated on the MIBEL (Millions of €)

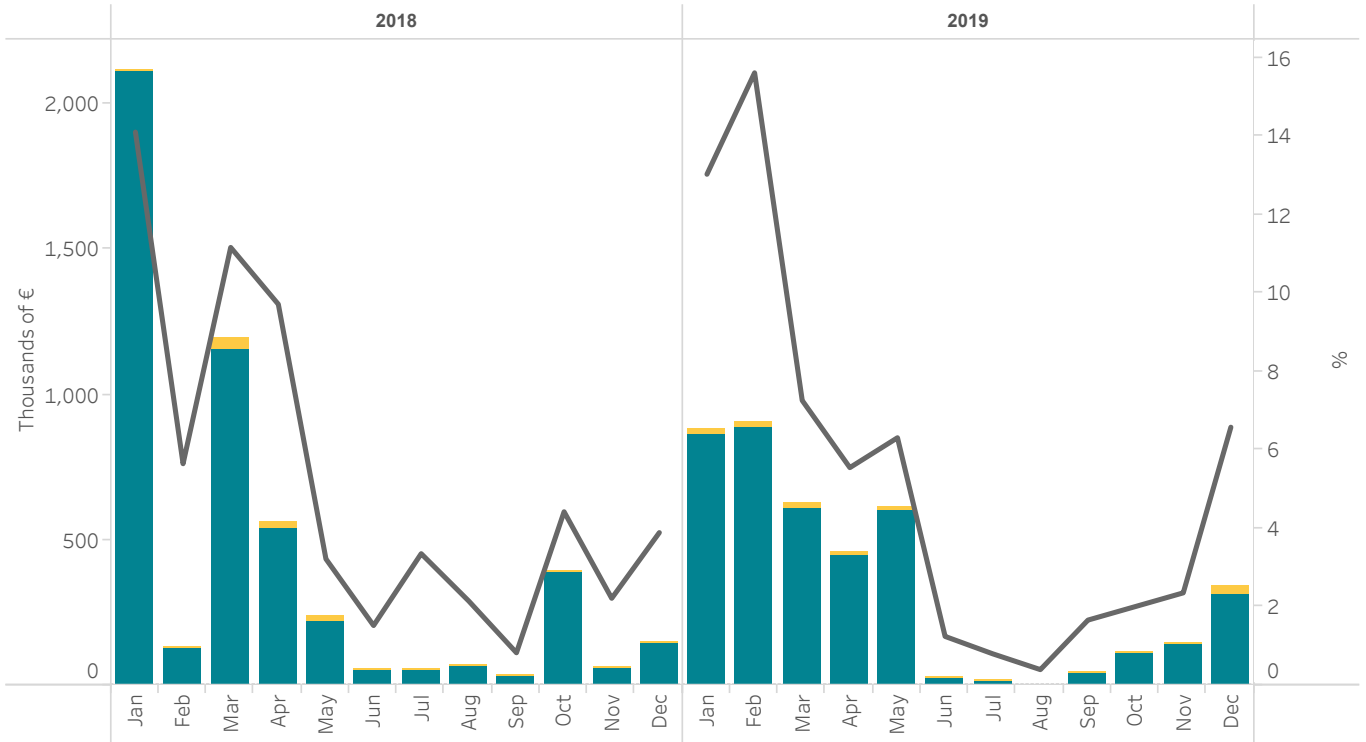
The Spanish area includes exports across the borders with France, Morocco and Andorra.



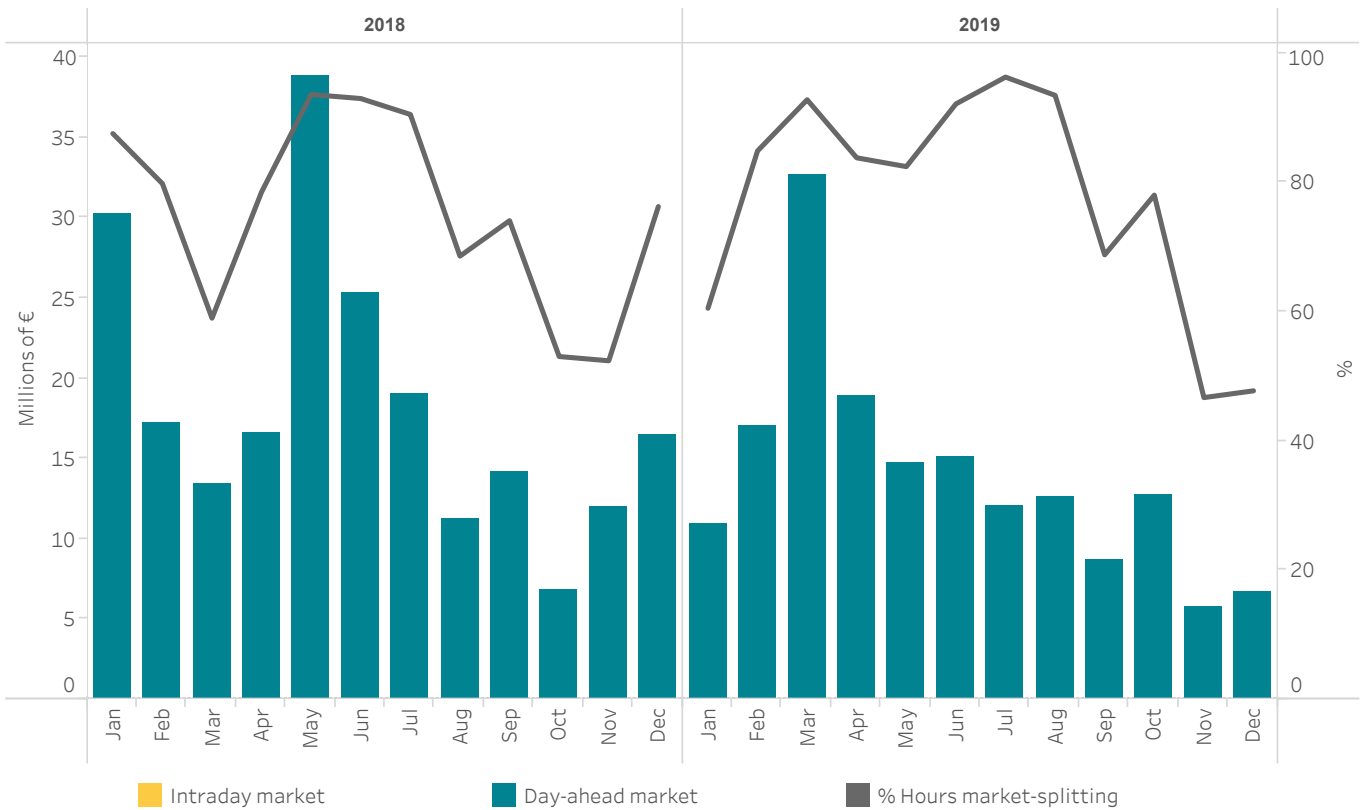
Economic volume (Millions of €)									
Month	Spain				Portugal				Total
	Day-ahead market	Intraday auctions market	Continuous intraday market	Total Country	Day-ahead market	Intraday auctions market	Continuous intraday market	Total Country	
Jan	1,072	190	17	1,279	306	24	3	332	1,611
Feb	778	135	9	922	233	14	2	249	1,172
Mar	717	122	6	845	210	15	1	226	1,071
Apr	678	144	11	833	204	18	2	224	1,058
May	687	132	11	830	201	16	1	218	1,048
Jun	666	114	7	787	184	13	1	198	986
Jul	843	137	11	990	222	16	2	239	1,229
Aug	696	109	8	814	182	12	1	195	1,009
Sep	606	94	13	712	175	12	1	188	901
Oct	710	105	14	829	199	17	2	219	1,047
Nov	696	106	19	820	190	17	2	209	1,030
Dec	542	86	17	646	160	12	1	173	819
Year 2019	8,692	1,473	143	10,308	2,466	186	19	2,672	12,979

## 4.2 Congestion revenue

Spanish-Portuguese interconnection



Spanish-French interconnection

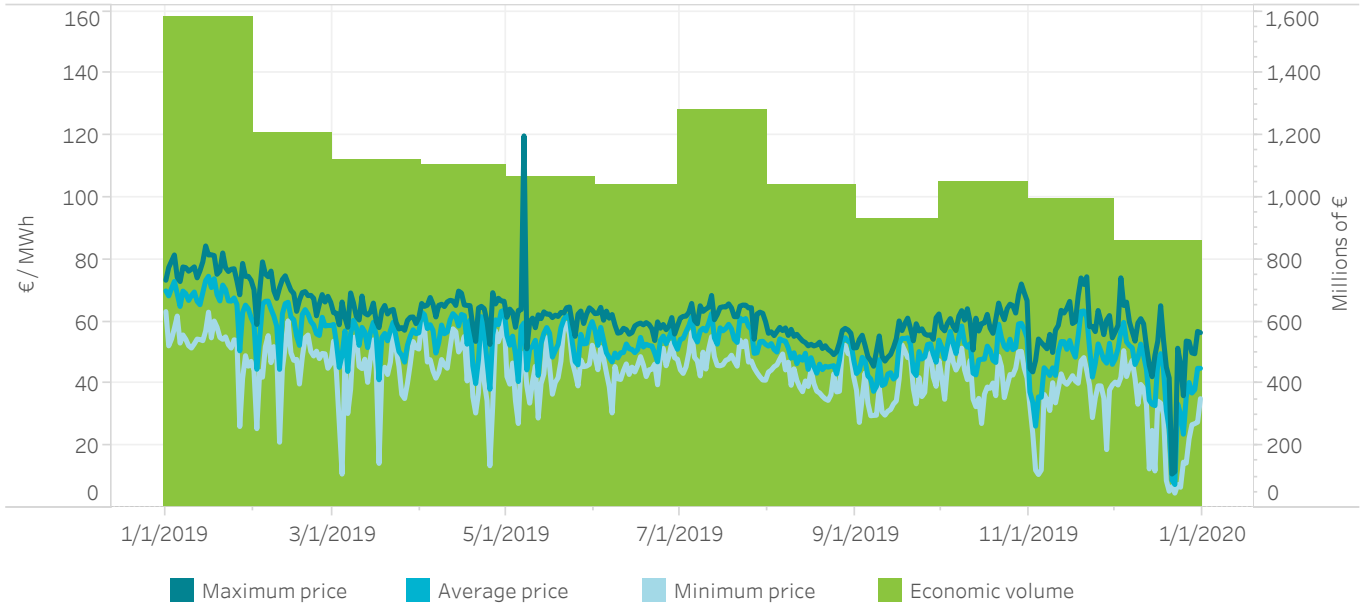


Intraday market

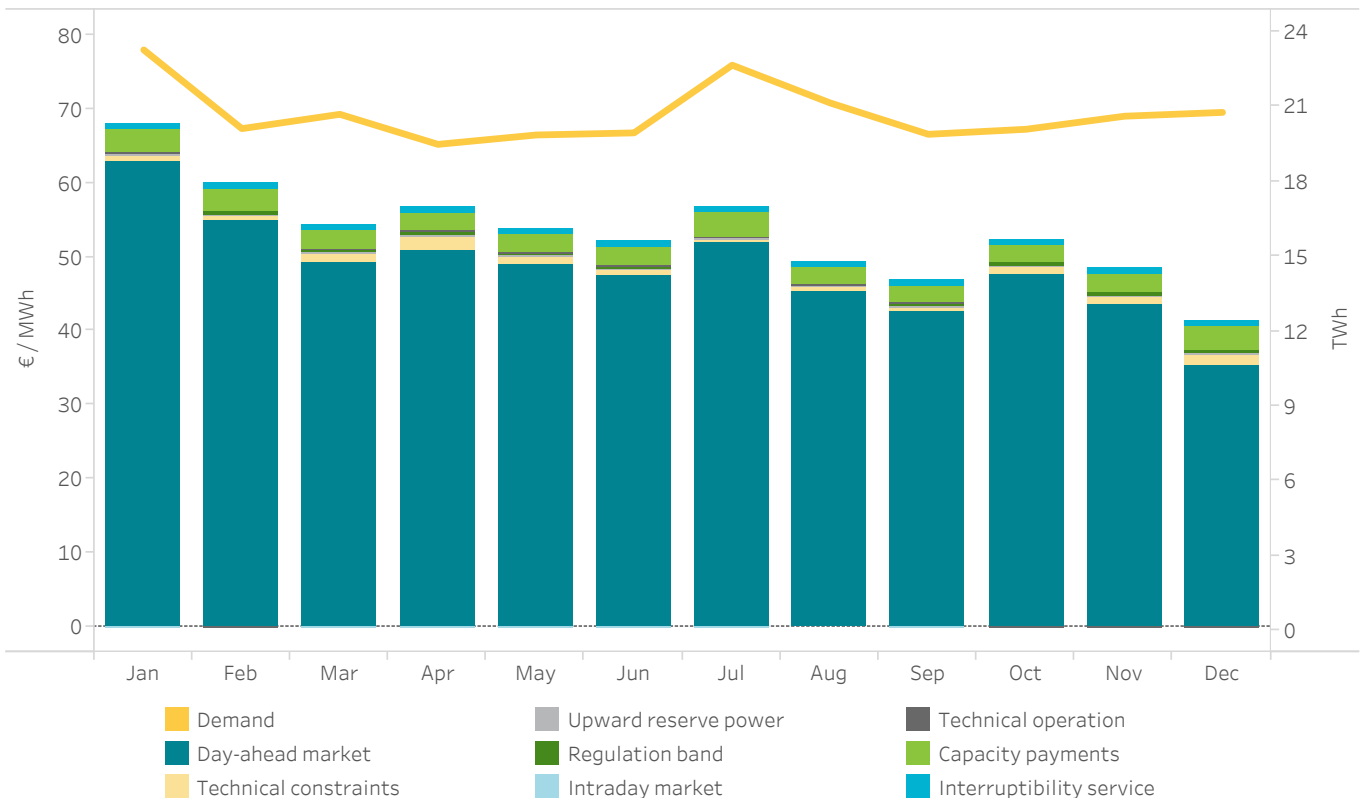
Day-ahead market

% Hours market-splitting

### 4.3 Final average price and economic volume of the Spanish electricity system - National demand



### 4.4 Components of the final average price of the Spanish electricity system - National demand



## 4.5 Components of the final average price of the Spanish electricity system (€/MWh)

	Reference retailers		Free market		National demand	
	€/MWh	%	€/MWh	%	€/MWh	%
Day-ahead market	48.92	88.34	48.55	91.27	48.59	90.95
Constraints	1.00	1.81	1.01	1.89	1.01	1.88
Upward reserve power	0.06	0.11	0.06	0.11	0.06	0.11
Regulation band	0.37	0.68	0.37	0.69	0.37	0.69
Intraday market	0.00	0.00	-0.02	-0.04	-0.02	-0.04
Technical operation	0.02	0.04	0.02	0.04	0.02	0.04
Capacity payments	4.25	7.67	2.47	4.64	2.66	4.97
Interruptibility service	0.75	1.35	0.75	1.41	0.75	1.40
<b>Total</b>	<b>55.38</b>	<b>100.00</b>	<b>53.20</b>	<b>100.00</b>	<b>53.43</b>	<b>100.00</b>

### National demand (€/MWh)

Month	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
January	62.98	0.66	0.12	0.35	-0.03	0.01	3.16	0.71	67.96
February	54.93	0.72	0.06	0.37	-0.03	0.00	3.08	0.75	59.87
March	49.35	1.11	0.14	0.41	-0.02	0.07	2.38	0.72	54.18
April	50.94	1.72	0.27	0.51	-0.05	0.05	2.41	0.77	56.63
May	48.93	1.24	0.06	0.39	-0.01	0.10	2.29	0.76	53.76
June	47.40	1.02	0.00	0.25	-0.01	0.04	2.69	0.75	52.15
July	51.96	0.53	0.01	0.23	0.00	0.03	3.25	0.69	56.71
August	45.37	0.75	0.00	0.23	0.00	0.05	2.07	0.74	49.20
September	42.59	0.77	0.00	0.28	-0.01	0.02	2.43	0.80	46.87
October	47.74	1.05	0.03	0.32	-0.02	-0.01	2.37	0.79	52.27
November	43.59	1.16	0.00	0.44	-0.03	-0.09	2.49	0.76	48.33
December	35.36	1.46	0.00	0.63	-0.02	-0.02	3.11	0.76	41.27

Year	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
2018	58.12	1.53	0.23	0.55	-0.03	0.03	2.70	1.23	64.35
2019	48.59	1.01	0.06	0.37	-0.02	0.02	2.66	0.75	53.43

**Free market (€/MWh)**

Month	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
January	62.93	0.66	0.12	0.35	-0.03	0.02	3.02	0.71	67.77
February	54.91	0.72	0.06	0.37	-0.04	0.01	2.94	0.75	59.71
March	49.34	1.11	0.14	0.41	-0.03	0.07	2.16	0.72	53.94
April	50.95	1.72	0.27	0.51	-0.06	0.04	2.19	0.77	56.40
May	48.94	1.24	0.06	0.39	-0.01	0.10	2.09	0.76	53.56
June	47.38	1.02	0.00	0.25	-0.01	0.04	2.53	0.75	51.97
July	51.96	0.53	0.01	0.23	0.00	0.04	3.13	0.69	56.59
August	45.37	0.75	0.00	0.23	0.00	0.04	1.81	0.74	48.94
September	42.59	0.77	0.00	0.28	-0.01	0.02	2.23	0.80	46.67
October	47.72	1.05	0.03	0.32	-0.02	-0.01	2.17	0.79	52.05
November	43.52	1.16	0.00	0.44	-0.03	-0.09	2.26	0.76	48.04
December	35.36	1.46	0.00	0.63	-0.03	-0.02	2.94	0.76	41.11

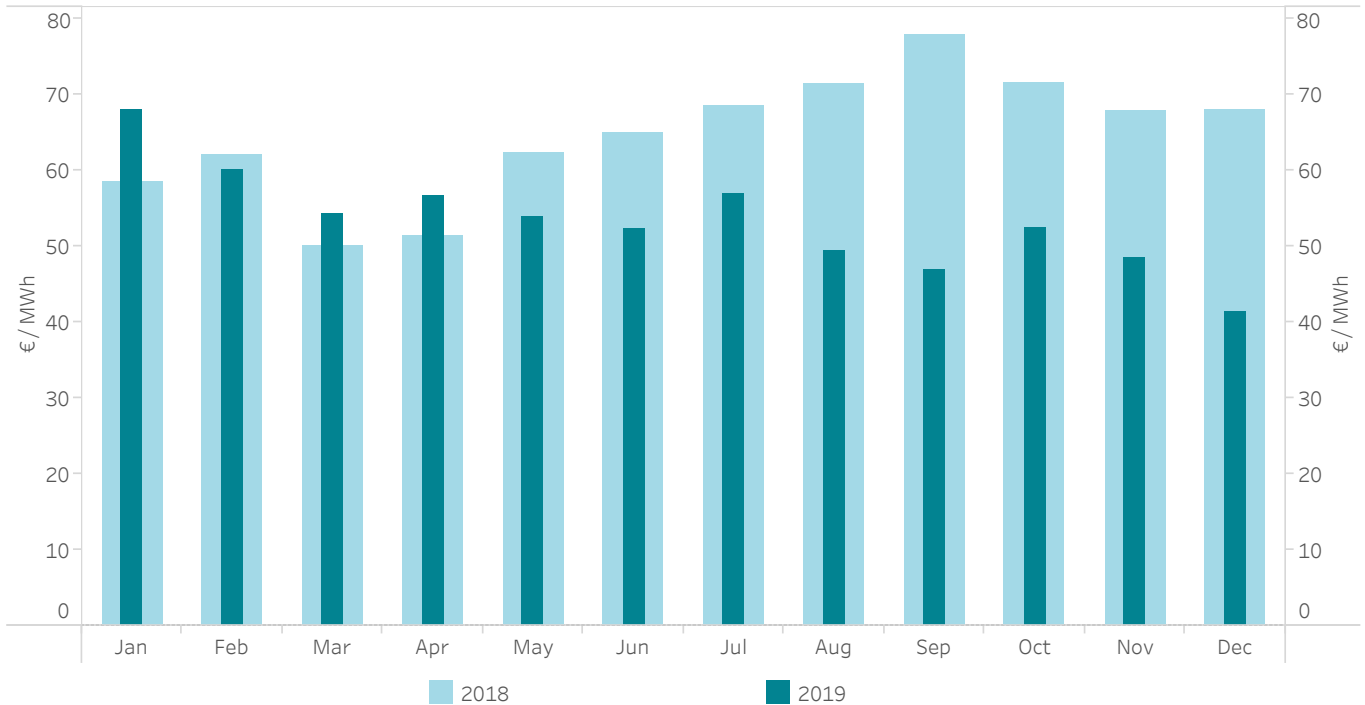
Year	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
2018	58.17	1.53	0.23	0.55	-0.03	0.02	2.50	1.23	64.20
2019	48.55	1.01	0.06	0.37	-0.02	0.02	2.47	0.75	53.20

**Reference retailers (€/MWh)**

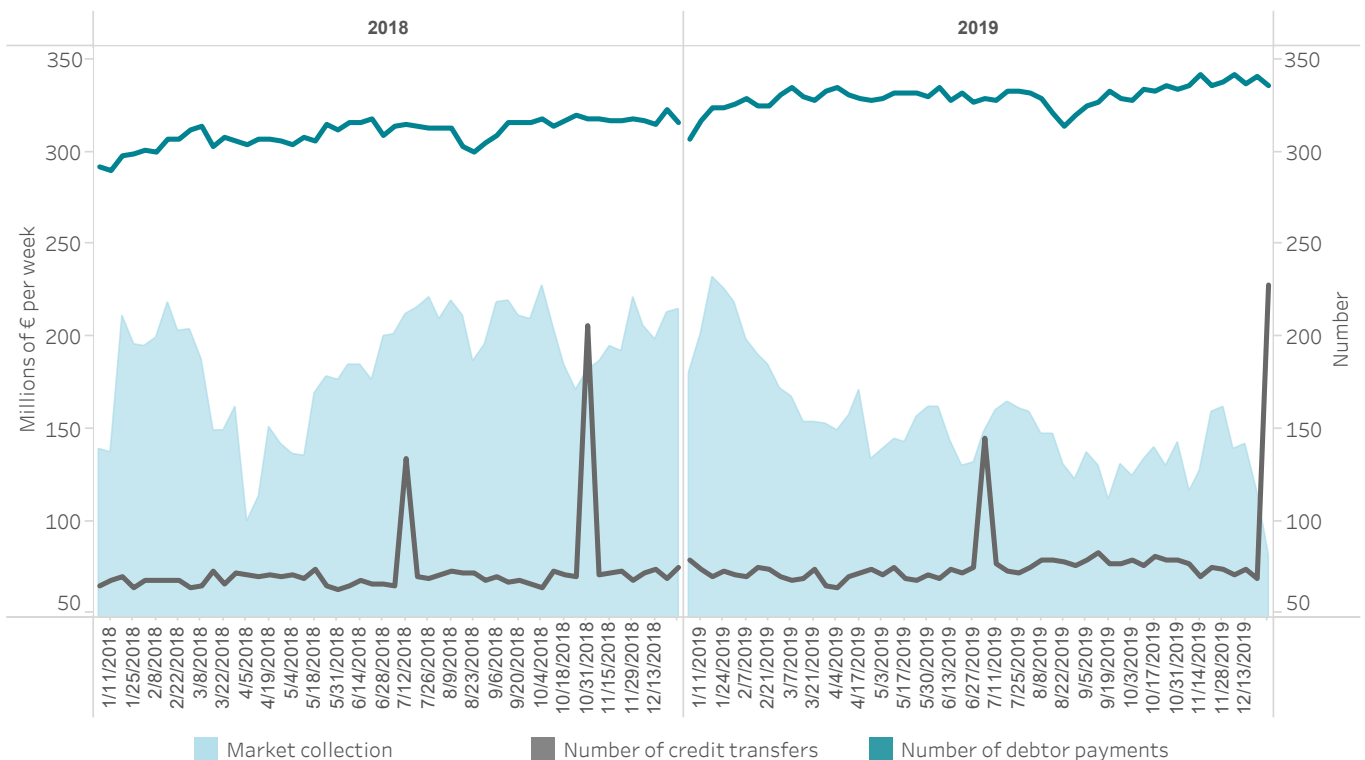
Month	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
January	63.27	0.66	0.13	0.35	0.00	-0.02	4.15	0.71	69.25
February	55.04	0.73	0.06	0.38	0.01	-0.05	4.14	0.75	61.05
March	49.51	1.10	0.16	0.41	0.00	0.06	4.16	0.72	56.13
April	50.91	1.72	0.29	0.52	0.00	0.13	4.18	0.77	58.50
May	48.84	1.23	0.06	0.40	0.01	0.18	4.24	0.76	55.72
June	47.55	1.00	0.00	0.25	0.00	0.07	4.27	0.75	53.89
July	51.99	0.53	0.01	0.22	0.01	0.01	4.32	0.69	57.77
August	45.34	0.75	0.00	0.22	0.00	0.07	4.29	0.74	51.41
September	42.59	0.78	0.00	0.28	0.00	0.02	4.37	0.80	48.83
October	47.94	1.07	0.03	0.33	0.00	-0.02	4.34	0.79	54.48
November	44.17	1.14	0.00	0.44	0.00	-0.09	4.29	0.76	50.71
December	35.32	1.45	0.00	0.62	0.00	-0.02	4.27	0.76	42.39

Year	Day-ahead market	Technical constraints	Upward reserve power	Regulation band	Intraday market	Technical operation	Capacity payments	Interruptibil. service	Average final price
2018	57.76	1.52	0.22	0.56	0.00	0.04	4.24	1.23	65.57
2019	48.92	1.00	0.06	0.37	0.00	0.02	4.25	0.75	55.38

### 4.6 Final average price of the Spanish electricity system - National demand



### 4.7 Tendency of collections on the market



## Annual report 2019

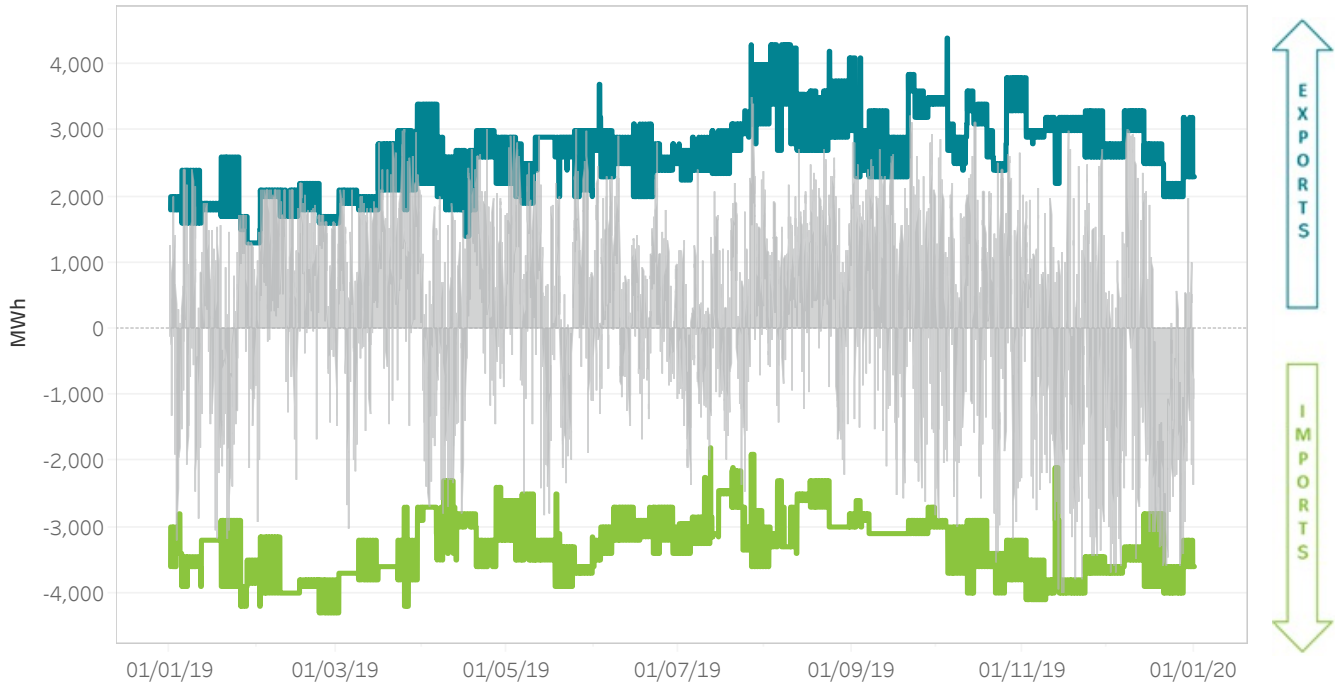
# 5.

## International exchanges

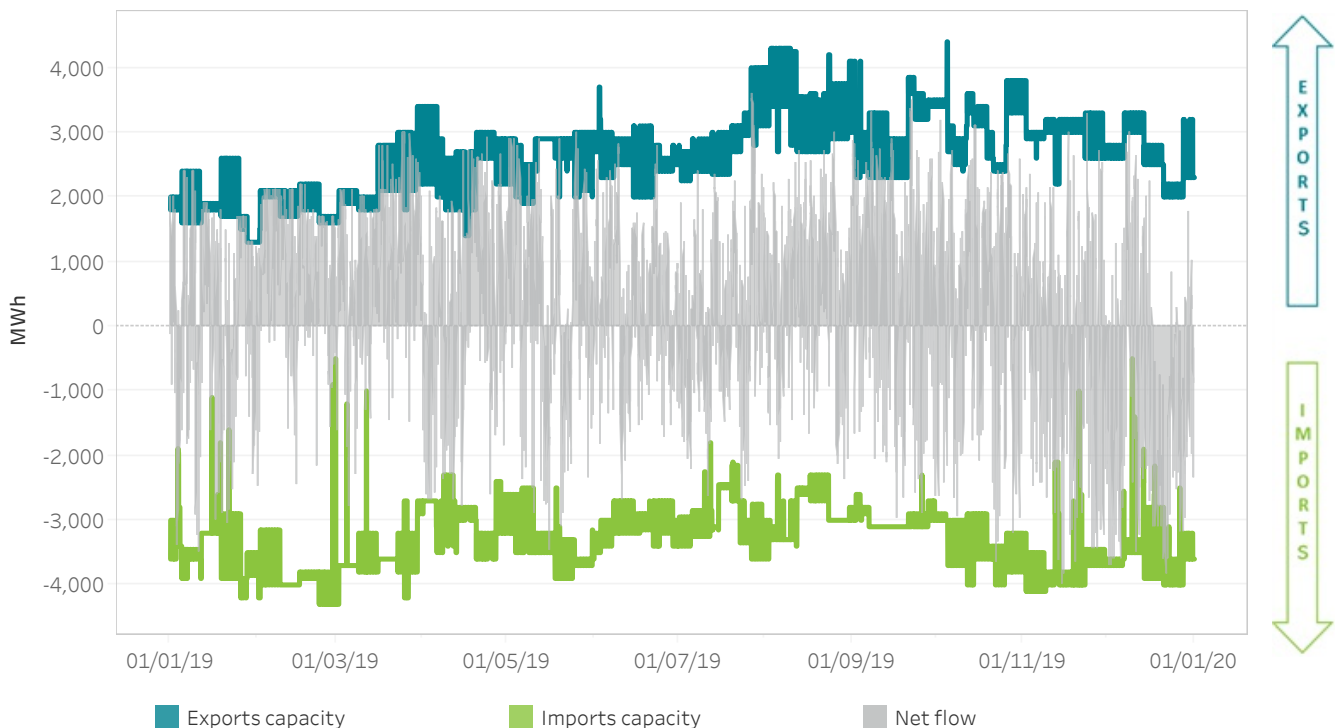
- Interconnector flows after the day-ahead market and the intraday continuous market
- Market coupling
- Economic volumes exchanged in the MIBEL



### 5.1 Interconnection flow and capacity with Portugal in the day-ahead operations program (Programa diario base de funcionamiento, PDBF)

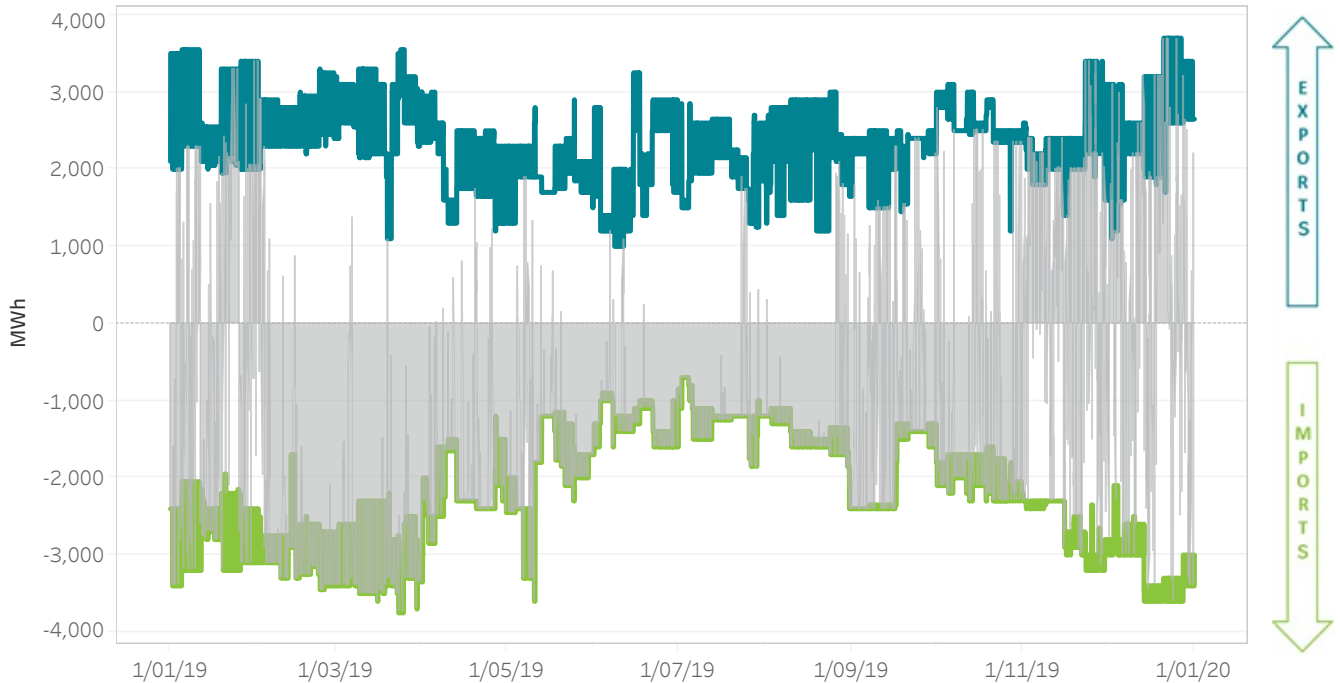


### 5.2 Interconnection flow and capacidad with Portugal in the final hourly program (Programa horario final, PHFC) after the continuous market

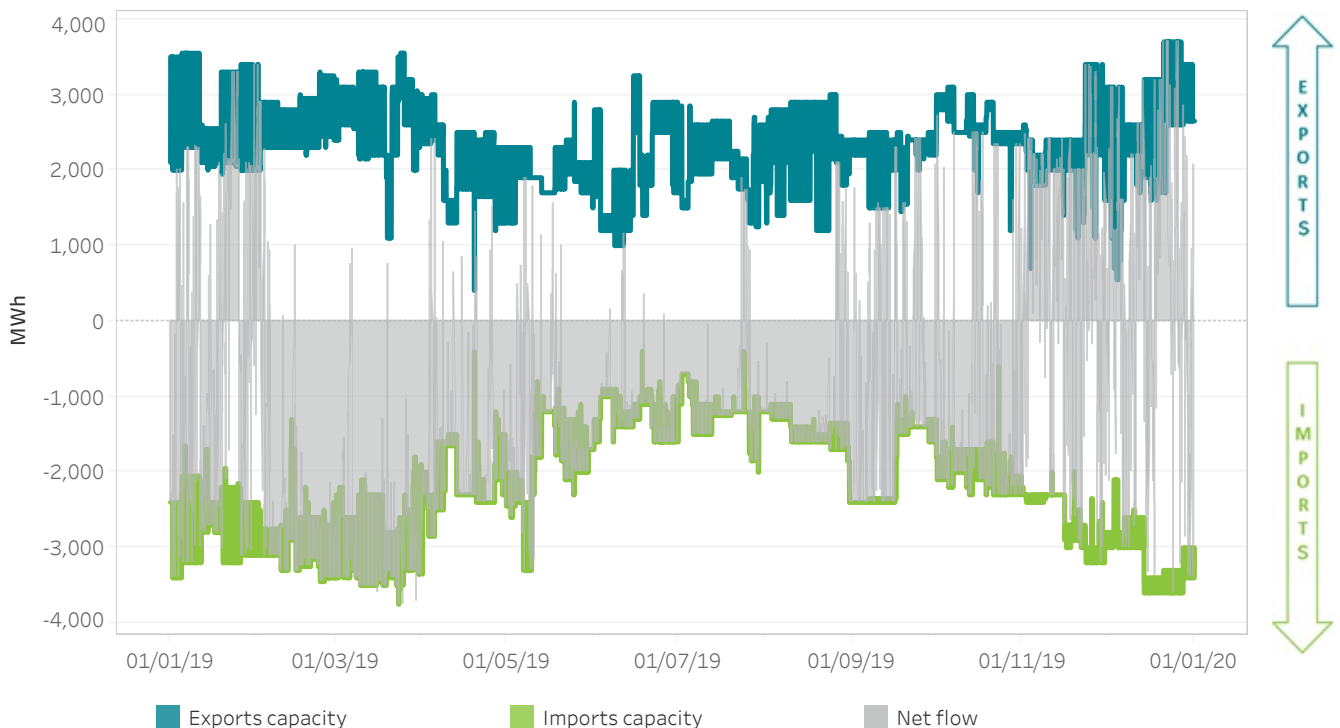




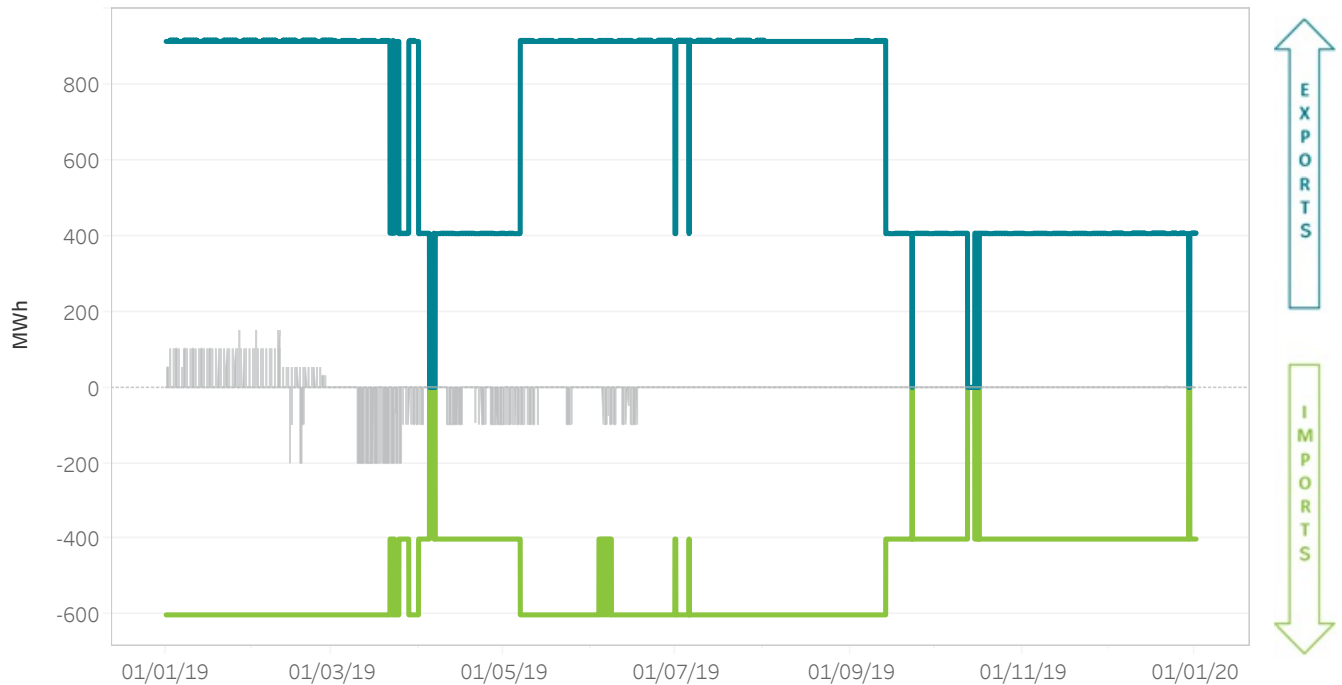
### 5.3 Interconnection flow and capacity with France in the day-ahead operations program (Programa diario base de funcionamiento, PDBF)



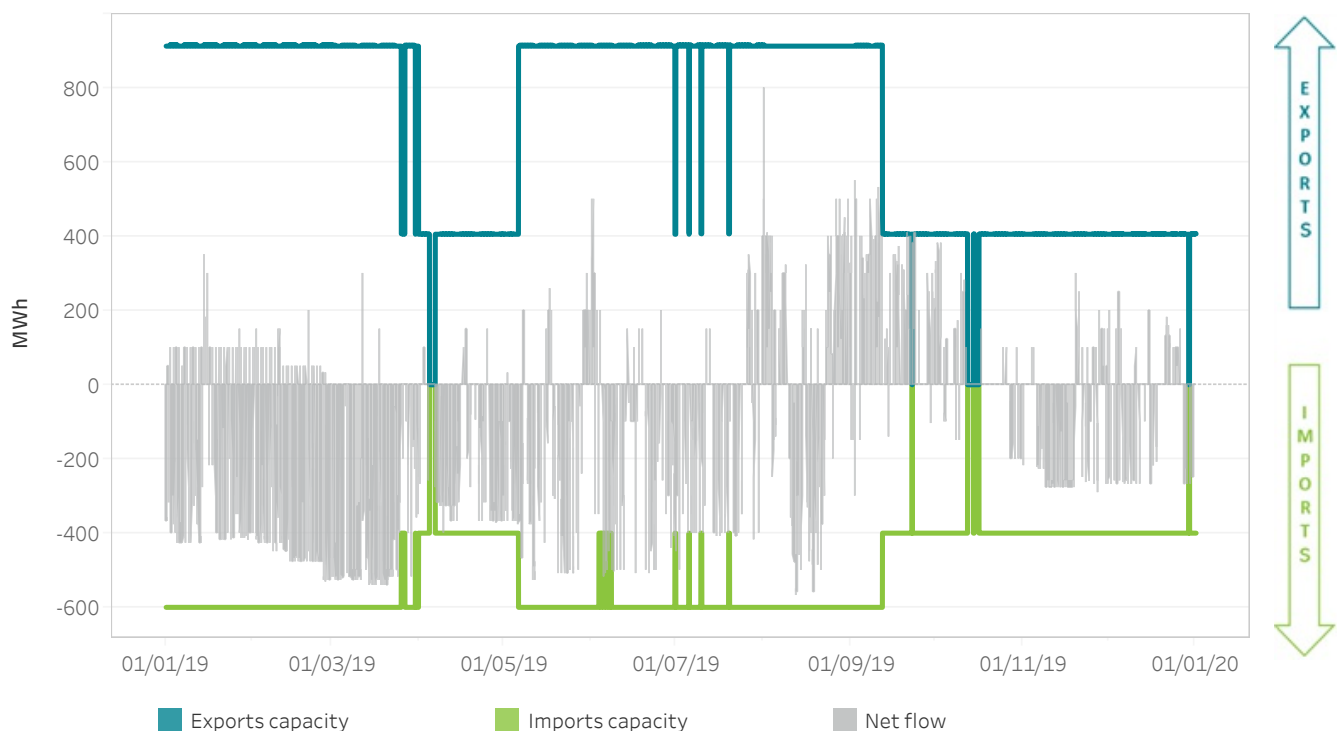
### 5.4 Interconnection flow and capacidad with France in the final hourly program (Programa horario final, PHFC) after the continuous market



### 5.5 Interconnection flow and capacity with Morocco in the day-ahead operations program (Programa diario base de funcionamiento, PDBF)

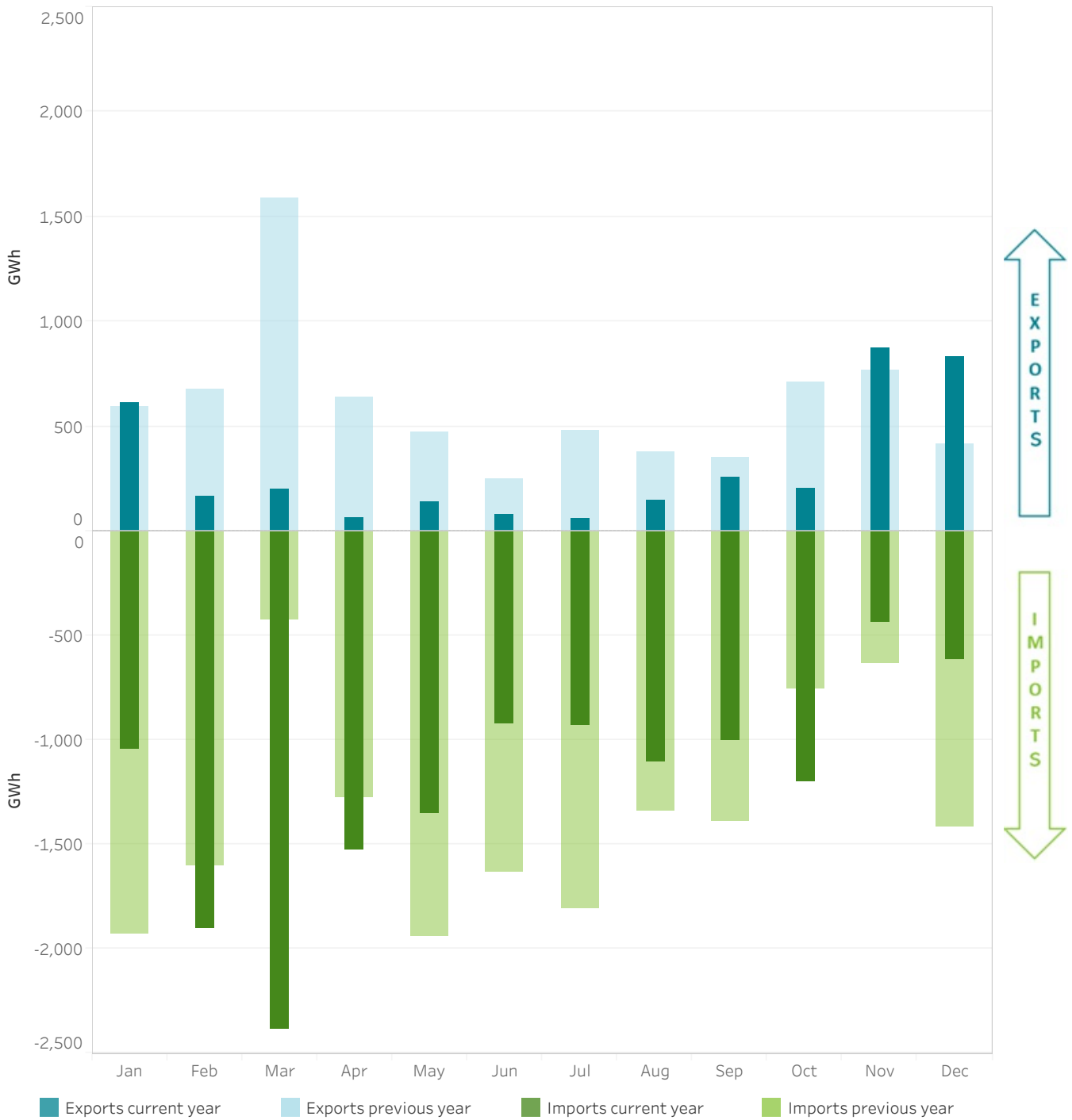


### 5.6 Interconnection flow and capacidad with Morocco in the final hourly program (Programa horario final, PHFC) after the continuous market



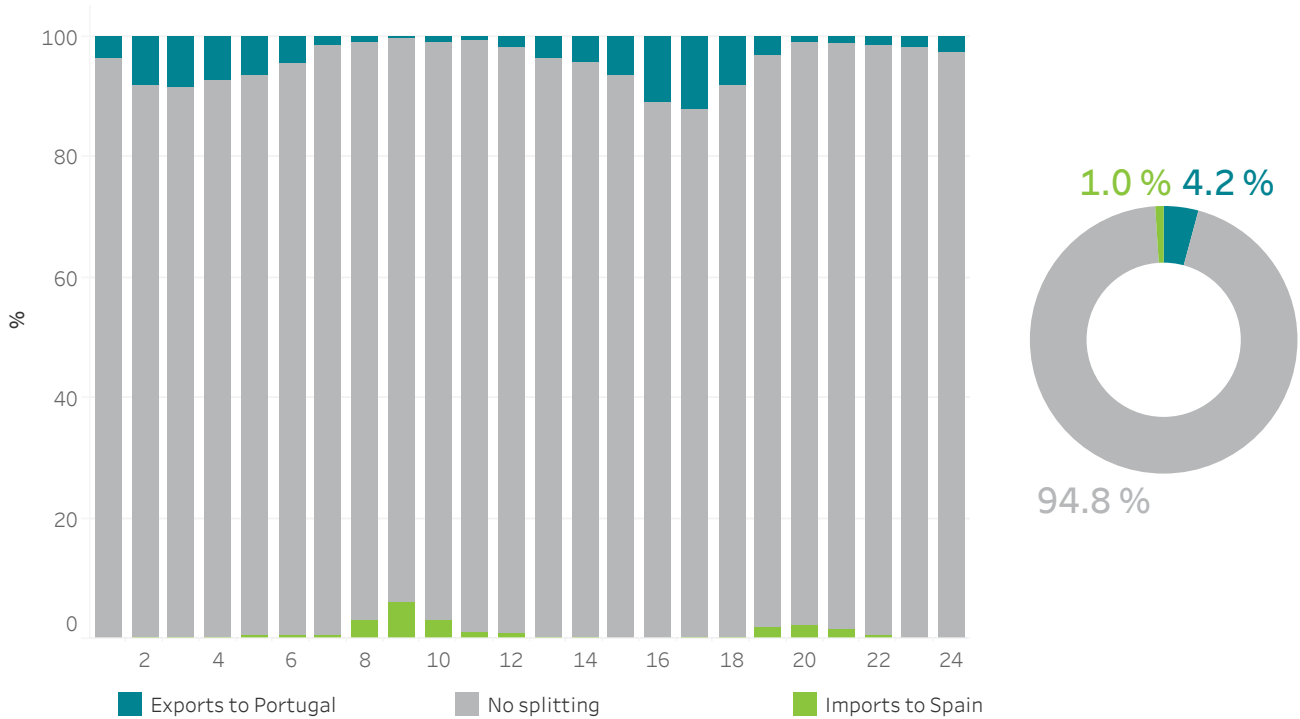
**5.7 Total exports and imports**  
MIBEL

	2019	2018
Exports [GWh]	3,623.0	7,315.2
Imports [GWh]	14,425.8	16,168.9



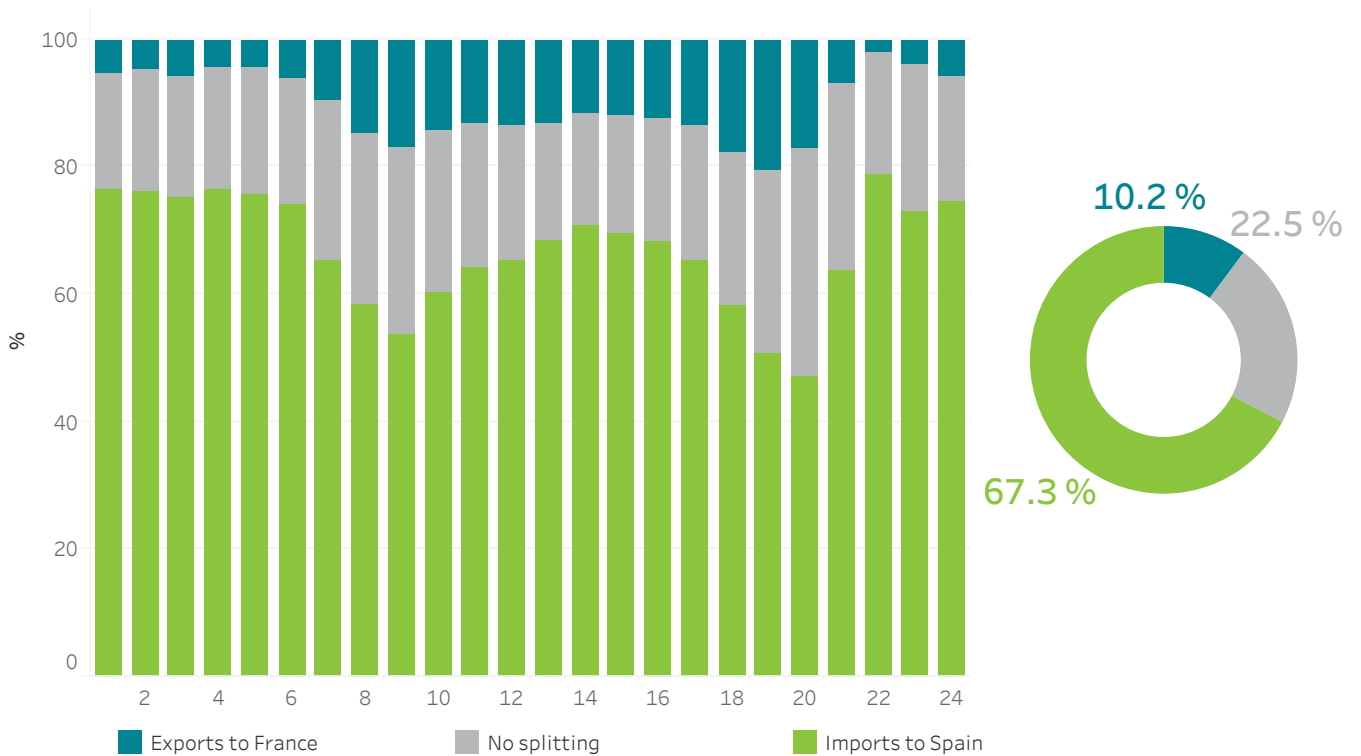
### 5.8 Market coupling on the Spain/Portugal border

The circular graph indicates the percentage, over the total number of periods, of the markets' coupling and, where there is no coupling, the flow of the interconnection. The bar graph breaks down this data by period.



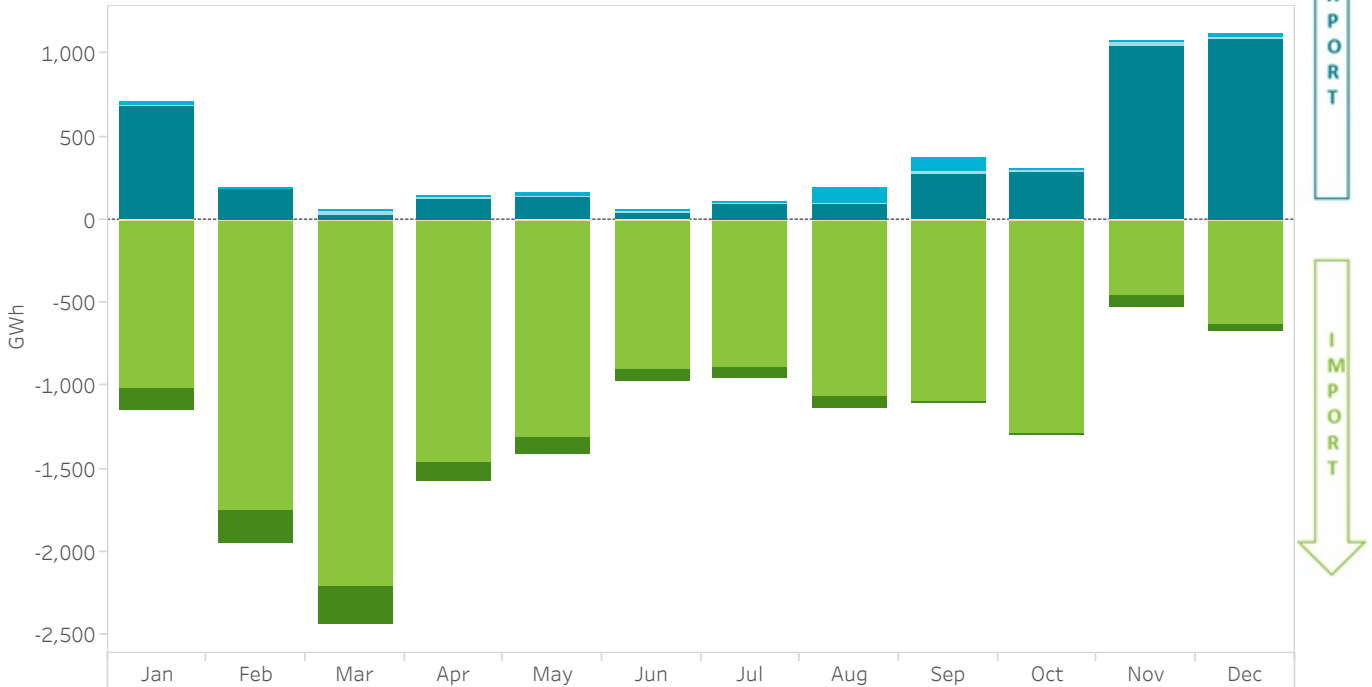
### 5.9 Market coupling on the Spain/France border

The circular graph indicates the percentage, over the total number of periods, of the markets' coupling and, where there is no coupling, the flow of the interconnection. The bar graph breaks down this data by period.



### 5.10 Monthly energies exchanged on the MIBEL borders

The graph represents the energy imported and exported in the markets managed by OMIE.



### 5.11 Monthly economic volumes exchanged on the MIBEL borders

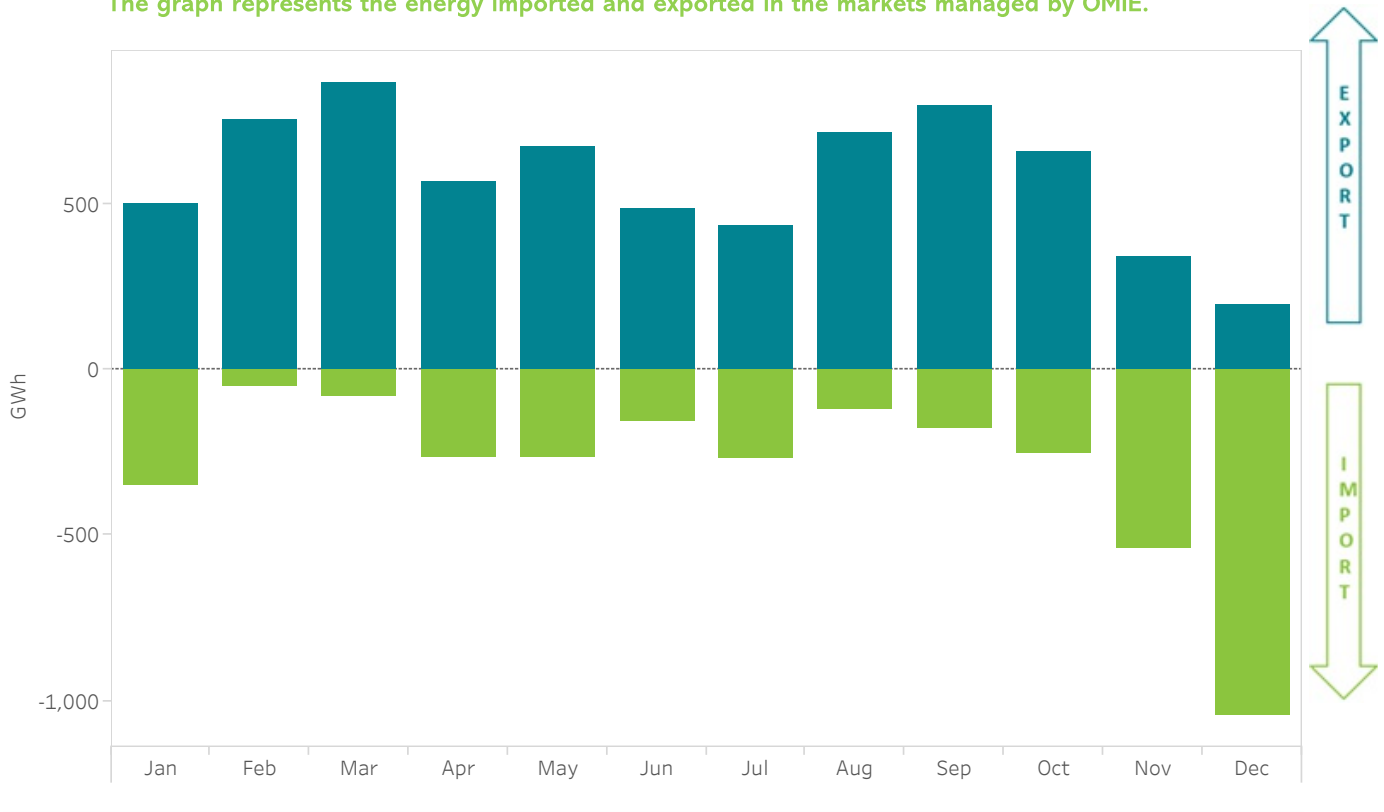
The graph represents the economic volume of imports and exports in the markets managed by OMIE.



- Export - Morocco
- Export - France
- Import - Andorra
- Export - Andorra
- Import - Morocco
- Import - France

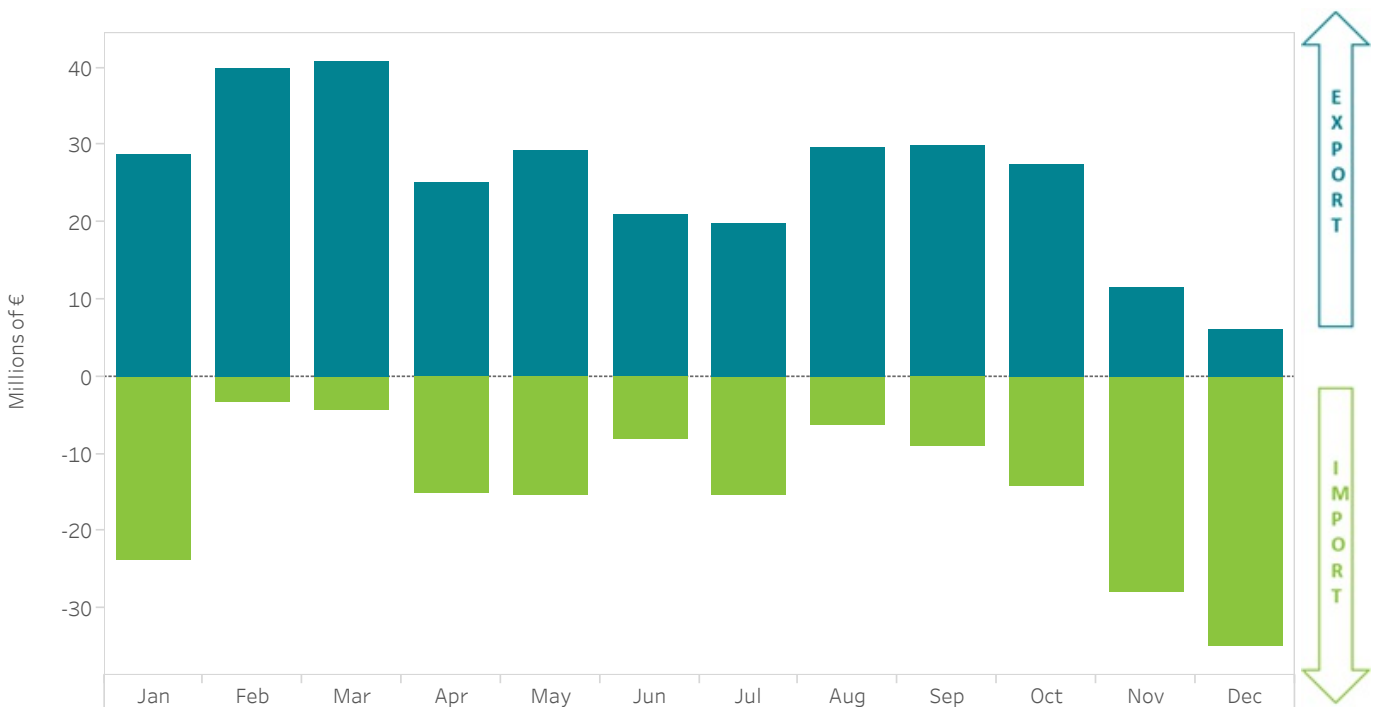
### 5.12 Monthly energies exchanged on the border with Portugal

The graph represents the energy imported and exported in the markets managed by OMIE.



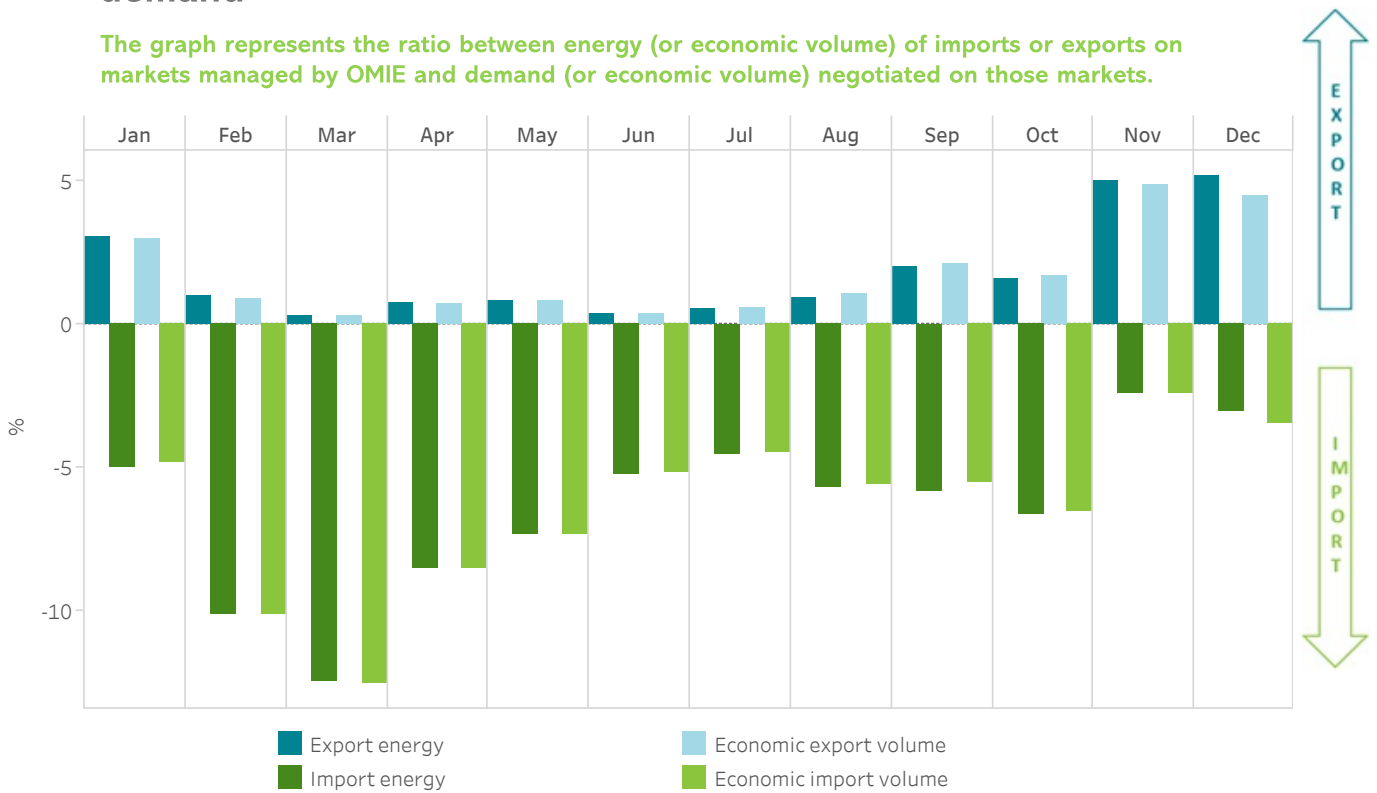
### 5.13 Monthly economic volumes exchanged on the border with Portugal

The graph represents the economic volume of imports and exports in the markets managed by OMIE.

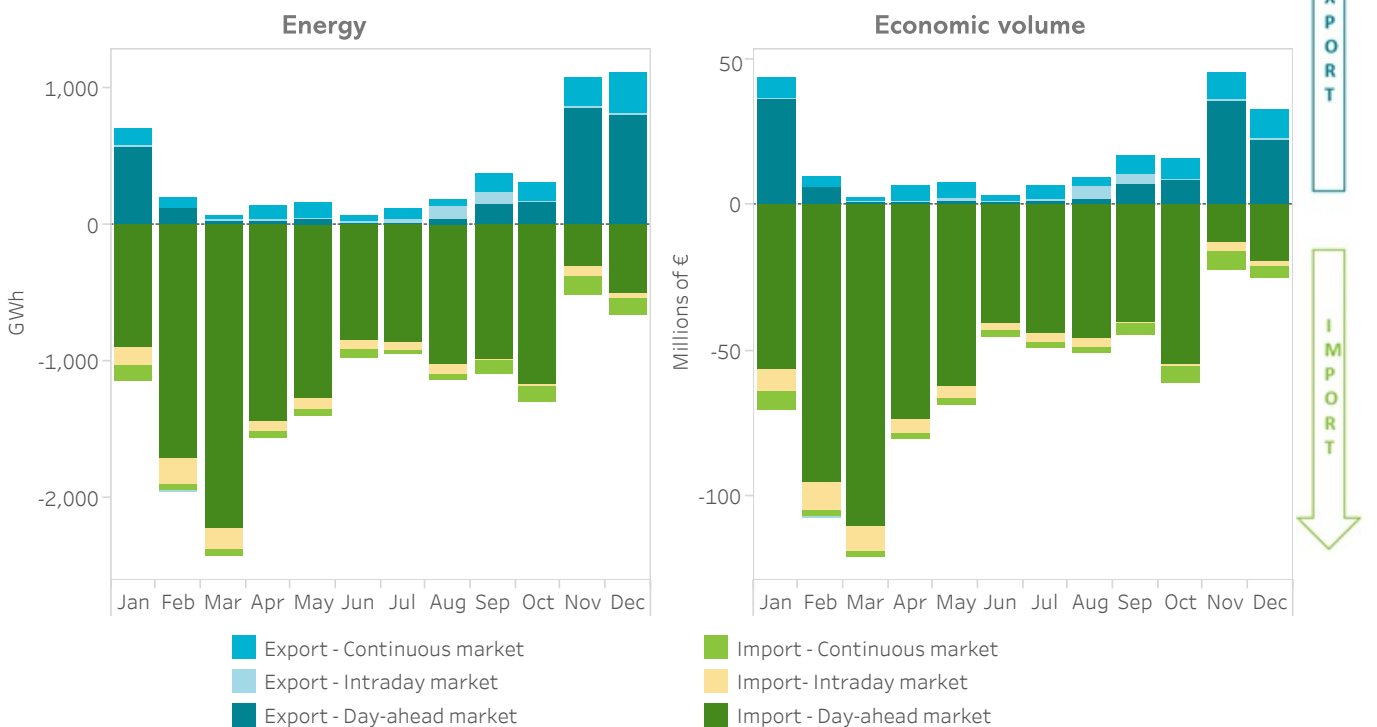


### 5.14 Impact of imports and exports on the MIBEL on market demand

The graph represents the ratio between energy (or economic volume) of imports or exports on markets managed by OMIE and demand (or economic volume) negotiated on those markets.



### 5.15 International electricity exchanges by market



# 6.

## International markets

- Prices and energy in the international markets
- Maps

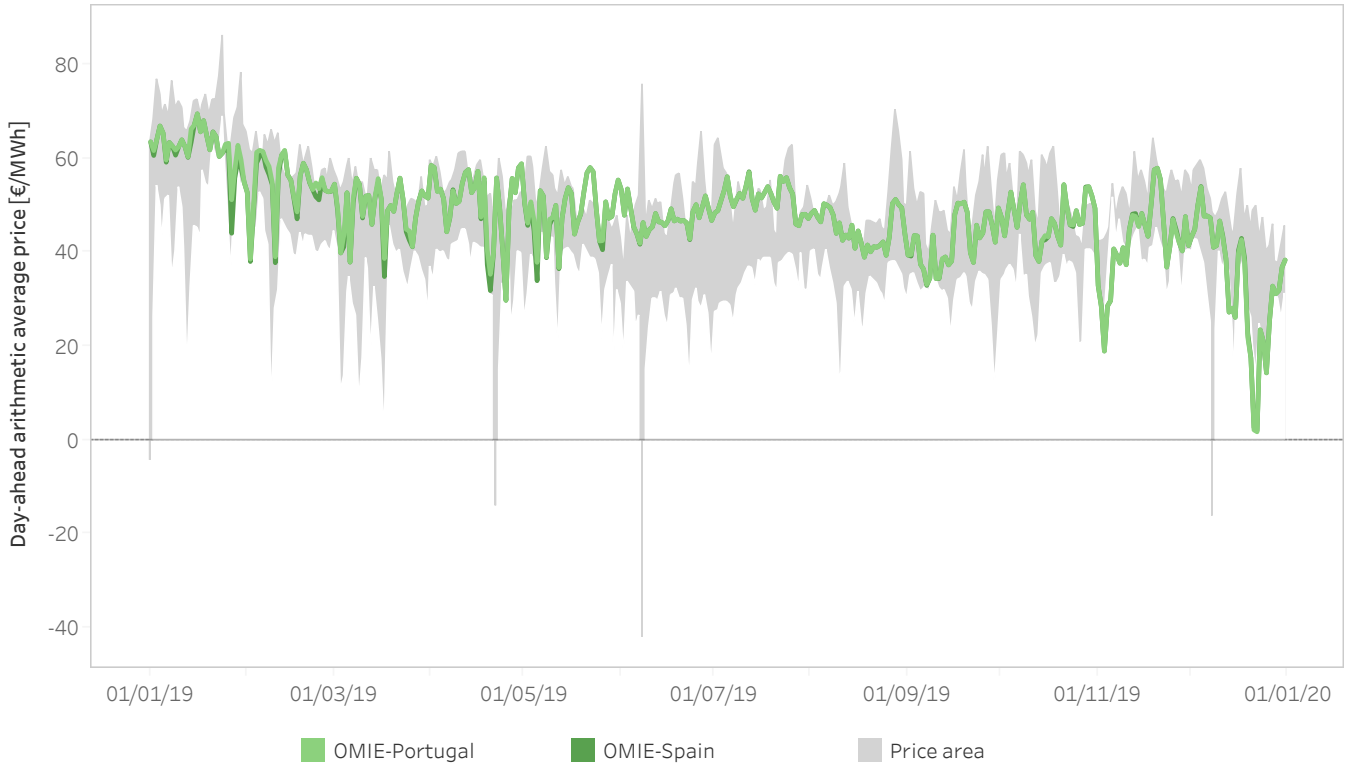




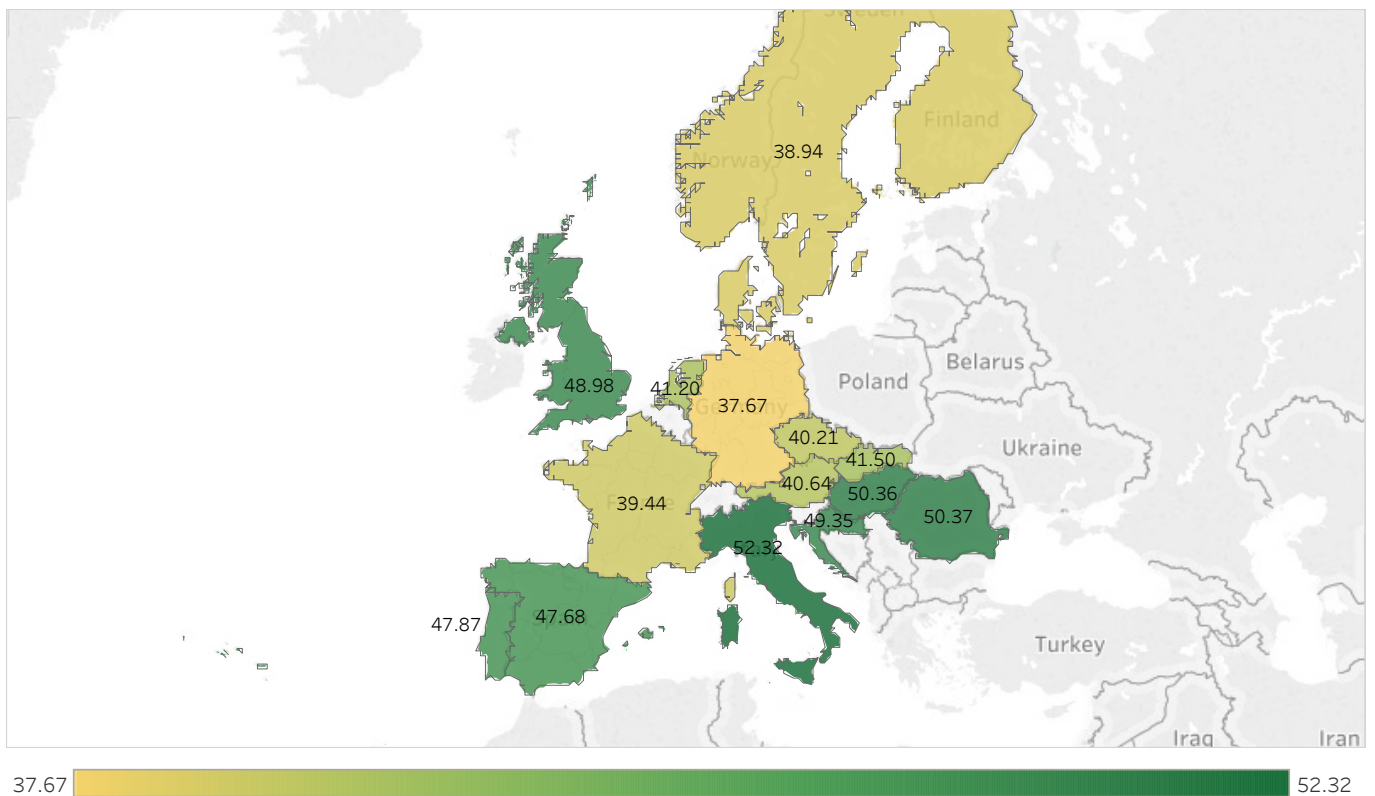
## 6.1 Day-ahead average prices of the main European market operators

### Spain and Portugal

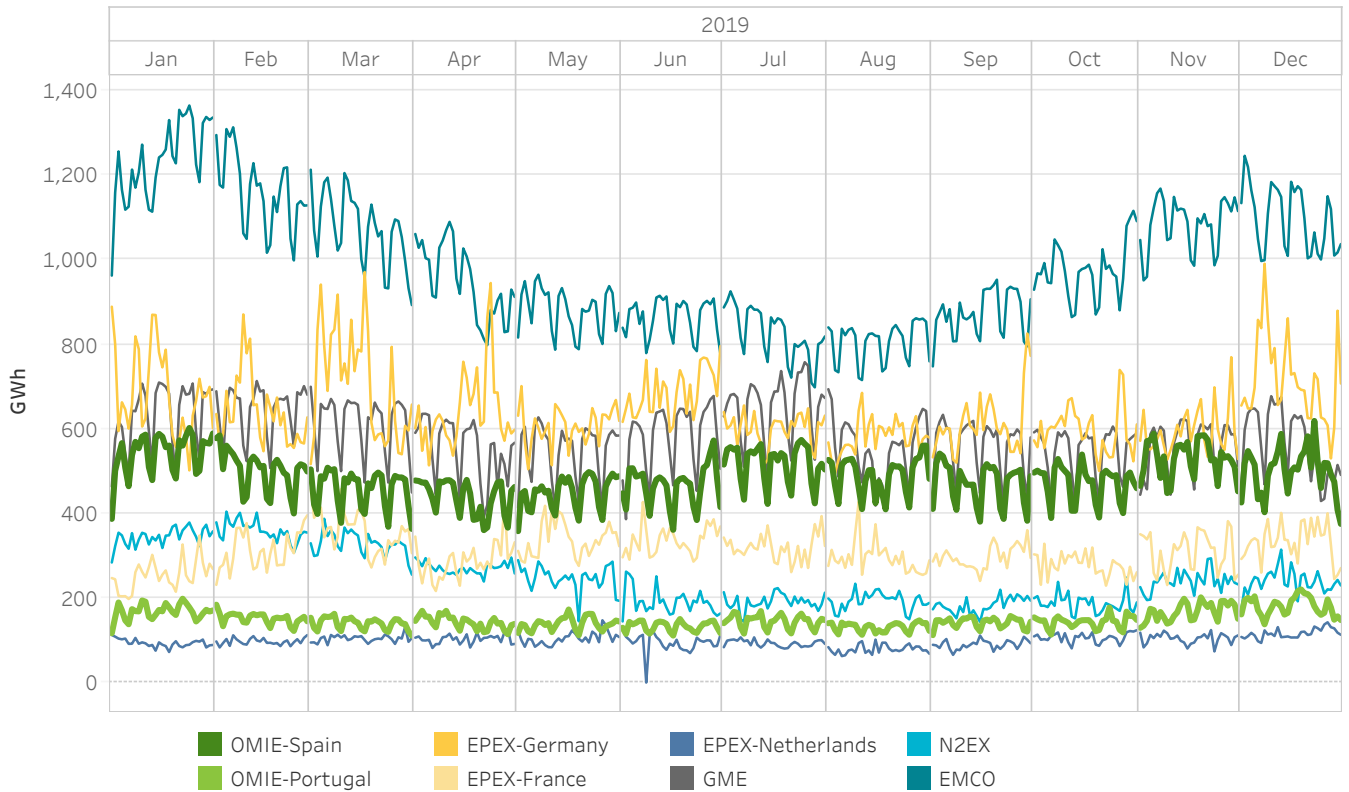
The "Price area" shows the difference between the maximum and the minimum day-ahead average price between the following markets: EPEX-Germany, EPEX-France, EPEX-Netherlands, GME, N2EX and EMCO.



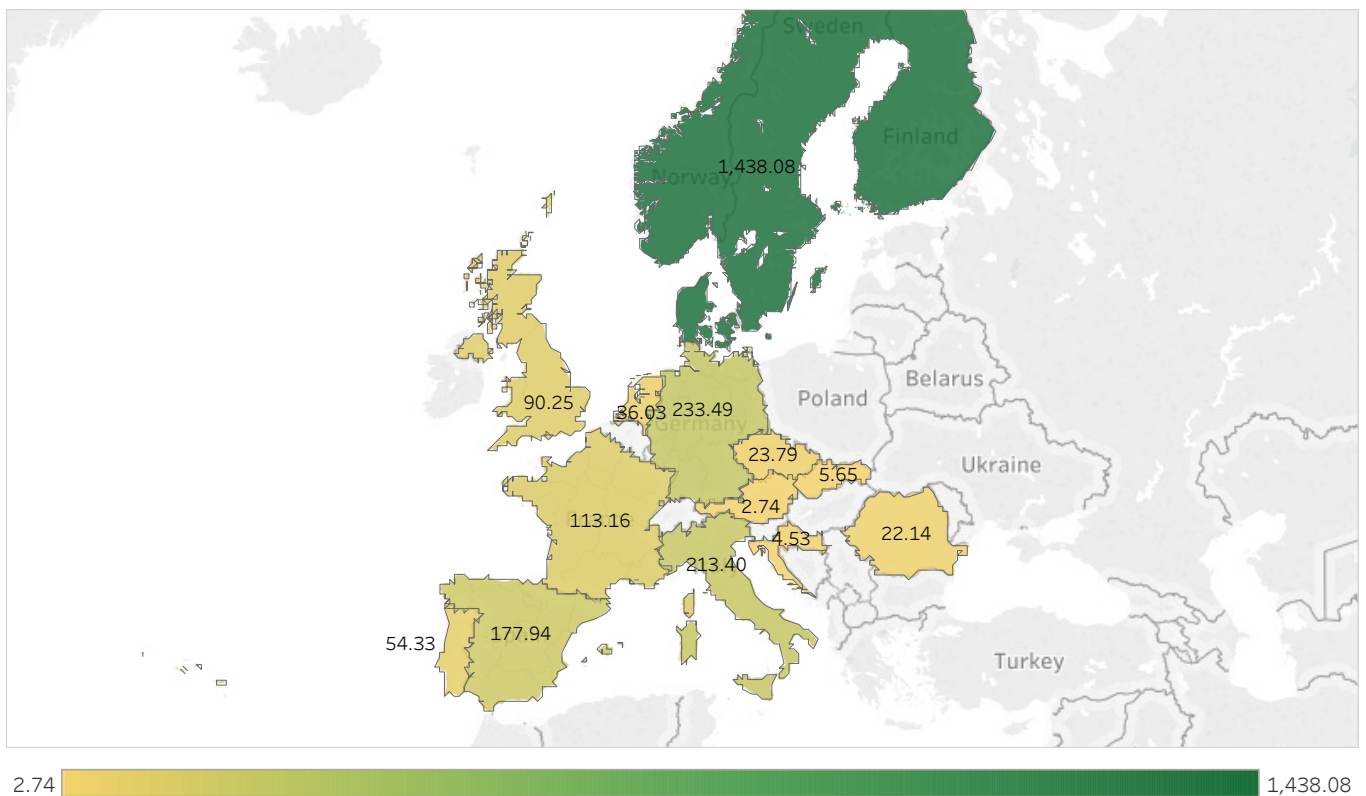
## 6.2 Average prices in the European price areas for 2019 in €/MWh



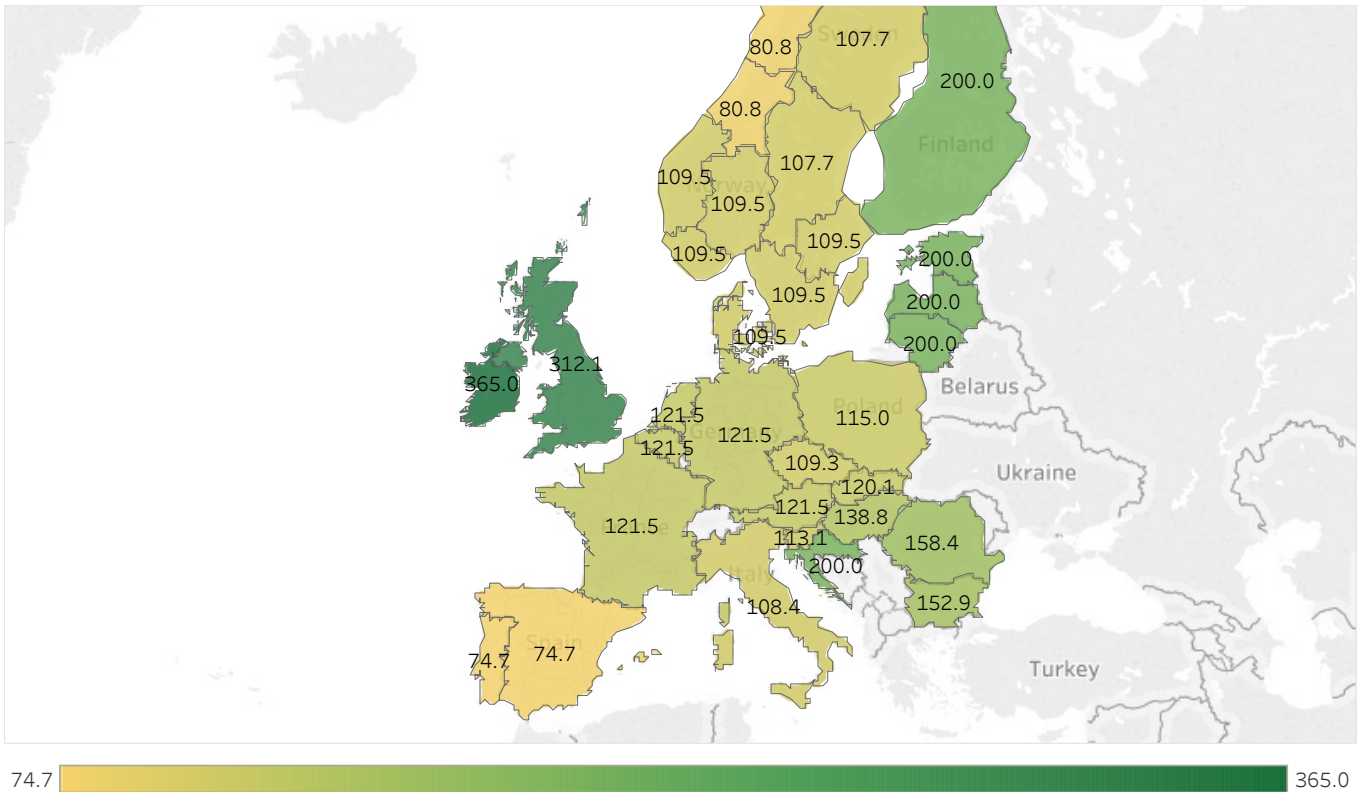
### 6.3 Day-ahead energy negotiated by the main European market operators



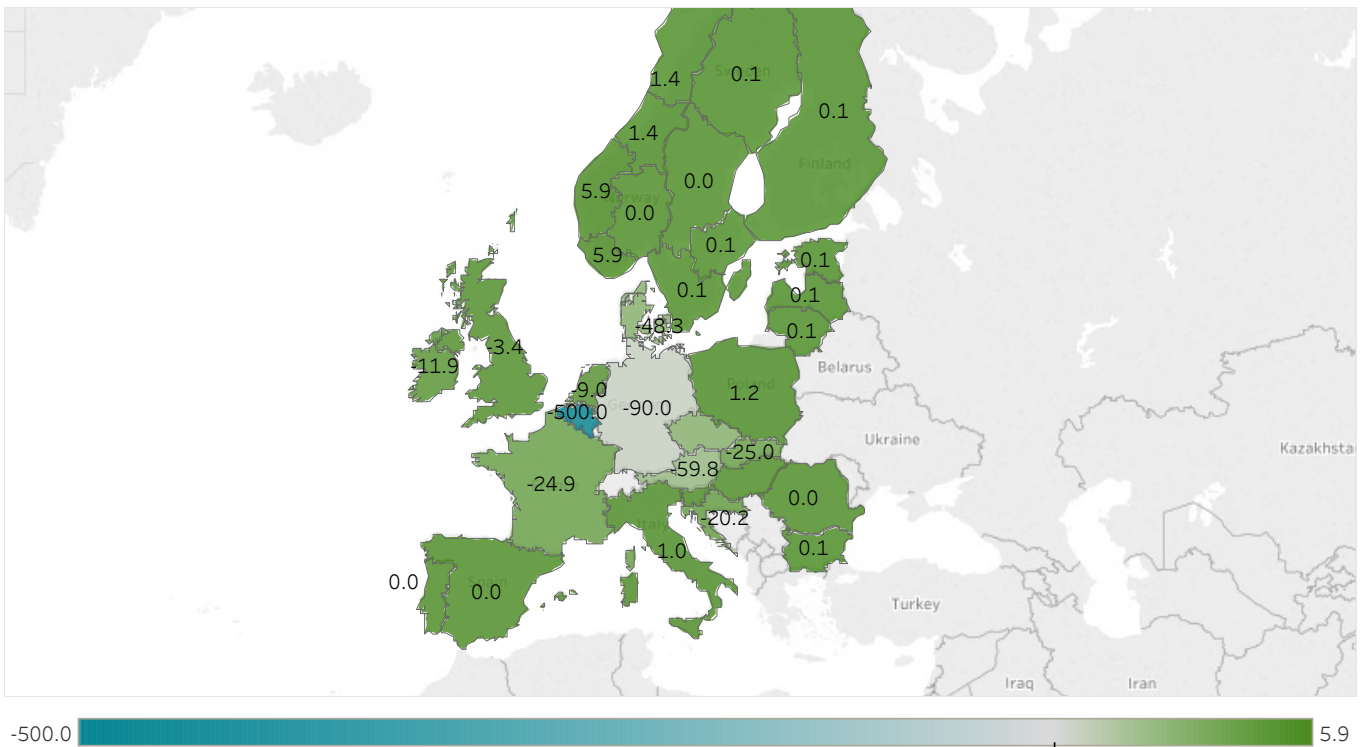
### 6.4 Energy in the European price areas for 2019 in TWh



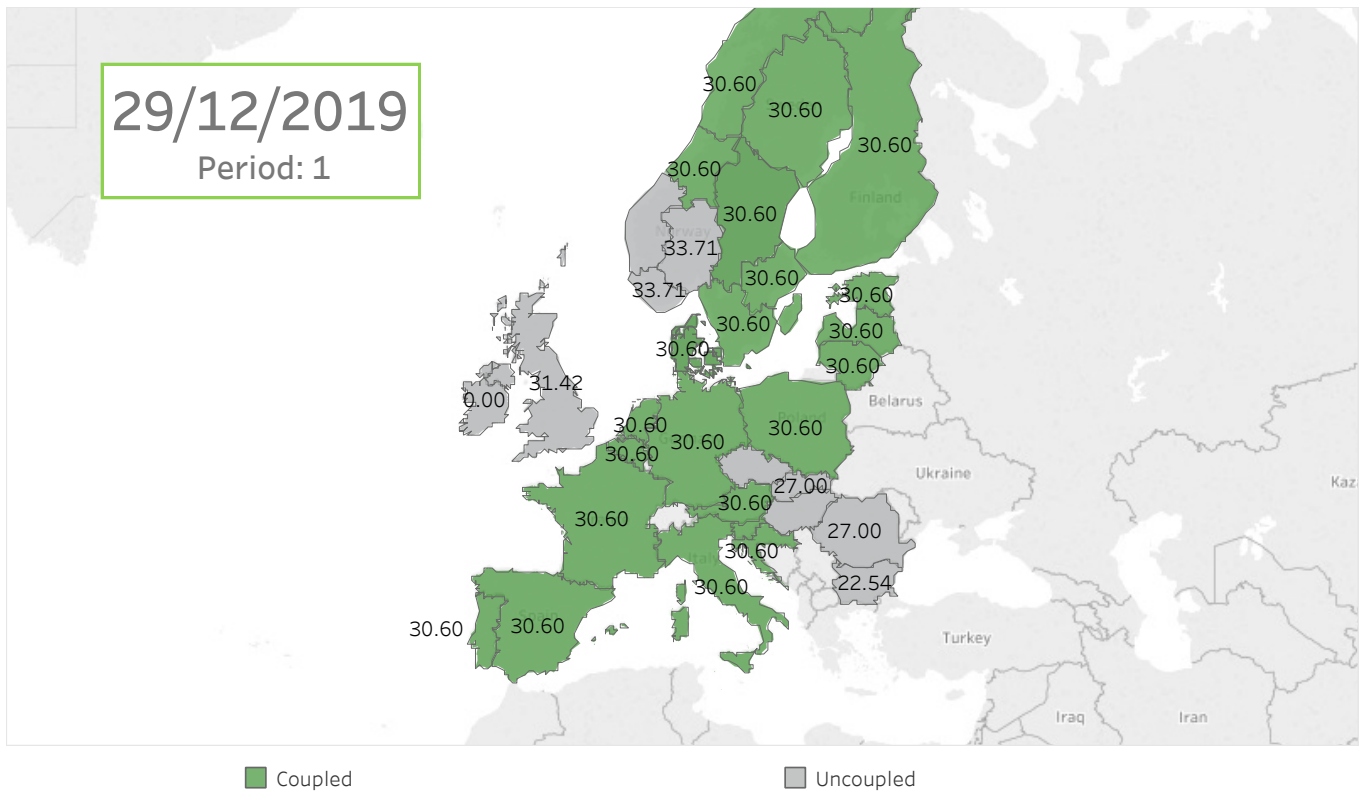
### 6.5 Hourly maximum prices [€/MWh] in the main European market operators for 2019



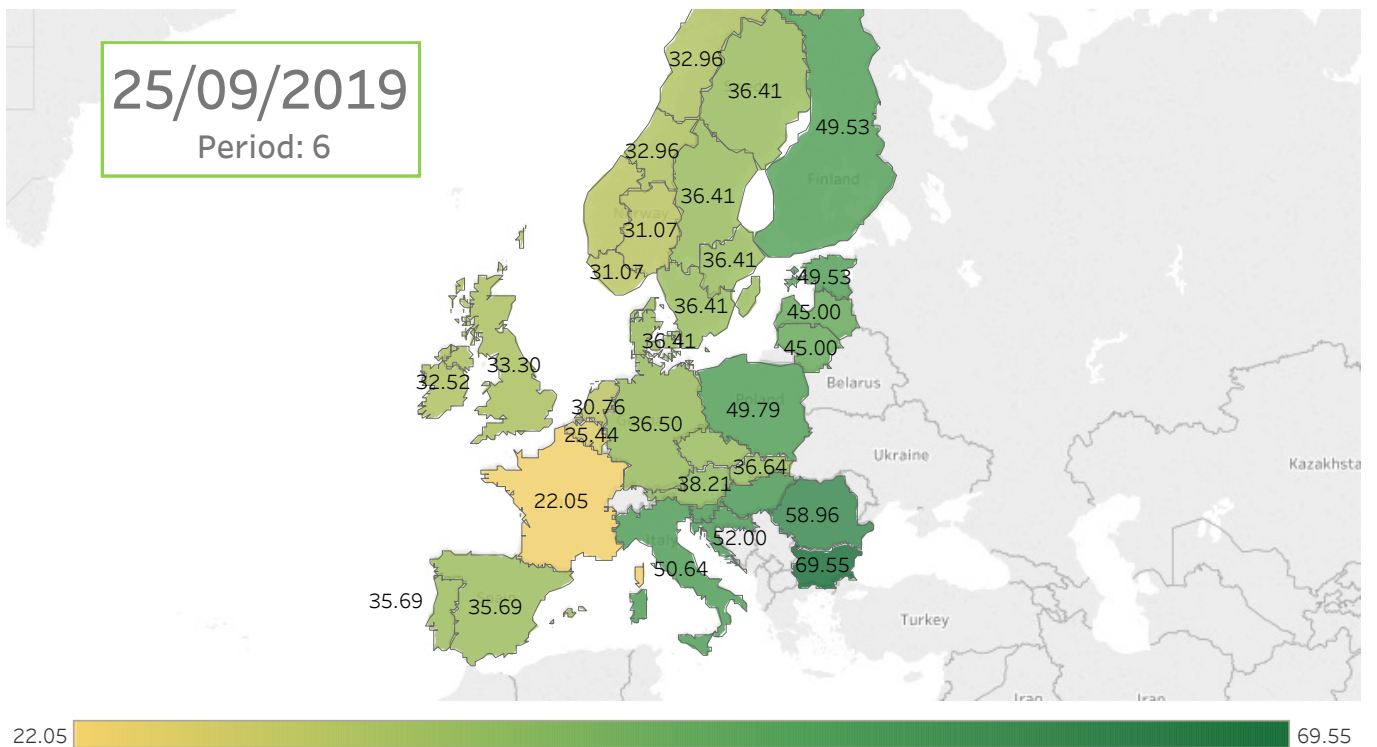
### 6.6 Hourly minimum prices [€/MWh] in the main European market operators for 2019



### 6.7 Period of maximum price coupling [€/MWh] in the main European market operators for 2019



### 6.8 Period of minimum price coupling [€/MWh] in the main European market operators for 2019



## Annual report 2019

### Appendix

- Day-ahead market
- Intraday auction market
- Intraday continuous market



## Day-ahead market

The day-ahead market, as an integral part of the electrical energy production market, aims to carry out electrical energy transactions for the next day by presenting bids for sales and acquisition of electrical energy on behalf of market agents.

The day-ahead market is managed by the European market operators: OMIE, EPEX SPOT, GME, Nord Pool Spot, and TGE through the PCR project. The purpose of this project is the implementation of a system of market couplings that calculates the prices of electricity across Europe, and that enables assigning the cross-border capacity on short-term markets.

The day-ahead market's resulting program is the Daily Matching Base Program (Programa Diario Base de Casación, PDBC ). The system operator incorporates the bilateral contracts declared on the system operator into this program, and the resulting program is the Daily Operations Base Program (Programa diario base de funcionamiento, PDBF). Finally, once the system operator has applied the technical restrictions to the PDBF, the resulting program is the Definitive Viable Daily Program (Programa Diario Viable Definitivo, PDVD).

## Intraday market

The intraday markets are an important tool for market agents to be able to adjust their resulting program from the daily market through the presentation of energy sales and acquisition bids, in accordance with the needs that they anticipate in real-time. The importance of some efficient intraday markets has increased in the last few years, as a result of the ever-growing capacity of intermittent generation.

### Intraday Auction Market

The intraday auction market aims to attend to the adjustments to the Definitive Viable Daily Program (Programa Diario Viable Definitivo, PDVD) through the presentation of bids for sales and acquisition of electrical energy on behalf of market agents, who programming basis is the result of the day-ahead market.

The intraday auction market is currently structured into six sessions with different programming horizons for each session, and it manages the price areas of Portugal and Spain, and the free capacity of the following interconnections: Spain-Portugal, Spain-Morocco, and Spain-Andorra.

The resulting program of each session of the intraday auction market is the Basic Intraday Program for Incremental Matching (Programa Intradíaario Básico de Casación Incremental, PIBCI). Based on this program, the system operator publishes the resulting program, the Final Hourly Program (Programa horario final, PHF).

### Intraday Continuous Market (XBID)

As with the intraday auction market, the continuous intraday market offers market agents the possibility of managing their energy imbalances with 2 fundamental differences with respect to the auction market:

- Agents may benefit from market liquidity at the regional level of Spain and Portugal and from the liquidity available on markets in other areas of Europe, as long as there is the capacity for cross-border transportation available between the zones.
- The adjustment may be made up to one hour before the time of energy delivery.

The intraday continuous market is managed by the OMIE market operators, EPEX spot, and Nord Pool, responding to the needs of the market, who started the initiative called XBID Market Project to create an integrated cross-border European intraday market. The proposal of this project is to couple European intraday markets and allow the trade of energy between the different zones of Europe continually, increasing the global efficiency of the transactions on these markets at the European level. This initiative represents the Single Intraday Coupling (SIDC) solution that will enable the creation of an integrated European intraday market.

The resulting program from each round of the intraday continuous market is the Basic Intraday Program for Incremental Continuous Matching (Programa Intradía Básico de Casación Incremental Continuo, PIBCIC). Based on this program, the system operator publishes the resulting program called the Continuous Final Hourly Program (Programa Horario Final Continuo, PHFC).



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