



**Evolution of
the electricity
market
Annual report**

2022

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- ▶ During 2022, the total amount of energy negotiated on the day-ahead and intraday markets was 257.8 TWh, 3.4% lower than that negotiated in 2021. Of these 257,8 TWh, 218,8 TWh were negotiated on the day-ahead market and 39 TWh on the intraday markets.
- ▶ The average arithmetic price of the day-ahead market of the MIBEL was 167.72 €/MWh, 55.75% higher than that of 2021. The average price of the intraday auction market was slightly lower than the day-ahead, 167.21 €/MWh, and the weighted average price of the intraday continuous market was higher, 184.40 €/MWh.
- ▶ In 2022, the market shares in Spain for technology on the Daily Operations Base Program (Programa diario base de funcionamiento, PDBF) have highlighted that coal-fired power plants continue to reduce their contribution to the generation mix, with only 2.8%. On the other hand, the combined cycle has increased its supply to 18.4% from the 8.1% of the previous year.
- ▶ Renewable energy, along with nuclear, continue to represent almost all of the generation (see figures 1.9 and 1.10). It is also remarkable the increase in photovoltaic solar energy, which has increased its contribution from 8.8% in 2021 to 11.1% in 2022.
- ▶ In the Portuguese area a similar evolution is observed, with the variation of the indicators being smaller. With respect to 2021, coal thermal power units have decreased their supply, from 1.2% to 0%, being covered mostly by the combined cycle, which in 2022 has increased its share from 22.0% to 30.8%, remaining the rest of the generation technologies approximately at the same proportions as the previous year, except for hydropower, that has decreased its contribution from 27.7% to 19.5%.

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- ▶ The technologies that most hours have marked marginal are, in order, hydraulic, combined cycles and biomass-cogeneration-waste, at 37.8%, 29.4%, and 13.2%, respectively (see figures 1.13 and 1.14).
- ▶ In regard to the international exchanges of energy and in comparison with the previous year, it can be seen that the MIBEL zone has become a net exporter and has decreased the energy that has been exchanged by the interconnections (see figures 5.7). The exchange of energy on the market with Morocco was a net exporter.
- ▶ In the intraday continuous market it can be observed an stable negotiation trend along the year (figure 3.3 and following), confirming, in a way, that it represents a flexible and efficient tool that allows them to adjust their unit's programme until one hour before the delivery of real energy, minimizing their possible imbalances and costs. It is confirmed that for renewables, especially the wind energy, this market is very relevant due to its capability to adjust their output in the last trading period before the delivery of energy. Since the start of the continuous intraday market, the trading record was achieved on April 2022 with 782.4 GW, confirming the positive trend.
- ▶ In the European intraday continuous market energy from 25 countries is traded, being managed by 15 assigned market operators. It is remarkable that only 4 market operators take the role of coordinating the European intraday continuous market, being OMIE one of them.

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- ▶ On the other hand and in relation to the international exchanges, coinciding with the day-ahead market in which the MIBEL area is generally net exporter, in the intraday continuous market there is also more trading in the exporting direction, while there is capacity available for this (see figure 3.14).

Other relevant facts

- ▶ The year 2022 has been an exercise of intense activity for OMIE that has required numerous adaptations of the operation processes for the development of new tasks and new procedures to successfully adapt to the new regulations both at European and regional level in Spain and Portugal, as well as changes in the processes of the coupled markets at European level.
- ▶ One of the most noteworthy tasks has been the implementation of the adjustment Mechanism based on the requirements contained in Real Decreto-Ley 10/2022, may 13th, on the ones contained in Decreto-Ley nº 33/2022, may 14th, corresponding to the portuguese legislation and on the ones of the ministerial order Orden TED/517/2022, june 8th, by which the date of entry into operation of said mechanism is determined. On June 14, the operation of the procedure established for the calculation of the adjustment Mechanism was carried out with effect for the market coupling session of 15/06/2022 and following, without incidents.

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- ▶ At the European level, and regarding the coupling of the European day-ahead market notable changes have taken place. On May 10th, 2022 (with delivery on May 11th), the value of +4000 EUR/MWh was established as the new maximum price limit of offer for all the areas that participate in the European daily coupling (SDAC). On the other hand, improvements have been made in the coordination procedures between the different markets such as the implementation of new operational times that reduce the risk of potential decoupling from the daily market.
- ▶ Regarding the coupling of new markets to the continuous intraday market, OMIE has continued to participate in the design and new implementation of all the improvements and evolutions of this market. The incorporation of Greece and Slovakia as new members of this intraday market on 29th of November represented a major step forward in the integration of the Member States.
- ▶ The year 2022 has been decisive to establish the roadmap and design of the new IDAs (Intraday Auctions) that will be implemented in the first half of next year 2024.
- ▶ Additionally, OMIE started operating the markets from a new emergency system. In order to ensure internal and external operating procedures, various OMIE actions have been carried out throughout 2022 in collaboration with agents, system operators and market operators involved in the different markets.
- ▶ COVID-19 has once again been a remarkable fact and one to consider. From the operational view, the market operator has been able to operate all the managed markets.

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Executive summary / Economic results

- ▶ During the year 2022, all the settlement, billing, collections and payments and guarantees management processes have been in operation normally and without incidents.
- ▶ Since June 15th, when the production cost adjustment mechanism for the reduction of the price of electricity in the wholesale market came into force Regulated by Royal Decree Law 10/2022, the market operator has incorporated the resulting collection rights and payment obligations into its settlement and guarantees processes of said mechanism.
- ▶ The economic volume of purchases in the markets managed by OMIE during 2022 was €51,149 million, all-time maximum recorded due to the significant increase in prices.
- ▶ The annual average final price of the national demand of Spanish Electricity System for the year 2022, 204.50 €/MWh, has been the all-time maximum recorded. National demand in busbars for the year 2022 has been 235,459 GWh, 2.9% less than the previous year.
- ▶ During 2022 OMIE's commitment to electronic guarantees has been consolidated, allowing participants to formalize guarantees with greater agility in a year in which the guarantees' operations have significantly raised, due to the strong price increase.
- ▶ The use of the advance payment mechanism made available to agents by OMIE at the end of 2021, has been proven very effective to reduce the volume of guarantees required to participate in the markets.

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- ▶ The economic volume of purchases in the markets managed by OMIE in 2022 was €51,149 million, 69.2% higher than the previous year.

Of this volume, €6,663 million correspond to the impact on the holders of acquisition units of the cost of the adjustment mechanism for production costs regulated in the Royal Decree-Law 10/2022 and the Decree Law No. 33/2022, which on average is 73.94 €/MWh.

- ▶ The economic volume of purchases in the Spanish zone during 2022 was €41,164 million, while in the Portuguese zone it was €9,985 million, increasing respectively by 72.0% and 58.6% compared to previous year.
- ▶ The final average price of the national demand of the Spanish electricity system for 2022 was 204.50 €/MWh, 72.3% more than the previous year.
- ▶ The congestion income from the Spain-France interconnection in 2022 was €2,083 million, 375.4% higher than the previous year. There were price difference between both zones 73.3% of the hours.
- ▶ The congestion income from the Spain-Portugal interconnection in 2022 was €10 million, 140.1% higher than the previous year. There were price difference between the zones 2.9% of the hours.

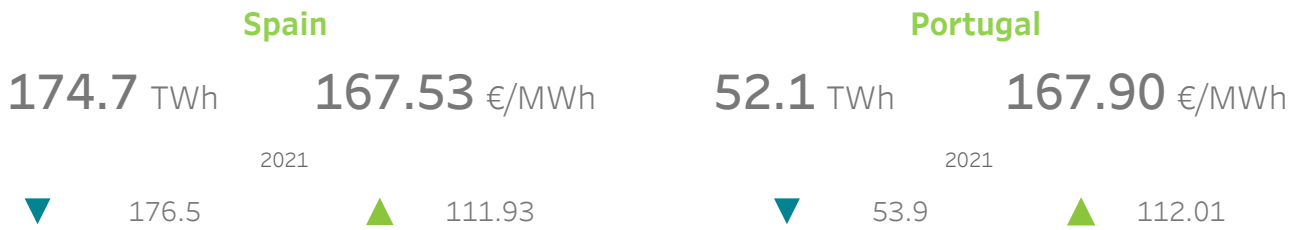
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Executive summary / Economic results

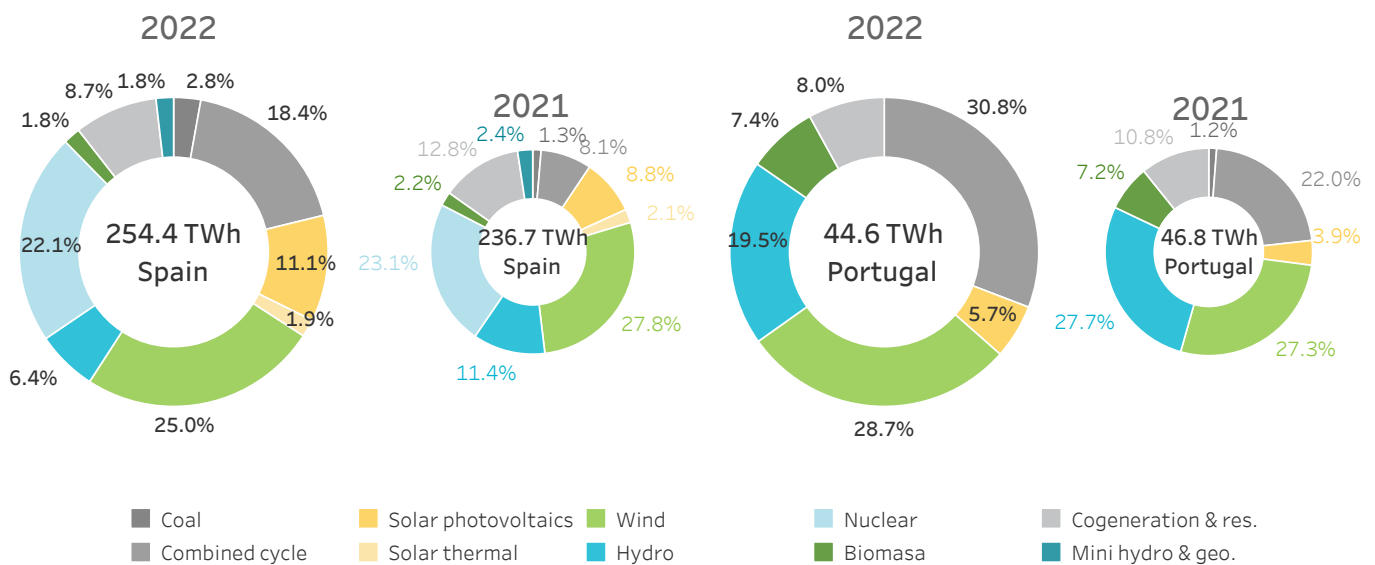
- ▶ The economic volume of the energy exchanges from MIBEL through the interconnection with France has risen to €1,114 million for imports and €2,566 million for exports, having a reduction of 29.5% in the first case and an increase of 155.5% in the second compared to the previous year.
- ▶ Through the interconnection with Morocco, the economic volume of imports has risen to €53 million and that of exports to €365 million, having a reduction of 2.2% in the first case and an increase of 872.3% in the second compared to last year.
- ▶ The weekly average payments made to creditor agents on the market, in 2022, was €651 million, increasing by 102.2% compared to the previous year.
- ▶ 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. The number of debtor agents in 2022 stayed, on average, at 420, while that of creditor agents at 140.
- ▶ During 2022, 187,471 purchase invoices and 83,958 sales invoices were issued for energy markets managed by OMIE, increasing respectively by 6.3% and 20.6% compared to the previous year.

Day-ahead market

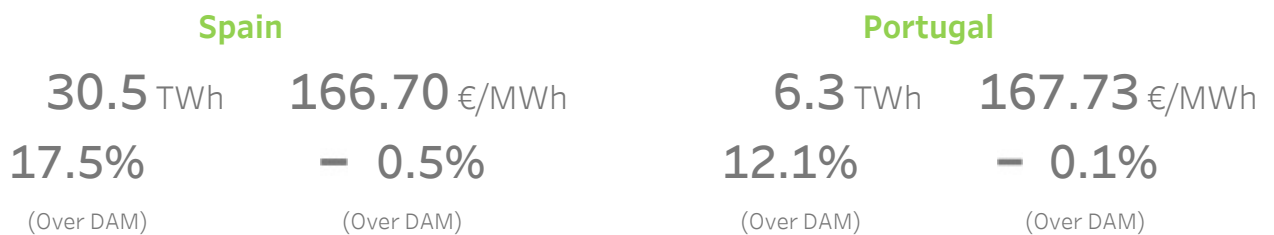
Energy and price day-ahead matched program (Programa Diario Base de Casación, PDBC)



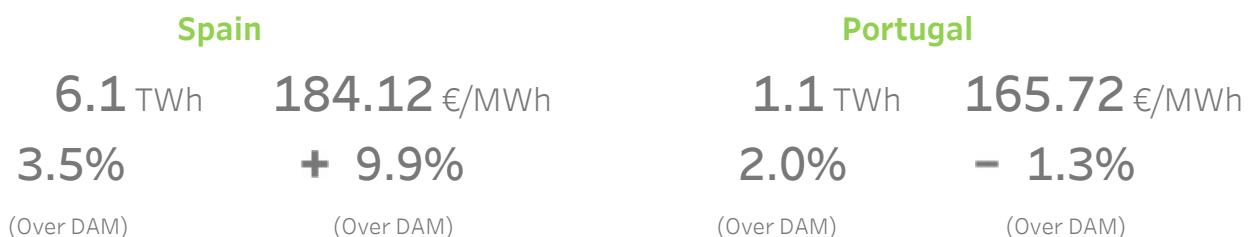
Tecnology day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)



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.

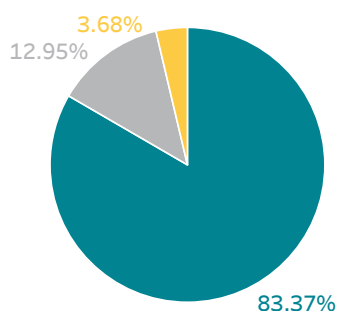
The prices shown for the intraday continuous market are weighted average prices.

Economic volume 2022 (Millions of €)

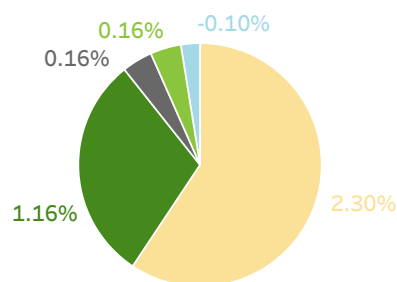
	Spain		Portugal	
Day-ahead market	29,398 M€	▲ 47.51%	8,378 M€	▲ 47.39%
	19,930 M€ Last year	Variation 2022 - 2021	5,684 M€ Last year	Variation 2022 - 2021
Intraday auctions market	4,644 M€	▲ 41.38%	808 M€	▲ 51.34%
	3,284 M€ Last year	Variation 2022 - 2021	534 M€ Last year	Variation 2022 - 2021
Continuous intraday market	1,110 M€	▲ 53.26%	99 M€	▲ 27.48%
	724 M€ Last year	Variation 2022 - 2021	78 M€ Last year	Variation 2022 - 2021
Adjustment mechanism	6,012 M€		700 M€	
	Spain-Portugal		Spain-France	
Congestion income	10 M€	▲ 140.08%	2,083 M€	▲ 375.37%
	4 M€ Last year	Variation 2022 - 2021	438 M€ Last year	Variation 2022 - 2021
% Hours with price difference	2.87 %		73.29 %	

Final average price of the Spanish electricity system

Components - National demand



- Day-ahead market
- Adjustment mechanism
- Others:
 - Constraints
 - Secondary band and ADRS
 - Intraday market
 - Other SO processes
 - Capacity payments



National demand

204.50 €/MWh

118.69 €/MWh ▲ 72.30%
Last year Variation 2022 - 2021

Free market

202.81 €/MWh

118.95 €/MWh ▲ 70.50%
Last year Variation 2022 - 2021

Reference retailers

222.32 €/MWh

116.59 €/MWh ▲ 90.69%
Last year Variation 2022 - 2021

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

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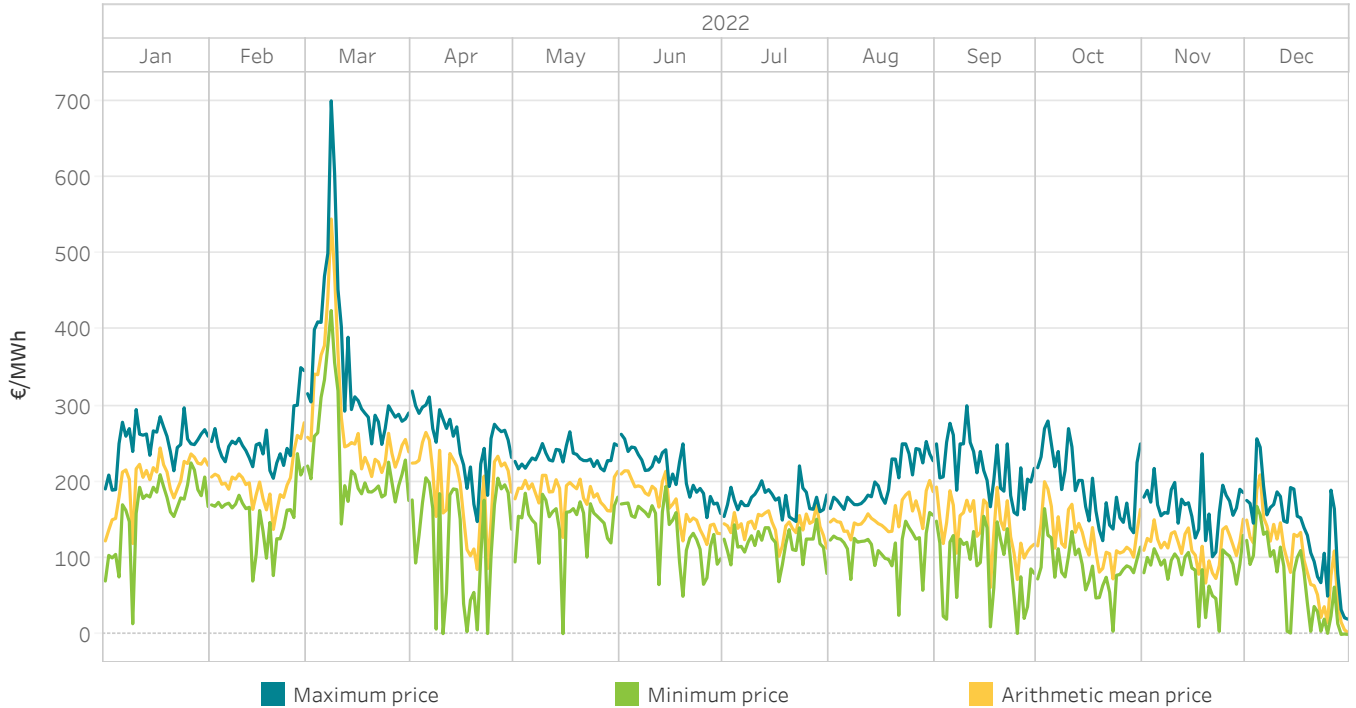
1.

Day-ahead market

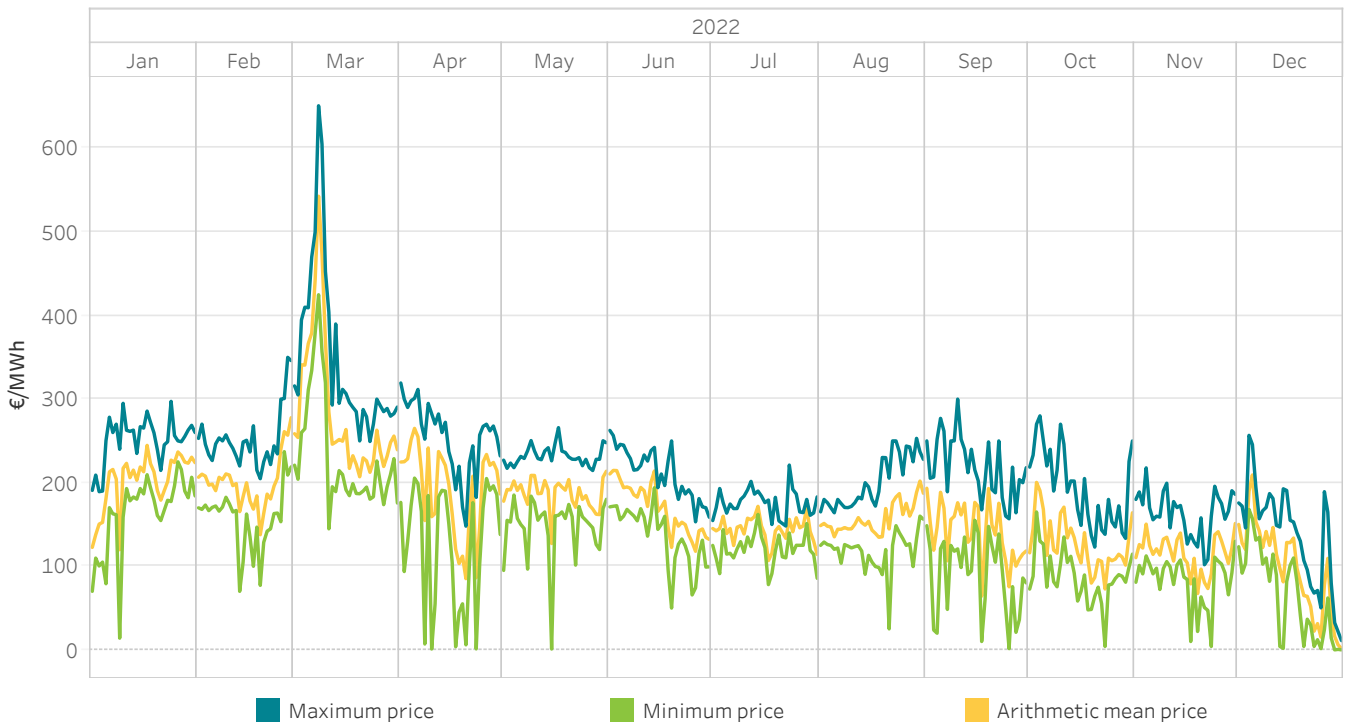
- Prices and energies on the day-ahead market
- Technologies on the day-ahead market
- Matched energy for acquisition units



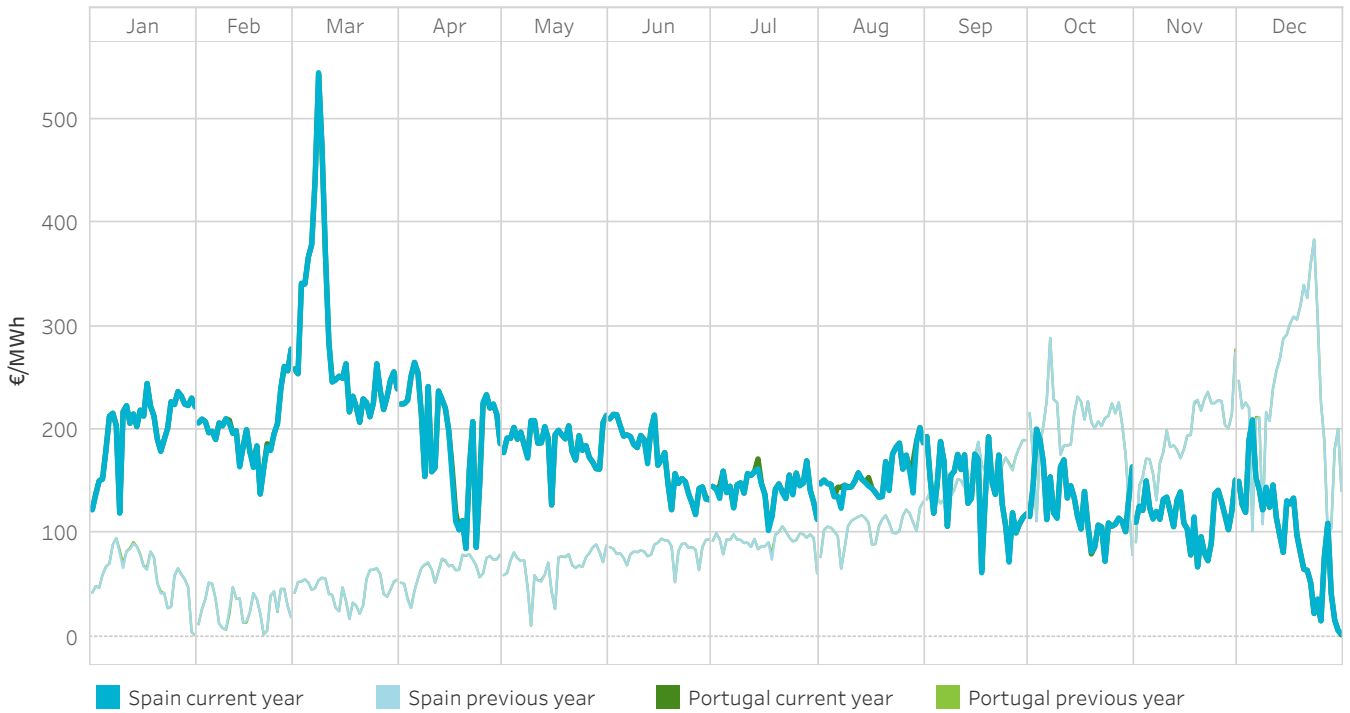
1.1 Maximum, minimum and arithmetic mean price on the day-ahead market In Spain



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



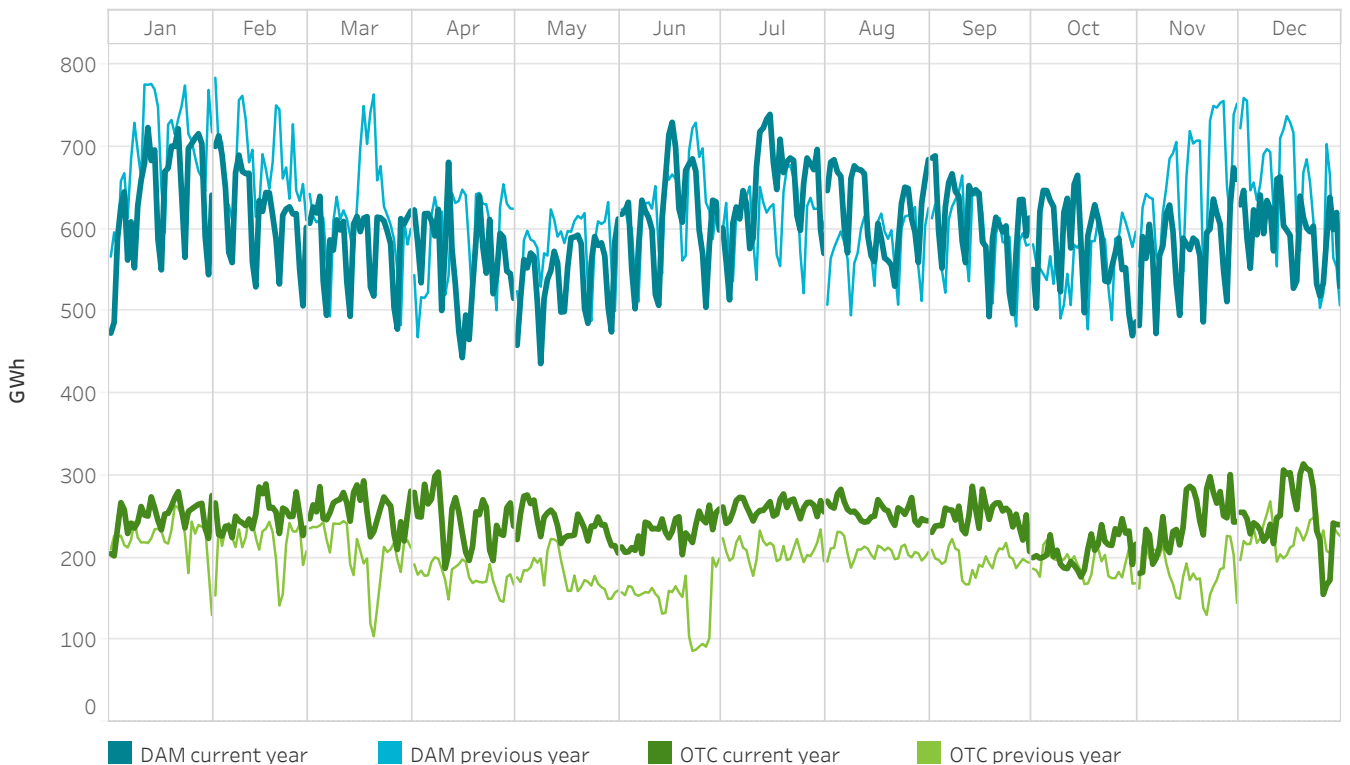
1.3 Day-ahead arithmetic mean prices for 2022 compared to 2021 In Spain and Portugal



1.4 Energy negotiated on the day-ahead market and over the counter contracts (OTC) for 2022 compared to 2021 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
2022	January	201.72	297.33	14.00	15,355.0	7,613.2
	February	200.22	350.00	70.00	13,589.1	6,691.9
	March	283.30	700.00	144.80	14,069.8	7,591.0
	April	191.52	319.32	1.03	13,614.1	7,031.4
	May	187.13	265.88	1.03	13,600.4	7,002.9
	June	169.63	262.60	50.00	15,324.0	6,770.1
	July	142.66	221.10	69.05	16,916.2	7,925.4
	August	154.89	253.07	25.09	16,190.8	7,803.7
	September	141.07	300.00	1.29	14,903.7	7,373.6
	October	127.21	280.00	4.11	14,375.4	6,353.1
	November	115.56	237.00	4.11	13,298.4	7,192.3
	December	96.95	256.68	0.00	13,435.8	7,610.8
Interannual results		167.53	700.00	0.00	174,672.8	86,959.5

Year of estudio	Period	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2021	January-December	111.93	409.00	0.01	176,491.5	71,716.9
2022	January-December	167.53	700.00	0.00	174,672.8	86,959.5

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

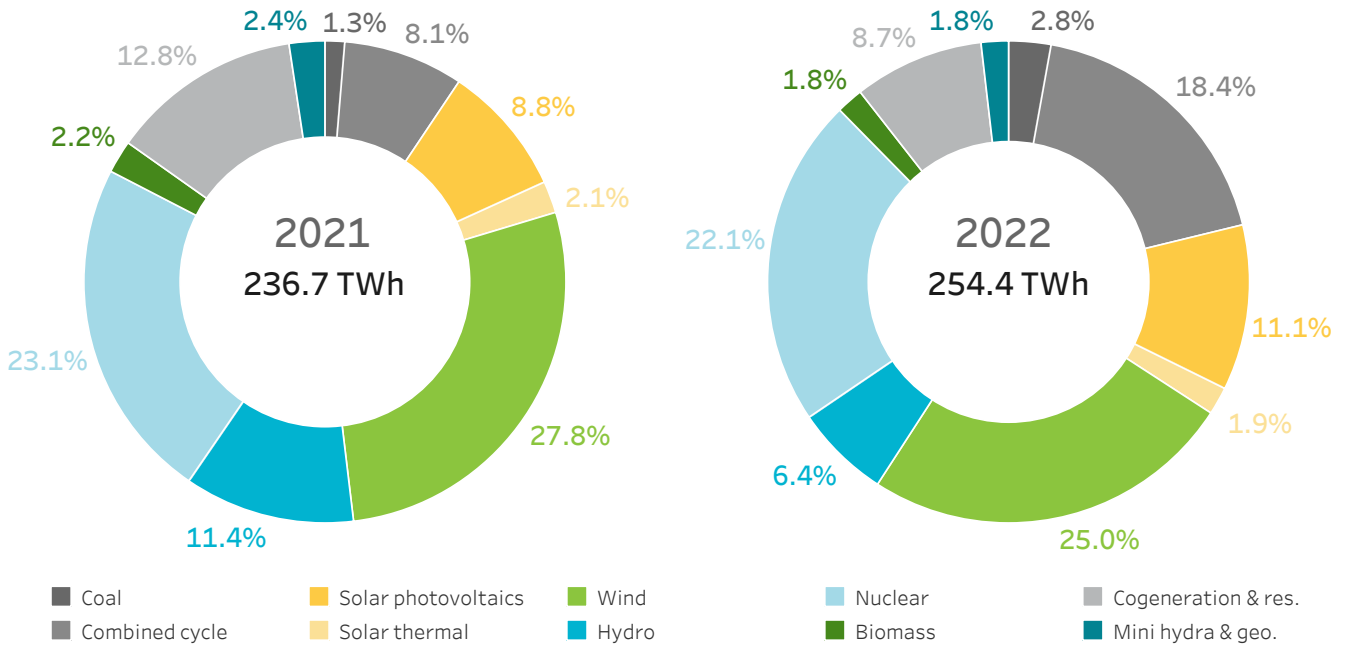
In Portugal

Year of study	Month of study	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2022	January	201.90	297.33	14.00	4,870.2	143.9
	February	200.72	350.00	70.00	4,206.3	316.3
	March	283.21	651.00	144.80	4,499.2	400.5
	April	192.01	319.32	1.03	4,039.4	358.2
	May	187.15	265.88	1.03	3,919.0	425.4
	June	169.82	262.60	50.00	3,960.3	205.7
	July	143.80	221.10	78.09	4,322.8	149.7
	August	157.27	253.07	25.09	4,066.3	136.2
	September	141.25	300.00	1.44	4,169.3	125.9
	October	127.21	280.00	4.11	4,332.4	126.6
	November	115.38	217.74	4.11	4,486.5	115.7
	December	96.55	256.68	0.00	5,255.9	128.9
Interannual results		167.90	651.00	0.00	52,127.6	2,633.0

Year of estudio	Period	Arithmetic mean price	Maximum price	Minimum price	Market energy	OTC energy
2021	January-December	112.01	409.00	0.00	53,914.9	231.4
2022	January-December	167.90	651.00	0.00	52,127.6	2,633.0

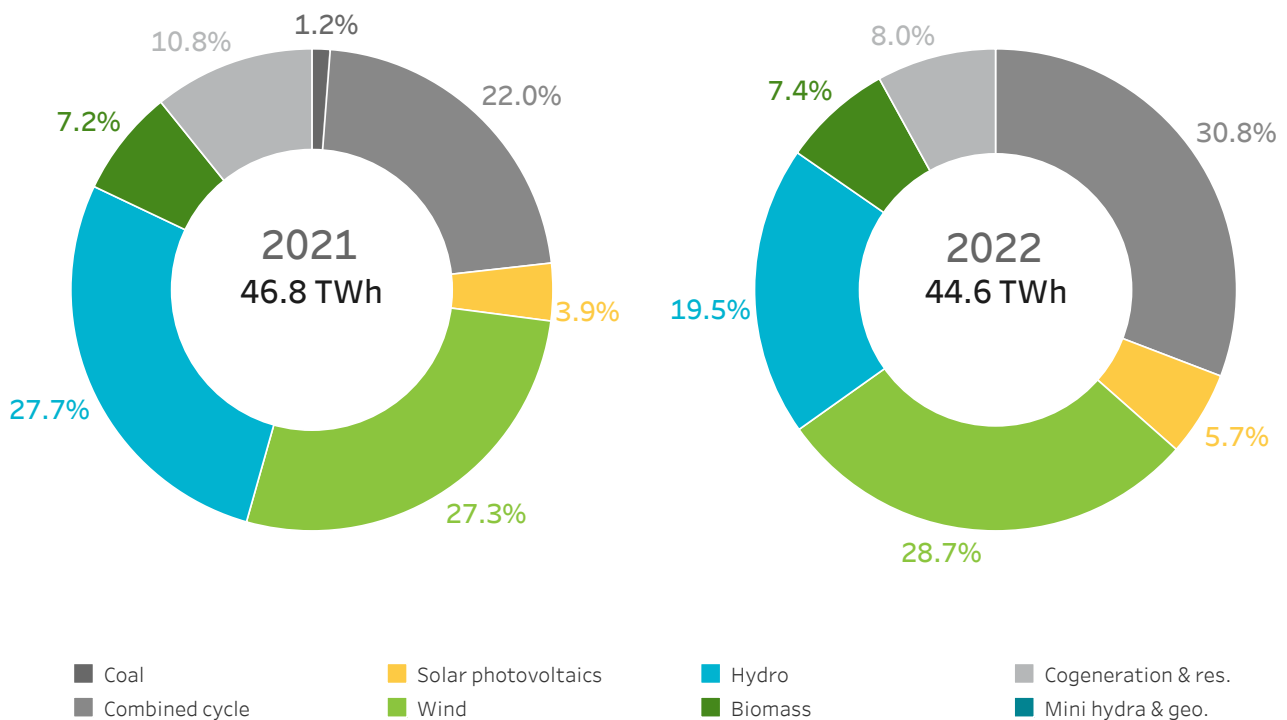
1.7 Technologies in the day-ahead operations program (Programa Diario Base de Funcionamiento, PDBF)

In Spain



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

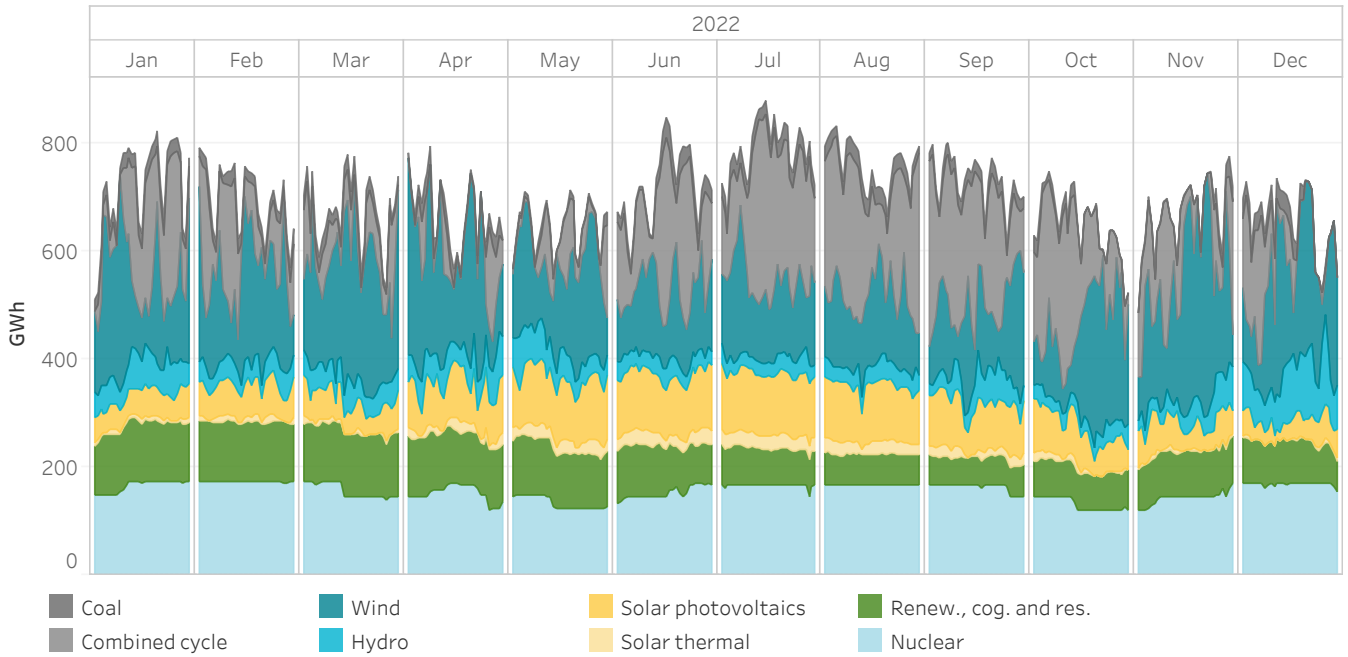
In Portugal



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

In Spain

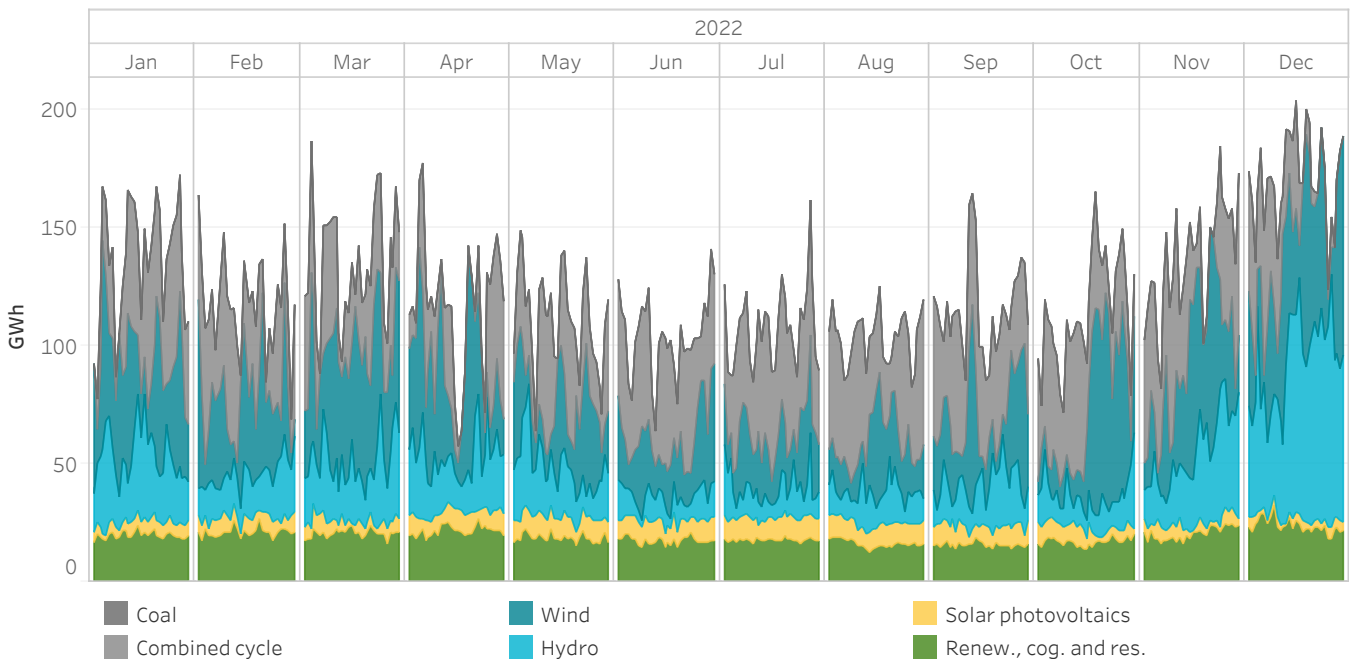
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



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

In Portugal

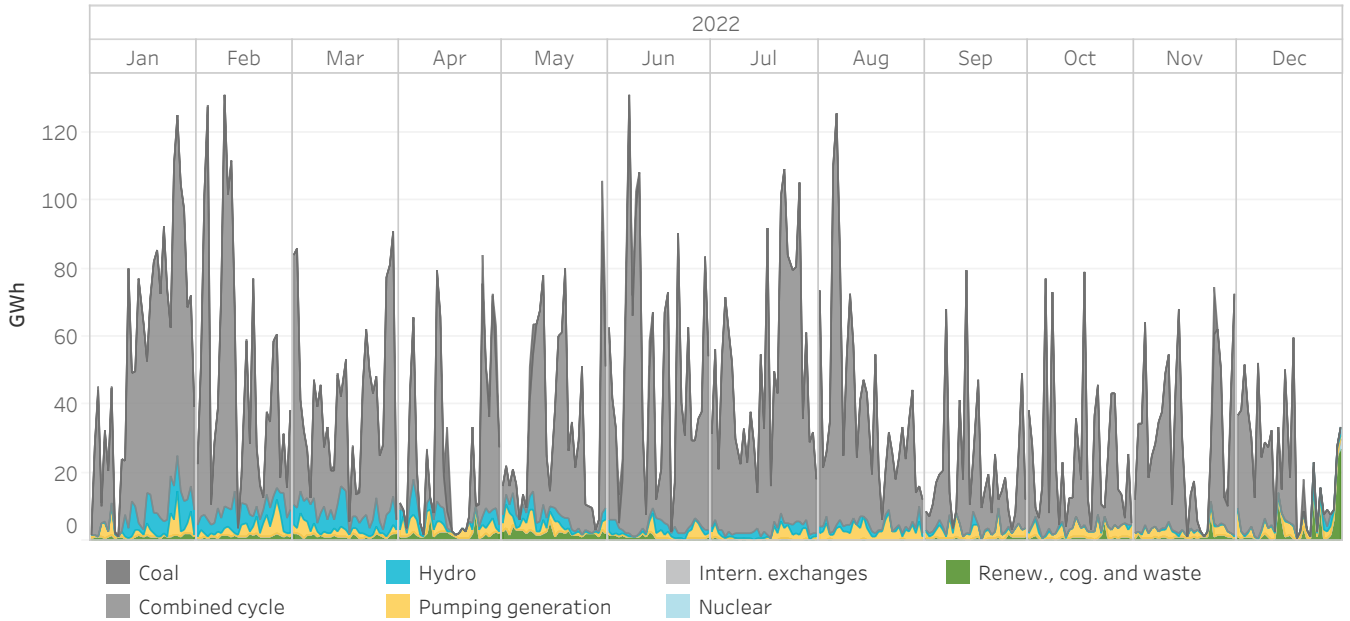
"Other renewables" includes the energy negotiated by cogeneration, waste, biomass, geothermics and minihydraulic.



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

In Spain

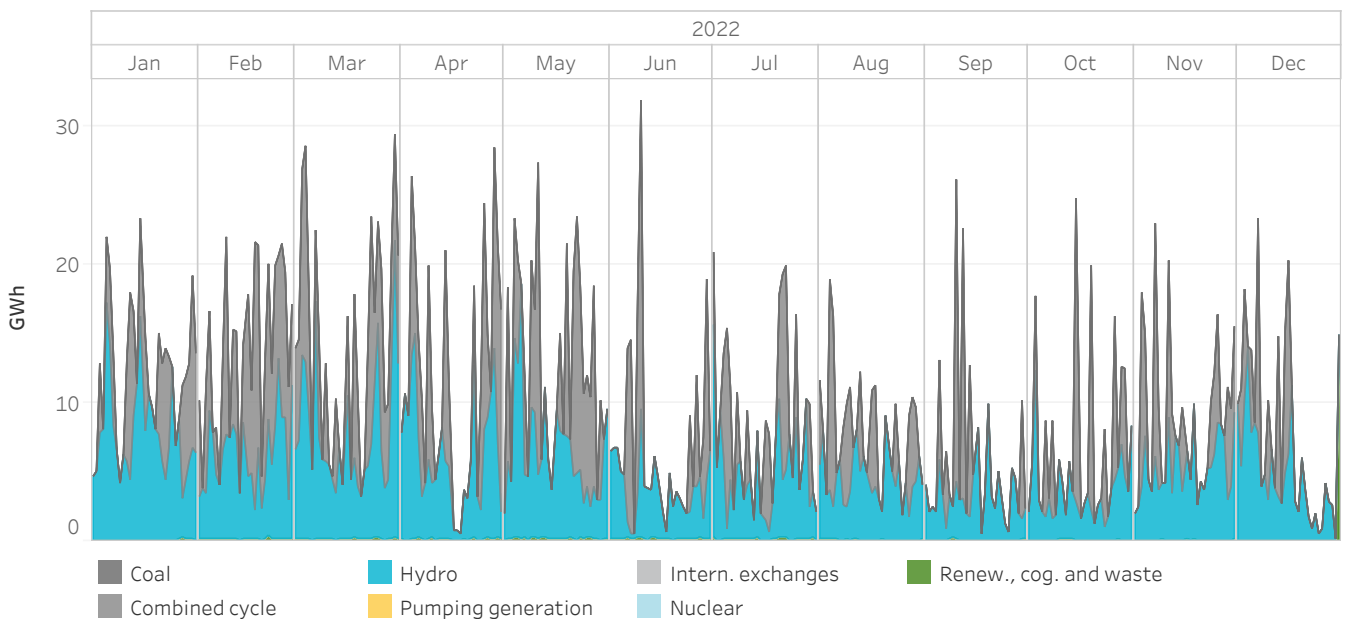
Energy matched classified by technology in the day-ahead market with bid price offered at a price greater than or equal to the 95% of the marginal price, including complex bids. The graph does not show the technologies setting the marginal price. This information is shown in graph 1.13.



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

In Portugal

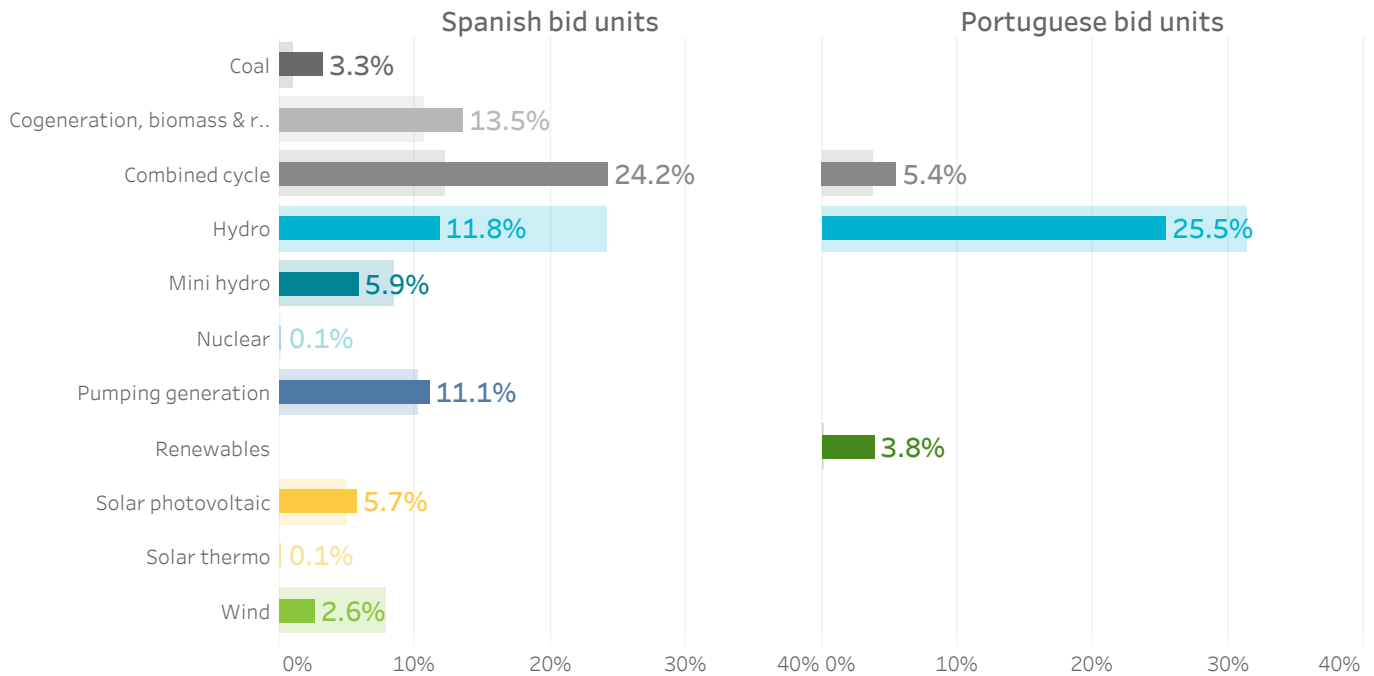
Energy matched classified by technology in the day-ahead market with bid price offered at a price greater than or equal to the 95% of the marginal price, including complex bids. The graph does not show the technologies setting the marginal price. This information is shown in graph 1.14.



1.13 Percentage of hours in which each technology sets a price

In Spain

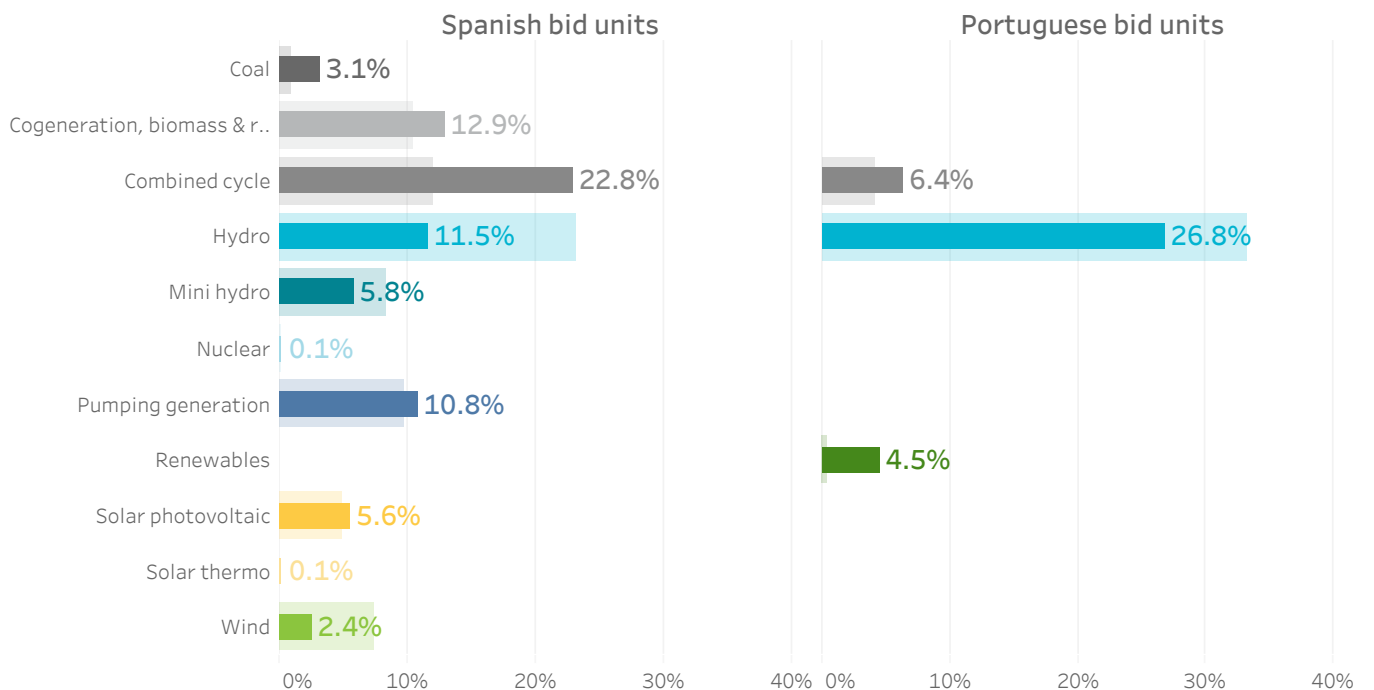
The previous year is shown in a lighter and thicker bar in the back of the graph.



1.14 Percentage of hours in which each technology sets a price

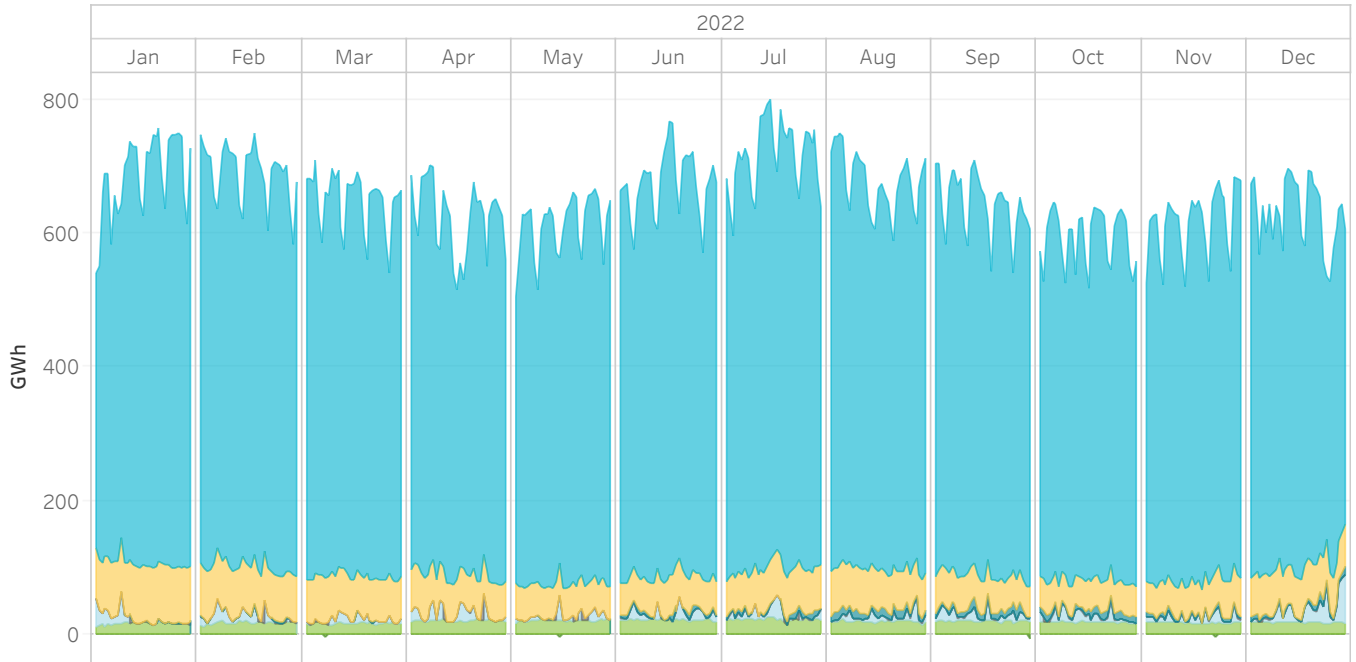
In Portugal

The previous year is shown in a lighter and thicker bar in the back of the graph.



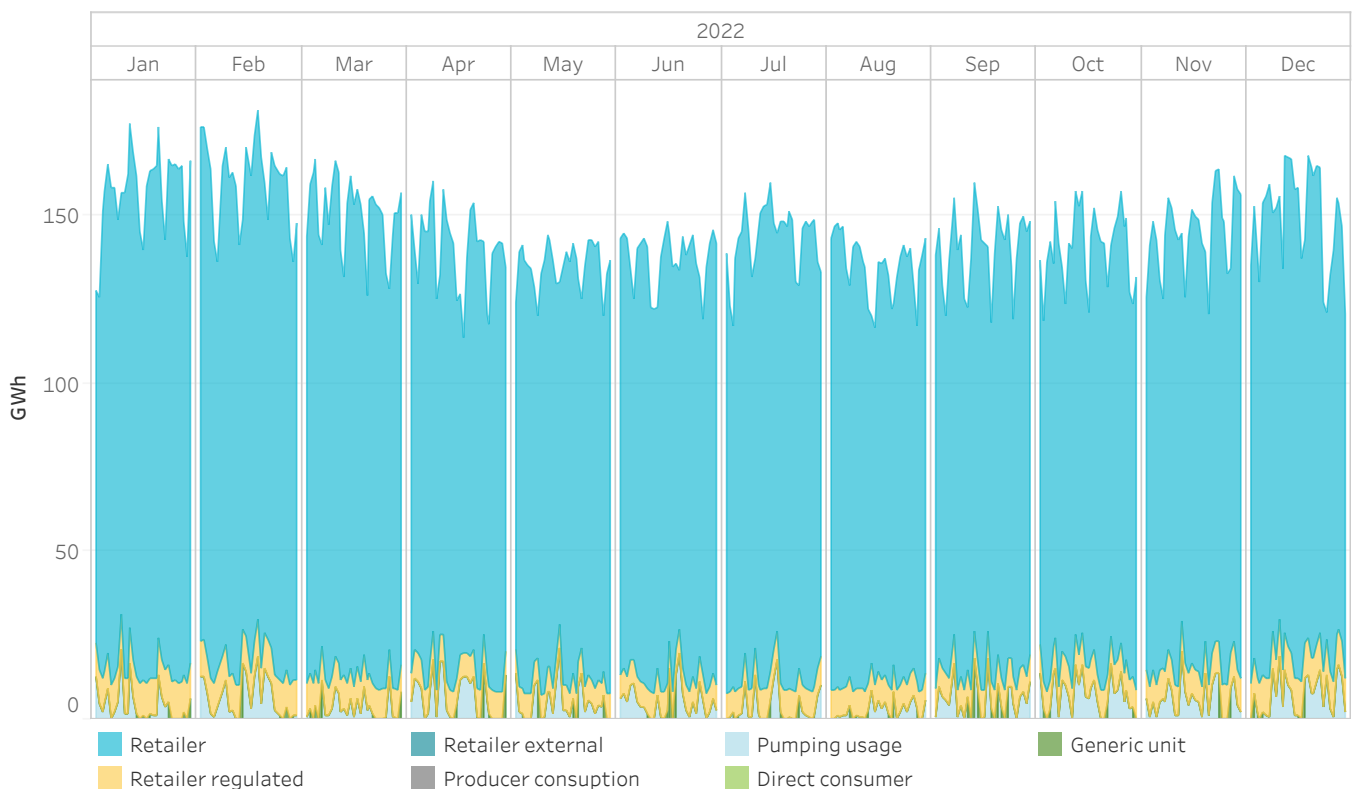
1.15 Matched energy for acquisition units in the day-ahead operational program (Programa Diario Base de Funcionamiento, PDBF)

In Spain

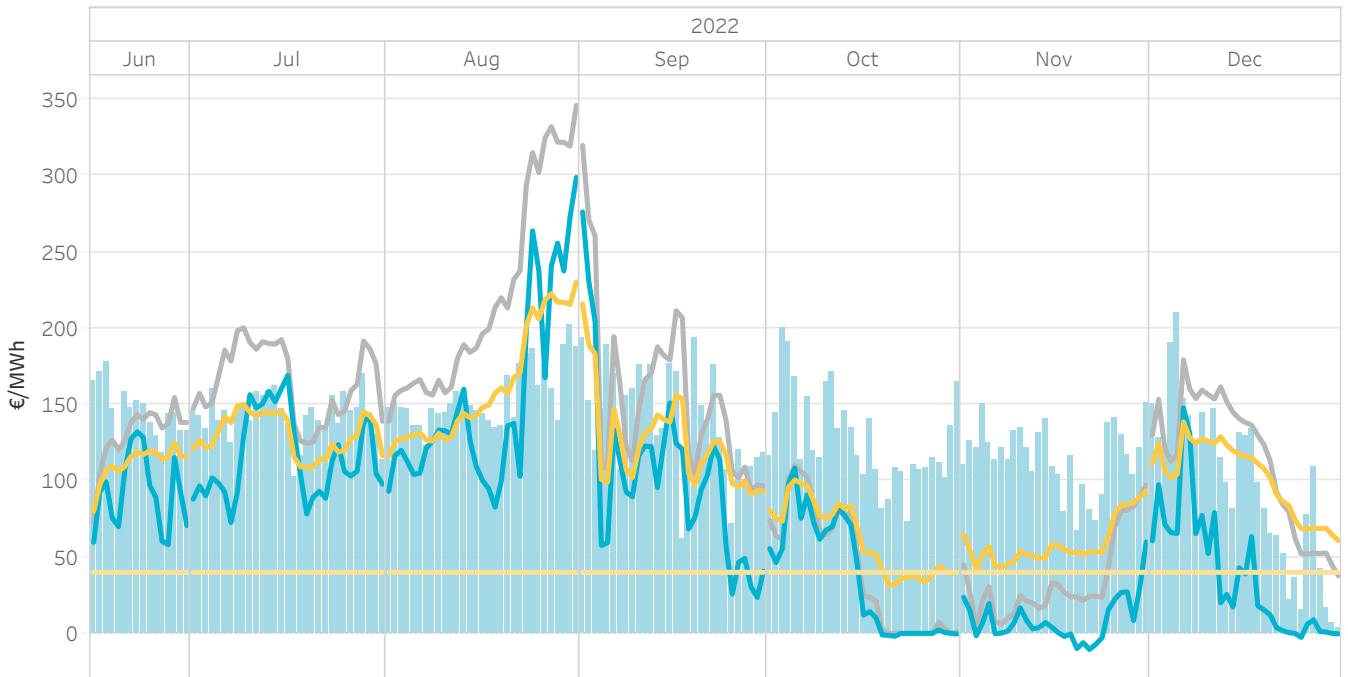


1.16 Matched energy for acquisition units in the day-ahead operational program (Programa Diario Base de Funcionamiento, PDBF)

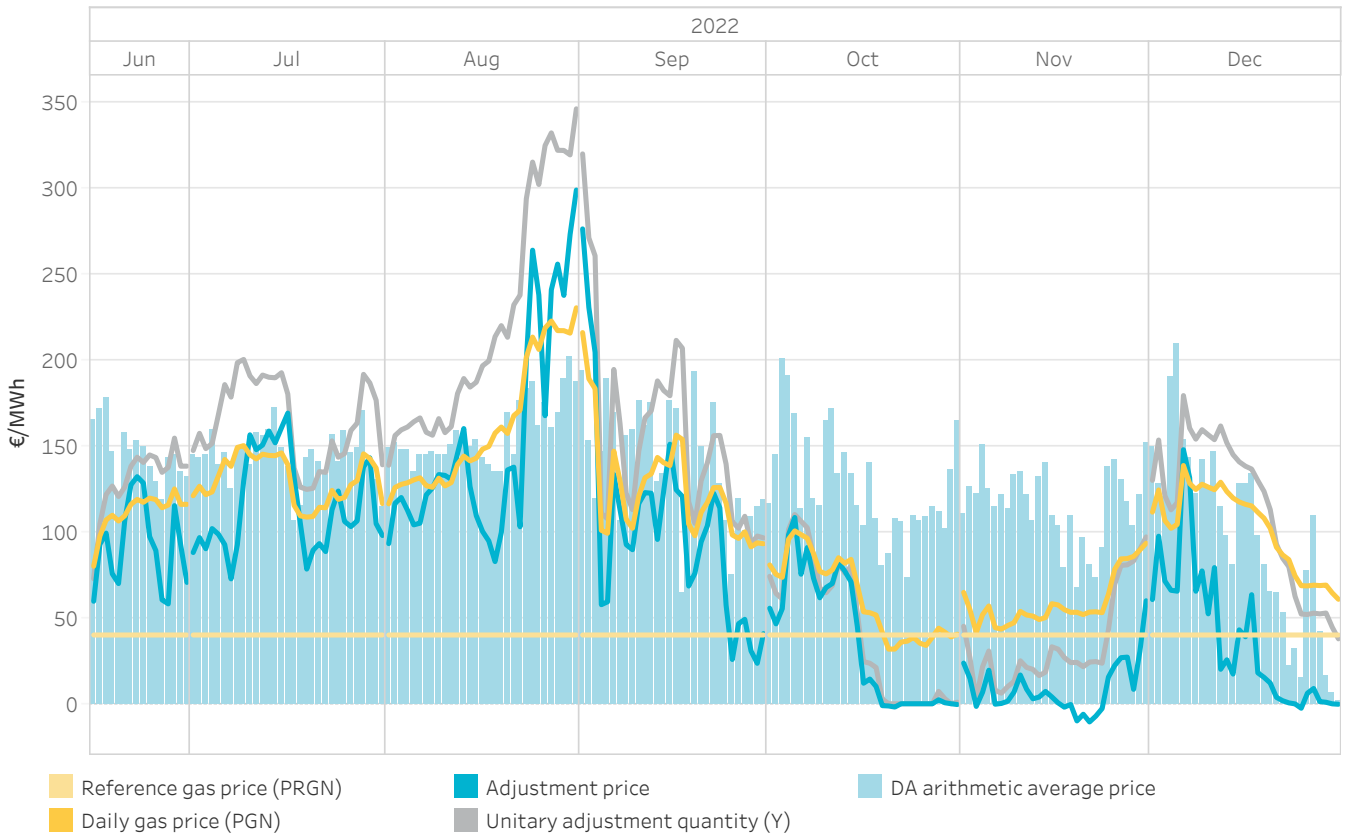
In Portugal



1.17 Average Day-ahead market prices. Adjustment mechanism In Spain



1.18 Average Day-ahead market prices. Adjustment mechanism In Portugal



2.

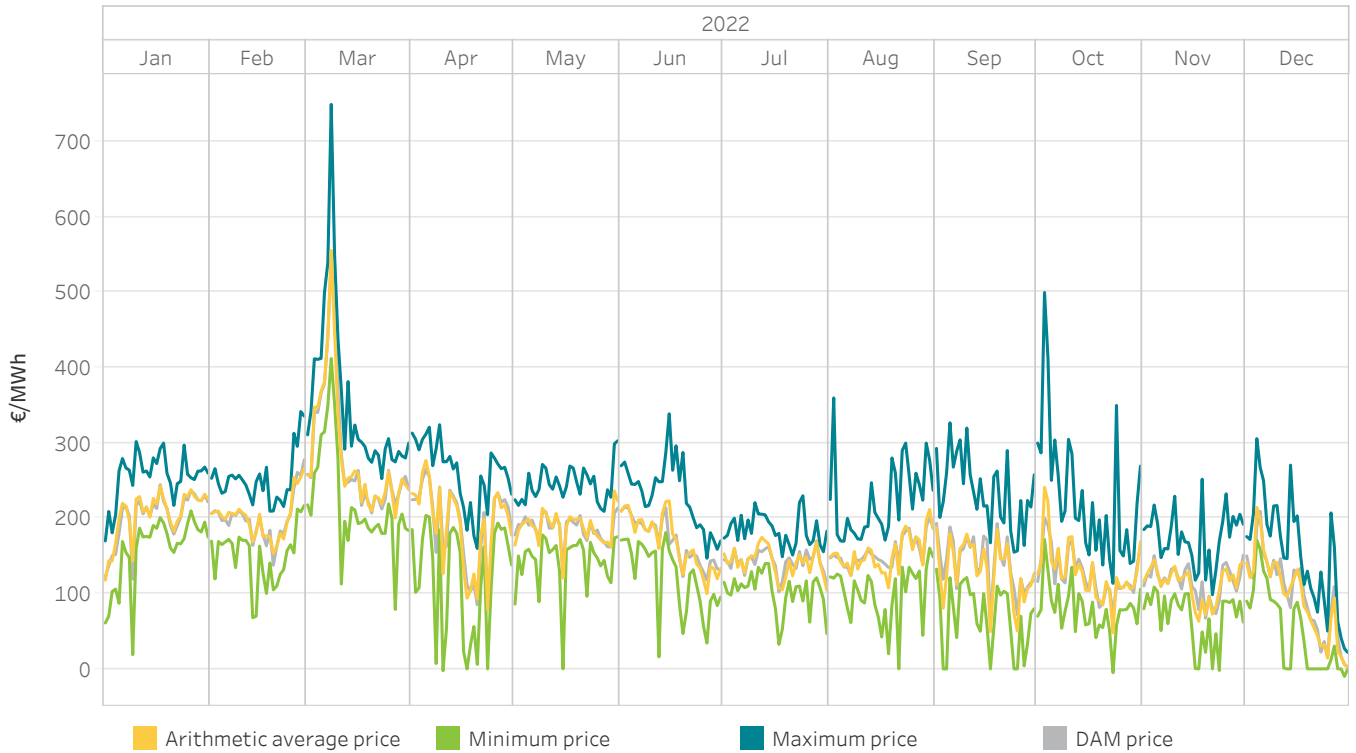
Intraday auction market

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



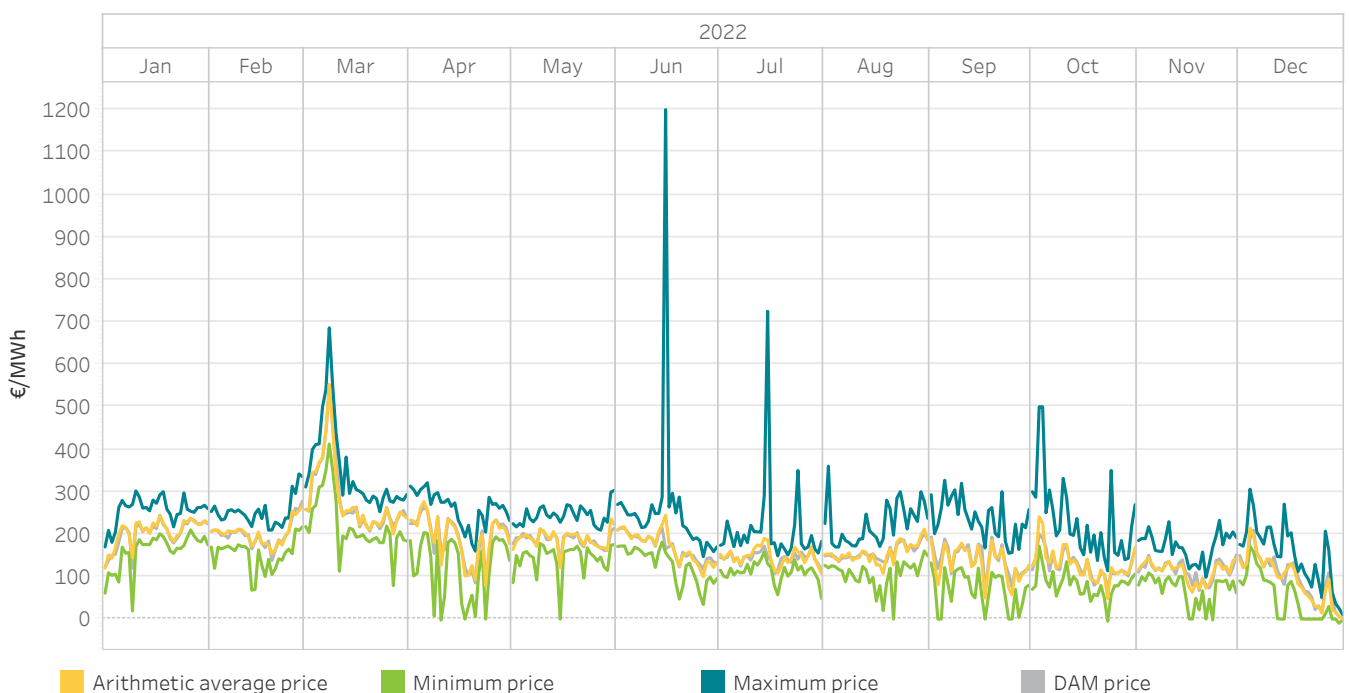
2.1 Maximum, minimum and arithmetic average prices on the intraday auction market

In Spain



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

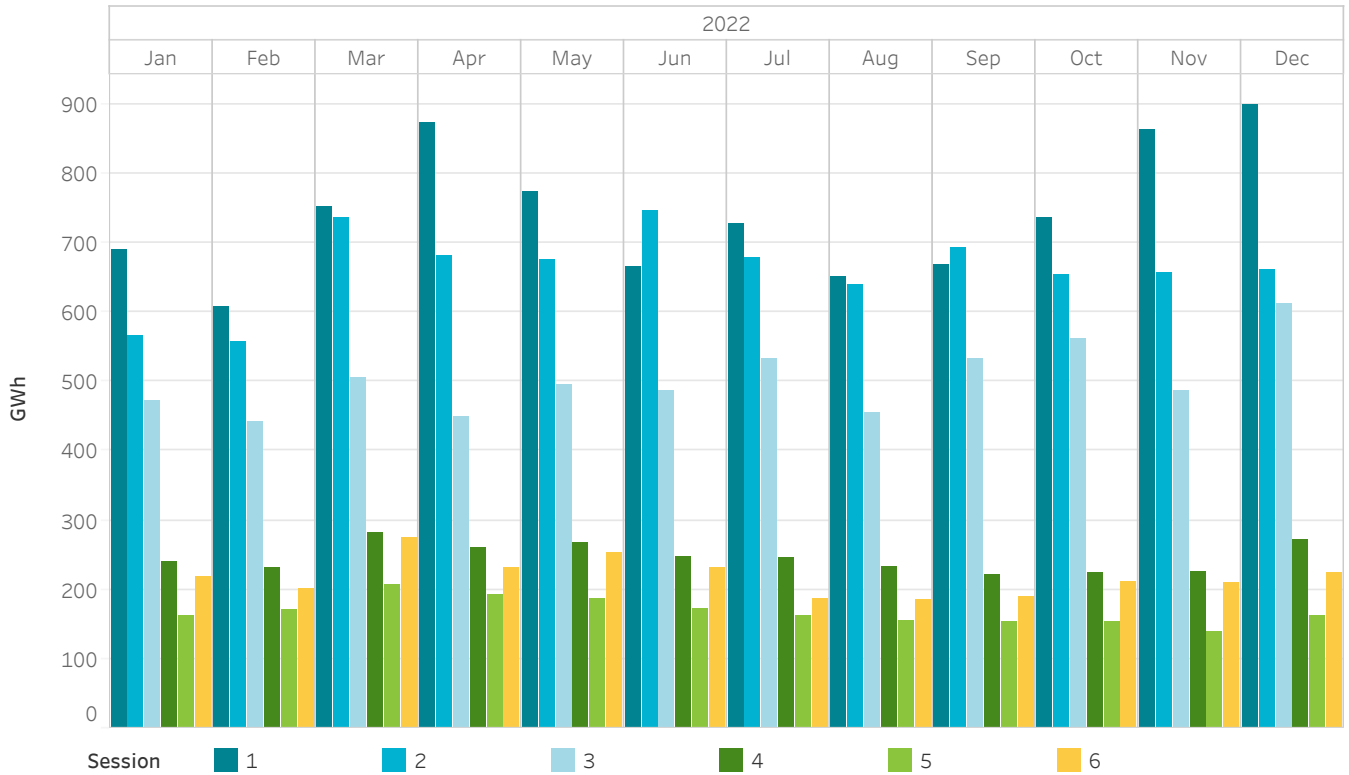
In Portugal



2.3 Monthly energy by session on the intraday auction market

In Spain

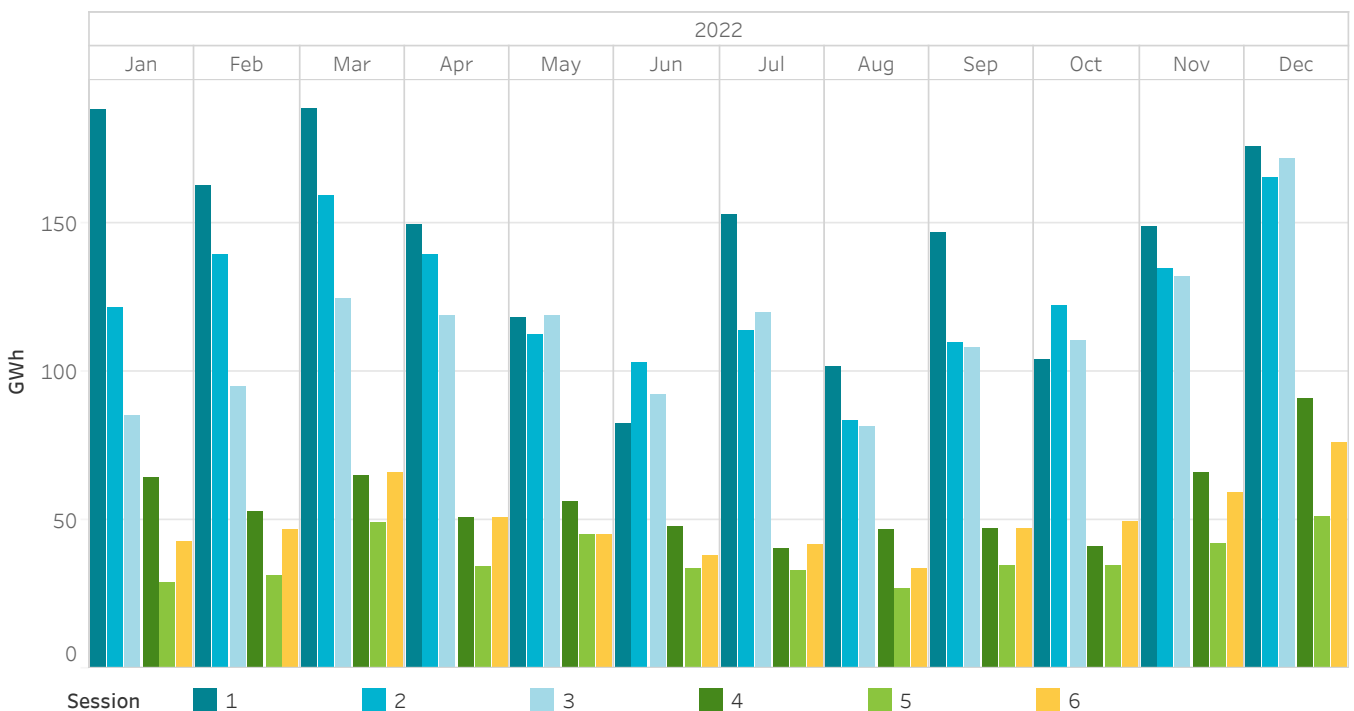
The negotiated energy is calculated as the addition of the acquisitions made in Spain plus the net exports.



2.4 Monthly energy by session on the intraday auction market

In Portugal

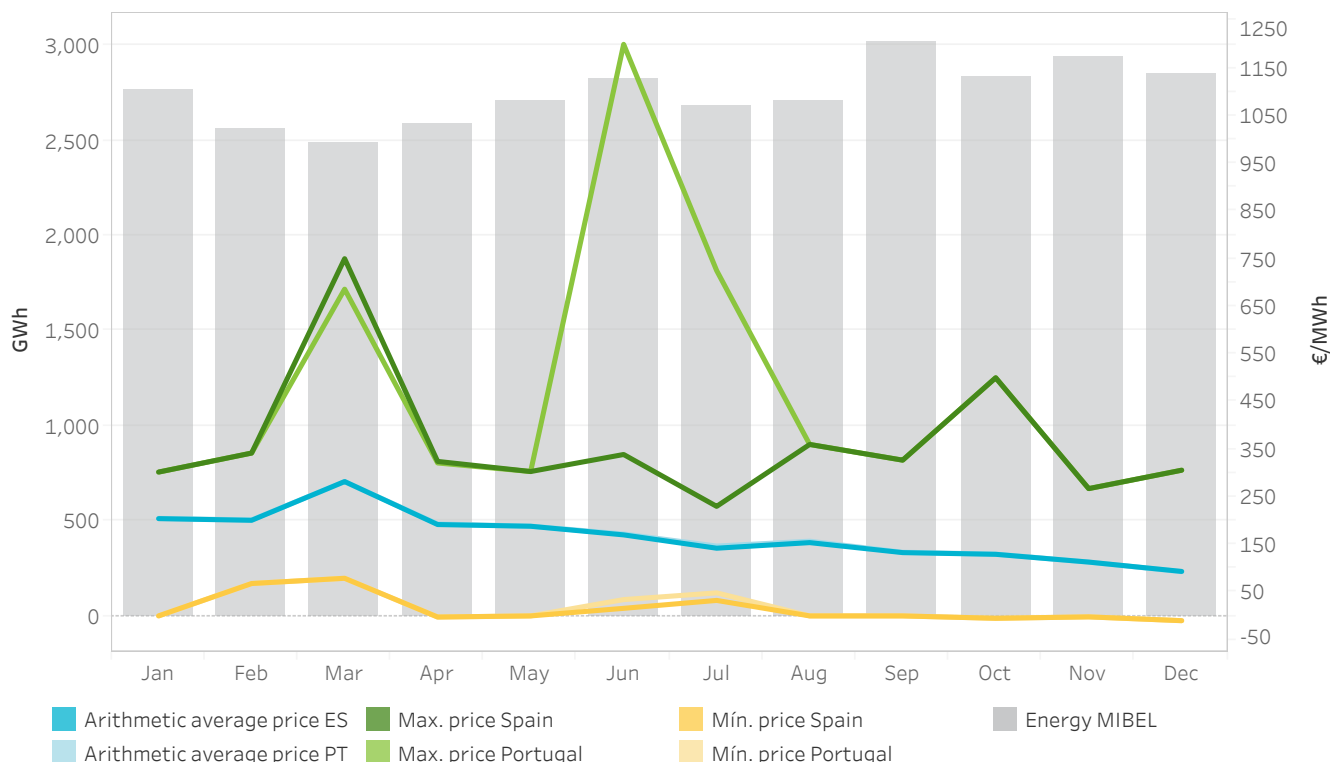
The negotiated energy is calculated as the addition of the acquisitions made in Portugal plus the net exports.



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

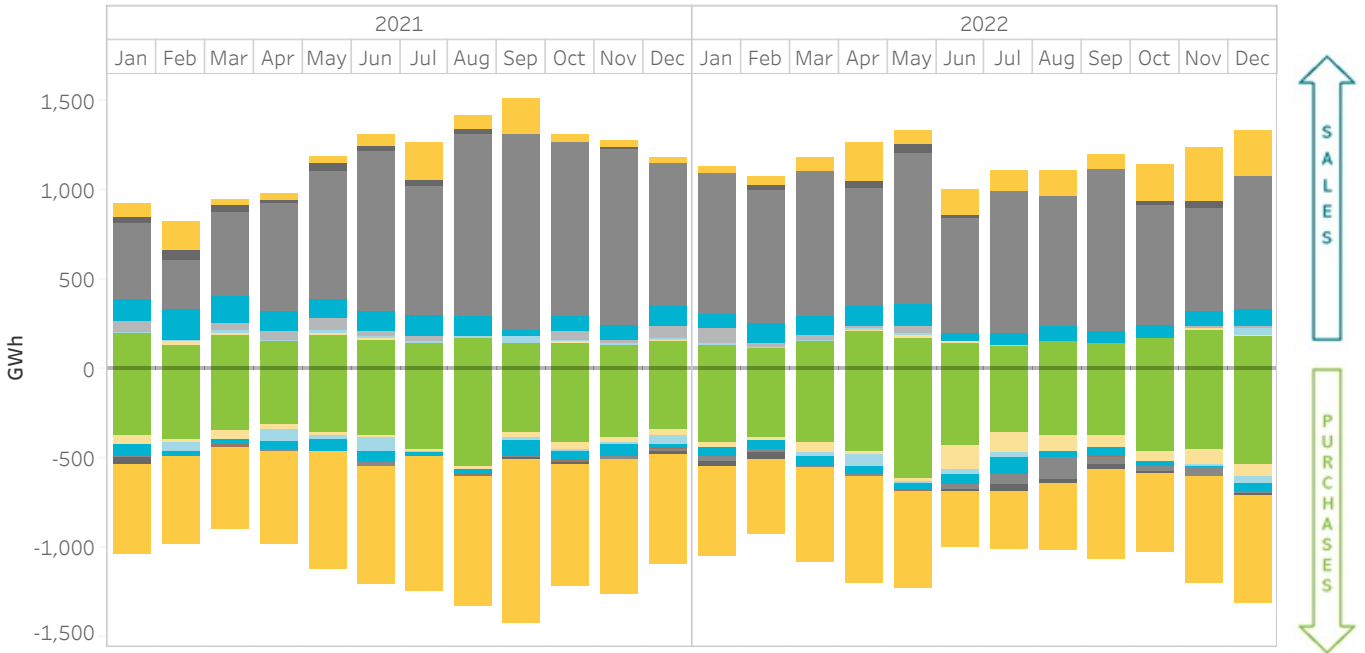
The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.

	Arithmetic average price ES	Arithmetic average price PT	Max. price Spain	Max. price Portugal	Mín. price Spain	Mín. price Portugal	Energy Spain	Energy Portugal	Energy MIBEL
January	204.44	204.93	302.00	302.00	19.00	19.00	2,351.11	534.09	2,514.83
February	200.76	201.49	341.90	341.90	68.00	68.00	2,212.01	528.63	2,384.05
March	282.09	281.91	750.00	686.00	79.00	79.00	2,761.86	656.25	2,958.61
April	191.82	193.00	324.37	321.07	-2.35	-2.35	2,690.54	547.22	2,876.06
May	188.24	188.45	303.14	303.14	0.00	0.00	2,653.17	499.56	2,809.82
June	170.11	171.90	338.91	1,200.00	15.91	34.26	2,551.17	397.50	2,658.87
July	142.15	146.60	230.00	725.00	32.55	48.40	2,533.95	505.22	2,707.31
August	153.88	156.85	360.00	360.00	0.01	0.01	2,324.51	375.48	2,449.10
September	132.89	133.66	327.00	327.00	0.00	0.00	2,461.02	490.75	2,607.27
October	129.34	129.77	500.00	500.00	-5.00	-5.00	2,541.85	462.11	2,659.42
November	113.02	113.00	267.27	267.27	-2.00	-2.00	2,581.41	586.91	2,770.13
December	93.36	92.91	305.92	305.92	-10.00	-10.00	2,831.33	734.23	3,080.77
Annual total	166.71	167.75	750.00	1,200.00	-10.00	-10.00	30,493.92	6,317.96	32,476.24

2.7 Energy negotiated on the intraday auction market classified by technology

In Spain

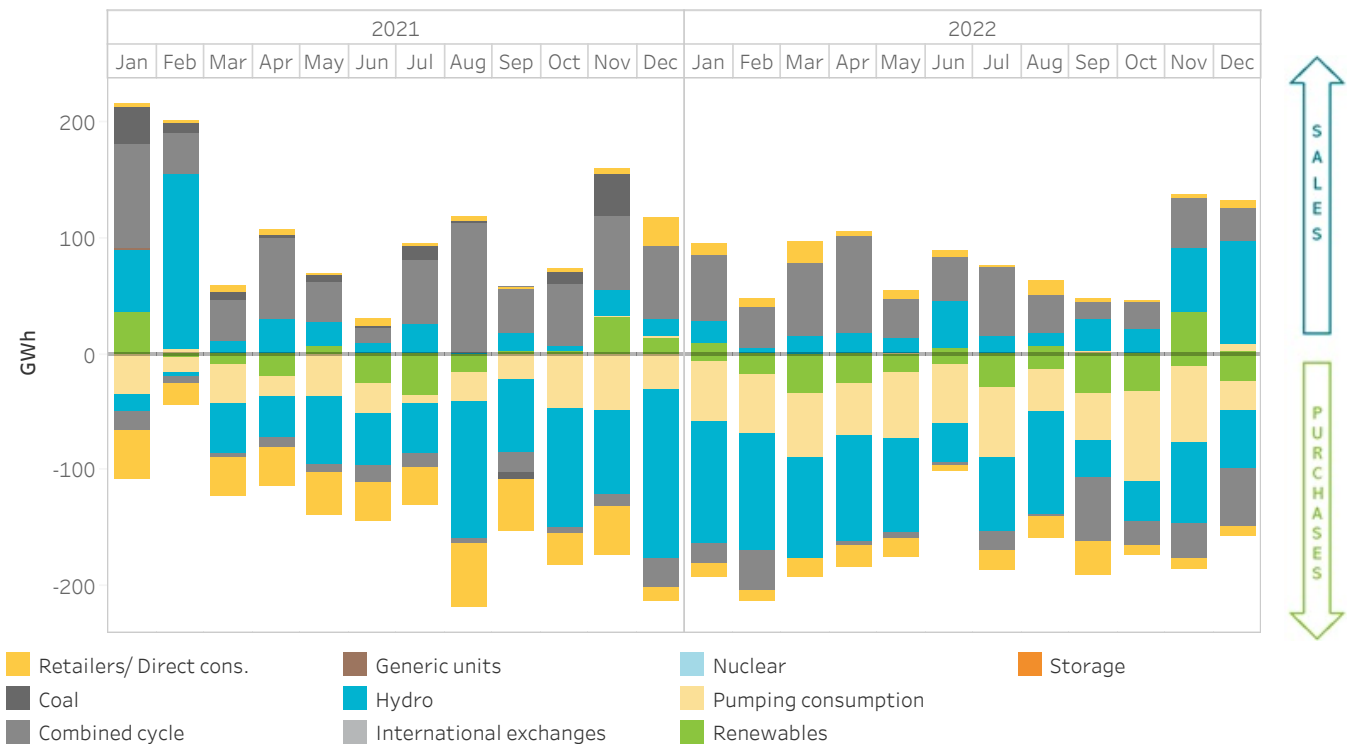
The positive values represent energy sales and the negative values represent energy purchases.



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.



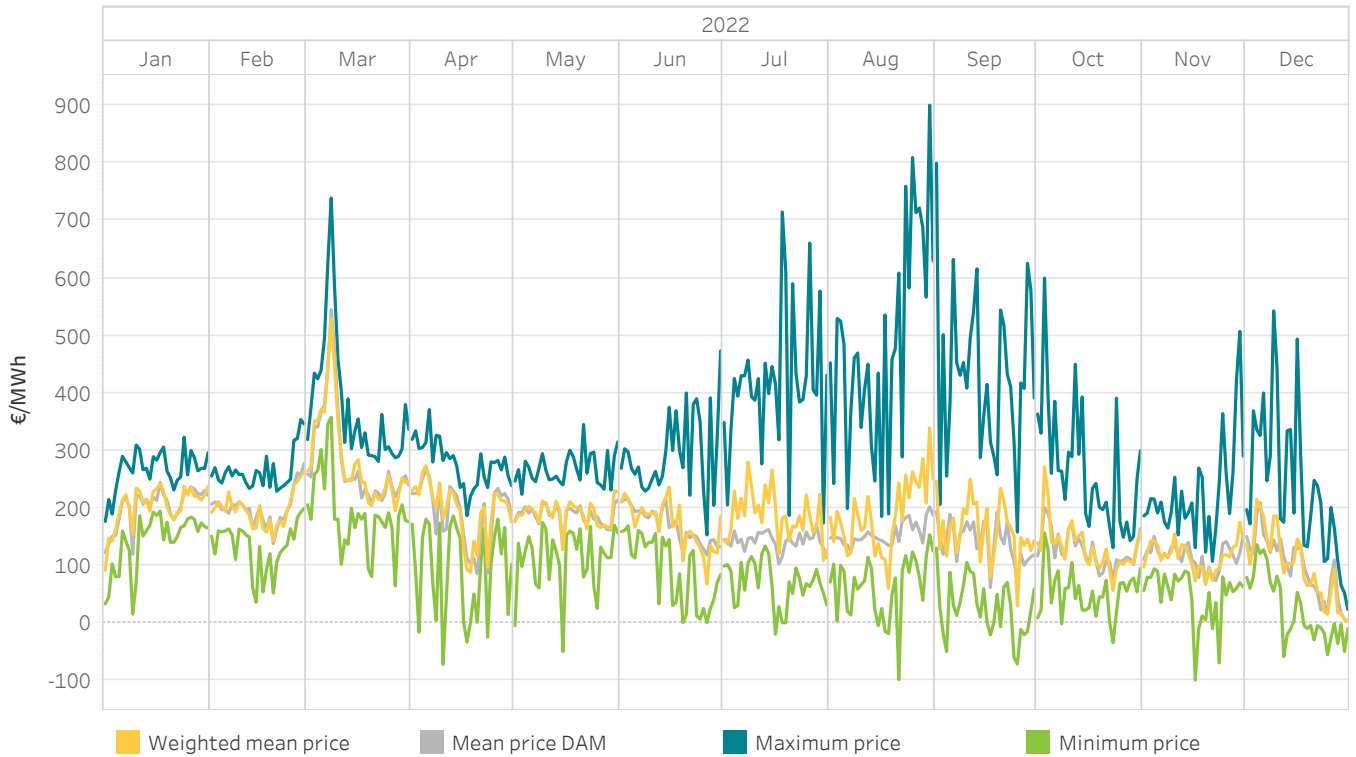
3. Intraday continuous market

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



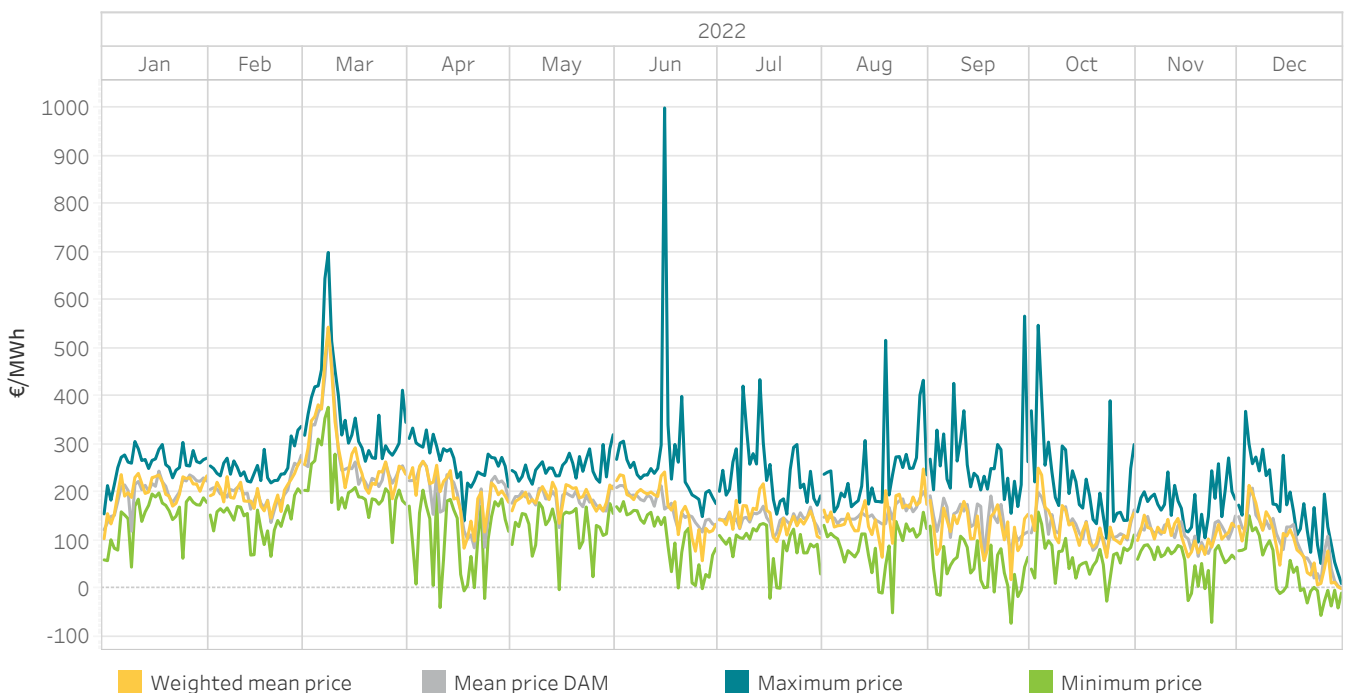
3.1 Maximum, minimum and weighted mean price on the intraday continuous market

In España

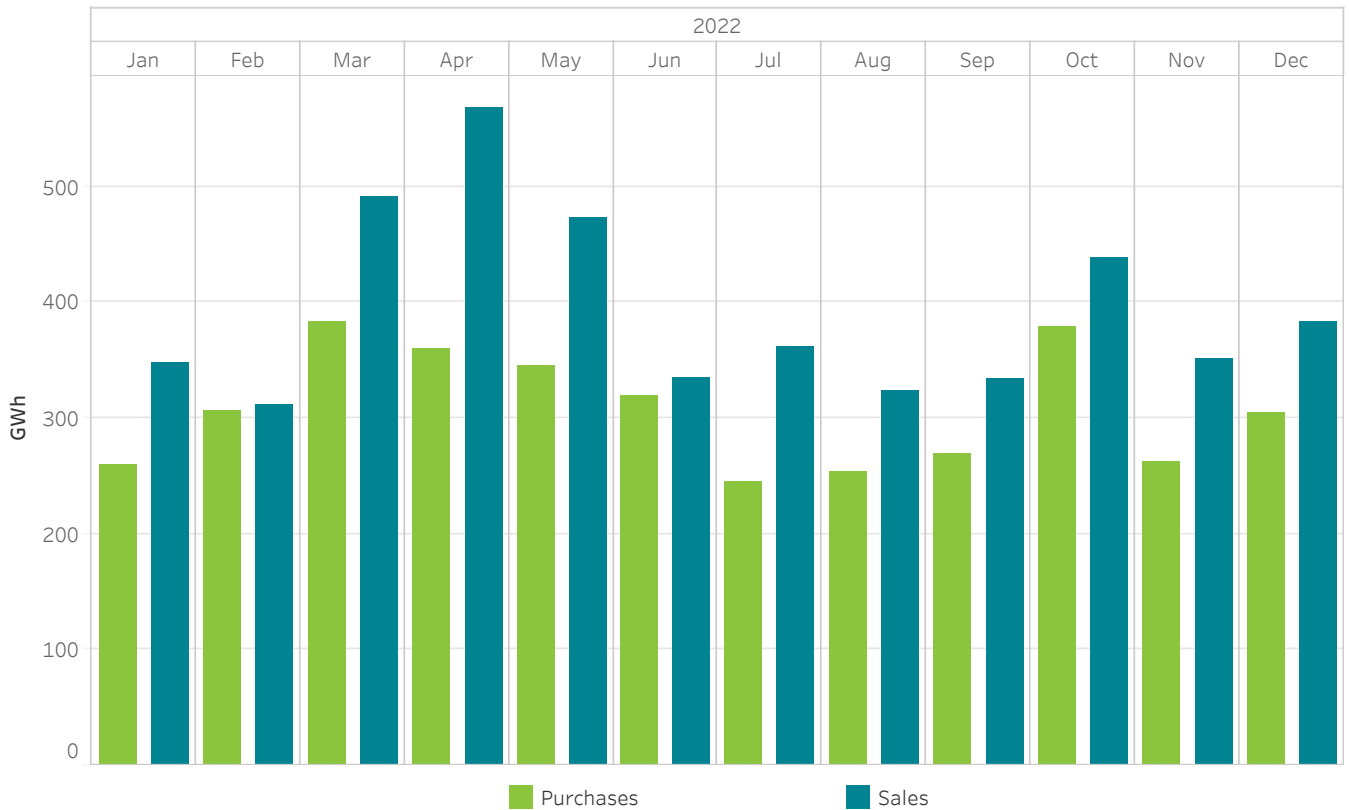


3.2 Maximum, minimum and weighted mean price on the intraday continuous market

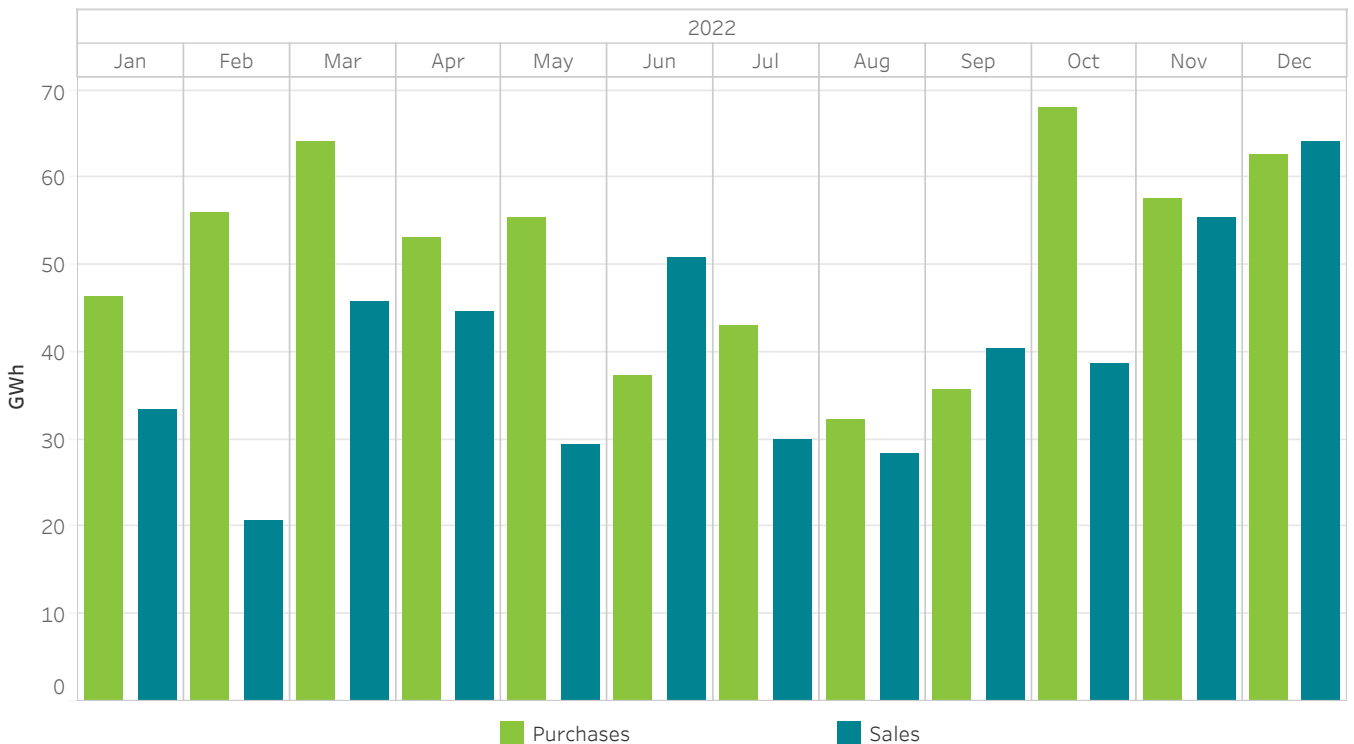
In Portugal



3.3 Monthly energy negotiated on the intraday continuous market In Spain



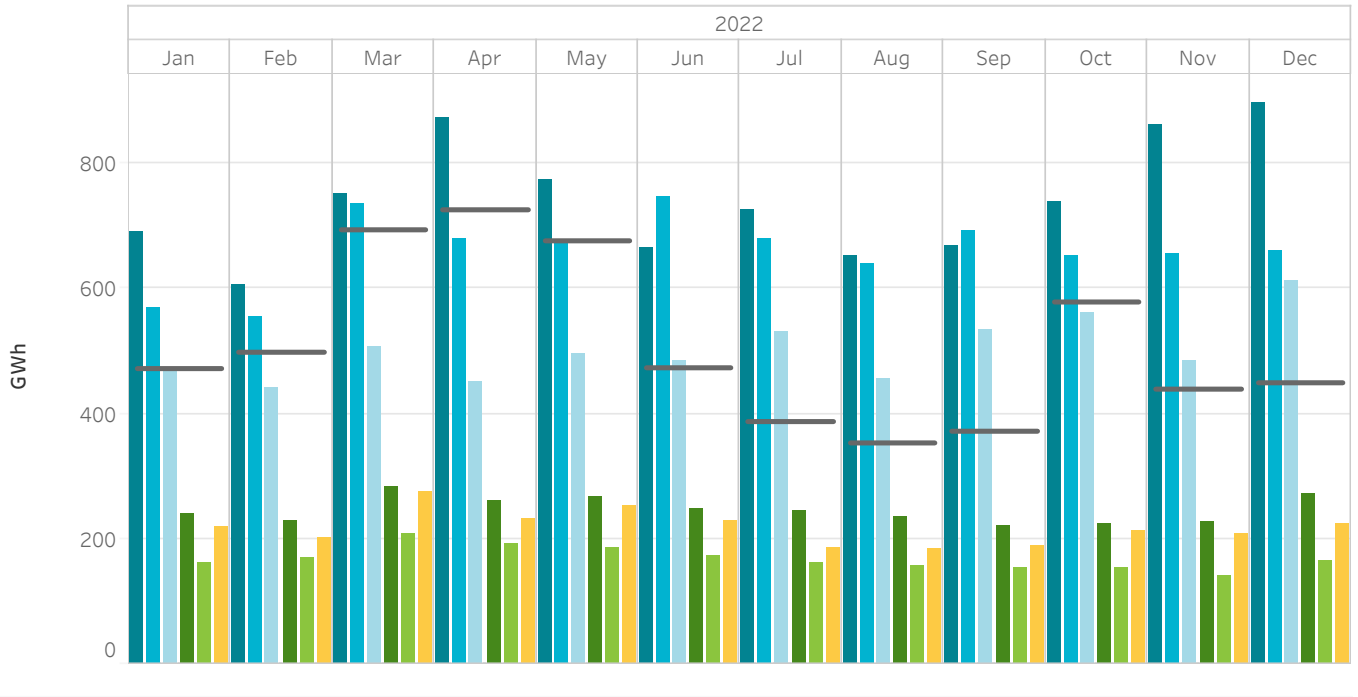
3.4 Monthly energy negotiated on the intraday continuous market In Portugal



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

In Spain

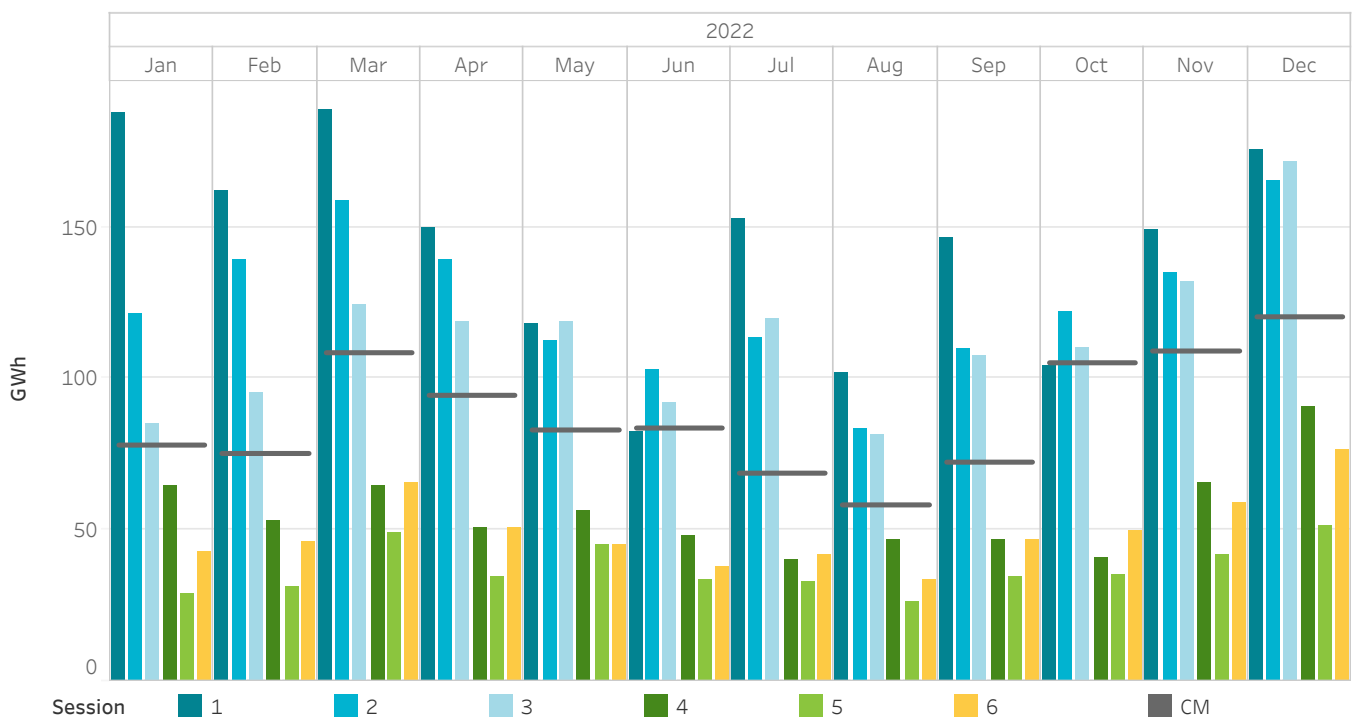
The negotiated energy is calculated as the addition of the acquisitions made in Spain plus the net exports.



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

In Portugal

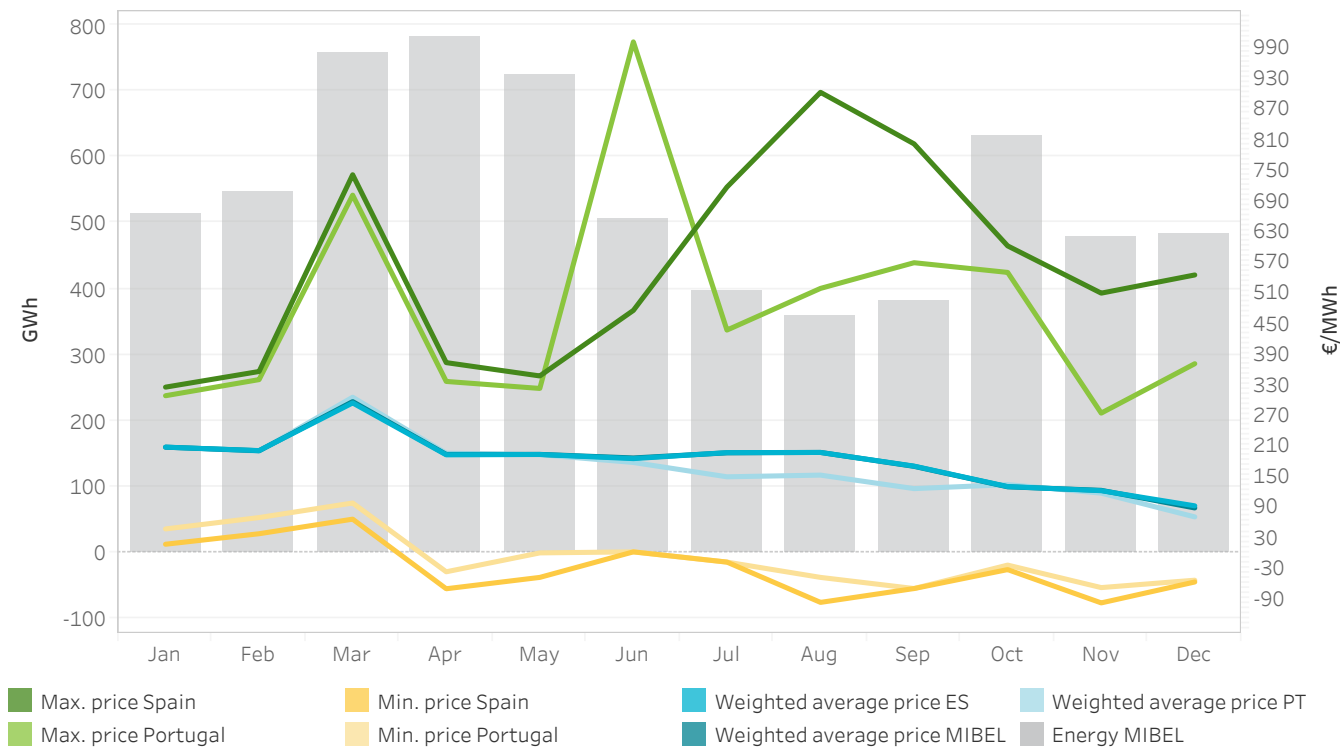
The negotiated energy is calculated as the addition of the acquisitions made in Portugal plus the net exports.



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

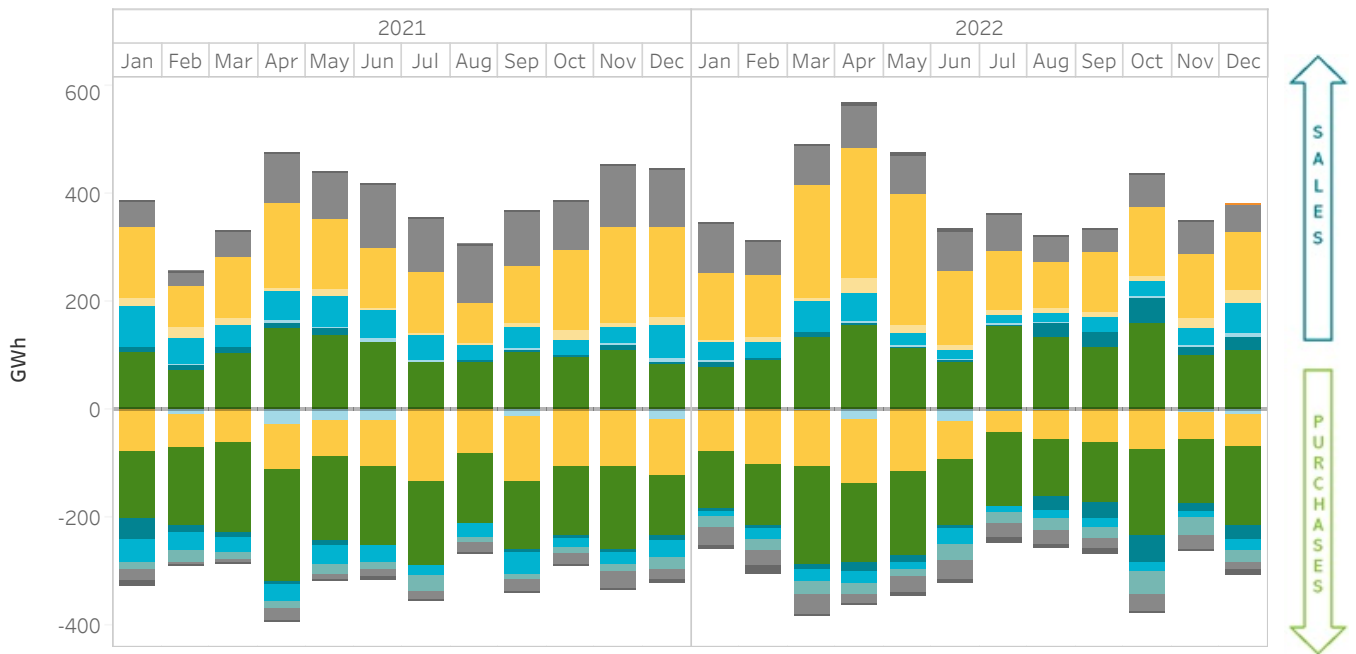
The maximum and minimum prices refer to hourly prices. The energy negotiated is calculated as the sum of acquisitions and net exports from each area.

	Weighted average price ES	Weighted average price PT	Max. price Spain	Max. price Portugal	Min. price Spain	Min. price Portugal	Energy Spain	Energy Portugal	Energy MIBEL
January	205.37	205.60	323.04	306.21	15.01	45.00	472.2	78.1	514.8
February	198.63	197.55	353.75	337.81	35.61	67.32	498.3	75.3	546.9
March	292.06	303.24	739.50	699.50	64.19	95.86	693.9	108.6	758.1
April	190.32	193.42	371.12	334.22	-72.28	-39.00	725.9	94.5	782.4
May	191.01	190.70	345.00	320.50	-50.00	-1.97	676.3	83.0	723.4
June	182.90	175.36	473.50	1,000.00	0.07	0.07	473.5	83.7	506.1
July	194.67	147.24	715.30	434.92	-20.00	-20.00	387.5	68.8	395.4
August	194.98	150.53	901.10	516.64	-99.00	-50.00	353.4	58.3	357.7
September	168.19	124.09	800.02	567.01	-71.86	-71.86	372.1	72.4	379.6
October	128.09	131.87	600.00	548.00	-34.70	-25.89	578.6	105.2	631.8
November	120.00	115.25	507.34	272.11	-100.00	-70.00	439.3	109.1	478.4
December	90.30	68.61	543.01	369.00	-59.00	-55.49	449.5	120.4	482.1
Annual tot.	184.12	165.72	901.10	1,000.00	-100.00	-71.86	6,120.4	1,057.4	6,556.5

3.9 Transactions classified by technologies on the intraday continuous market

In Spain

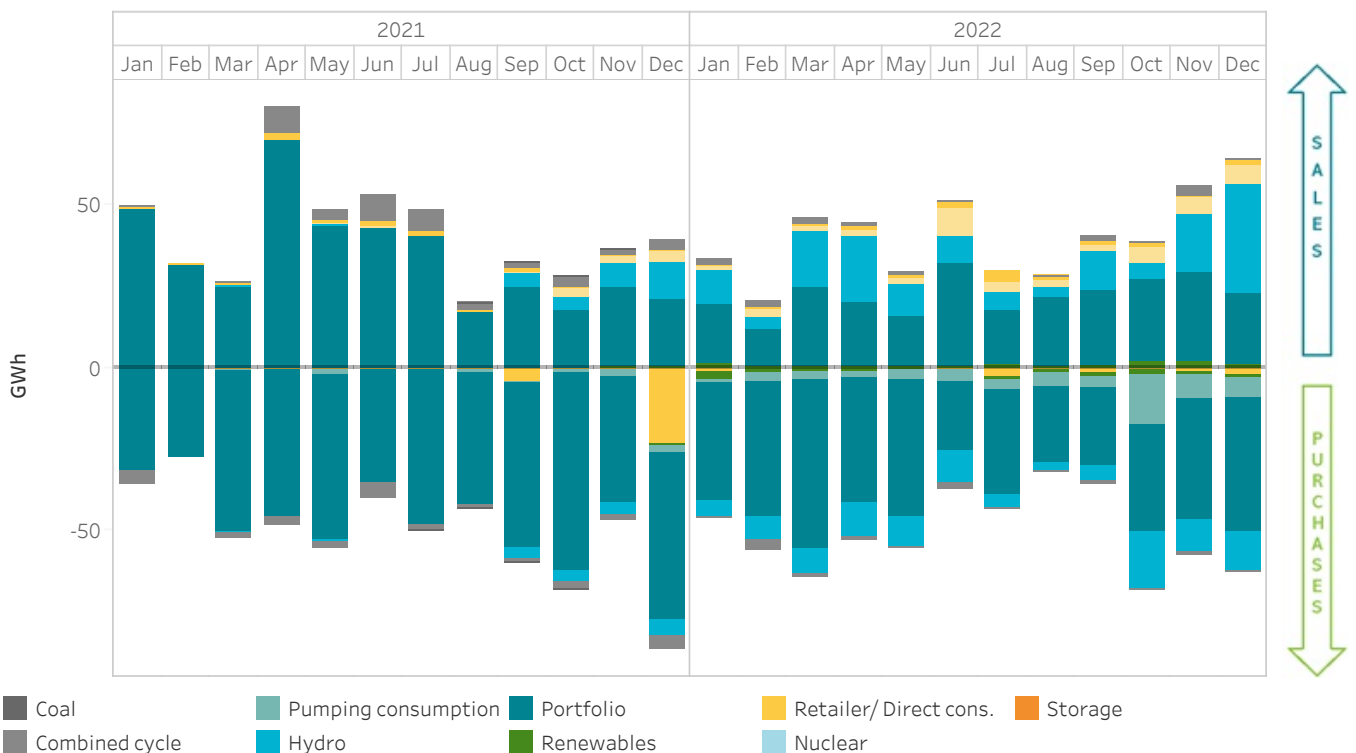
The positive values represent energy sales and the negative values represent energy purchases.



3.10 Transactions classified by technologies on the intraday continuous market

In Portugal

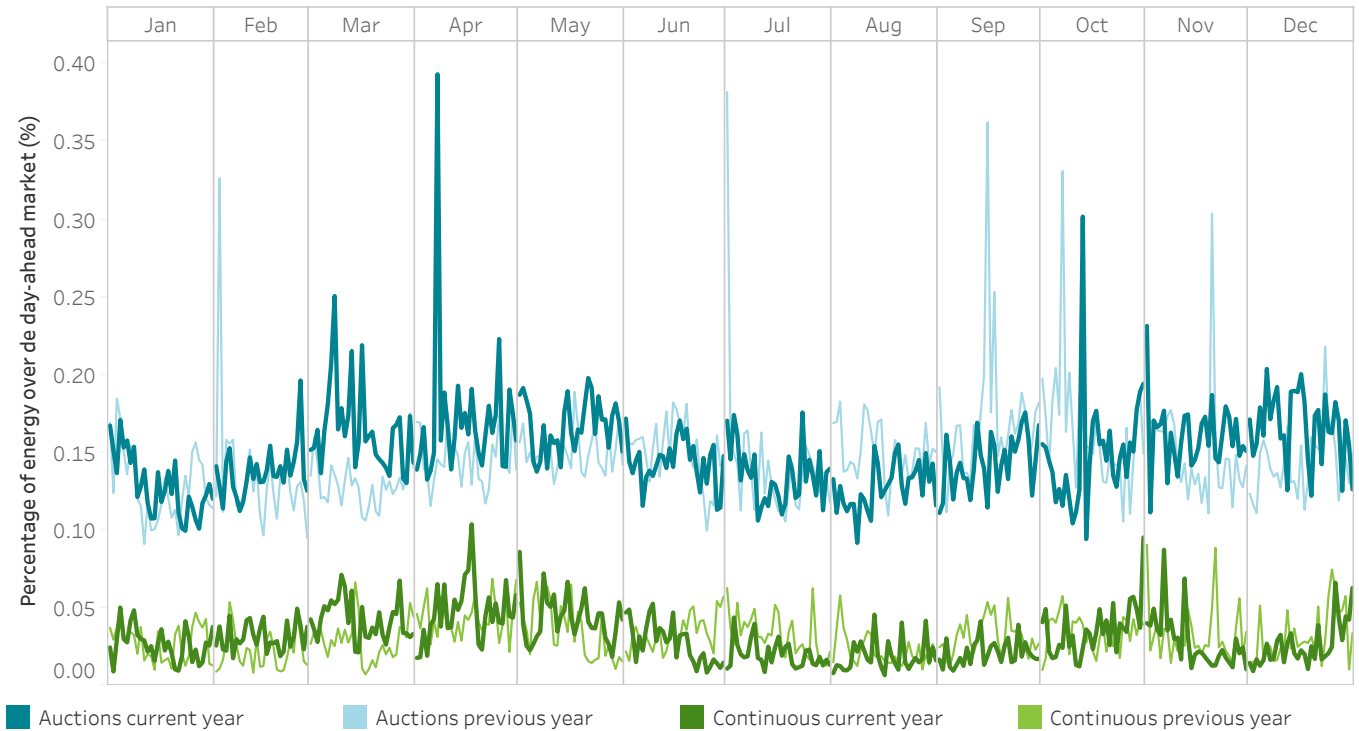
The positive values represent energy sales and the negative values represent energy purchases.



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

MIBEL

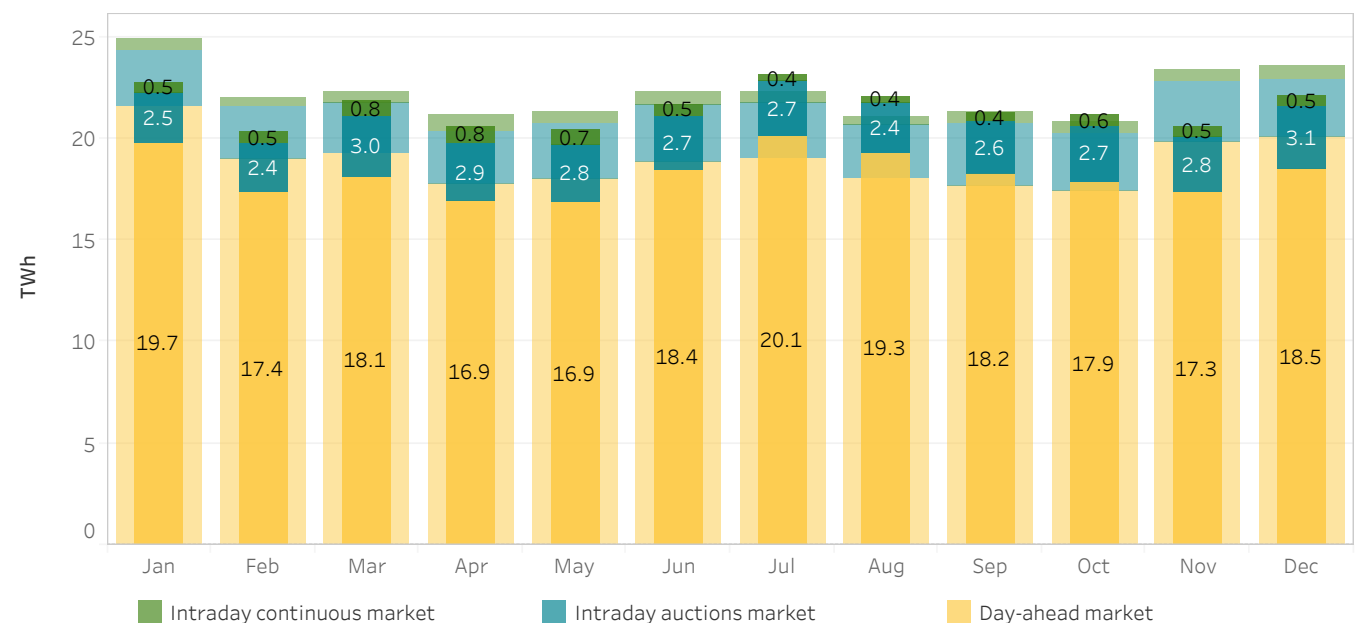
The energy negotiated is calculated as the sum of acquisitions and net exports from each area.



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

MIBEL

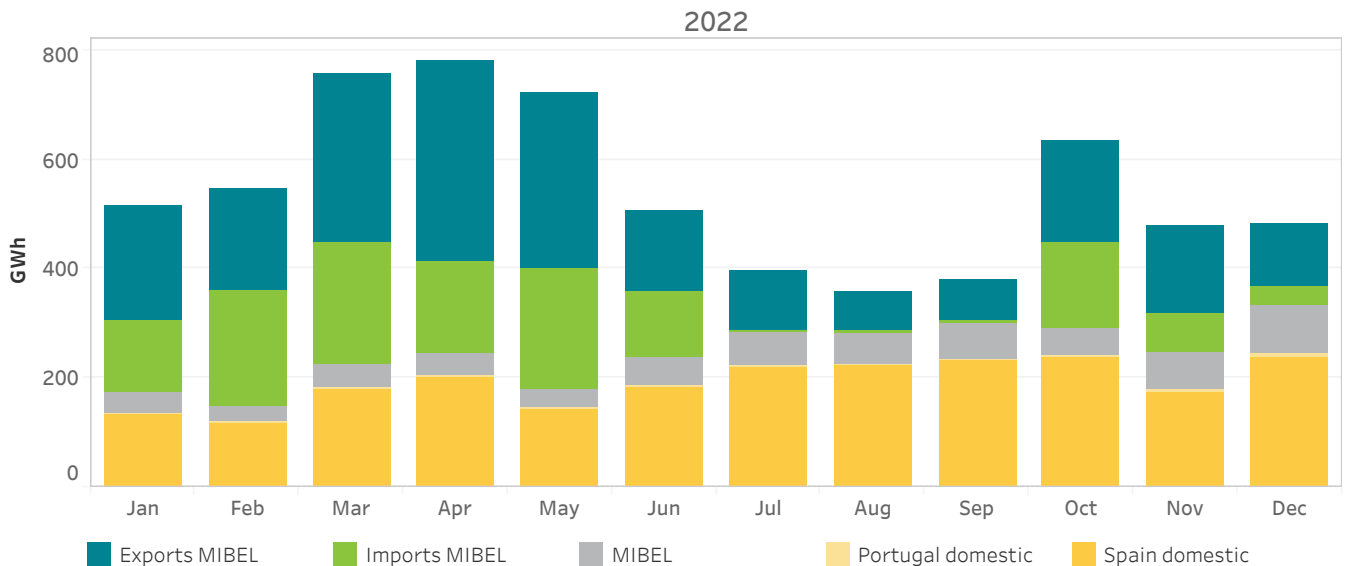
The energy negotiated is calculated as the sum of acquisitions and net exports from each area. The light-colored columns indicate values of the series for the same period from the prior year.



3.13 Energy negotiated on the intraday continuous market by negotiation area

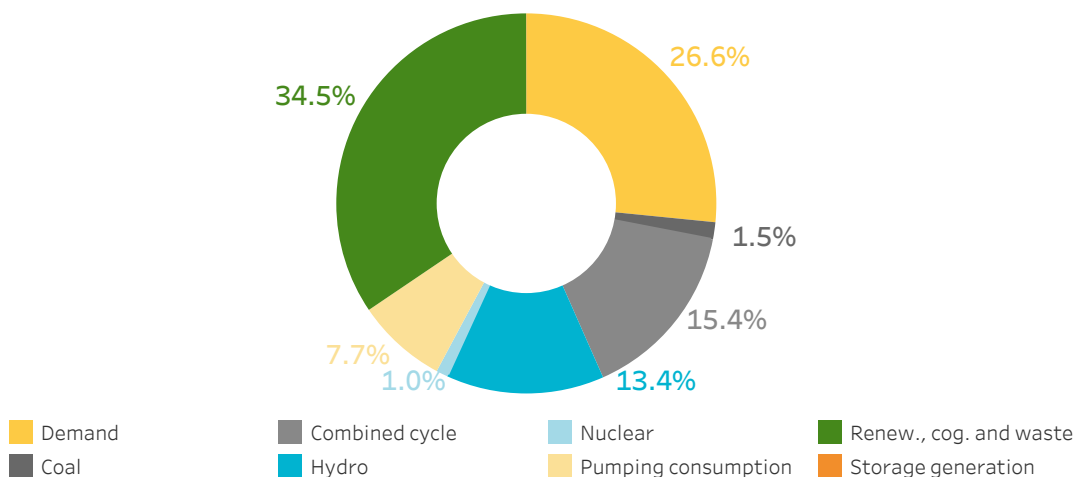
In Spain, Portugal and MIBEL

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

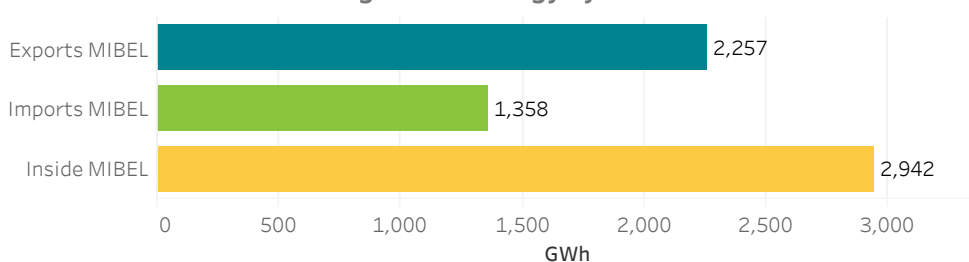


3.14 Technologies in the intraday continuous program (Programa Intradiario Básico de Casación Incremental Continuo, PIBCIC) and energy volume by negotiation area

MIBEL



Volume of negotiated energy by area in the MIBEL



4.

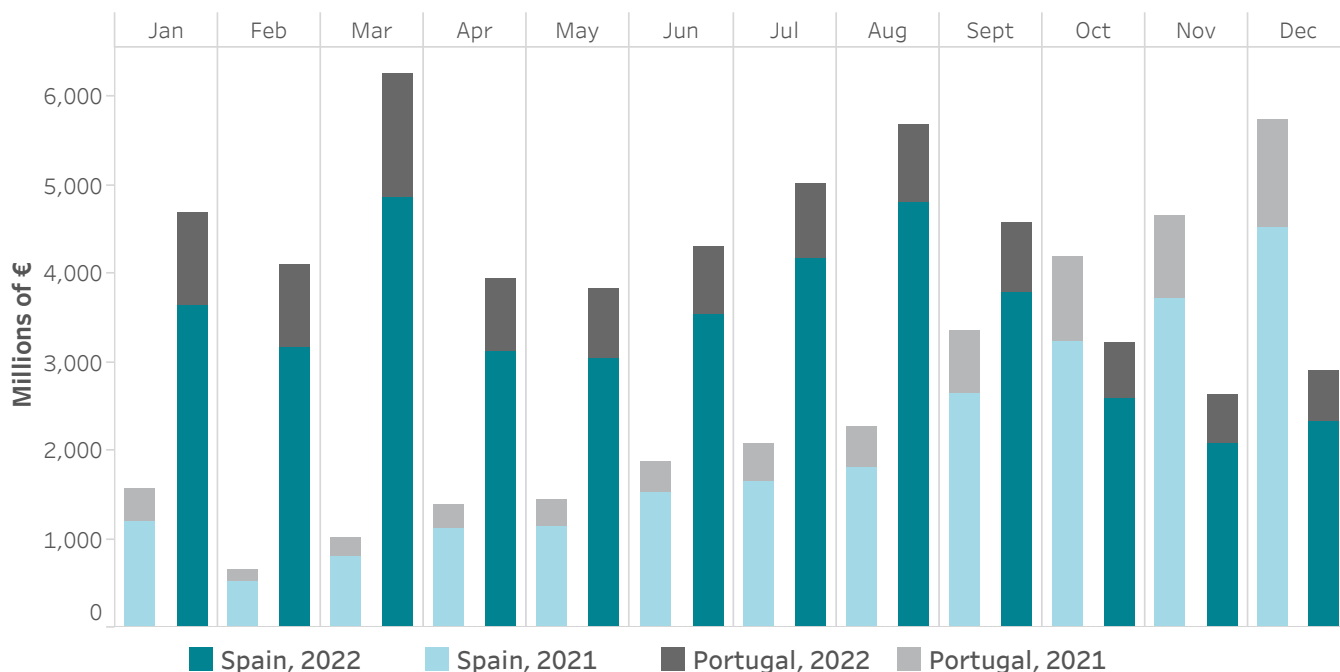
Economic market results

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



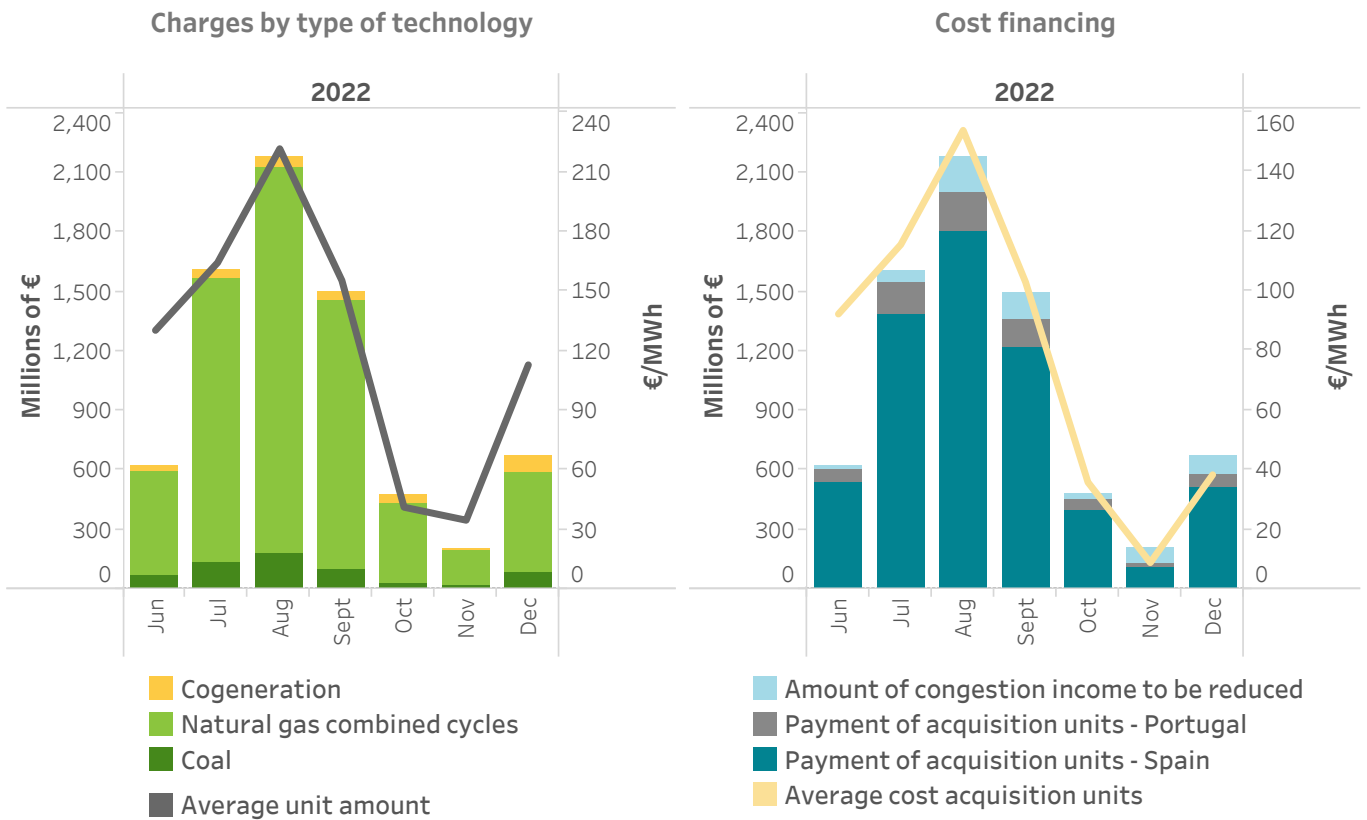
4.1 Economic volume of the purchases negotiated on the MIBEL (Millions of €)

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

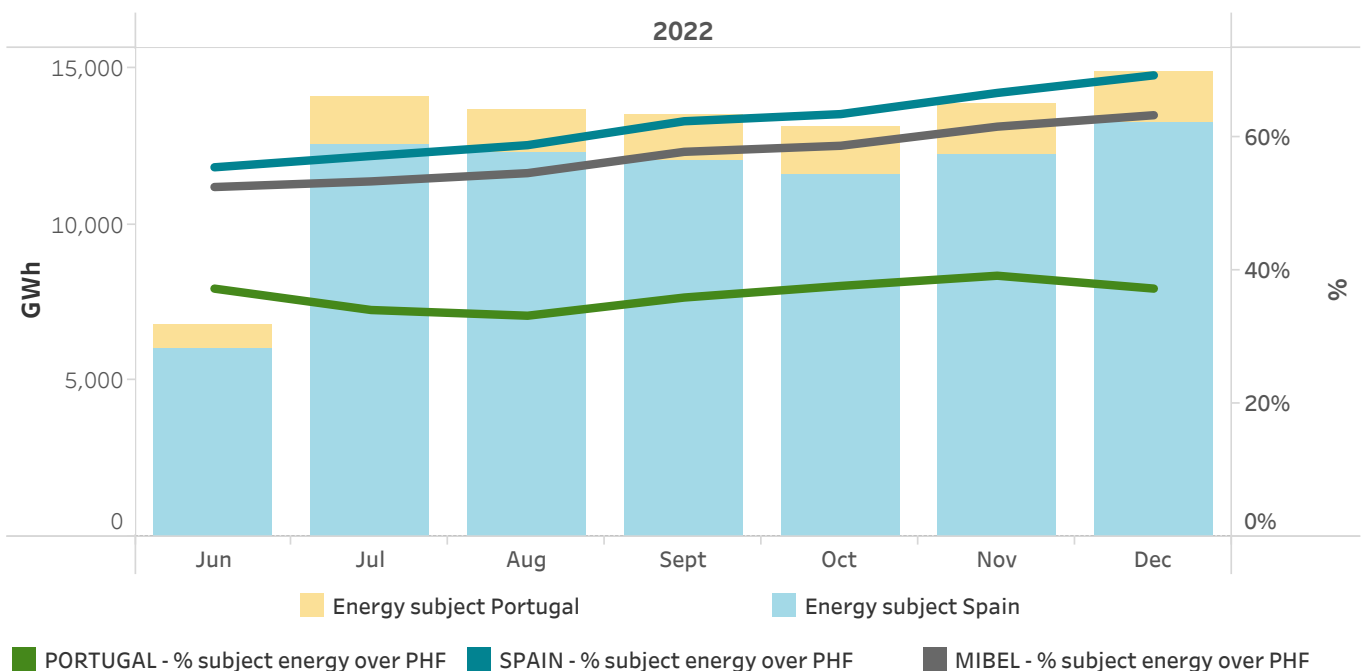


Economic volume (Millions of €)											
Month	Spain					Portugal					Total
	Day-ahead market	Intraday auctions market	Continu. intraday market	Adjustm. mechanism	Total Country	Day-ahead market	Intraday auctions market	Continu. intraday market	Adjustm. mechanism	Total Country	
Jan	3,109	432	97		3,637	962	80	9		1,052	4,689
Feb	2,686	391	98		3,174	834	89	11		934	4,108
Mar	3,949	718	203		4,870	1,216	143	20		1,378	6,248
Apr	2,505	479	140		3,123	726	81	10		817	3,940
May	2,464	457	128		3,049	696	73	10		779	3,828
Jun	2,504	411	87	535	3,538	657	44	6	68	775	4,313
Jul	2,384	329	71	1,389	4,173	617	59	6	160	841	5,014
Aug	2,599	331	65	1,802	4,797	633	47	4	194	878	5,675
Sept	2,231	291	60	1,220	3,803	571	52	4	142	769	4,572
Oct	1,820	296	72	403	2,592	533	45	9	53	640	3,231
Nov	1,612	268	51	145	2,076	489	45	6	19	559	2,635
Dec	1,535	242	37	518	2,332	443	52	4	65	564	2,896
Year 2022	29,398	4,644	1,110	6,012	41,164	8,378	808	99	700	9,985	51,149

4.2 Monthly settlement of the adjustment mechanism

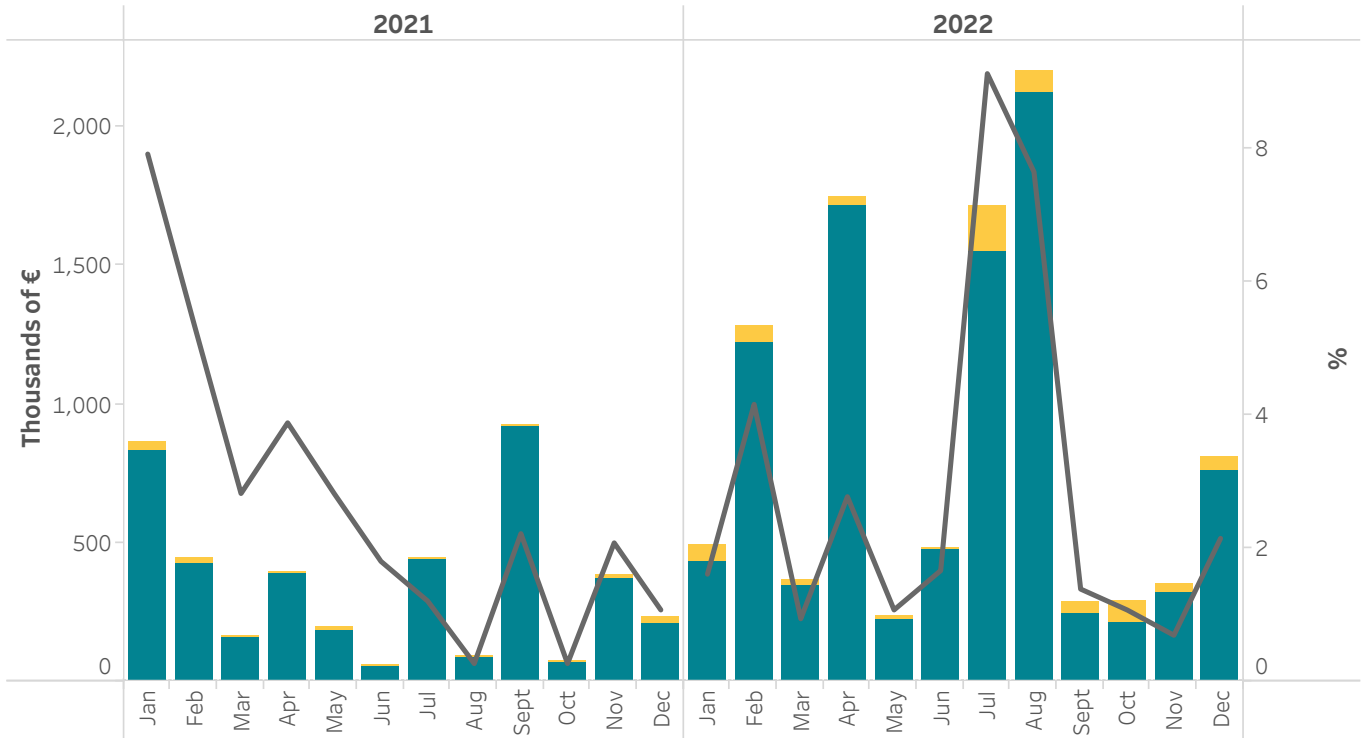


4.3 Monthly evolution of energy subject to the adjustment mechanism in OMIE settlements

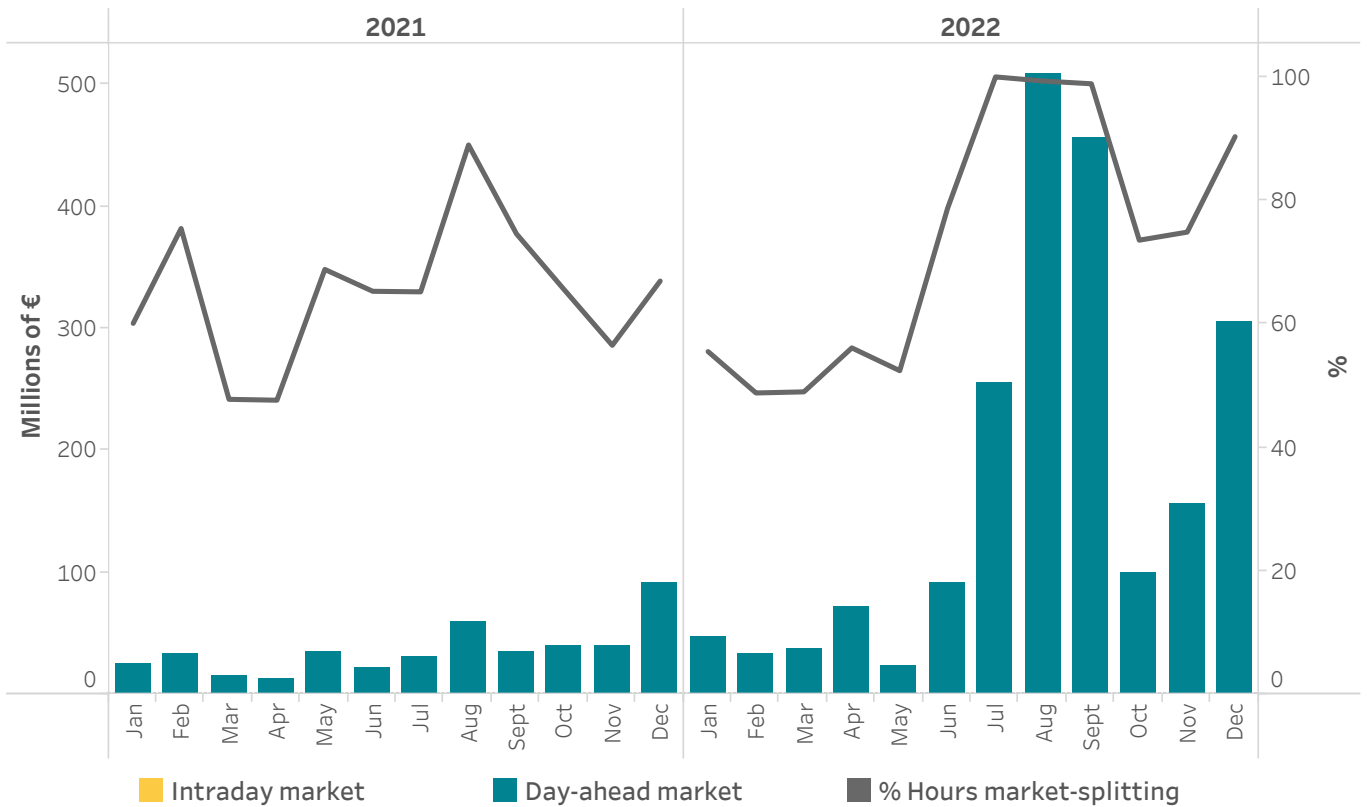


4.4 Congestion income

Spanish-Portuguese interconnection

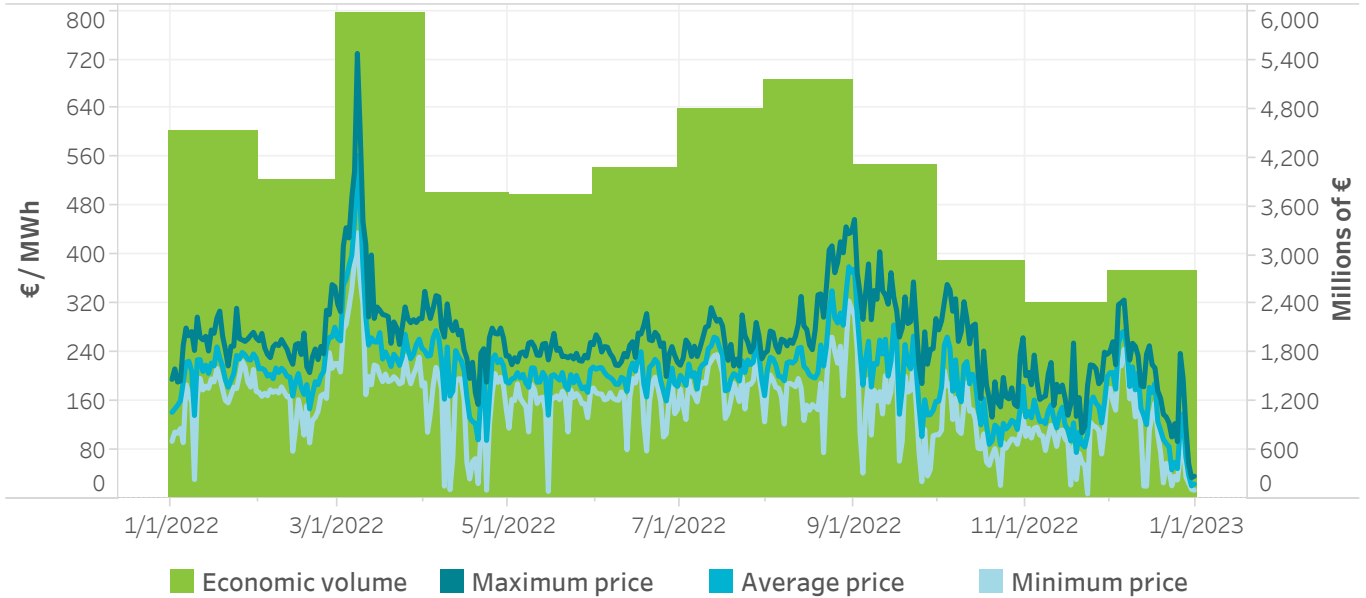


Spanish-French interconnection

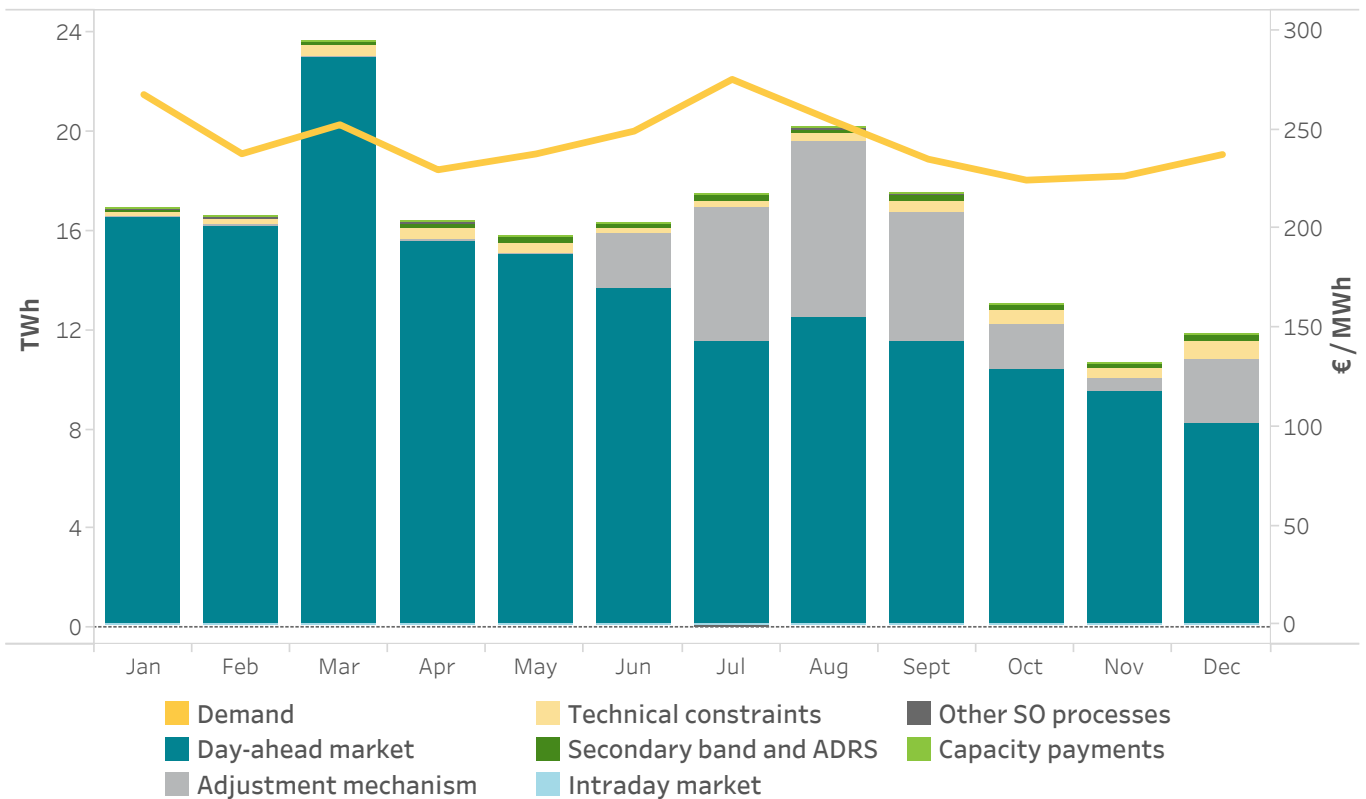


■ Intraday market
 ■ Day-ahead market
 ■ % Hours market-splitting

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



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



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

	Reference retailers		Free market		National demand	
	€/MWh	%	€/MWh	%	€/MWh	%
Day-ahead market	173.39	77.99	170.22	83.93	170.50	83.37
Adjustment mechanism	40.46	18.20	25.14	12.40	26.48	12.95
Constraints	4.77	2.15	4.69	2.31	4.70	2.30
Secondary band and ADRS	2.41	1.09	2.37	1.17	2.37	1.16
Intraday market	0.00	0.00	-0.22	-0.11	-0.20	-0.10
Other SO processes	0.85	0.38	0.29	0.14	0.32	0.16
Capacity payments	0.44	0.20	0.31	0.15	0.32	0.16
Total	222.32	100.00	202.81	100.00	204.50	100.00

National demand (€/MWh)

Month	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
January	205.86	2.29	0.00	1.02	-0.04	0.49	0.44	210.05
February	201.96	2.13	0.00	1.20	-0.08	0.06	0.47	205.74
March	287.24	4.47	0.00	2.16	-0.11	0.43	0.33	294.53
April	194.39	6.06	0.00	2.22	-0.19	0.34	0.24	203.05
May	187.83	4.43	0.00	3.10	-0.15	0.19	0.23	195.62
June	169.73	2.59	27.54	2.88	-0.10	0.09	0.25	202.97
July	143.18	3.98	66.92	2.48	-0.39	-0.19	0.44	216.42
August	154.77	4.03	88.84	2.66	-0.28	0.52	0.26	250.81
September	142.82	6.14	65.19	2.56	-0.61	0.85	0.25	217.20
October	128.91	6.67	22.56	3.10	-0.13	0.44	0.21	161.76
November	117.35	4.81	7.14	2.59	-0.15	0.13	0.31	132.17
December	101.43	9.53	32.09	2.69	-0.15	0.57	0.42	146.60

Year	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
2021	113.17	2.99	0.00	1.07	-0.02	0.18	1.31	118.69
2022	170.50	4.70	26.48	2.37	-0.20	0.32	0.32	204.50

Free market (€/MWh)

Month	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
January	205.87	2.28	0.00	1.02	-0.05	0.49	0.44	210.05
February	201.84	2.13	0.00	1.20	-0.09	0.03	0.47	205.58
March	287.10	4.47	0.00	2.16	-0.12	0.45	0.32	294.38
April	194.43	6.05	0.00	2.21	-0.21	0.22	0.22	202.91
May	187.87	4.43	0.00	3.09	-0.16	0.26	0.21	195.69
June	169.73	2.58	25.86	2.87	-0.11	0.05	0.24	201.23
July	143.21	3.96	62.69	2.48	-0.43	-0.22	0.44	212.13
August	154.81	4.01	83.31	2.65	-0.31	0.29	0.25	245.00
September	142.75	6.12	61.93	2.56	-0.66	0.84	0.23	213.78
October	128.82	6.66	21.55	3.09	-0.14	0.44	0.19	160.61
November	117.21	4.80	6.84	2.54	-0.16	0.13	0.29	131.64
December	101.37	9.50	30.97	2.66	-0.16	0.56	0.42	145.33

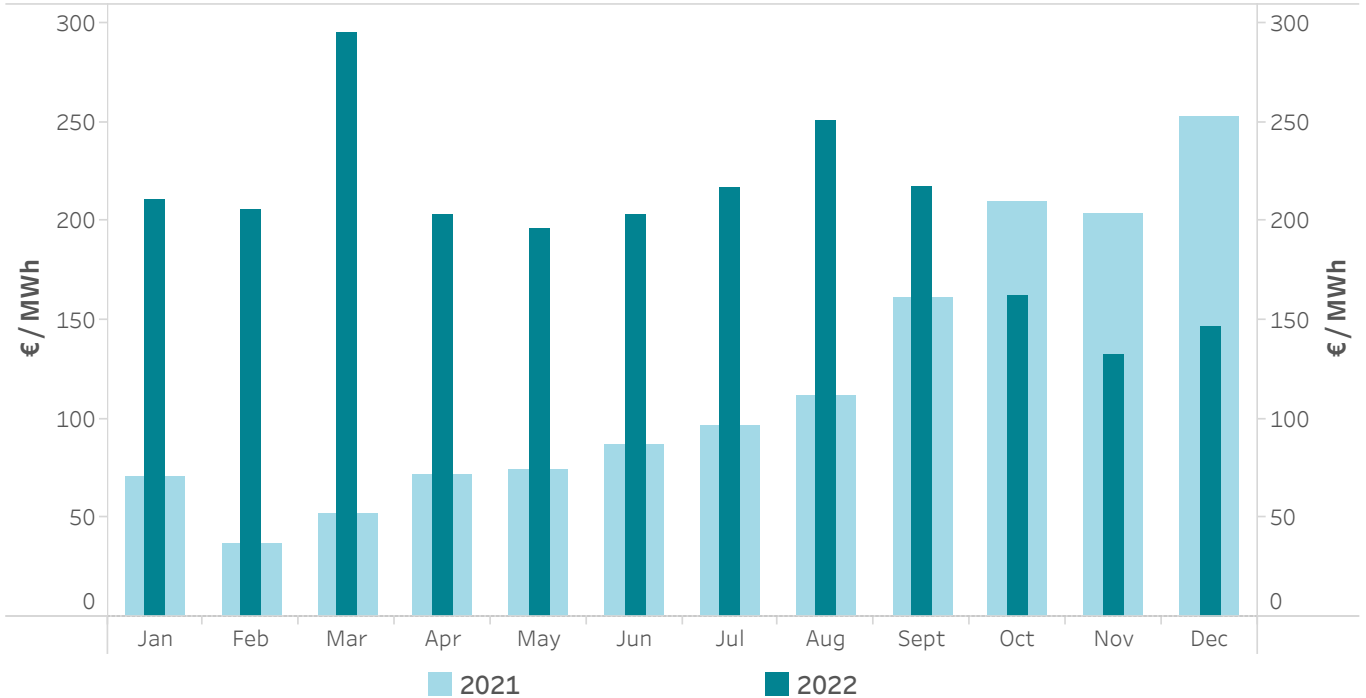
Year	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
2021	113.54	2.98	0.00	1.08	-0.03	0.18	1.20	118.95
2022	170.22	4.69	25.14	2.37	-0.22	0.29	0.31	202.81

Reference retailers (€/MWh)

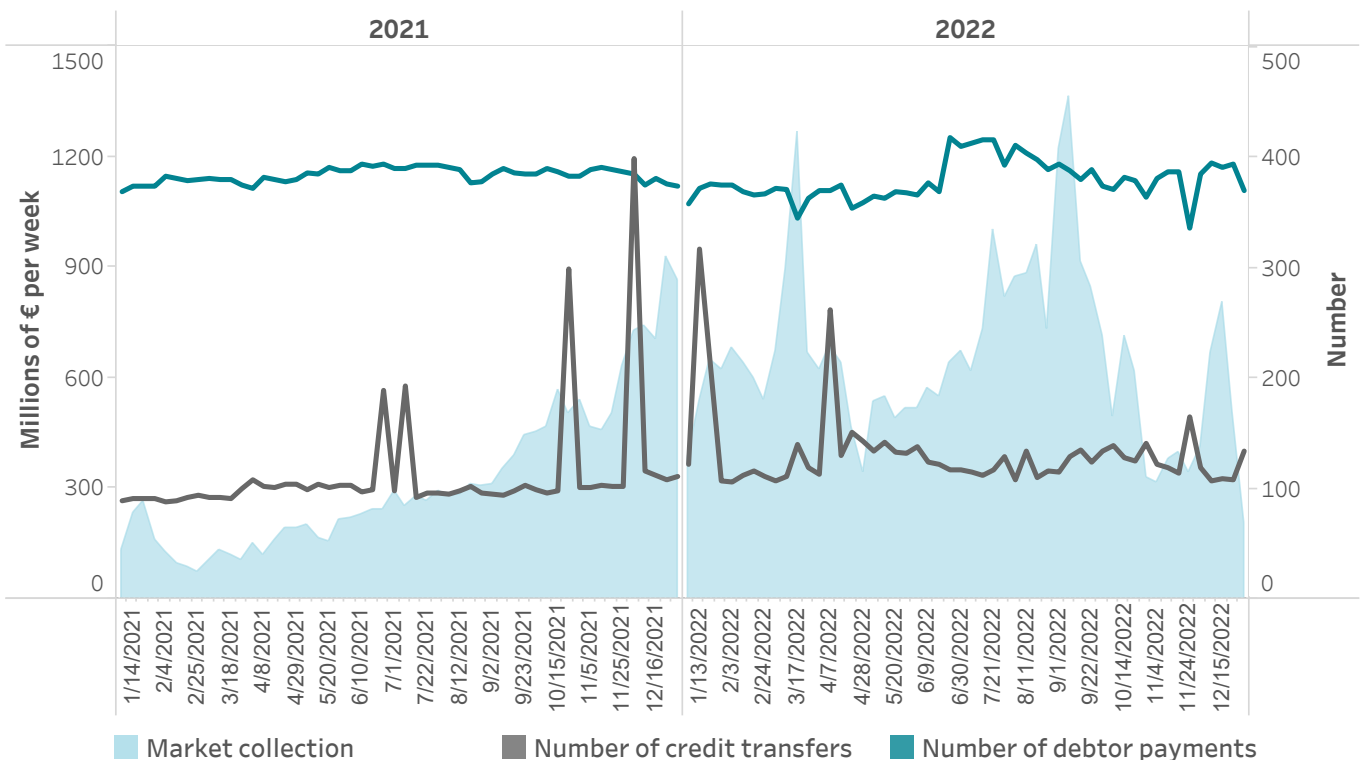
Month	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
January	205.75	2.38	0.00	1.04	0.02	0.47	0.42	210.08
February	203.09	2.13	0.00	1.20	-0.01	0.32	0.46	207.19
March	288.59	4.52	0.00	2.16	0.01	0.23	0.47	295.98
April	194.00	6.19	0.00	2.34	-0.01	1.48	0.43	204.43
May	187.41	4.48	0.00	3.20	-0.01	1.22	0.42	196.72
June	169.62	2.66	47.76	3.01	0.01	1.32	0.43	224.81
July	142.88	4.13	113.26	2.48	0.02	0.19	0.42	263.38
August	154.39	4.27	148.67	2.80	0.03	3.02	0.43	313.61
September	143.61	6.34	104.14	2.60	-0.04	0.92	0.45	258.02
October	129.96	6.90	34.83	3.13	0.02	0.47	0.41	175.71
November	118.86	4.97	10.44	3.21	-0.01	0.20	0.46	138.13
December	102.01	9.84	42.61	2.94	-0.02	0.67	0.43	158.48

Year	Day-ahead market	Technical constraints	Adjustment mechanism	Secondary band and ADRS	Intraday market	Other SO processes	Capacity payments	Average final price
2021	110.11	3.01	0.00	1.07	0.01	0.19	2.19	116.59
2022	173.39	4.77	40.46	2.41	0.00	0.85	0.44	222.32

4.8 Final average price of the Spanish electricity system - National demand



4.9 Tendency of collections on the market



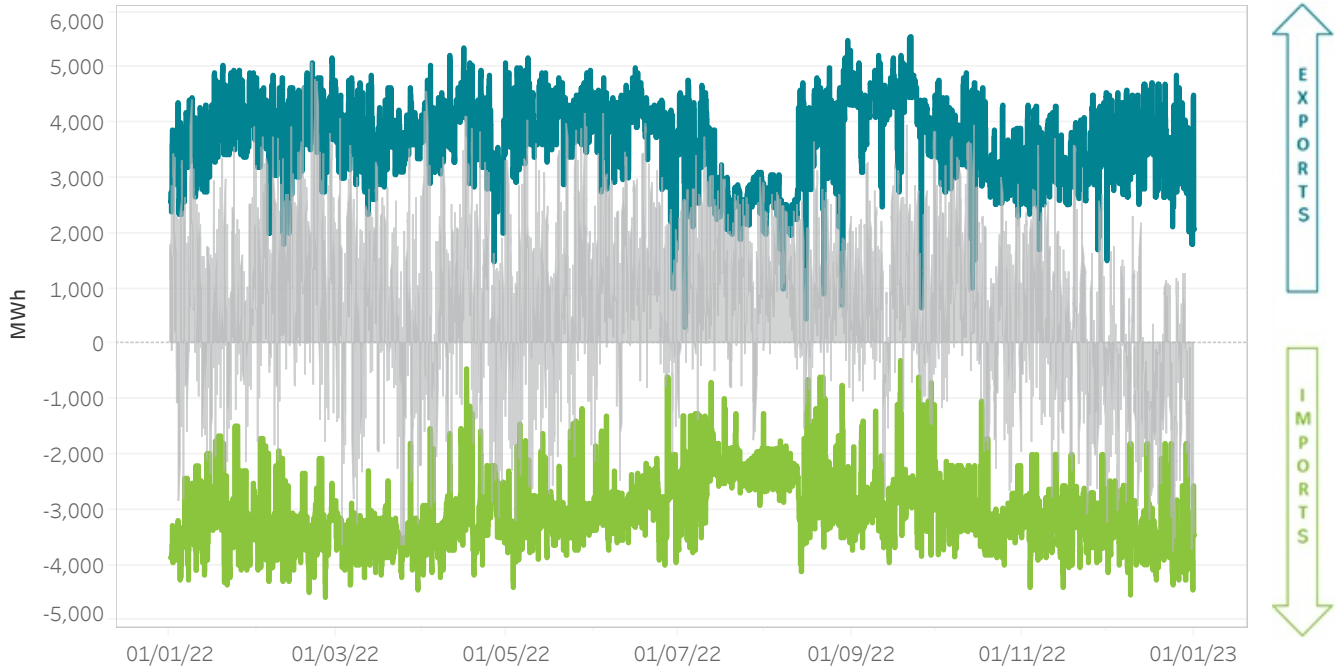
5.

International exchanges

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



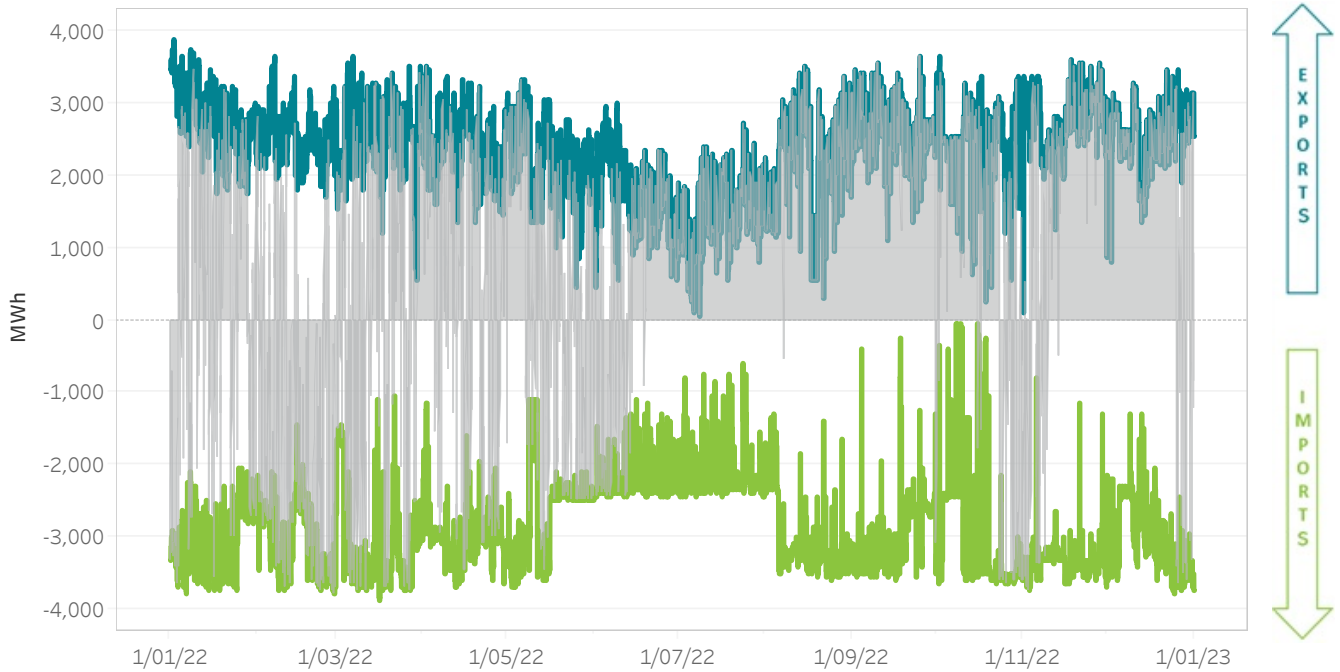
5.1 Interconnection flow and capacity with Portugal in the day-ahead operations program (Programa diario base de funcionamiento, PDBF)



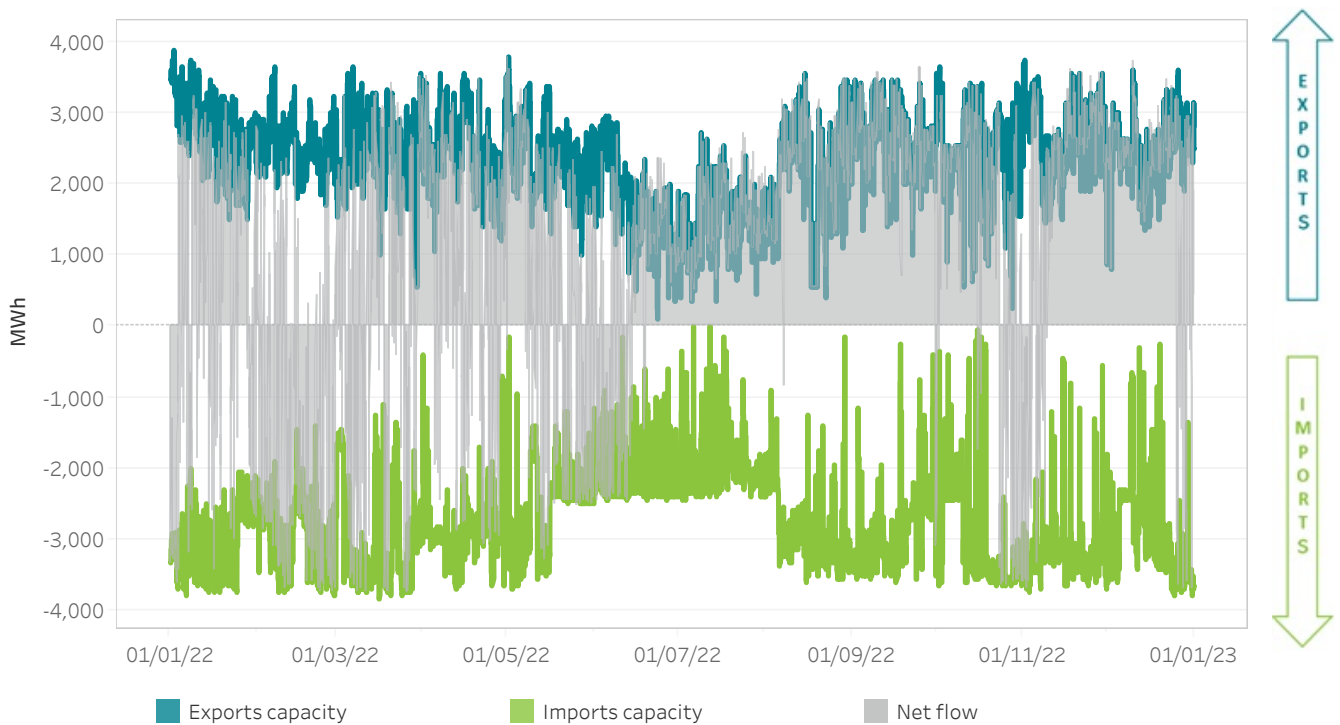
5.2 Interconnection flow and capacidad with Portugal in the final hourly program (Programa horario final, PHFC) after the continuous market



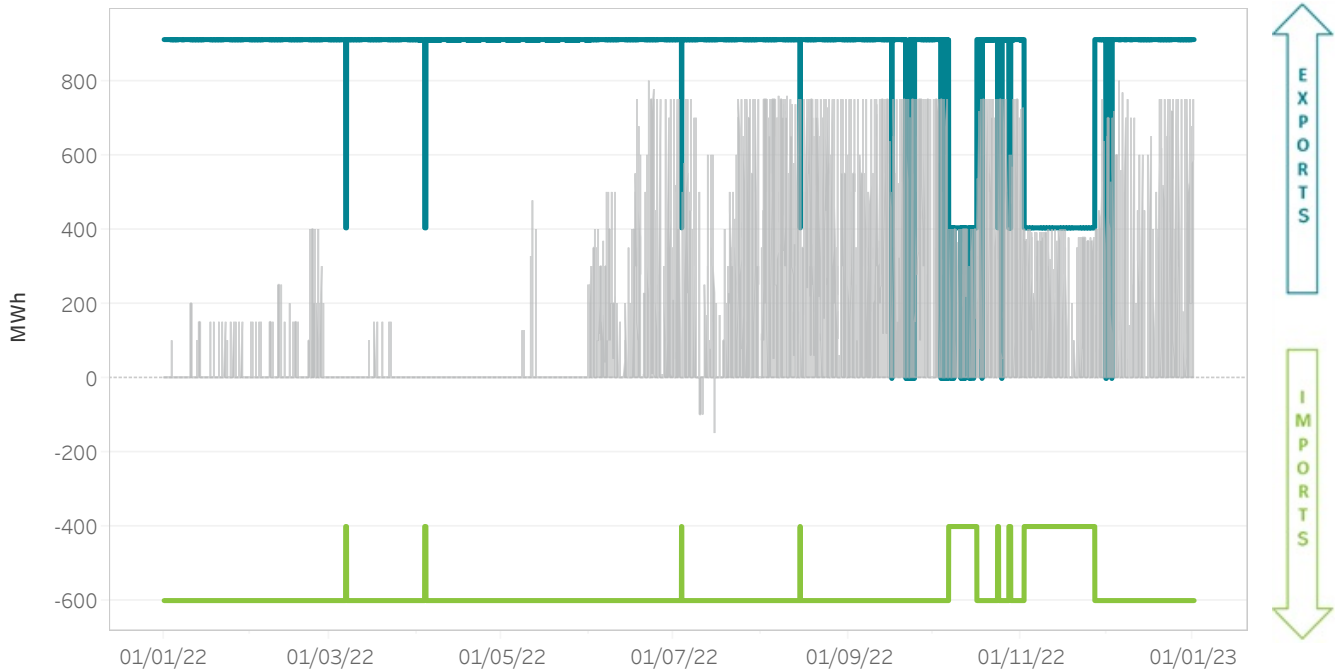
5.3 Interconnection flow and capacity with France in the day-ahead operations program (Programa diario base de funcionamiento, PDBF)



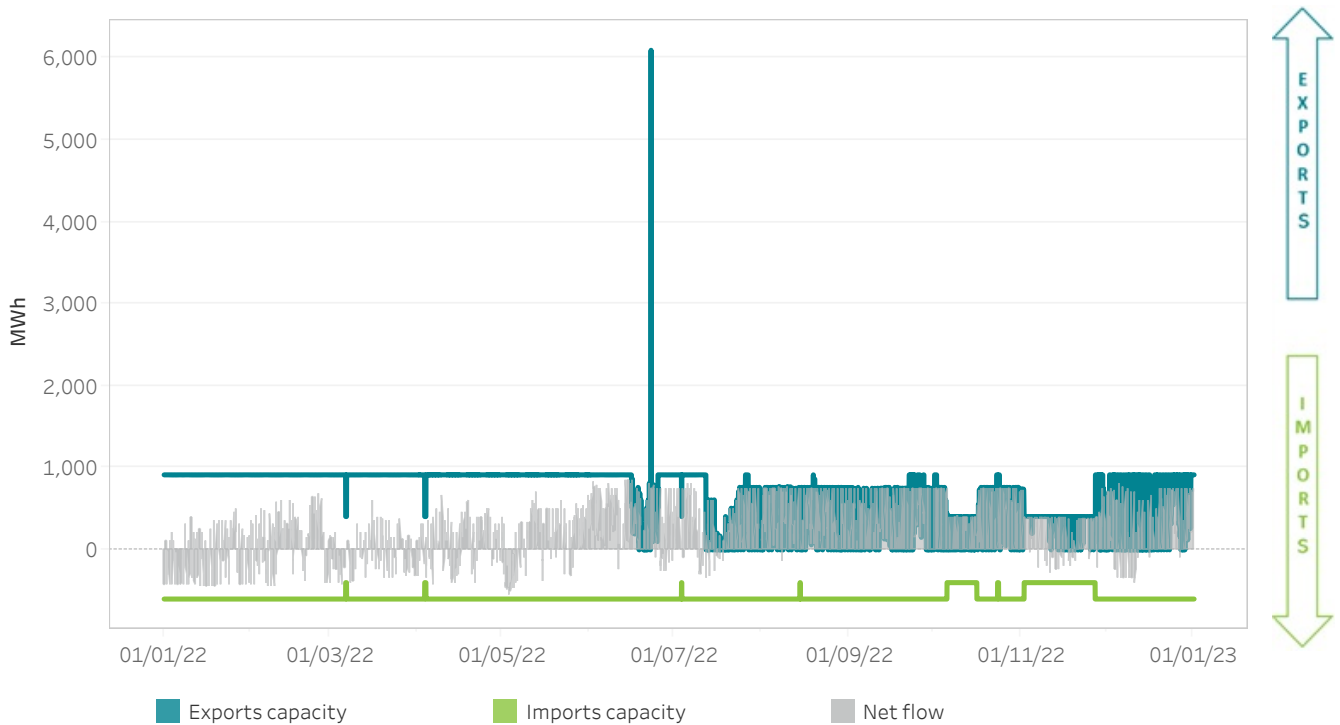
5.4 Interconnection flow and capacidad with France in the final hourly program (Programa horario final, PHFC) after the continuous market



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



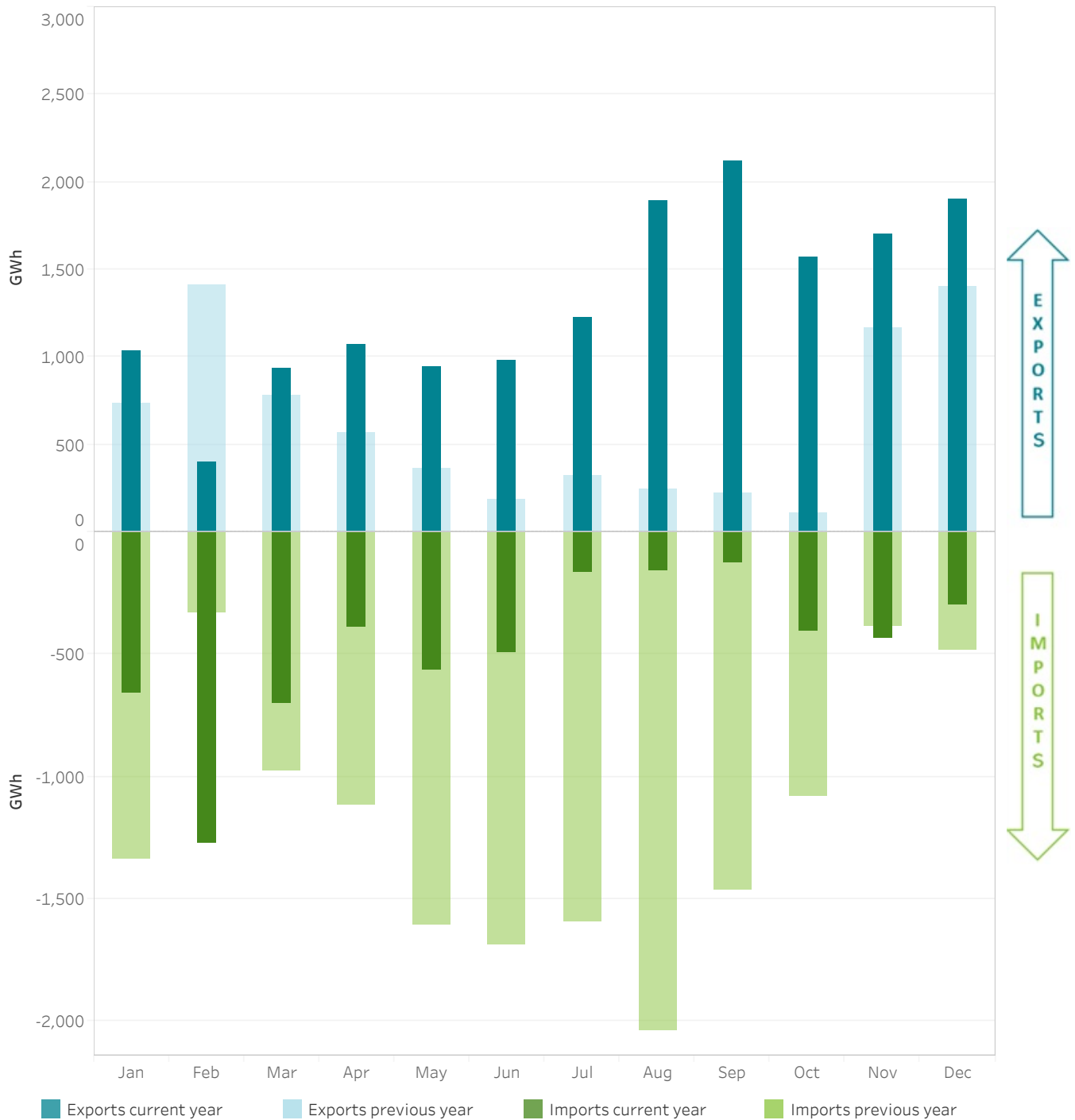
5.6 Interconnection flow and capacidad with Morocco in the final hourly program (Programa horario final, PHFC) after the continuous market



5.7 Total exports and imports

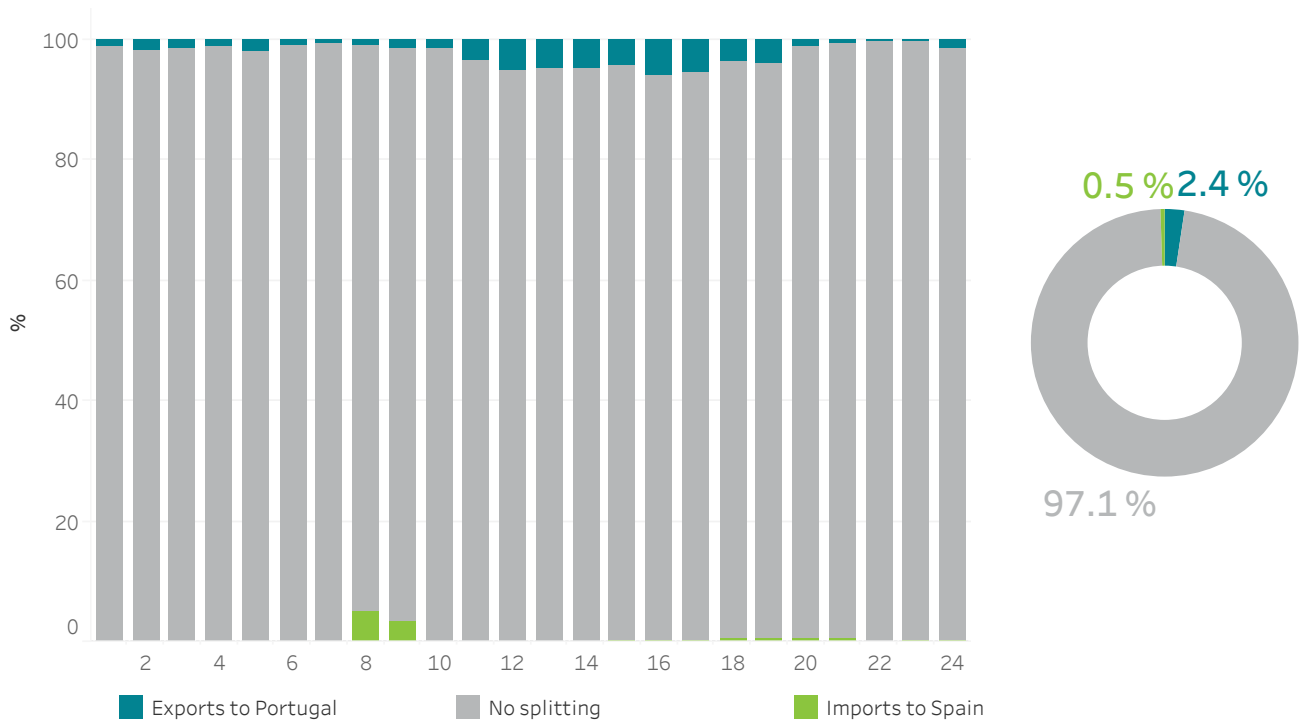
MIBEL

	2022	2021
Exports [GWh]	15,763.4	7,507.6
Imports [GWh]	5,659.0	14,083.8



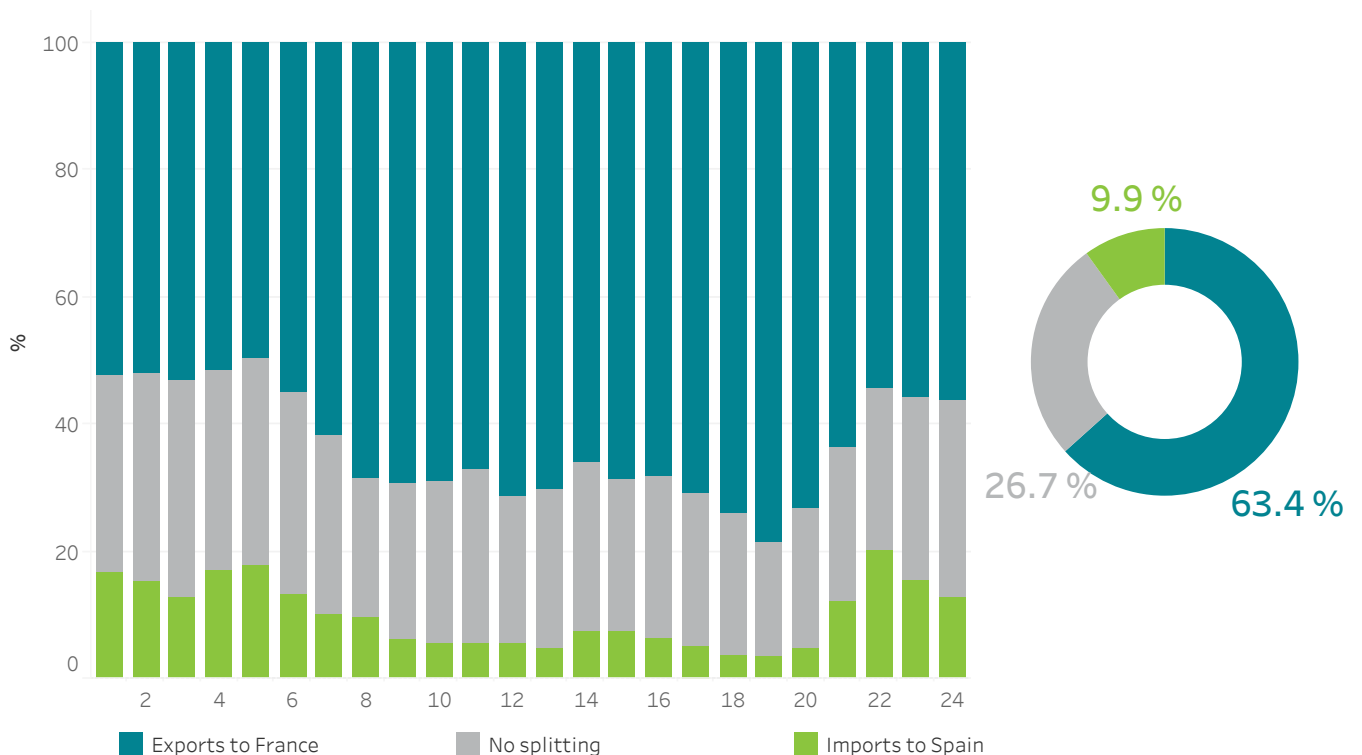
5.8 Market coupling on the Spain/Portugal border

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



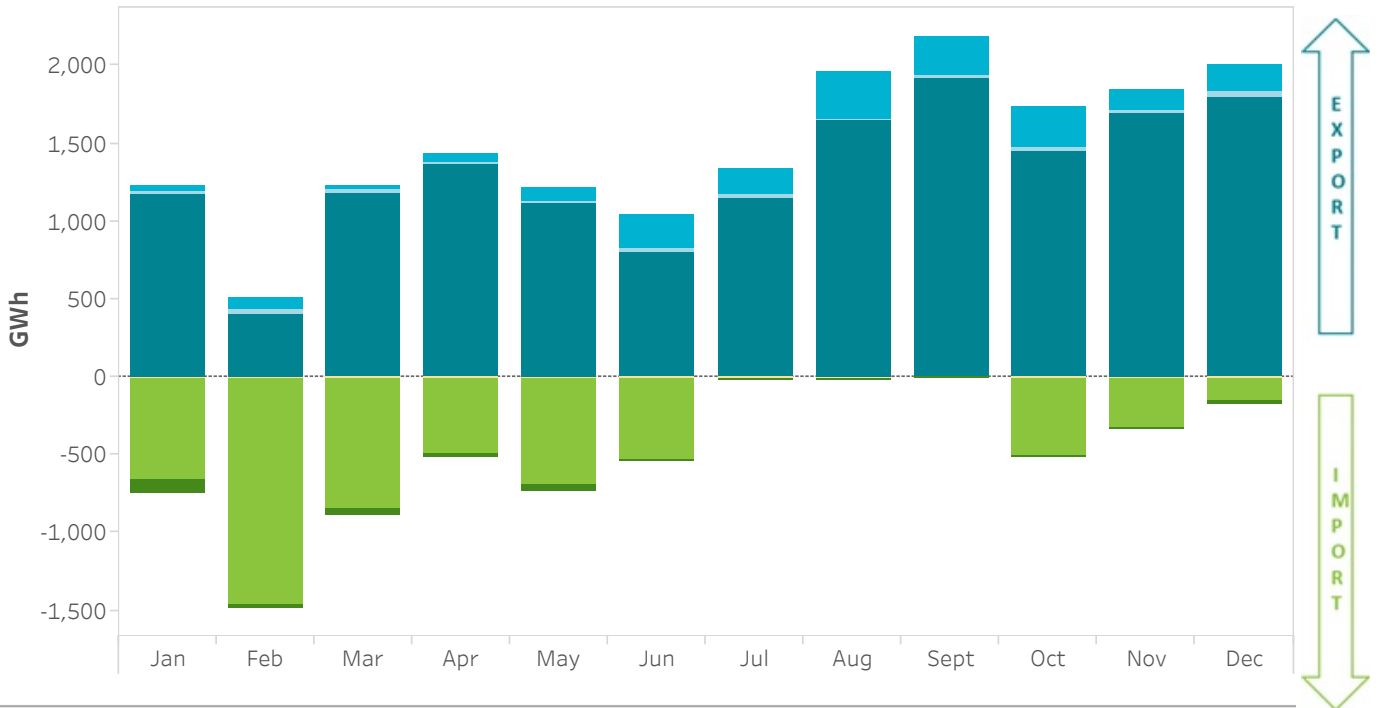
5.9 Market coupling on the Spain/France border

The circular graph indicates the percentage, over the total number of periods, of the market 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.



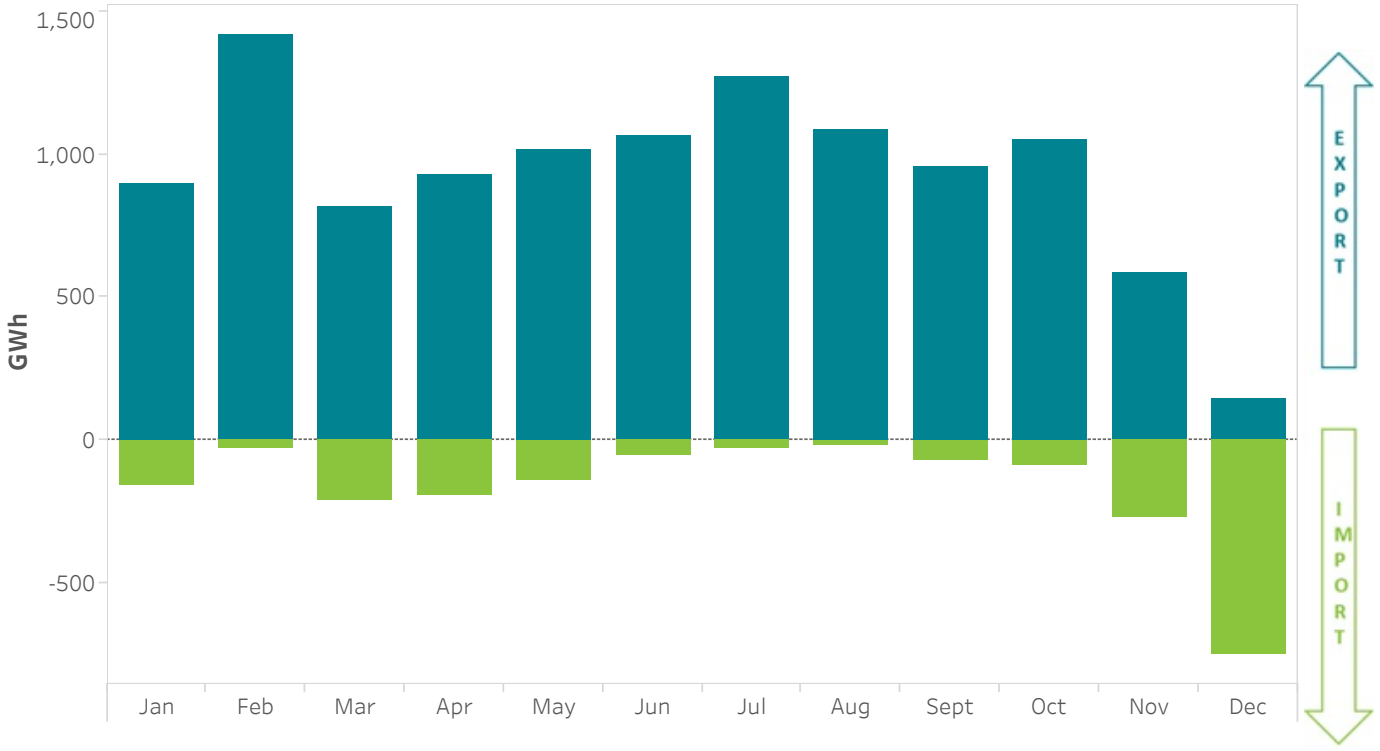
5.11 Monthly economic volumes exchanged on the MIBEL borders

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



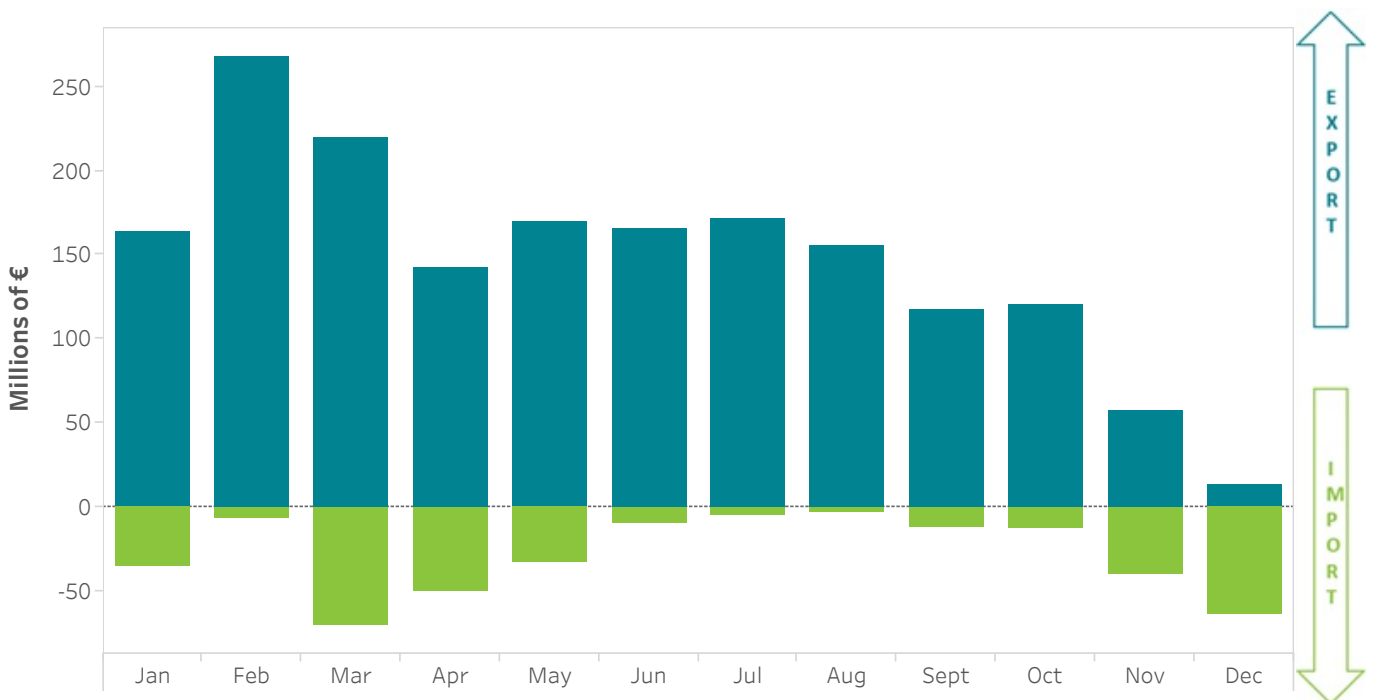
5.12 Monthly energies exchanged on the border with Portugal

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



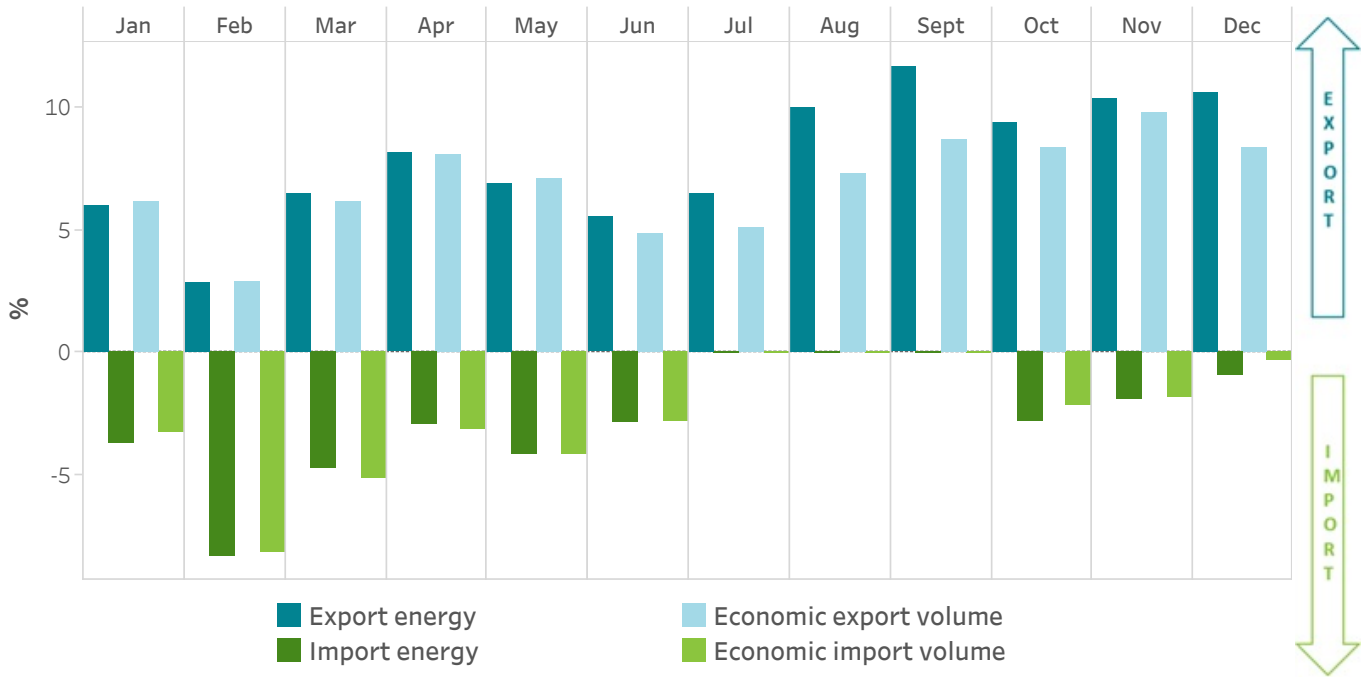
5.13 Monthly economic volumes exchanged on the border with Portugal

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

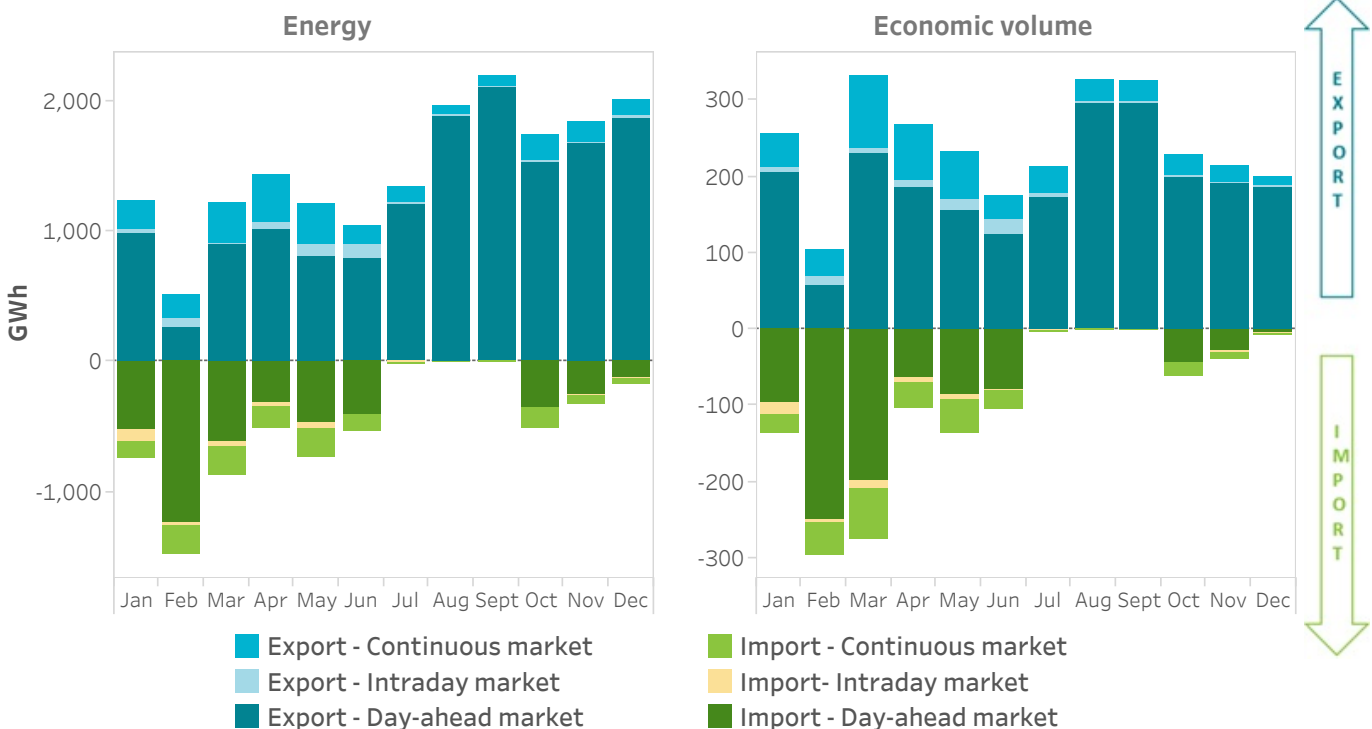


5.14 Impact of imports and exports on the MIBEL on market demand

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

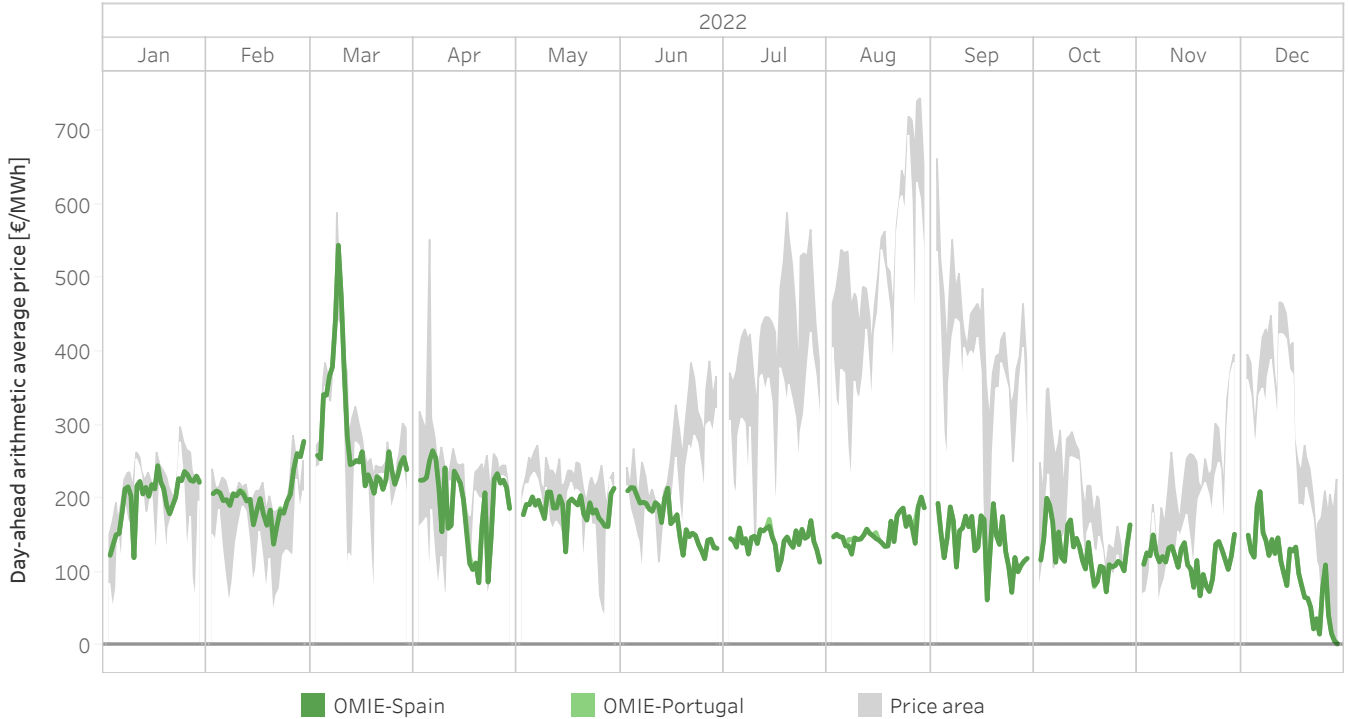
- Prices and energy in the international markets
- Maps



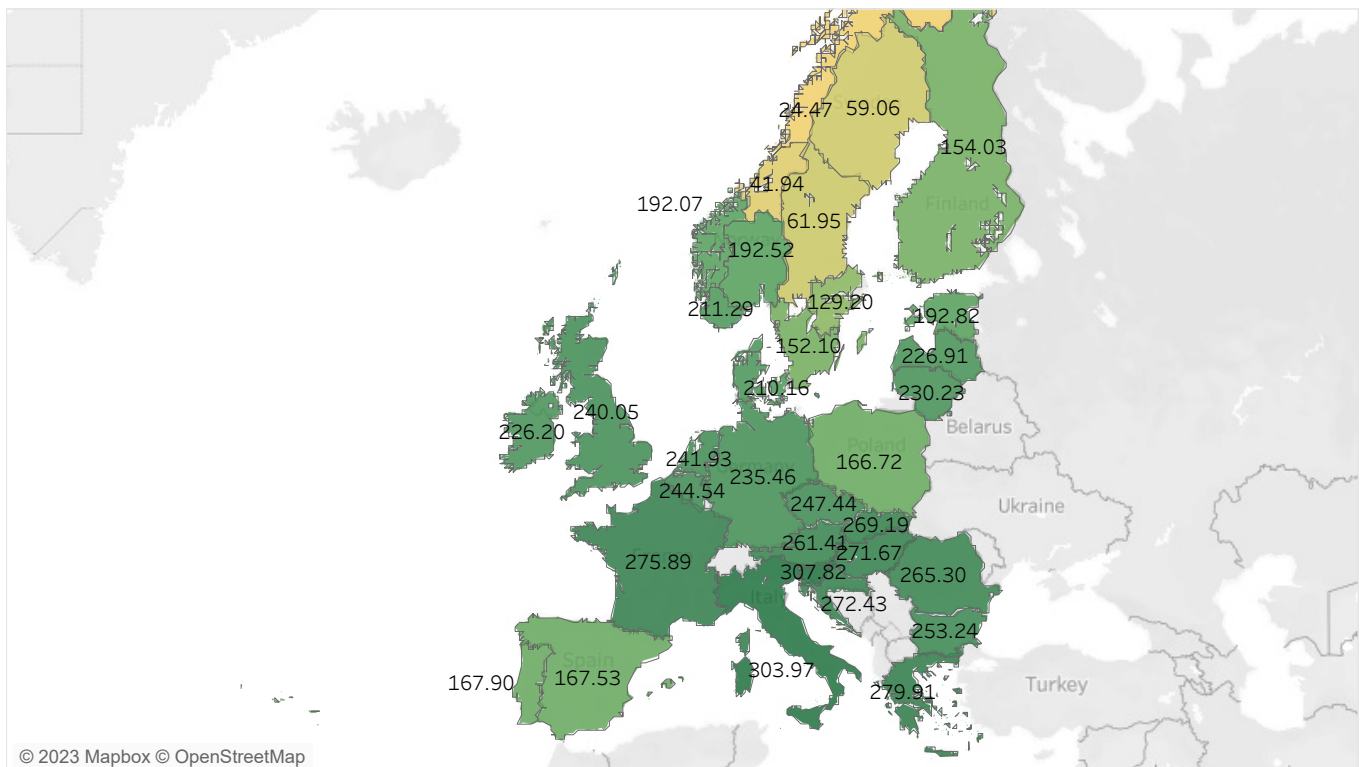
6.1 Day-ahead average prices of the main European market operators

Spain and Portugal

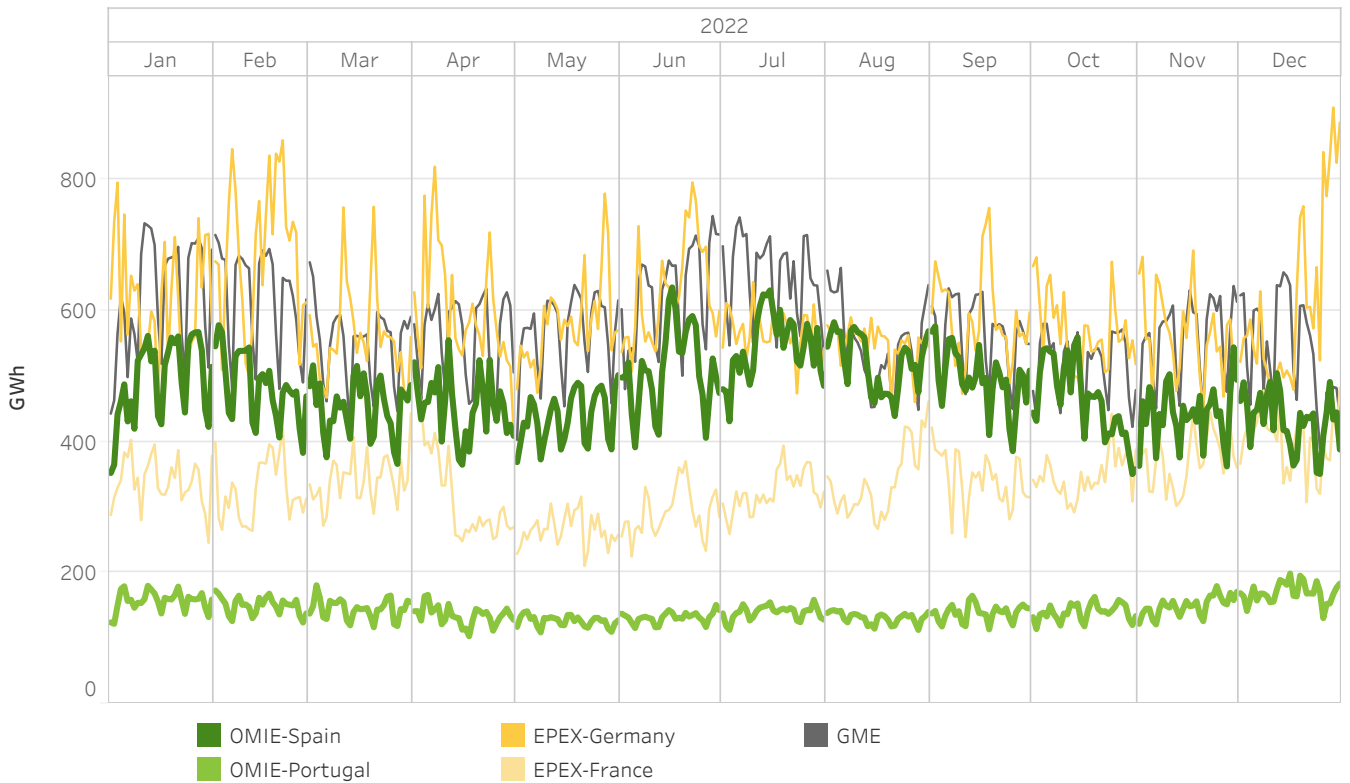
The "Price area" shows the difference between the maximum and the minimum day-ahead average price between the following markets: EPEX-Germany, EPEX-France, EPEX-Netherlands and GME.



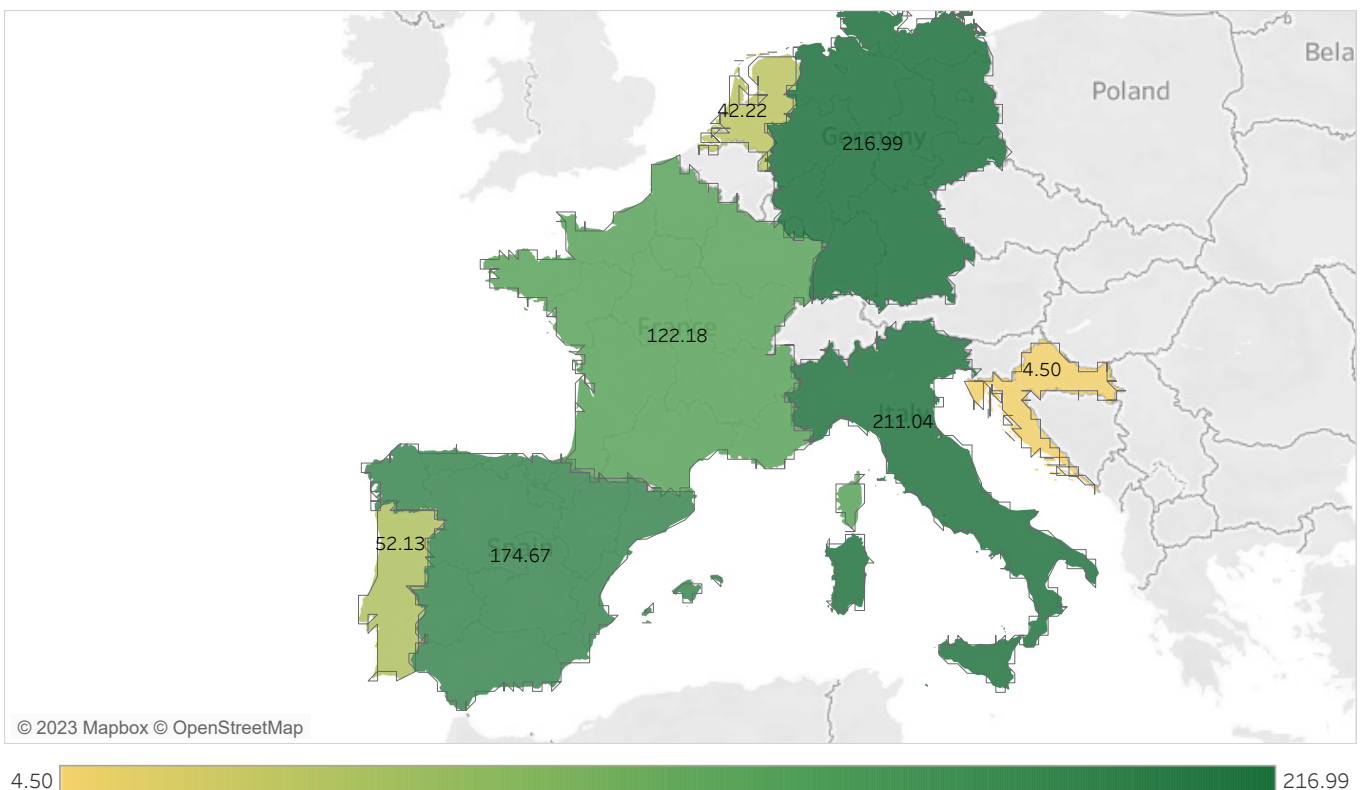
6.2 Average prices in the European price areas for 2022 in €/MWh



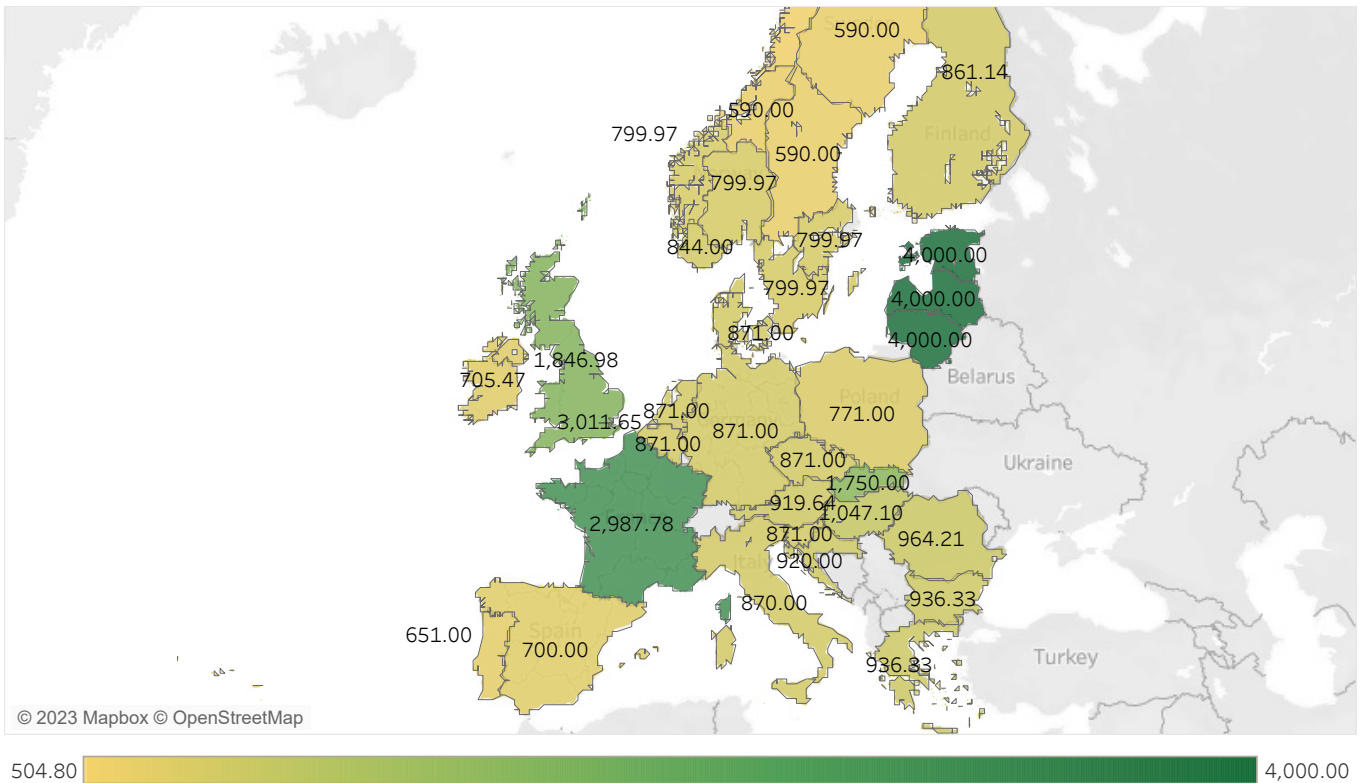
6.3 Day-ahead energy negotiated by the main European market operators



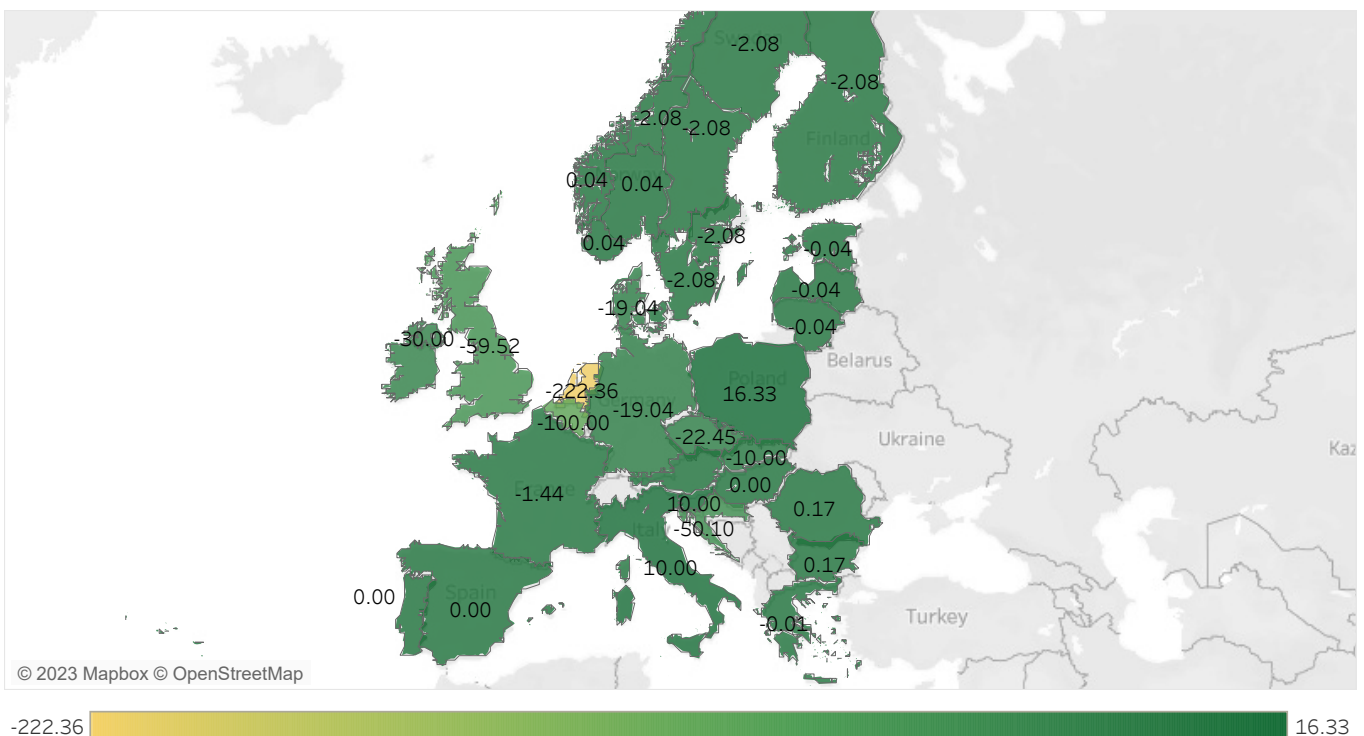
6.4 Energy in the main European price areas for 2022 in TWh



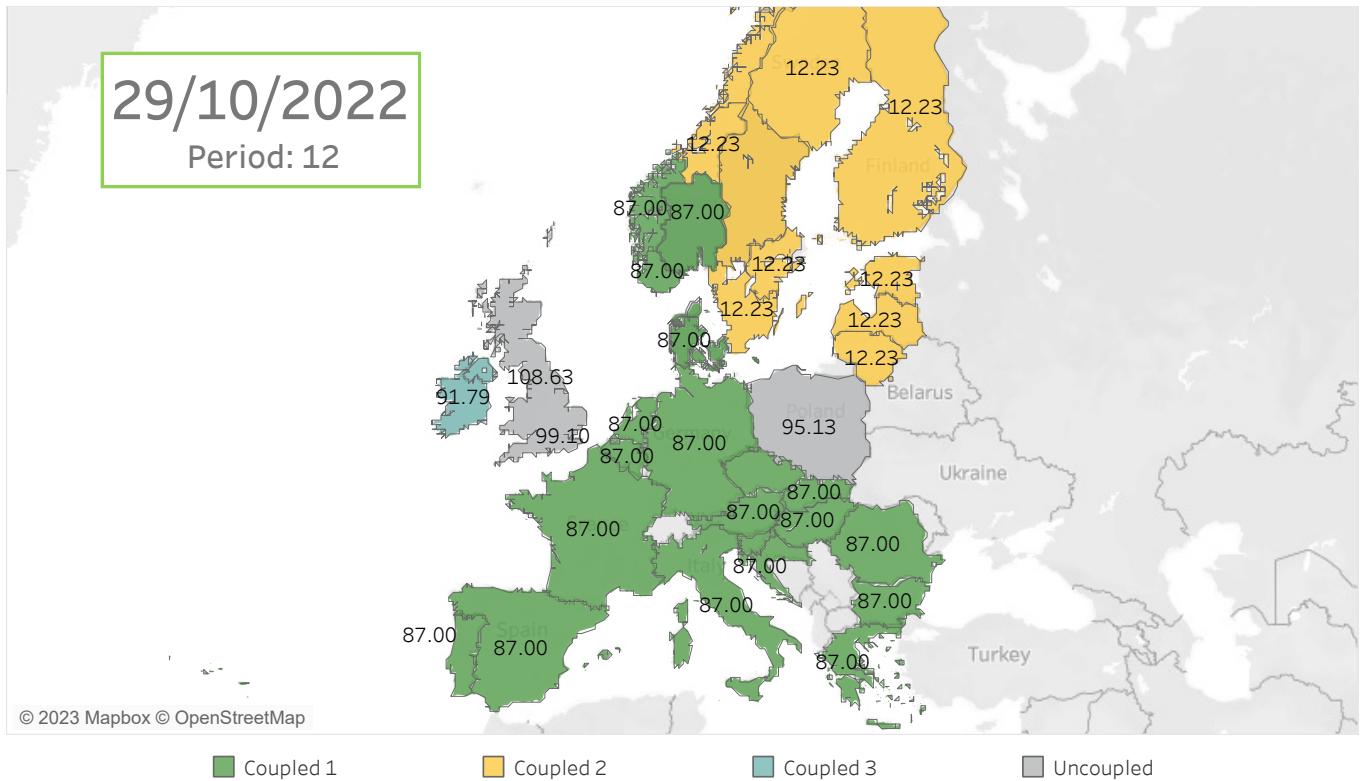
6.5 Hourly maximum prices [€/MWh] in the main European market operators for 2022



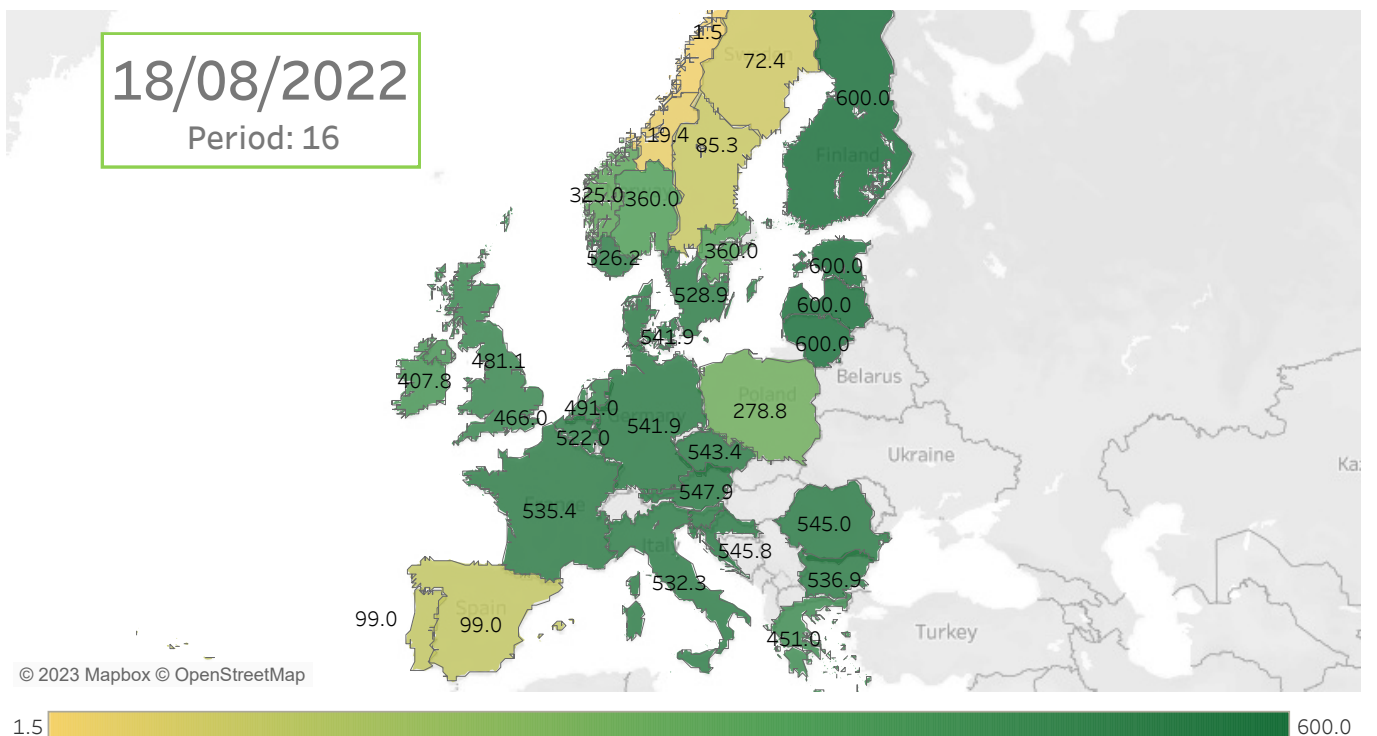
6.6 Hourly minimum prices [€/MWh] in the main European market operators for 2022



6.7 Period of maximum price coupling [€/MWh] in the main European market operators for 2022



6.8 Period of minimum price coupling [€/MWh] in the main European market operators for 2022



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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, TGE, OPCOM and OTE 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 Intradario 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 market operators OMIE, EPEX spot, BSP 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 Intradario 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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