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Federal Electricity Commission ElCom

Market Transparency 2022

ElCom Report

Bern, June 2023

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Foreword by Sita Mazumder

The war in Ukraine dominated 2022. It sent energy prices soaring and presented huge challenges to security of energy supply not just in Switzerland, but in Europe as a whole. This gave rise to an additional workload that also kept the Market Surveillance Section extremely busy during the year. Examples include participation in new bodies and the drafting of further monitoring reports (weekly reporting to the Federal Council, in particular) as well as supporting the supervisory role and initiatives of other internal and external agencies. Despite this, in addition to the usual reports and analyses, ElCom was still able to produce a range of studies, including those described below.

Analysis of the impacts of renewable energies on volumes and prices on the Swiss, German and French day-ahead and intraday markets (May 2022)

This study, presented in section 3.2.1, analyses the effects on trading volumes and wholesale prices of expanding renewable energies. This will reduce imports and therefore improve the security of electricity supply. The intraday market is proving increasingly popular with market participants in view of the growing development of renewable energies and automated trading strategies. This analysis aims to outline trading volume and price trends on the spot markets, the day-ahead market and the intraday market for deliveries to Switzerland, Germany and France.

Analysis of trading volumes on EEX (exchange-traded volumes versus exchange-cleared volumes) (October 2022)

The study presented in section 3.2.2 shows the volumes traded or registered on EEX on the German, French and Italian electricity markets in 2022 compared with previous years. Of particular interest is the fact that the Swiss market behaves quite differently.

Monitoring the Swiss market remains a challenging task because not all of the necessary data is available. The Federal Council aims to create transparency here with the Federal Act on Supervision and Transparency in the Wholesale Energy Markets (known by its German acronym, GATE), for which it opened consultations at its meeting on 16 December 2022. GATE obliges participants in the Swiss wholesale electricity market to transmit information on their transactions and trading orders to ElCom. It also contains bans on insider trading and market manipulation. It is the first step towards replacing the Federal Act on Subsidiary Financial Aid to support Systemically Critical Companies in the Electricity Industry (FiRECA) which applies only up to 2026.

The two principle themes of the year, liquidity and security of supply, resulted in a close interplay between financial regulation and energy regulation. This meant greater contact with the Swiss Financial Market Supervisory Authority (FINMA), which is very much welcomed. At the same time there was slightly less contact with national regulatory authorities (NRAs) within the EU owing to the resource situation at both ElCom and the EU NRAs.

I hope you enjoy reading this Market Transparency Report which provides fascinating insights into ElCom’s market surveillance activities.

Sita Mazumder

1 Market surveillance in Switzerland: Facts and figures

Based on Article 26a of the Electricity Supply Ordinance of 14 March 2008 (ESO; SR 734.71), market participants (legal entities or natural persons) domiciled in Switzerland which participate in an electricity wholesale market within the European Union and are obliged under Regulation (EU) No 1227/2011 on Wholesale Energy Market Integrity and Transparency (REMIT Regulation)[1] to provide information to the authorities of the EU or its member states must also provide the same information to ElCom at the same time and in the same format. This also includes registering with ElCom (Art. 26a para. 4 ESO) and submitting the relevant registration data.

The number of market participants registered with ElCom has grown steadily since the registration and reporting obligation began with the entry into force of the REMIT Regulation in 2015, and subsequently under Article 26a paragraph 4 ESO for electricity companies established in Switzerland that trade on EU markets. In 2022 a further eight companies complied with their duty to register with the Federal Electricity Commission ahead of submitting data in accordance with Article 26a ff. ESO. As can be seen from Figure 1, the registration process for four of those companies was completed before the end of the year. The number of market participants registered with ElCom thus stood at 86 at the close of 2022. There were no deregistrations during the year.

A list of Swiss-based electricity companies registered with ElCom in accordance with Article 26a paragraph 4 ESO is published in the 'Market Surveillance' section of the official website of the Federal Electricity Commission. It is updated twice a year.

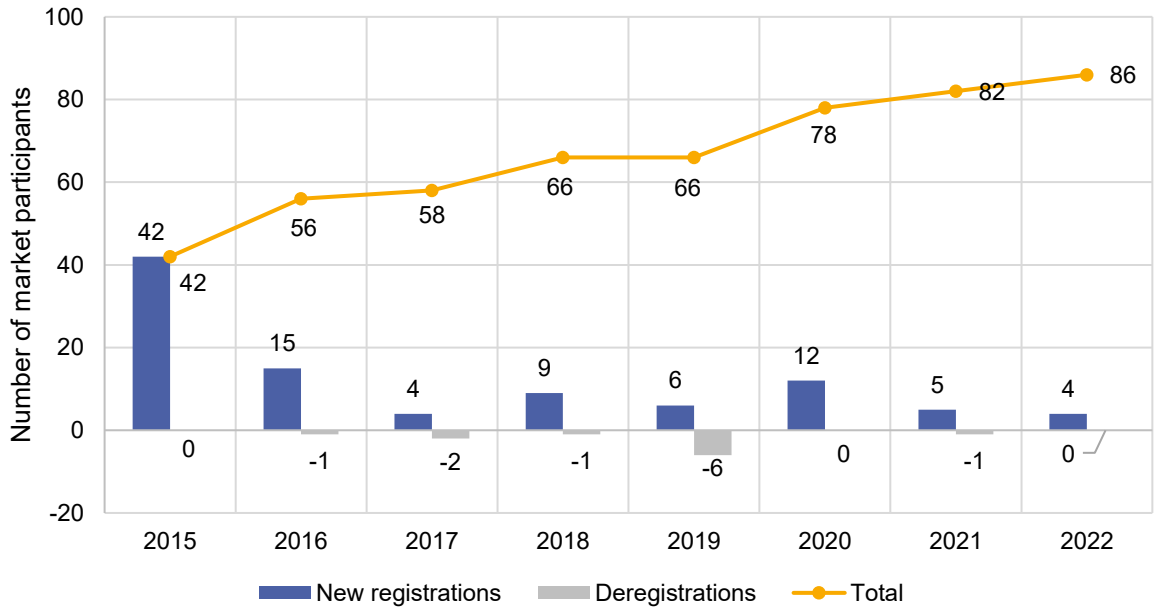

Figure 1: Number of Swiss market participants registered with ElCom as at 31 December 2022[2]

There were year-on-year changes not just in the number of registered market participants, but also in their distribution by country of initial registration under the REMIT Regulation. As in previous years, the German *Bundesnetzagentur* (BNetzA) continues to lead the field here. It is preferred by more than half of the market participants established or resident in Switzerland, followed by the Dutch regulator, the *Autoriteit Consument & Markt* (ACM), which has taken over the number two spot from the British regulatory authority, the *Office of Gas and Electricity Markets* (Ofgem). The latter dropped from second to sixth place as a result of Brexit. Market participants that had their initial registration under the REMIT

[1] Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, EUR-Lex - 32011R1227 - EN - EUR-Lex (europa.eu), as at: 1 February 2022

[2] If no data source is indicated, these are ElCom's own data-based evaluations.

Regulation with the British energy regulator prior to the UK's withdrawal from the EU had to re-register with a regulatory authority of an EU member state by the end of 2021. They then also had to re-register with ElCom under their newly allocated ACER Code. That Ofgem still features on the overview of Swiss market participants registered with ElCom as at 31 December 2022 is explained by the fact that three such market participants, all of which are based in London, had not yet finished the re-registration process. This process should be completed as soon as possible.[3]

As in 2021, the Italian regulator *Autorità di Regolazione per Energia Reti e Ambiente* (ARERA) remains in third place, again with eight registrations, followed by the French regulator *Commission de régulation de l'énergie (*CRE*)* with seven market participants from Switzerland – one more than in the previous year. The number of Swiss market participants registered with the Austrian *Energie-Control GmbH* (E-Control) was the same as in 2021, at five. The Polish (*Urząd Regulacji Energetyki*, URE) and Spanish (*Comisión Nacional de Energía,* CNE) regulatory authorities each recorded one new registration of a market participant based in Switzerland. For the first time in 2022, the overview showing the number of Swiss market participants registered with EU regulatory authorities featured registrations (one each) with the regulatory authorities in Ireland and Belgium. There is also still one company listed in the overview which only conducts trading activities within Switzerland but which registered voluntarily with ElCom in 2016, see Figure 2.

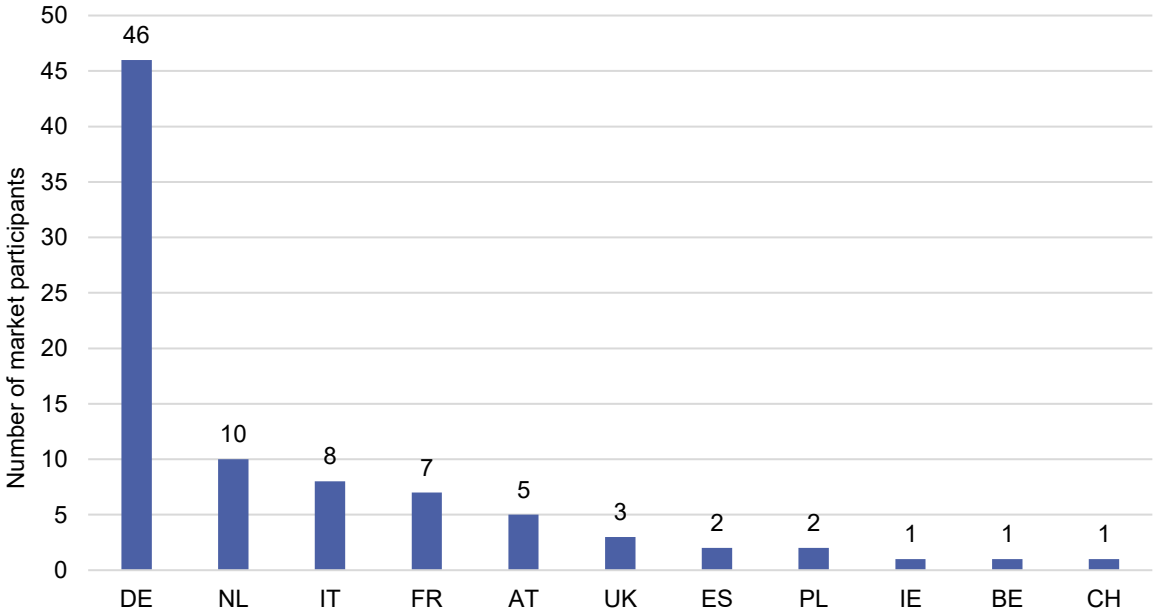

Figure 2: Number of Swiss market participants registered with EU regulators

The market participants established or resident in Switzerland provided information again in 2022 on energy trading transactions carried out on EU electricity markets exclusively via external registered reporting mechanisms (RRMs). As can be seen from the list under 'Market Surveillance' on the ElCom website and Table 1 below, their number remained unchanged in 2022.

[3]Art. 9 para. 5 REMIT states that market participants must promptly communicate any change in the information given on the registration form to the national regulatory authority (cf. also Questions and answers on REMIT (europa.eu), 19 January 2023). The same applies to registration with ElCom. Each market participant that is registered with ElCom must therefore take care to ensure that the registration data it submitted to ElCom is kept up to date. Changes of any nature must be made promptly using the ElCom registration tool.

Market participants are still not permitted to transmit the data that must be reported directly to ElCom, unless that participant has duly acquired RRM status from ACER, as is the case with Total Gas & Power Ltd.

No	RRM	ACER code
1	EEX European Energy Exchange AG	B0000104M.DE
2	EPEX SPOT SE	B0000258F.FR
3	Equias B.V.	B00001014.NL
4	EXAA Abwicklungsstelle für Energieprodukte AG	B0000114T.AT
5	JAO S.A.	B0005876N.LU
6	Seeburger AG	B0000112P.DE
7	Total Gas & Power Ltd.	A0000208K.UK
8	Trayport Ltd.	B00001100.UK
9	Webware Internet Solutions GmbH	B0001064H.DE

Table 1: List of the RRMs linked to ElCom as at 31 December 2022

A further RRM applied to connect to the ElCom system in 2022. This company was still in the middle of the process as at the end of the year. It should be emphasised here that the process generally takes just under two months. Depending on the speed and success of tests in the various IT environments, it might be minimally shorter than envisaged or, in isolated cases, longer. The latter must be considered in particular where a market participant chooses an RRM that is not yet linked to ElCom's IT systems. The market participant in question should instruct this RRM in good time to contact ElCom, complete the application form published on the ElCom website (*Access Form for Registered Reporting Mechanisms*) and begin the connection process soon enough to ensure that data transmission to ElCom can begin smoothly and on time.

It is also important to remember here that an RRM must have successfully completed certification and registration with ACER before it can begin the connection process with ElCom.

Newly registered market participants that are established or resident in Switzerland and subject to the reporting obligation, and that select an RRM that is already on the ElCom list, must continually and explicitly inform the RRM(s) of their choice that their remit should also include reporting to ElCom. To this end they should conclude a separate agreement, or an annex to the principal agreement, with the RRM. Without this express instruction, data will not usually be reported to ElCom.

In addition to the data on market participants' trading transactions that is submitted via RRMs, ElCom receives fundamental data and disclosures on inside information. These are submitted via specially created interfaces with the *European Network of Transmission System Operators for Electricity* ENTSO-E (ENTSO-E TP) and the transparency platform of the European Energy Exchange EEX (EEX TP).

Market participants can also use other transparency platforms, known as *Inside Information Platforms* (IIPs) to report inside information. The only conditions here are that the reports published on those IIPs are also accepted by ElCom, that the platform in question is verified by ACER, and appears on the list of agency-approved IIPs published on the REMIT portal. Reporting via companies' own websites or via social media can be used as an additional source for the publication of inside information since 1 January 2021 but is no longer sufficient and effective.

Market participants established or resident in Switzerland were notified by email at the time of this change to the ACER rules on the disclosure of inside information. They were asked, having decided which transparency platform they would use to publish inside information, to update the relevant information in the ElCom registration tool. Two years later a small number of companies had still not fulfilled this obligation. In early 2023 they were asked for a final time to make the corresponding changes.

Companies which, in their own estimation, are highly unlikely ever to find themselves in possession of inside information in the course of their business activities, whether as part of their own operations or via third parties, are advised to enter *http://na* for *not applicable* when asked in the ElCom registration tool to nominate a dedicated transparency platform for the disclosure of inside information.

To ensure comprehensive oversight over the market, the Market Surveillance Section of ElCom also collects additional information. The settlement prices for electricity, gas and CO_2 that are paid on EEX and EPEX SPOT, as well as coal prices from Refinitiv, for example, are used as reference prices in the studies and analyses that ElCom produces. This base of data was expanded in 2022 to include information from European Commodity Clearing (ECC). Data on the levels of reservoirs in Switzerland, power plant availability in neighbouring countries and other information, some from public sources such as MeteoSwiss, are also retrieved and used as a valuable supplement in various market surveillance activities.

Since the reporting obligation was introduced at the end of 2015, there has been continuous growth not only in the number of market participants registered with ElCom, but also in the volume of data transmitted to ElCom on their behalf via RRMs. Compared with previous years there was an uptick in this trend in 2022, with an increase of 14.3 million reports year on year to just under 60 million trades and orders. Reported orders alone accounted for 11.2 million of this figure. This rise of over 30% is explained primarily by the trend towards increasingly short-term trading and the related increase in the use of automatic trading algorithms.

'Systemically critical' market participants began reporting data on energy trading transactions on the Swiss market in 2022 in connection with the passing and entry into force of the Federal Act on Subsidiary Financial Aid to support Systemically Critical Companies in the Electricity Industry (Art. 19 para. 2 FiRECA). FiRECA is intended to provide a defence mechanism against the prevailing systemic risks on European energy markets. As reporting only started in November 2022, the data received up to the end of last year was limited to only a modest 13,493 reports. They are therefore not included in Figure 3. More about this new supervisory function for ElCom can be found in section 4.4 of this Market Transparency Report.

The number of non-standard contracts fell by 12% year on year. The change is largely attributable to correction reports from 2021.

Reports on fundamental data and disclosures of inside information both trended in the same direction. In the former case there were more than 5.2 million registered in total, which is almost 800,000 fewer reports than the previous year. With data retrieval settings for these categories unchanged by ElCom, this represents a contraction of 13.4%. The reasons behind it include a lower number of (planned and unplanned) reports of transmission unavailabilities in Switzerland's most important neighbouring countries, as well as technical problems with reporting tools. A 46% drop in data volumes was recorded in the second category. This was because of a technical reconfiguration in ElCom's IT systems (new version of a workflow) that was still being implemented at the end of 2022.

In total, since the reporting obligation began in 2015 there have been a little over 278 million items of data reported to ElCom. A detailed overview of how these are distributed across individual periods, as well as a chart showing trends in data transmission, can be found in Figure 3.

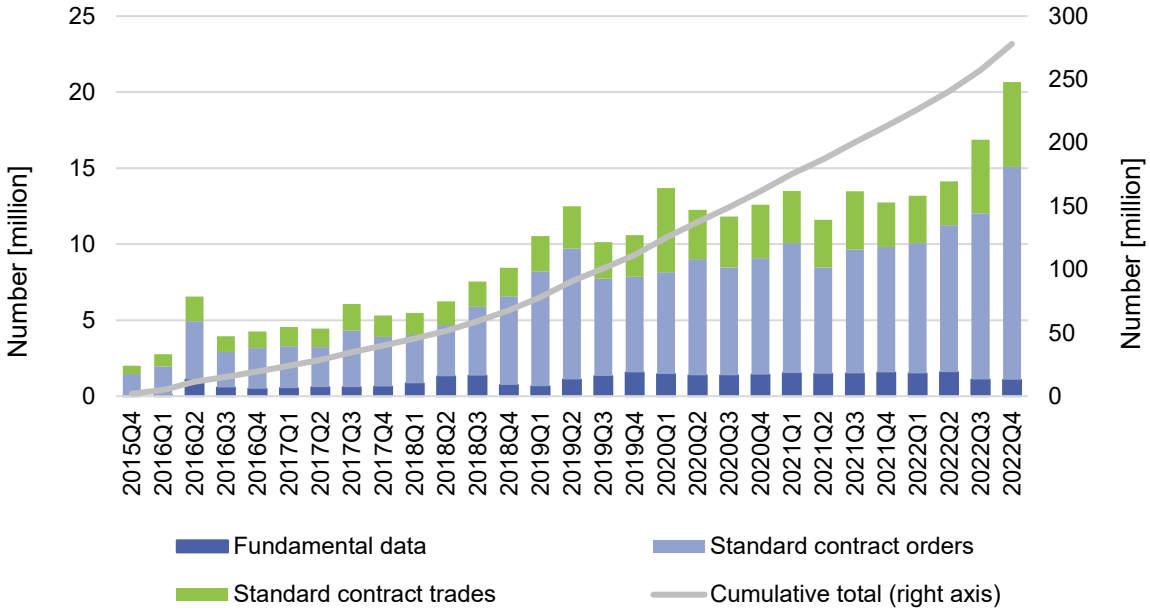

Figure 3: Data reported since the start of the reporting obligation[4]

Standard contracts continued to dominate transaction reports in 2022, and their number rocketed by more than 30% year on year, from 42.3 million to 55.8 million. The proportion of spot versus futures trading remained unchanged, however. This is explained primarily by shorter delivery periods with short-term contracts, the associated increase in transactions and orders, and a higher number of intraday auctions.

At 95%, short-term trading continued to lead the field by some distance as it has in the past, although the shift from short term auctions (2020: 41%, 2021: 37%) to continuous trading (2020: 53%, 2021: 58%) became even more marked last year. Intraday auctions between Switzerland and Italy ceased to be implicit in September 2021. This is bound to have had an additional effect on the number of transactions and orders for Switzerland. In 2022, three-quarters of the data received by ElCom concerned transactions in spot trading continuous.

As in the previous year, reports concerning futures, forwards and other long-term transactions accounted for just 5% of the reported data during the year under review (cf. Figure 4). Most futures transactions are handled via brokers or EEX.

[4] Fundamental data includes production data of power plants, load data, availability of cross-border capacity, commercial cross-border flows, reports on electricity infrastructure outages, etc.

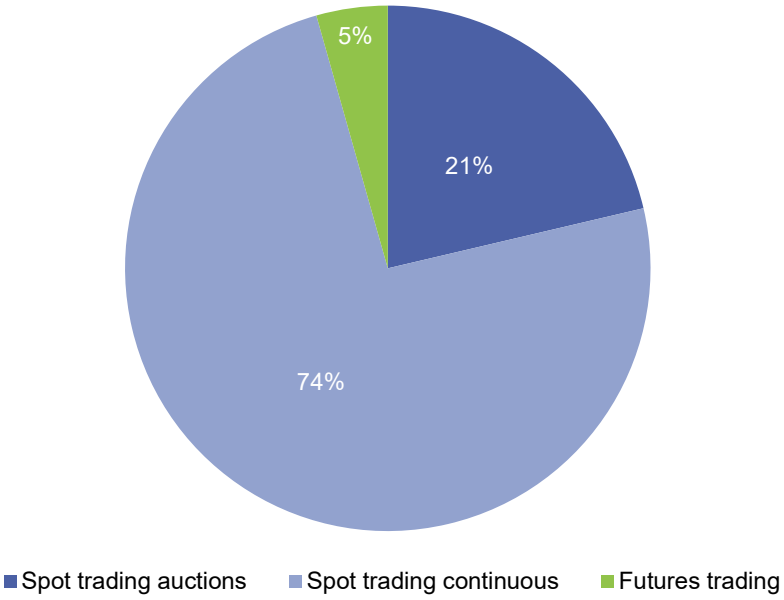

Figure 4: Breakdown of standard contracts by spot and futures trading

2 Market overview

In 2022, ElCom continued to publish spot and futures market reports. Each week, it shows and comments on the current status of electricity prices and their development in Switzerland and neighbouring countries (France, Germany, Austria and Italy) over the past few weeks. While spot market reports focus on hourly and weekly contracts, and explain the key fundamental data underlying the price movements, futures market reports focus on longer-term products, such as annual, quarterly and monthly contracts. Reports also illustrate the role of the markets for CO_2, gas and coal, as the key determinants of prices on the wholesale electricity markets.

A summary of the changes and anomalies in price movements during 2022 deemed significant by ElCom are presented in the following section.

2.1 Spot market report – 2022 review

We had already been facing high spot prices in 2021, especially in the second half of the year, but prices were much higher and more volatile in 2022.

From Table 2 it can be seen that this caught the futures market unawares. This shows the average spot prices based on product supplied (year, quarter and month) and destination location – Switzerland (CH), France (FR) and Germany (DE) – for the 2022 supply year. The spreads with Switzerland are explicitly calculated as CH-FR and CH-DE. A comparison with the futures market is also made in the table where the final closing price of the EEX before the first day-ahead auction is shown for the relevant product supplied. This is the futures market's last expected price for the product supplied. The difference between the final closing price on the EEX and the actual spot price is stated. Values where trading was lower on the futures market than the spot market are shown in green, while values where trading was higher on the futures market than on the spot market appear in red. If the absolute price variation between the futures and spot market is greater than EUR 10/MWh, the entire cell is shaded accordingly (light: +/–EUR 10 MWh, medium: +/–EUR 20 MWh, dark: +/–EUR 50 MWh).

		Durchschnitt der Spotpreise an der Day Ahead Auktion in EUR/MWh nach Lieferland					Letzter EEX Settlementpreis vor Kurzfristhandel (=Referenzpreis Terminmarkt)	Datum letzter Settlementpreis der EEX	Letzter EEX Settlementpreis minus Durchschnitt der Spotpreise an der Day Ahead Auktion
Lieferperiode	Lieferprodukt	CH	DE	FR	CH-DE	CH-FR	CH	CH	CH
2022	Base	281.66	235.46	275.89	46.21	5.78	229.14	29.12.2021	-52.52
Q1 22	Base	245.83	184.62	232.19	61.21	13.64	294.87	29.12.2021	49.04
Q2 22	Base	226.14	186.98	225.99	39.17	0.15	261.54	29.03.2022	35.40
Q3 22	Base	425.40	375.75	429.73	49.65	-4.33	323.49	28.06.2022	-101.91
Q4 22	Base	227.90	192.84	214.15	35.06	13.75	634.37	28.09.2022	406.47
janv.22	Base	219.36	167.73	211.42	51.63	7.94	256.02	31.12.2021	36.66
févr.22	Base	208.62	128.80	185.55	79.82	23.07	229.22	31.01.2022	20.60
mars.22	Base	305.90	251.94	295.09	53.96	10.81	251.40	28.02.2022	-54.50
avr.22	Base	227.49	165.73	233.10	61.76	-5.61	276.67	31.03.2022	49.18
mai.22	Base	197.07	177.48	197.43	19.59	-0.36	213.09	29.04.2022	16.02
juin.22	Base	254.85	218.03	248.40	36.81	6.45	207.34	31.05.2022	-47.51
juil.22	Base	383.07	315.00	400.87	68.07	-17.79	332.61	30.06.2022	-50.46
août.22	Base	487.72	465.18	492.49	22.54	-4.77	430.50	29.07.2022	-57.22
sept.22	Base	404.75	346.12	394.70	58.63	10.05	584.32	31.08.2022	179.57
oct.22	Base	184.22	152.65	178.97	31.57	5.26	392.64	30.09.2022	208.42
nov.22	Base	219.10	173.63	191.88	45.47	27.22	263.86	31.10.2022	44.76
déc.22	Base	280.10	251.62	270.89	28.48	9.21	355.69	30.11.2022	75.59

Table 2: Daily average prices of the EPEX SPOT day-ahead auction vs. the last traded EEX futures market price by supply period and country to which the electricity is supplied

The average spot price for the 2022 supply year stood at EUR 281.66/MWh in Switzerland. This was higher than in Germany and France, and 145% up on the prior-year figure of EUR 114.92/MWh). At the end of 2021, the futures market was expecting a price of EUR 229.14/MWh for the base electricity supply product in Switzerland for the 2022 supply year. This meant the futures market was trading at around EUR 53/MWh lower than the spot market for the 2022 supply year. The product for the third quarter and monthly contracts for March, June, July and August were also being traded in advance on the futures market at much lower prices than subsequently on the spot market. The situation for other supply periods was precisely the reverse. It was extreme for supply periods in the fourth quarter, where the price on the futures market was EUR 406/MWh higher than on the spot market. Then there were monthly contracts for September and October, for which futures prices exceeded spot prices of EUR 179.57/MWh and EUR 208.42/MWh respectively. These high prices show how market participants positioned themselves with respect to the prospect of shortages towards the end of 2022, especially given the sharp rise in spot prices in the summer of 2022, when they were higher than futures prices, as explained above. Unseasonably warm temperatures were another factor in the significant deviation between spot and futures market prices in the final quarter of 2022. The milder weather sent spot prices into a steeper decline than the market had expected for this period.

In most cases, rising electricity prices were fuelled by supply-side rather than demand-side problems. Reduced supplies of Russian gas to Europe, especially in the second half of the year (cf. Figure 5), the switch-off of around half of France's nuclear generation capacity, and problems with coal supplies because of low water levels in the Rhine all put pressure on the available volume of electricity, at a time with higher-than-normal temperatures and lower rainfall, primarily during the summer months.

Figure 5: Daily gas nominations via Nord Stream 1 in 2022 (GWh/d). Data source: Network Data - Nord Stream AG (nord-stream.info)

In view of these restrictions in energy supply, gas-fired power plants became the price-determining units on the wholesale energy markets.

From March onwards, there was a surge in gas prices at the short end (i.e. on the day-ahead market), even taking some contracts above EUR 200/MWh, before settling back again. The summer was one of significant price movement, as prices for day-ahead deliveries of TTF gas picked up from June before peaking at the end of August 2022 at over EUR 300/MWh for TTF day-ahead gas.

Figure 6 illustrates this trend in gas prices for day-ahead contracts in the Dutch TTF hub.

Figure 6: Prices for day-ahead TTF supply contracts in 2022, in EUR/MWh. Data source: EEX.

This had a major impact on the marginal costs of gas-fired power plants and, as a result, on the price of electricity. Figure 7 shows the marginal costs of the gas-fired and coal-fired power plants based on the rolling month-ahead contracts for gas, coal and CO_2. It is clear from this figure that, while gas-fired power plants had only slightly higher marginal costs than their coal-fired counterparts at the beginning of the year, change set in from February 2022 as the gap widened and the marginal costs for gas-fired plants far exceeded those of coal-fired power stations.

Gas prices first peaked on 24 February, when the settlement price for month-ahead products shot up to EUR 135.08/MWh from EUR 87.95/MWh the previous day. A short time later the gas price surged again, to reach EUR 230/MWh on 7 March 2022. The reasons behind these sharp price increases included the start of the conflict in Ukraine, fierce discussions about a new agreement to pay for Russian gas in roubles instead of euros or dollars, and statements by Charles Michel, President of the European Council, and the European Parliament, that oil and gas imports from Russia should be halted in future. The month-ahead gas price ultimately reached its zenith of EUR 337.24/MWh at the end of August, driving maximum marginal costs for gas-fired power plants to over EUR 700/MWh. Spot prices for electricity reflected this increase in gas prices and the marginal costs of gas-fired power plants accordingly (cf. Figure 7).

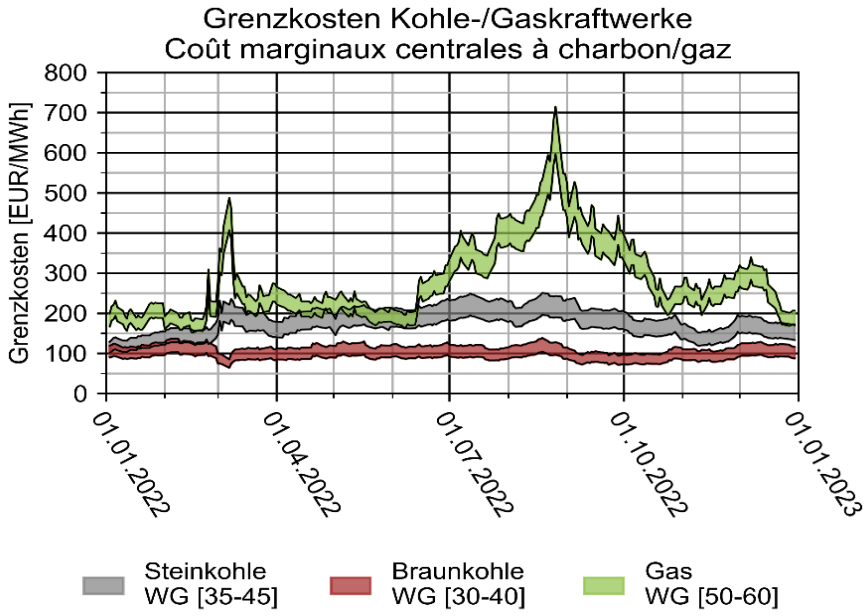

Figure 7: Marginal costs of brown coal, hard coal and gas-fired power plants based on the month-ahead products for coal, gas and CO_2.

Figure 8 shows the average monthly prices on the Swiss day-ahead auction since 2018. The prices in 2022 are extraordinarily high, particularly from March 2022 and from the second half of the year. It is also clear that the sharp price rises began as early as 2021, and particularly from September 2021 onwards.

Swiss prices were higher than German and French prices over the entire year. Table 4 shows that the average price spread between Switzerland and Germany (the CH-DE column) over the year as a whole was over EUR 46/MWh, while it was EUR 5.78/MWh between Switzerland and France (CH-FR column). The highest Swiss day-ahead base price of the year was reached on 30 August 2022, at EUR 724.87/MWh.

Figure 9 shows the price development of these day-ahead prices for Switzerland, France, Germany and Austria. From January and for a large part of the year, high wind power feed-in in Germany pushed the German spot price down, while the price in Germany persisted at a much higher level. Indeed, prices in Switzerland and Germany drifted apart rapidly in periods of high wind power generation. Conversely, prices between the two countries tend to converge at times when production from renewable energies is low.

In France, prices decoupled entirely from other markets during April, with hourly prices of just under EUR 3,000/MWh. On 4 April 2022 hours 8 and 9 cost EUR 2,987.78/MWh and EUR 2,712.99/MWh respectively. This was partly due to the problems with French nuclear power stations. As a result, maximum hourly prices on the coupled European day-ahead market rose from EUR 3,000/MWh to EUR 4,000/MWh.

In accordance with the methodology for harmonised maximum and minimum clearing prices (HMMCP) (Art. 41 para. 1 of Commission Regulation (EU) 2015/1222 of 24 July 2015 [CACM Regulation]), the harmonised maximum clearing price for single day-ahead coupling (SDAC) is raised by EUR 1,000/MWh if the clearing price exceeds 60% of the maximum clearing price for SDAC in at least one market time unit (typically a one-hour slot in the case of France) in the course of a day in one or more bidding zones.

This methodology for raising harmonised maximum prices is intended to ensure that the market can always close, i.e. that there is always a price at which supply and demand meet so that market trading can be ensured at all times. However, as it leads to an increase in the price ceiling, this mechanism has also been criticised because it creates expectations of higher prices for future delivery periods, which then impact directly on prices on the futures market.

On 23 August 2022, Nominated Electricity Market Operators (NEMOs) announced a further rise in the harmonised maximum settlement price for the European single day-ahead coupling market, to EUR 5,000/MWh, which was to apply from 20 September 2022. This increase from the previous level of EUR 4,000/MWh was nonetheless subsequently withdrawn. Following confirmation from ACER and the European Commission, the methodology for increasing maximum prices was suspended and reviewed in order to convey a message of confidence to the markets. The aforementioned NEMOs submitted their proposal in September 2022, whereupon ACER revised and modified the HMMCP methodology. The new calculation method entered into effect for single day-ahead coupling (SDAC) and local auctions on 11 January 2023. The approved methodology permits the maximum price for SDAC and local auctions to be increased in smaller increments, as well as a gradual reduction in the minimum price. In addition to regulatory obligations in connection with the SDAC auction, EPEX SPOT has decided to amend the methodology for Swiss auctions (CH day-ahead, CH-IDA1 and CH-IDA2) accordingly.

The following Table 3 sets out the new criteria that must be fulfilled to trigger the price increase/reduction mechanism for SDAC and thus also for the Swiss auction markets.

Description	Former methodology until 10.01.2023	New methodology from 11.01.2023
Reference price limits	EUR –500/MWh; EUR 4,000/MWh	EUR –500/MWh; EUR 4,000/MWh
Price spike definition	Clearing price above 60% of max. reference price in coupled bidding zones	Clearing price above 70% of (min./max.) reference price in coupled bidding zones, excluding fallback and virtual bidding zones
Maximum price trigger conditions	1 price spike in a single bidding zone	2 price spikes in the same bidding zone within 30 days
Minimum price trigger conditions	n.a.	2 price spikes in the same bidding zone within 30 days
Maximum price transition period	5 weeks	28 days
Minimum price transition period	n.a.	28 days
Treatment of transition period for minimum and maximum prices	Possible to trigger maximum and minimum price adjustments	Not possible to trigger maximum and minimum price adjustments
Increments for increase in maximum price	EUR 1,000/MWh	EUR 500/MWh
Application of reference price to minimum price	No	Yes
Increments for lowering of minimum price	n.a.	EUR 100/MWh
Lowering of maximum price	No	No
Lowering of minimum price	No	No

Table 3: Overview of HMMCP methodology

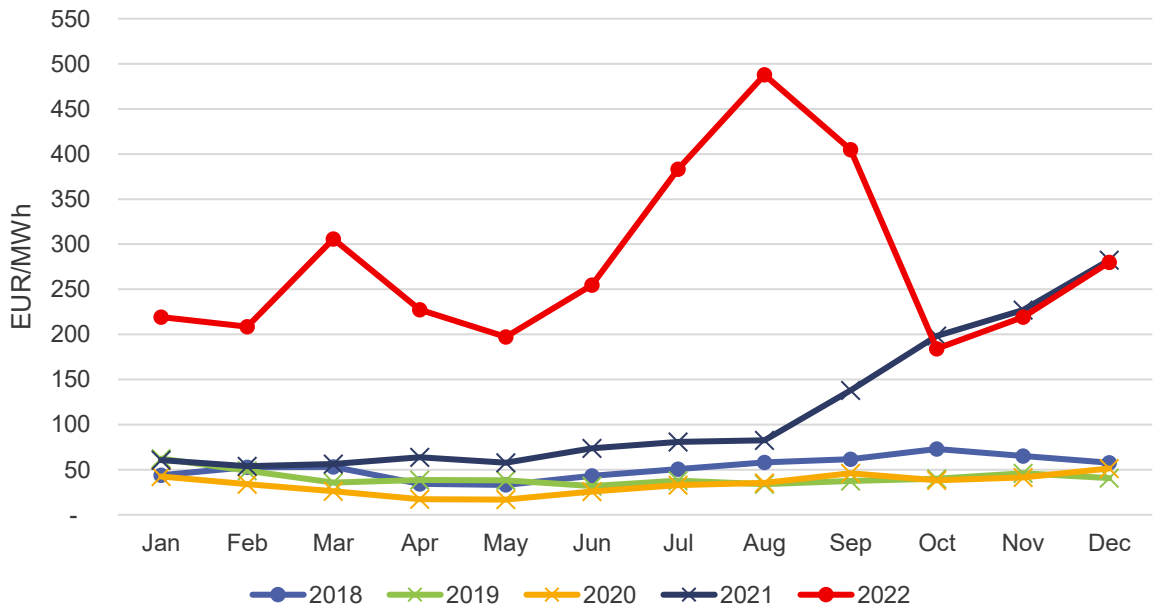

Figure 8: Monthly average spot prices on the Swiss day-ahead auction, data source: EEX

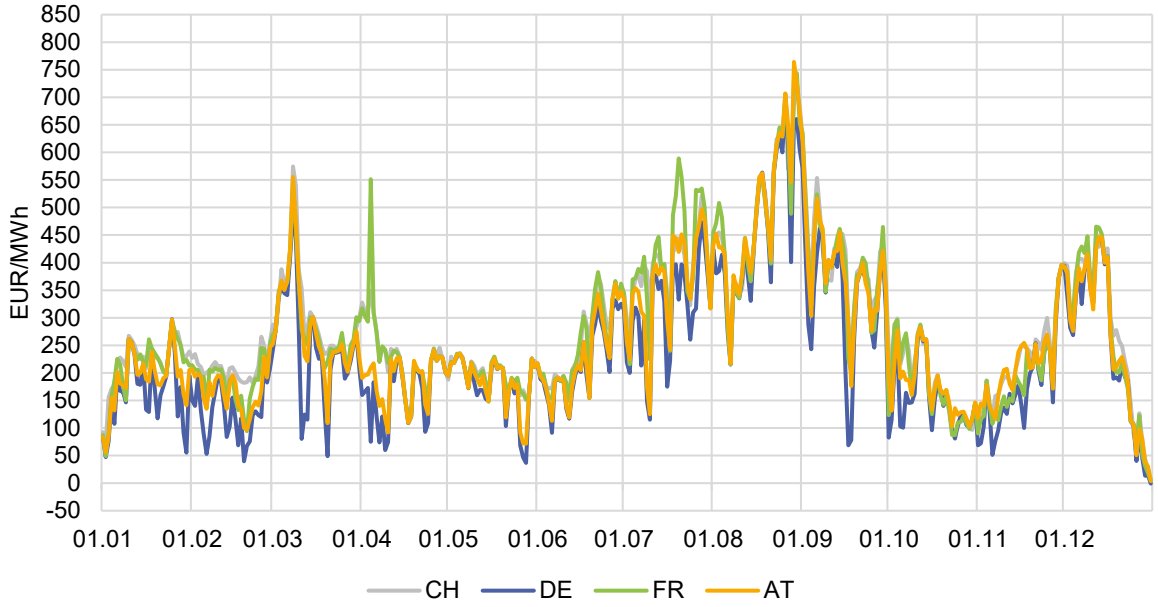

Figure 9: Day-ahead base prices for Switzerland (CH), Germany (DE), Austria (AT) and France (FR), data source: EEX

The comparison of the Swiss hourly prices with the previous year indicates the price level was extremely high in 2022. While only 23 hours reached a price of over EUR 100/MWh in 2020, the figure for 2021 was 3,118 hours, and in 2022 it was as high as 8,427 hours. Hourly prices for 2020, 2021 and 2022 were as follows:

	Number of hours at a price in excess of:						
Year	**> EUR 100/MWh**	**> EUR 200/MWh**	**> EUR 300/MWh**	**> EUR 400/MWh**	**> EUR 500/MWh**	**> EUR 600/MWh**	**> EUR 700/MWh**
2020	23	0	0	0	0	0	0
2021	3,118	1,418	402	84	6	0	0
2022	8,427	6,371	3,132	1,513	561	197	66

Table 4: Number of hours for which the price on the Swiss day-ahead market exceeded multiple thresholds in 2020, 2021 and 2022.

Lowest prices were also less extreme in 2022 than they had been in 2021 (cf. Figure 10). High gas prices, the reduced availability of French nuclear generation capacity and higher coal and CO_2 prices compared to 2021 resulted in higher prices in daily day-ahead auctions.

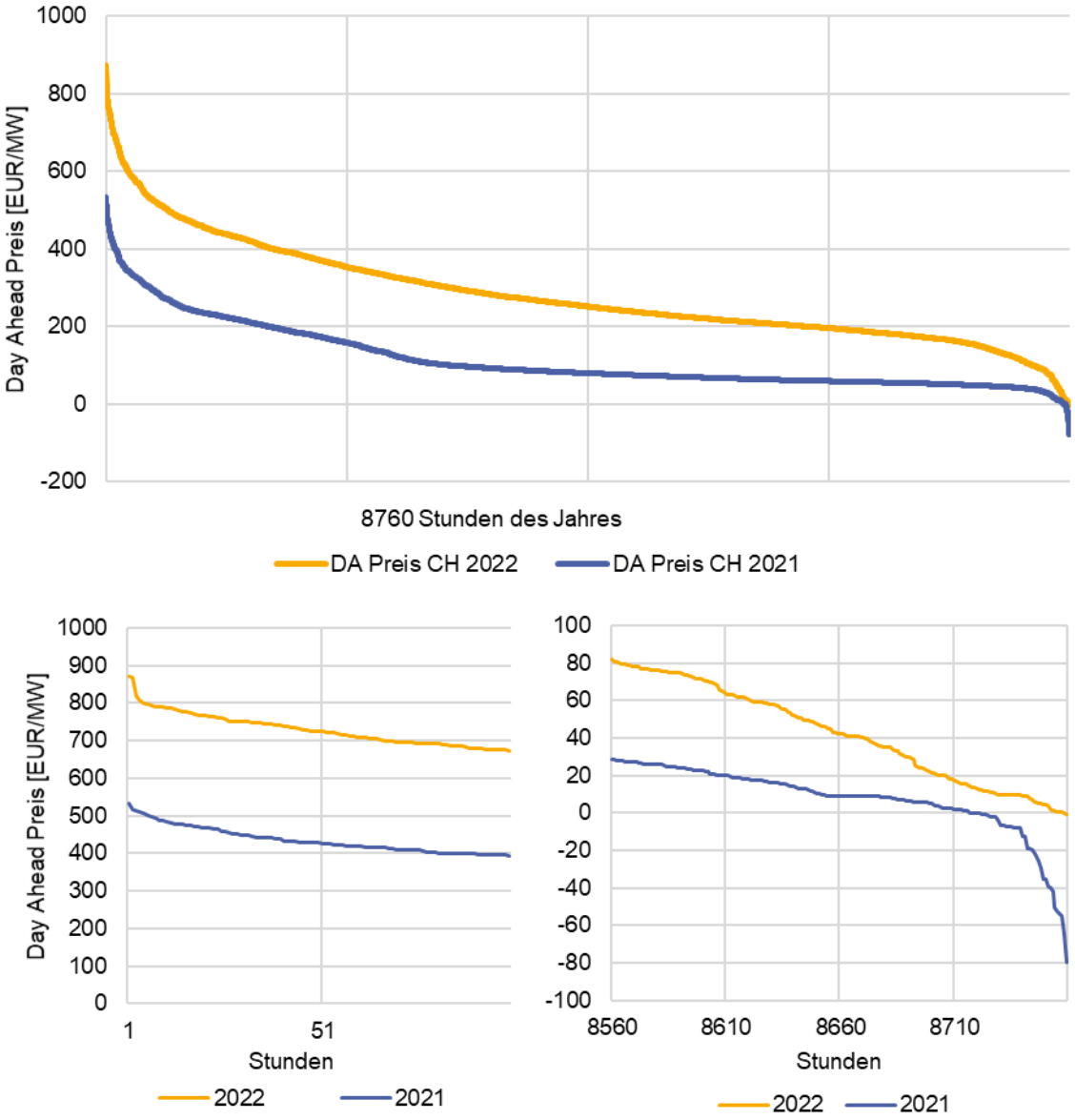

Figure 10: Price-duration curve of day-ahead prices in Switzerland, 2021 and 2022
Top: all hours of the year, sorted by price level; bottom left: the 100 hours with the highest prices; bottom right: the 200 hours with the lowest prices. Data source: EEX

Particularly compared to the previous year and the second half of 2022, price volatility increased sharply with rising prices. Volatility indicates the level of fluctuation of a series of trading prices over the course of time. Volatility is generally measured by the standard deviation. The actual current volatility for a certain period of time (in this case 30 and 100 days) is calculated based on the historic base day-ahead auction prices of the EPEX SPOT over the period indicated where the final observation is the most recent price. In Germany, the volatility of the base prices is particularly high in general due to the feed-in of renewable energies. When there are high levels of wind in Germany, there is a reduction in the residual load, i.e. the load that must be covered with means of generation other than renewable energies, and coal-fired (in some cases also lignite-fired) power plants set the price of electricity. Since these power stations had lower marginal costs than gas-fired power plants in 2022, they therefore determine a lower price. If the wind level is low, it is the gas-fired power plants which set the prices, as in Switzerland and France. As Figure 11 shows, the difference between the marginal costs of the lowest-cost lignite-fired power plant and the lowest-cost gas-fired power plant was around EUR 375/MWh in August 2022.

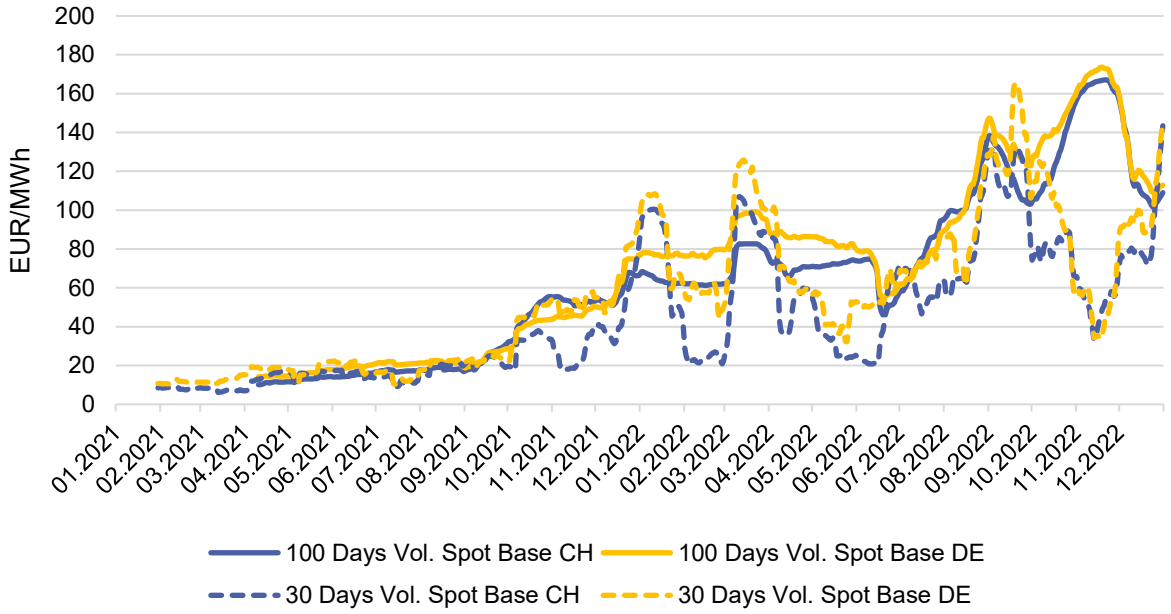

Figure 11: Current volatility for day-ahead base prices in Switzerland and Germany, 2021 and 2022. Data source: EEX

On the production side, the typical pattern emerged in Switzerland, cf. Figure 12. Nuclear energy produced the band load, with dips during annual maintenance on the nuclear power plants and reduced feed-in capacities due to unplanned outages. These are usually caused by technical problems. Hydropower (especially storage and pumped storage plants) then covered the peak load.

Compared to 2021, Switzerland's nuclear power stations reported greater availability and higher generation volumes in 2022. During the year the four Swiss nuclear power plants produced a net output of 23.2 million MWh of electricity, against 18.6 million MWh in 2021 and 23.1 million MWh in 2020. Following the decline in production in 2021, the return to roughly 2020 levels is explained by the completion of modernisation projects at the Leibstadt nuclear power plant that required a six-month shut-down.[5] Nuclear power stations once again generated electricity at 2020 levels in 2022, despite a number of restrictions in the summer owing to the water temperature in nearby rivers. Nuclear production thus accounts for around 40% of total electricity consumption in Switzerland during the reporting year.

5 Swissnuclear website, accessed on 15.02.2023.

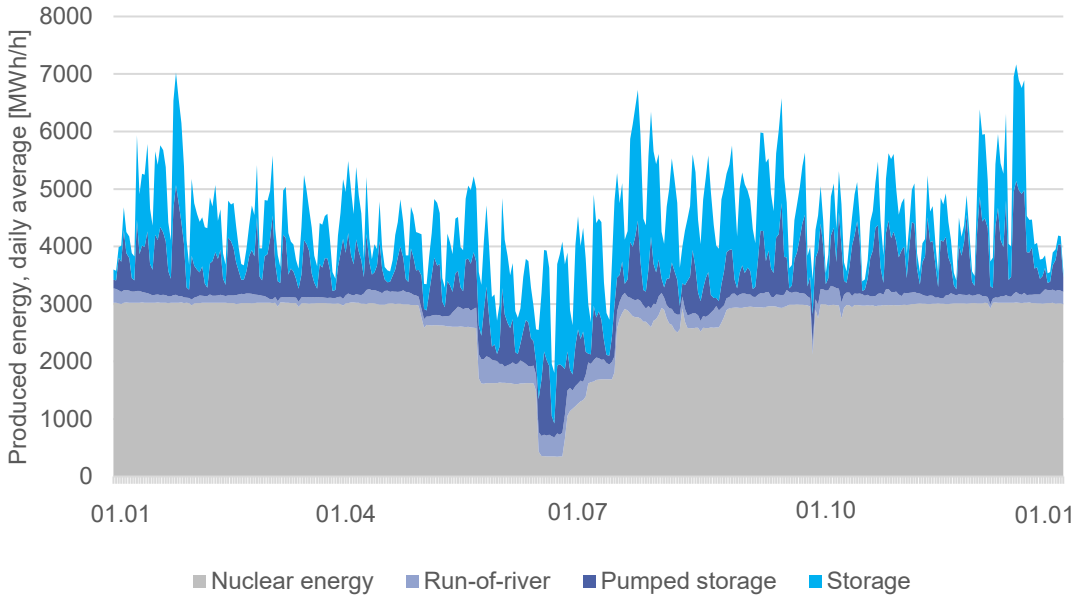

Figure 12: Daily average of current electricity production in Switzerland by type of production
As the share of new renewable energies (wind and solar) in current electricity production in Switzerland is very low, it is not depicted in the figure. Data source: ENTSO-E

The levels of Swiss reservoirs followed the typical seasonal pattern of emptying until spring and filling following snow melt, which – as the previous year – began later in 2022 (in May), see Figure 13. The year began with similar water levels to 2021, but total reserves fell more slowly in February because spot prices in delivery during this month were lower than the prices on the future market at the beginning of the winter. Reservoir levels were nonetheless lower in the summer of 2022 than in 2021, reflecting the severe drought. Heavy rain in September then restored reservoirs to similar year-on-year levels in October. By the end of 2022 water levels were higher in some cases than in the corresponding prior-year period because less water was being fed to turbines in the expectation of higher prices in the first quarter of 2023, and as a result of better hydrological conditions in the autumn.

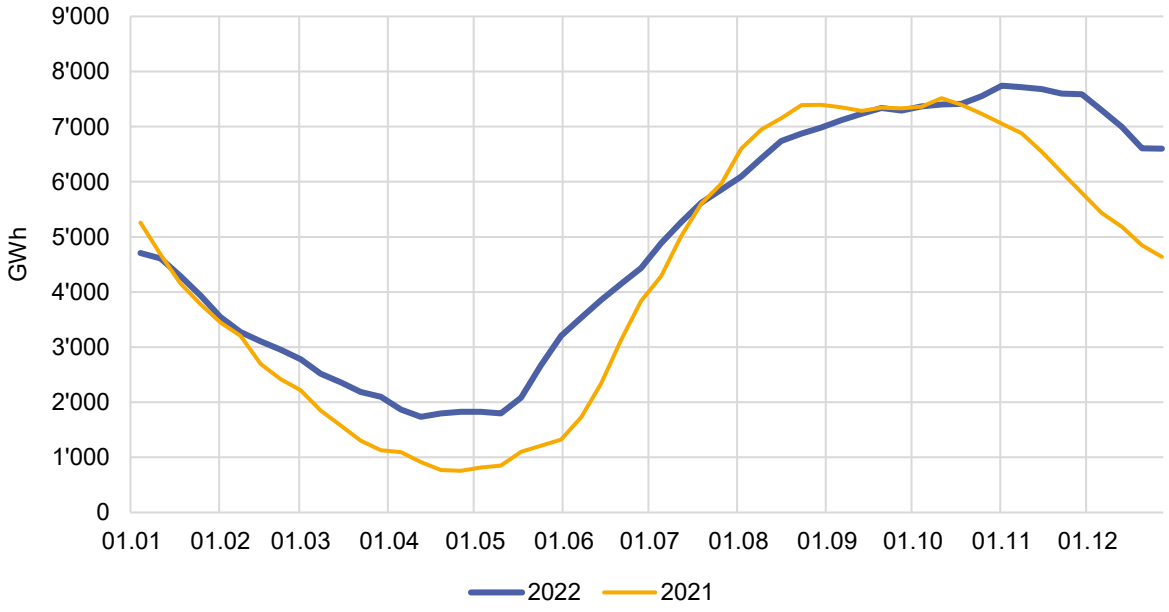

Figure 13: Swiss reservoir levels for 2022 and 2021, data source: SFOE

A major factor driving spot prices in Switzerland in winter is the availability of French nuclear power plants. This is because Switzerland generally imports electricity from France during the winter months. French nuclear power generation was low in 2022 (279 TWh in 2022 compared with 380 TWh in 2019, 335 TWh in 2020 and 361 TWh in 2021) for a number of reasons.[6] Firstly, maintenance work was carried out at a large number of plants, during which their output was reduced. Secondly, corrosion problems were discovered at many of France's reactors. Thirdly, the especially hot and dry weather during the summer forced the power stations to scale back their operations.

For example, on 15 August 2022, 28 of the 56 French nuclear reactors were offline. This was down to two factors: maintenance issues, and the fact that 12 reactors were out of action owing to problems with corrosion. It was not yet clear at the time how long these reactors would remain down, especially concerning those with corrosion problems. Against this backdrop, the fact that only half of the country's nuclear power plants were operational only worsened market jitters, especially because the drought meant that the other half were not delivering at full capacity. This major incident coincided with the decline in gas deliveries from Russia and further fuelled the crisis on the market for a time. These worries were then reflected in a steep rise in prices on the day-ahead market. The recommissioning process following the shutdowns also became protracted, with 20 nuclear reactors still offline in early December 2022.

The lowest point in French nuclear reactor availability was recorded on 3 September, at 22.9 GW (2021: 36 GW), with nuclear power generation in France falling to its lowest level for more than 20 years (Figure 14).[7]

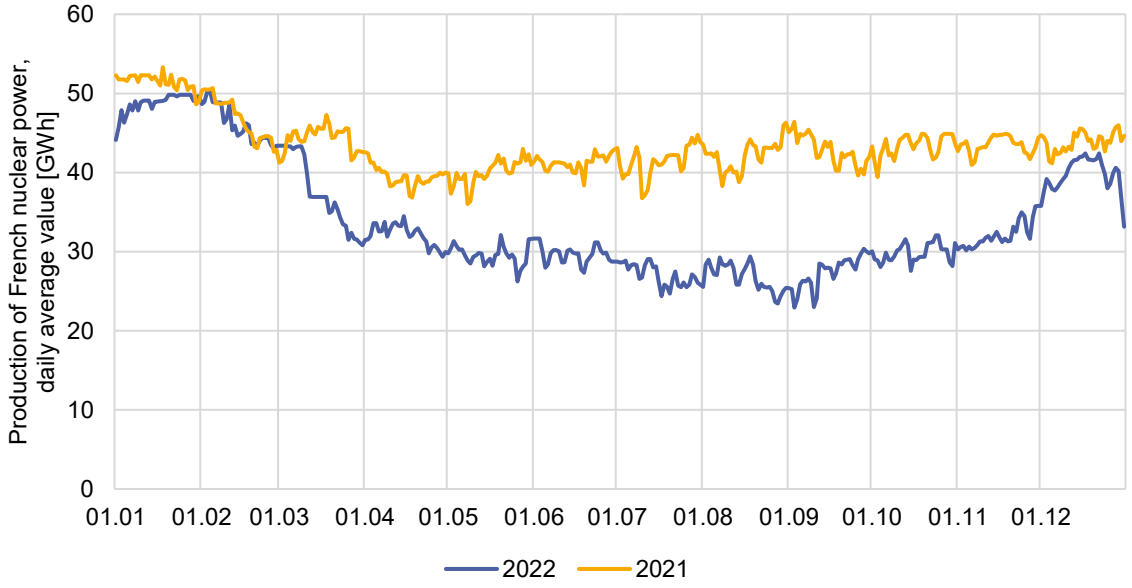

Figure 14: Comparison of French nuclear power plant production in 2021 and 2022, data source: Refinitiv Power Research

Production from renewable energies in Germany has a major influence on spot prices in Germany, but also in Switzerland. Figure 15 shows monthly production from wind power in 2022 in Germany compared to the norm. Norm refers to wind power production to be expected for the month concerned based on the last ten years. The figure shows that 2022 was not a particularly windy year, apart from the earlier months when February was markedly and April slightly above the norm. This can also be seen in lower spot prices at the beginning of the year and the more frequent decoupling of the German market in January, February and April, as shown in Figure 9.

6 Data from the Bilan Electrique produced by RTE. Output was limited in 2020 by the impacts of the COVID-19 pandemic and lower demand for electricity.

7 Data on French nuclear availability from Refinitiv.

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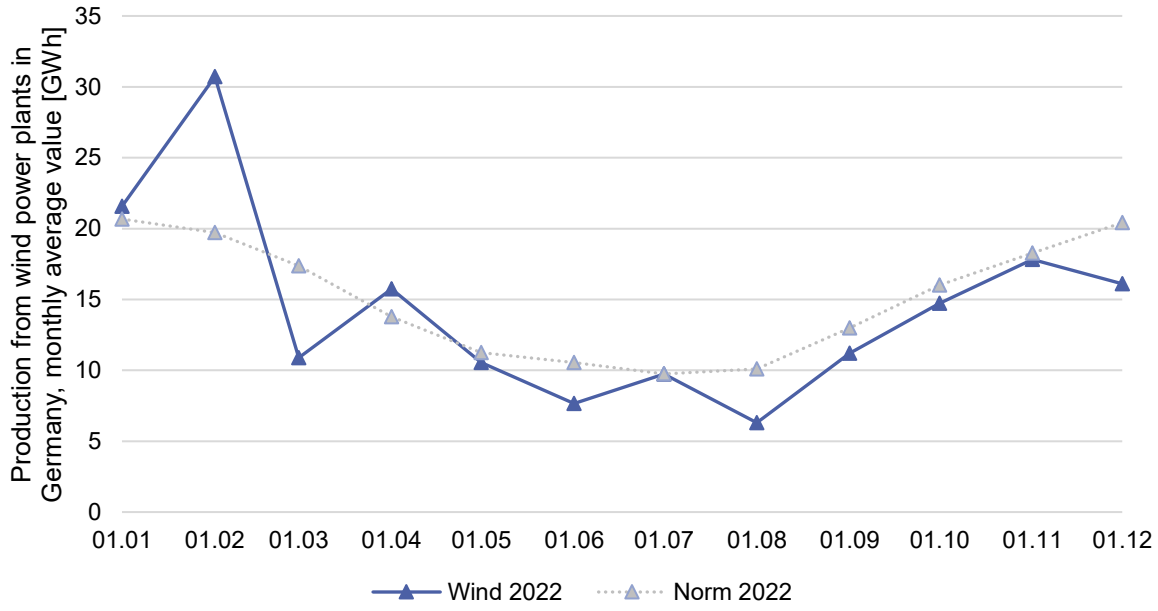

Figure 15: Production from wind power plants in Germany in 2022 vs. norm values, data source: Refinitiv Power Research

The residual load – the difference between the load and wind and solar power production – is of interest for the spot prices. This must be covered by conventional power plants. If the residual load is low, prices can fall into negative territory, as it is more worthwhile for certain thermal power plants to pay for their electricity to be purchased than to shut down the power plant for a short time (which incurs costs and puts a strain on the power plant's technical equipment).[8]

The relationship between residual load and spot prices in Germany can be seen in Figure 16. The greater the demand that must be met by conventional power plants, the higher the price as power plants with much higher production costs go online. At residual loads of less than 10 GW, prices are generally negative. In 2022 the residual load was below the 10 GW floor on only a few occasions, and negative prices were observed on the German day-ahead market for only a few hours (69, to be precise). The cheapest hour of electricity, on 20 March 2022, cost –EUR 19.04/MWh.

[8] Also see the ElCom study: 'Analyse der negativen Preise für die Schweiz, Frankreich und Deutschland zwischen 1. Januar 2015 und 31. Mai 2020', https://www.elcom.admin.ch/elcom/de/home/dokumentation/berichte-und-studien.html, as at 1 February 2021.

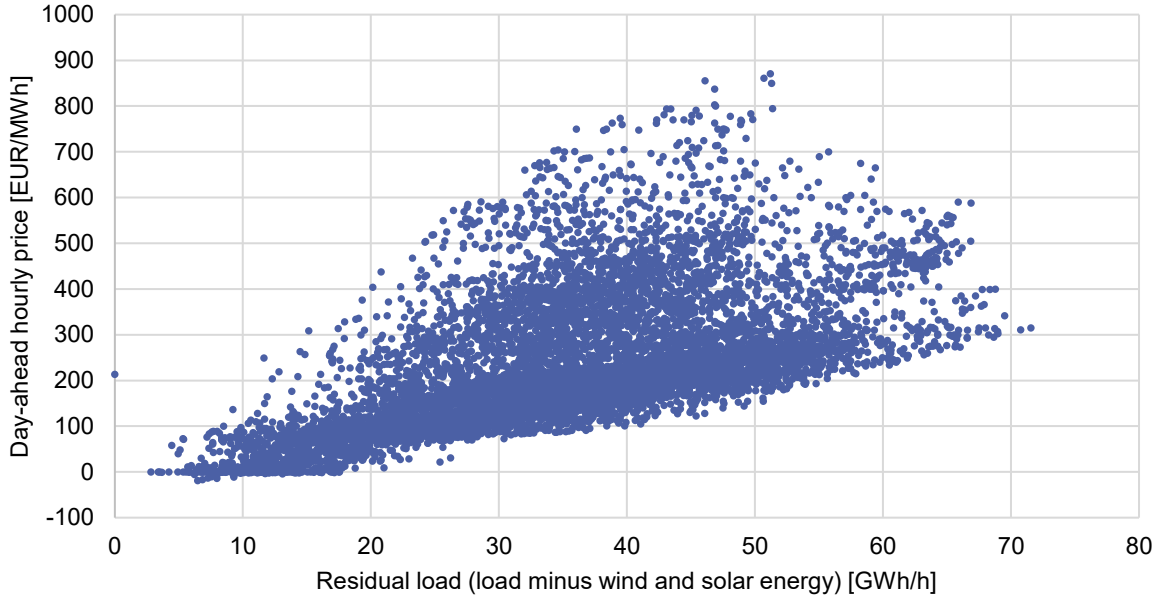

Figure 16: Residual load versus day-ahead hourly price in Germany for 2022, data source: EEX, ENTSO-E

If electricity can be produced more cheaply in neighbouring countries than in Switzerland, it is imported within the limits of the available cross-border capacities. If the situation is reversed (lower prices in Switzerland), electricity is exported to neighbouring countries. This is typically the case in times of high load, as prices abroad then exceed the price level in Switzerland. Switzerland regularly exports to Italy. Italian power plants are largely gas-fired and generally have high production costs which is why electricity is supplied from Switzerland to Italy.

The overview of the course of the year in Figure 17 shows that Switzerland not only regularly exports to Italy, but also regularly imports from France. This is partly explained by the large number of nuclear power plants in France whose electricity production costs (marginal costs) mean a lower price level than in Switzerland. There are also exceptions, however, depending on the availability of the French nuclear power station fleet. Unusually, these exceptions occurred several times in 2022 in relation to trade with France. Switzerland exported considerable volumes of electricity to France in March and November, but especially in July and August. The situation with Italy was also reversed at times, i.e. it exported to Switzerland in July and August in particular. These developments therefore contrast with the conventional commercial flows of electricity, and are largely the product of the lack of available nuclear generation capacity in France.

According to RTE, France imported a net 16.5 TWh in 2022, having been a net exporter of 43.1 TWh in 2021 (87.1 TWh exported and 44 TWh imported). As
Figure 17 illustrates, the pattern of commercial flows overall did not correspond to that of previous years, especially in comparison with 2021 (shown in orange).

France imported electricity from neighbouring countries in both the winter and the summer of 2022. In view of this negative balance, Switzerland was compelled to secure its power supply via other neighbouring countries, mainly Germany.

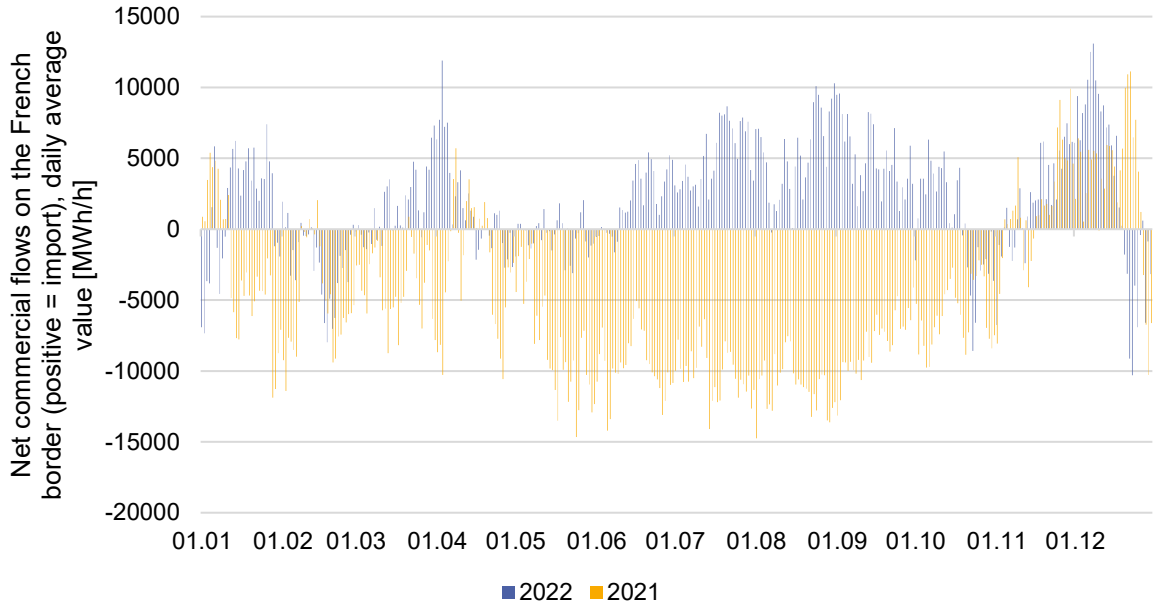

Figure 17: Net commercial flows on the French border, 2022 and 2021, data source: ENTSO-E

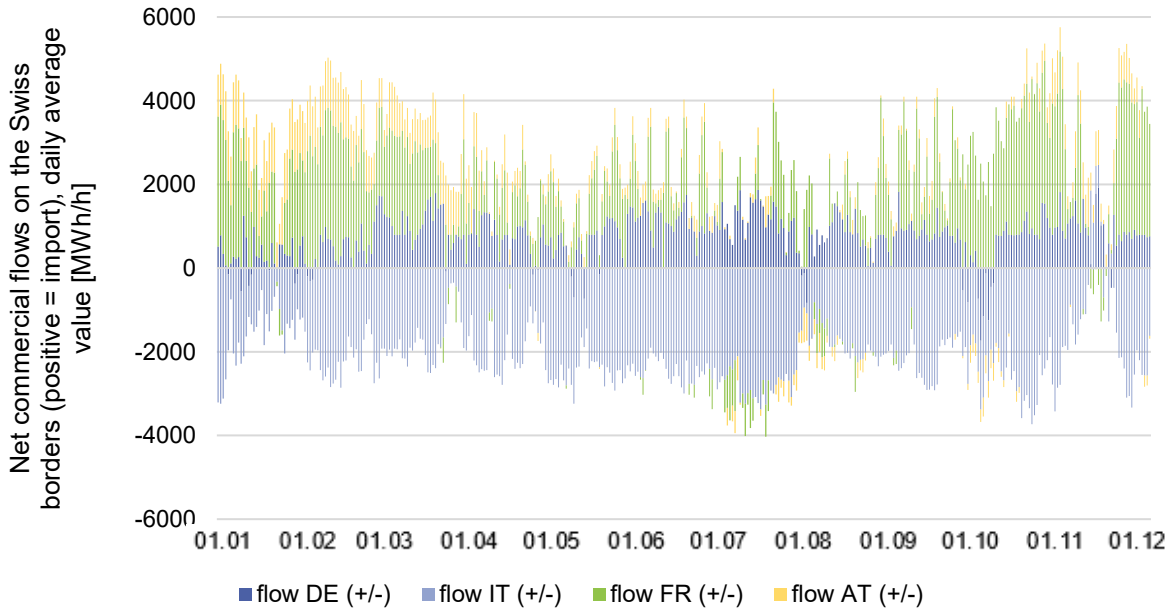

Figure 18: Net commercial flows on the Swiss borders, data source: EEX

As can be seen in Figure 19 Germany did not follow the seasonal pattern either in 2022.

In winter, electricity in Switzerland is generally more expensive, which is why it is imported from Germany. In spring and sometimes in summer, on the other hand, cheap Swiss hydropower often results in electricity being cheaper in Switzerland, and so Switzerland then exports to Germany. Figure 19 clearly demonstrates the seasonal progression for 2021.

Since Germany is increasingly generating electricity using wind farms and solar generation facilities, Switzerland now tends to export to Germany more frequently in the winter, when production from renewable energies is lower there. In 2022 as in previous years, Switzerland regularly imported electricity from Germany. Figure 19 illustrates this.

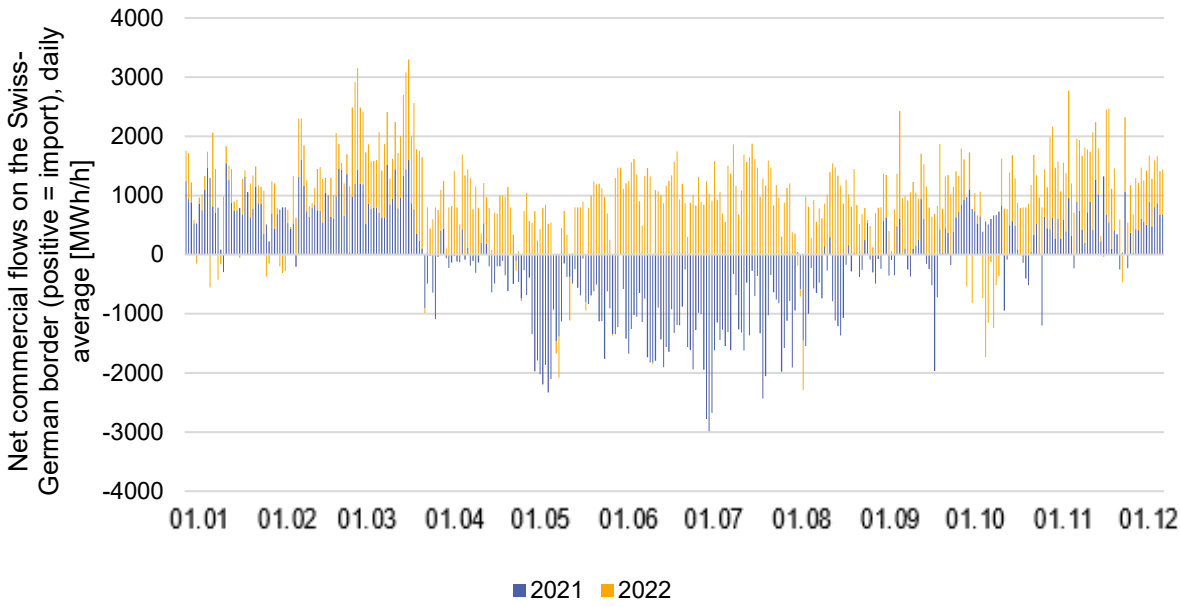

Figure 19: Net commercial flow on the Swiss-German border, data source: ENTSO-E

In 2022 Switzerland imported a net total of 6.6 TWh from Germany, after exporting a net total of 0.77 TWh to the country in 2021. This thus represents a significant change in flows at the border with Germany.

The net cross-border flow across all Swiss borders shows the same seasonal pattern as at the Swiss-German border, cf. Figure 20. Switzerland was marginally a net importer over the entire year, at +4.57 TWh.

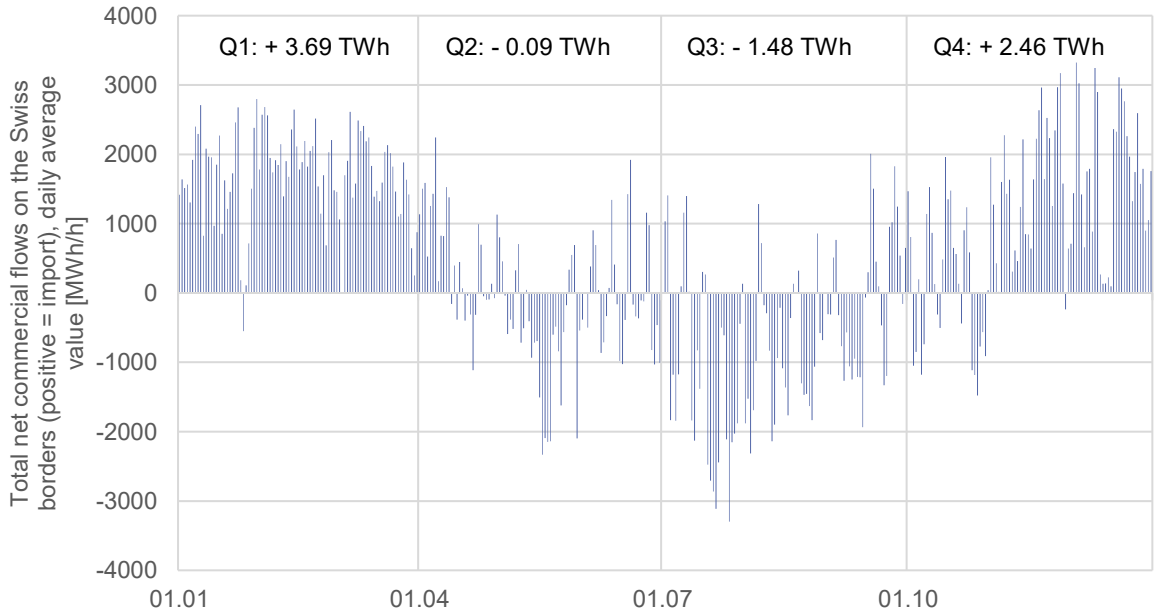

Figure 20: Total net commercial flows on the Swiss borders in 2021, data source: ENTSO-E

2.2 Futures market report – 2022 review

The rise in prices on the futures market that had begun at the end of 2021 continued through into 2022, and was boosted enormously by the Russian invasion of Ukraine on 24 February 2022.

The year as a whole was marked by a sharp drop in deliveries of natural gas from Russia to Europe, which jeopardised security of supply. On 23 June 2022 Germany announced that it had entered the alarm phase of its Emergency Plan for Gas. The Emergency Plan governs gas supplies to Germany in the event of a crisis. Interruptions to gas flows from Russia resulted in a leap in energy prices in Europe. The volume of gas supplied via the Nord Stream 1 pipeline was reduced for the first time, to 40% of its capacity, on 17 June 2022. Following planned maintenance work it was cut once again, to 20% of capacity, on 26 July 2022. Then, at the end of August, Nord Stream 1 was switched off entirely on the grounds of equipment problems. The pipeline has not been operational since. At the end of September Norway and Denmark reported an act of sabotage, in the form of four leaks, to the two Nord Stream 1 and Nord Stream 2 pipelines. The German government had already suspended certification of Nord Stream 2 in February 2022. Thus, contrary to the market's original expectations, no gas at all reached Europe via Nord Stream 2 in 2022.

Changes to supply routes that resulted in bottlenecks in the European gas infrastructure, the need to find alternative sources of gas, and price-setting mechanisms not designed to cope with a supply shock added to price volatility and increases.

However, a further major factor in 2022 was the very low availability of French nuclear generation capacity owing to stress corrosion. This was detected for the first time in the pipes of the safety injection system at the Civaux NPP reactor 1 as part of its regular ten-year inspection in October 2021. After plants of the same construction had been taken offline and also investigated, inspections were then extended to all nuclear power stations on a staggered basis. The low point of French nuclear availability was reached on 4 September 2022 at just 22.9 GW. As a comparison, on the same day the previous year French reactors were delivering 46.4 GW. The situation was further exacerbated in the summer of 2022 by high water temperatures and low flow rates in France's rivers. Nuclear power plants are exposed to hydrological conditions because they use water for cooling. Both water temperature and the volume of available water are important factors that can limit operations at nuclear generation facilities. This was the case in southern France.

While the price for Switzerland’s year-ahead product (for delivery in 2022) had varied widely around EUR 281/MWh in 2021 (EUR 51 to 332/MWh), prices for the annual contract for 2023 hit unprecedented highs, peaking in August 2022 at a price for the year ahead for France of over EUR 1,100/MWh (Figure 21). These extremely high prices are explained by the fundamental problem of high gas prices because of the war in Ukraine, and the limited availability of French nuclear power stations. There were also further hydrological factors which sent prices soaring[9]:

– Poor water balance in southern Norway
– Poor water balance in the Alps
– Poor water balance on the Iberian Peninsula
– Low water levels in the Rhine

The water balance is an index that replicates the total potential electricity generation from hydropower and is broadly used in Europe in particular. The hydrological balance states how much electricity can be produced from hydropower in comparison with a normal year. By definition, a normal year has a water balance of 0, whereas a lack of rainfall would produce a negative figure. On 30 August the water balance in southern Norway stood at -17 TWh. This region was not the only one to report a poor water balance in the summer of 2022. Several European countries experienced little snow cover during the winter, resulting in lower inflows than usual to reservoirs during the spring melt. Another factor was the long, warm dry spell during the summer, which depleted soil moisture and groundwater levels. Italy and

[9] Report: Hydrological aspects on the high European electricity prices in August 2022 – Refinitiv Power Research

France, in particular, recorded their lowest water balance for many years. The aggregated hydrological balance for Europe as a whole was a very dry -46 TWh.

Switzerland's water balance was -4 TWh in mid-May, but had risen to -2.5 TWh by the end of August as the high temperatures caused glaciers to melt faster and fill reservoirs in the Valais especially. Heavy rainfall in September and October reduced the deficit still further to take the balance to just -0.9 TWh by the end of October.

Low water levels in the Rhine have a major impact on the transport of coal. Shipping along the river to Germany's coal-fired power stations is enormously important, and it is vital that the water level is sufficiently high to allow it. If the level falls, the cost of transport using coal ships rises, which has a direct impact on the marginal price of coal-fired electricity generation. The water level at Kaub in Germany is of particular interest here. The warm, dry weather meant that there was very little water in the Rhine in the summer of 2022. At the end of August the level had fallen below the defined minimum navigable levels. On 30 August the premium for shipping coal from Rotterdam to Frankfurt (upstream at Kaub) was higher than it had been for many years. Coal-fired power stations had to scale back production because of the lack of coal.

Shortly after this August peak, prices tumbled back through to the end of the year. While the price increase for electricity supplies to Switzerland in the 2023 delivery year was 780% higher in August 2022 than it had been in early January 2022 (from EUR 123/MWh to EUR 1,082 EUR/MWh), by the end of December it was 'only' 116% higher (from EUR 123 EUR/MWh to EUR 265/MWh).

Even if the price movements on the European futures market can be explained by fundamental reasons, the Market Surveillance Section nonetheless examined more closely the price movements on the Swiss market and, in particular, the price differentials with neighbouring countries. Prices for contracts delivering electricity in 2023 spiked on 26 August 2022. Prices for supply to France were highest, while year-ahead contracts for Italy were trading close to the level of marginal costs for a gas-fired power station operating at 50% efficiency, and thus well below the equivalent product for France. German Cal 23 base traded slightly higher than its Italian counterpart. The Swiss year-ahead product matched the German level up to July before increasingly closing up to French prices (cf. Figure 22). Between 25 July 2022 and 4 August 2022, the Swiss price appeared to be taking a different path to the price in the neighbouring countries of Germany, France and Italy. While prices in these three countries remained relatively flat during the week, and moved in parallel, the Swiss price shot up to meet the French (cf. Figure 23). Whereas the price differential against France for Cal 23 Base was EUR -80/MWh in mid-July, it had reached zero by the beginning of August, and the closing price for electricity delivery was higher in Switzerland than in France at times. It was only in mid-September that Switzerland departed from French-level prices and began to converge with German ones again.

The timing of these price swings was critical in the sense that it was close to the date on which tariffs are published, while energy supply companies are purchasing the final tranches of their requirements. Market surveillance investigations are ongoing, so no further details can yet be provided here.

The development in electricity prices for year-ahead base contracts with Switzerland, Germany, France and Italy as supply destinations is depicted in Figure 21.

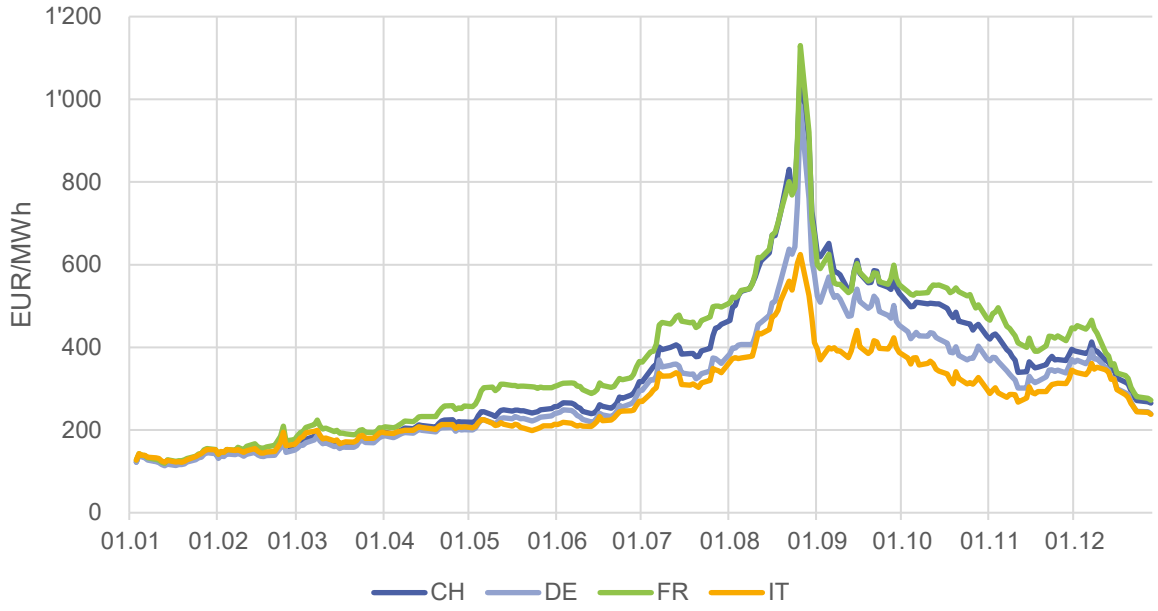

Figure 21: 2022 price trend for 2023 year-ahead base electricity contracts for 2023 with Switzerland (CH), Germany (DE), France (FR) and Italy (IT) as supply destinations, data source: EEX

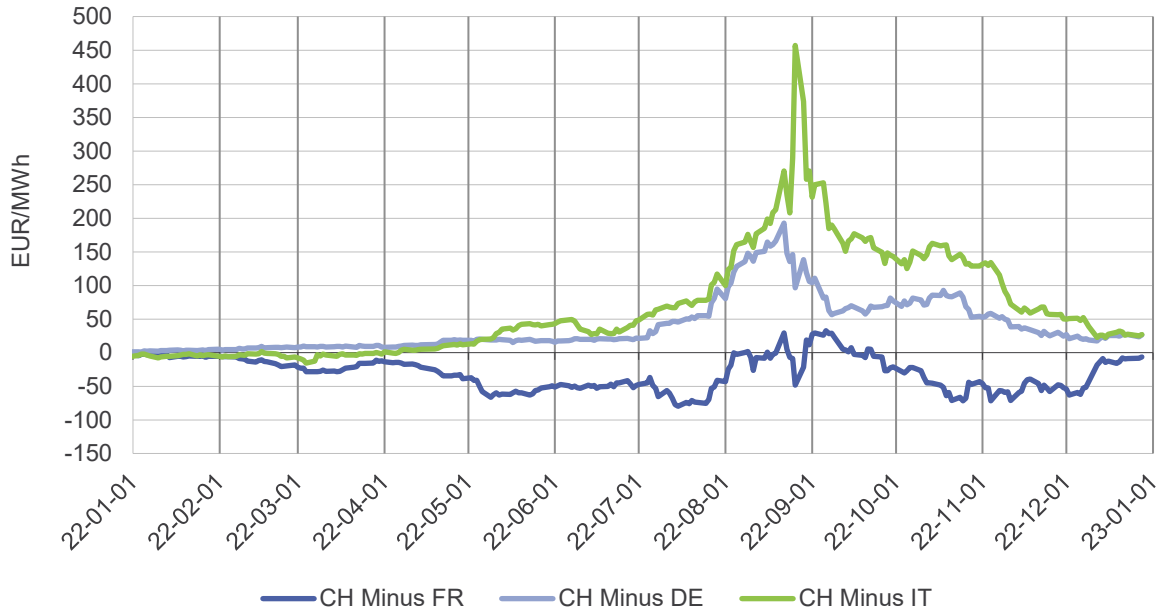

Figure 22: 2022 price spreads on year-ahead base electricity contracts for 2023 between Switzerland (CH) and Germany (DE), France (FR) and Italy (IT), data source: EEX

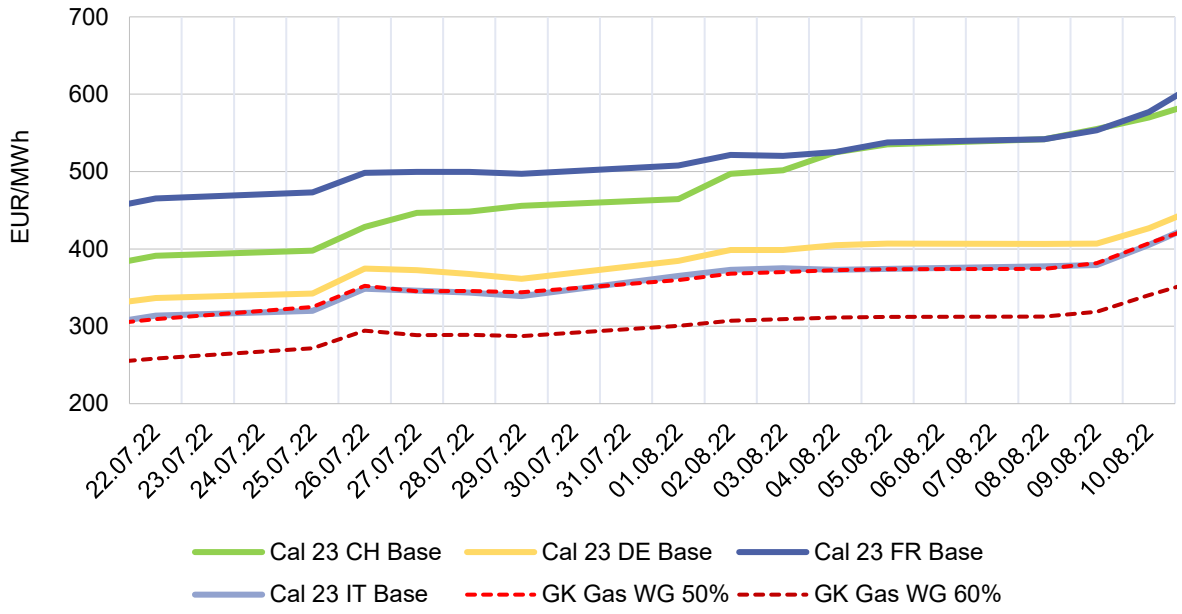

Figure 23: Price movements between 22.07.2022 and 10.08.2022 for 2023 year-ahead base electricity contracts with Switzerland (CH), Germany (DE), France (FR) and Italy (IT) as supply destinations, data source: EEX

Prices for the annual Cal 24 Base and Cal 25 Base products with Switzerland as the supply destination do not follow these marked price movements (Figure 24) as the market judges the steep price rise to be temporary. Cal 24 Base peaked at just under EUR 492/MWh, remaining around EUR 590/MWh below Cal 23 Base. Cal 25 Base rose even less, reaching EUR 302/MWh at its peak.

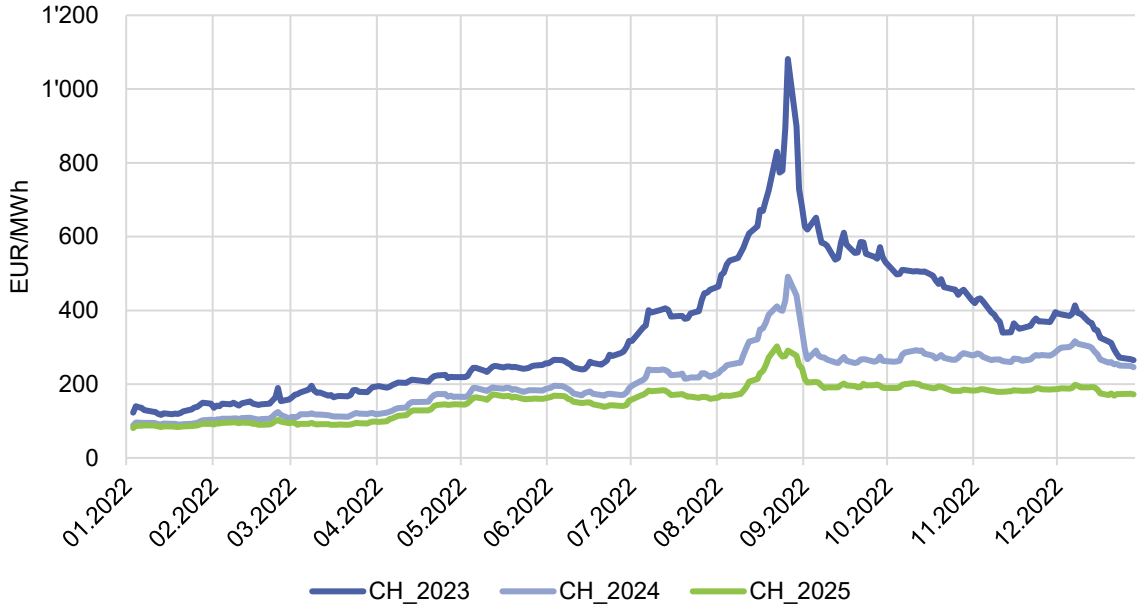

Figure 24: 2022 price trend for base electricity annual contracts 2023–2025 with Switzerland as the supply destination, data source: EEX

Electricity prices on the futures market depend heavily on the prices for the three commodities of gas, coal and CO_2 (Figure 27).

Gas prices rose continuously from the start of the year. As mentioned above, the outbreak of war in Ukraine and the reduction in deliveries of natural gas from Russia to Europe had a major impact on the gas price trend. Russia first threatened to halt gas deliveries on 7 March, and gas flows via Mallnow to Germany were indeed stopped from 26 April. At the end of March, Russia's announcement that it would henceforth accept payment for gas deliveries only in roubles sent prices even higher. Reports of consistently high imports of LNG (cf. Figure 25), stable gas supplies thanks to deliveries from Norway, and the decline in demand as a result of the warmer weather subsequently led to the price of gas falling again. The EU Regulation governing minimum levels at gas storage facilities, introduced in 2022, also helped to calm the markets. It stated that facilities should be 74% full by 1 October 2022 and 80% full by 1 November 2022. From 2023 onwards, storage facilities should be 90% full by 1 November of each year. From September, EU interventions on the electricity and gas markets, and especially news of price correction mechanisms, had a bearish effect on gas prices. By the beginning of Q4 2022 it had become clear that Germany and the EU would achieve their gas storage targets. This in combination with unseasonably warm temperatures in north-western Europe, lower demand from industry owing to the softening European economy and a lack of storage capacity (cf. gas storage levels, Figure 26) triggered a downtrend in the gas price that continued up to the end of 2022.

Over the course of the year, the gas price for delivery in 2022 rose from just under EUR 45/MWh to just short of EUR 88/MWh with temporary highs of over EUR 314/MWh.

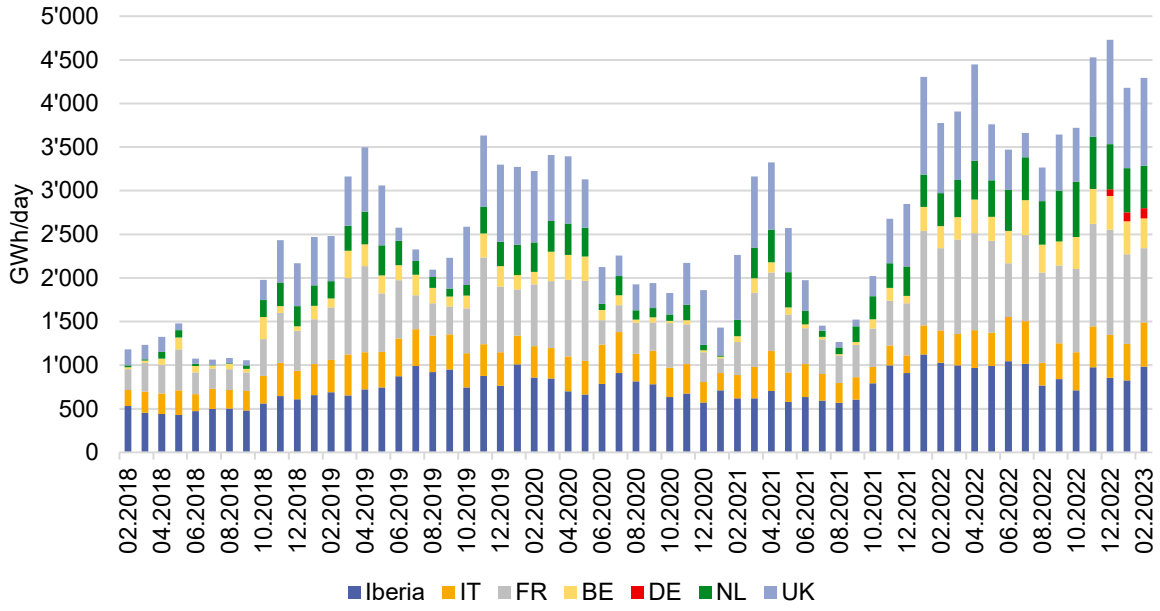

Figure 25: Monthly average of LNG deliveries to Europe in GWh/day over the past five years

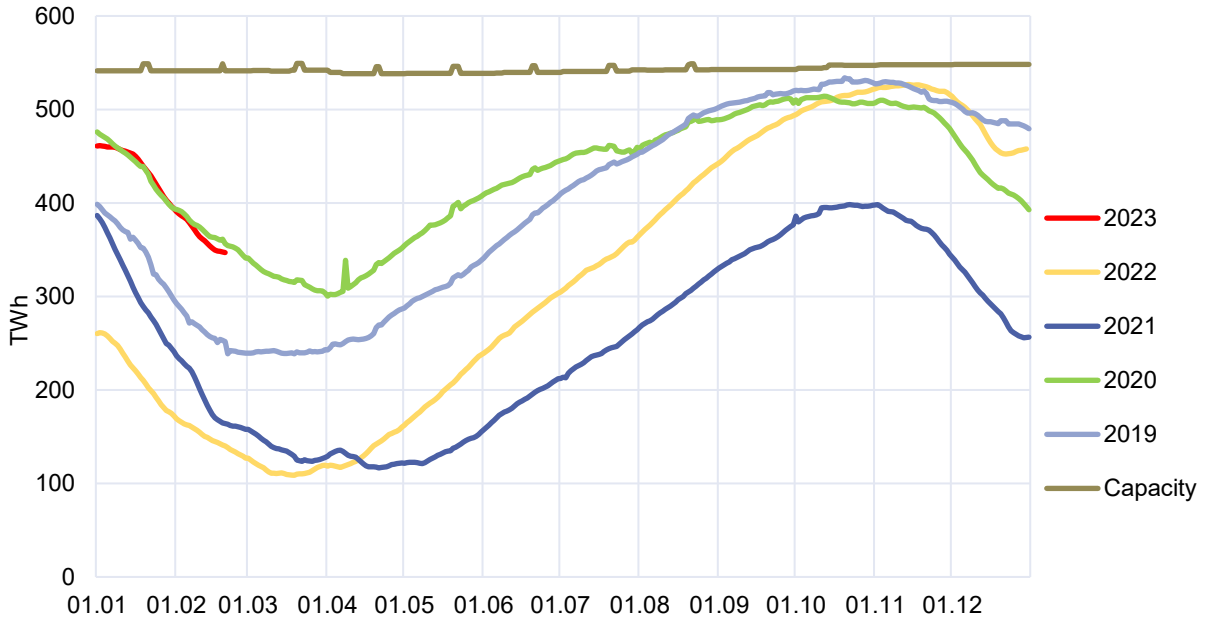

Figure 26: Gas storage levels in north-western Europe from 2019 to February 2023

Coal prices also rose sharply up to August 2022. At the beginning of the year the Indonesian government issued a general ban on coal exports for the whole of January, thereby shoring up coal prices. They also reacted to growing tensions in the Ukraine conflict, leaping after war broke out in response to uncertainty about future coal deliveries from Russia in the light of EU sanctions. In April, the EU and Japan announced that they no longer wished to import coal from Russia, with a ban for the EU coming into effect as early as 10 August 2022. This triggered jitters about possible shortages in the supply of non-Russian coal. Prices then rose on the back of expectations that other countries would ban coal imports from Russia. These had to be substituted with coal from other countries, such as Colombia, South Africa and Australia.

The desire to reduce European dependence on Russian gas imports led to the growing assumption that more coal would be burned in 2022 and 2023 than previously thought. This led to an increase in demand. At the end of June came the news that some countries were planning to bring unused coal-fired power generation capacity back on line, which also raised demand for coal in Europe.

The markets had been in bullish mood in May because of worsening supply bottlenecks in South Africa, which was experiencing growing problems with rail trans-shipments. During the summer, low water levels in the Rhine restricted coal shipments along the river from the ARA ports to end consumers, leading to concerns about autumn availability and increasing prices.

Growing stockpiles of coal at the Chinese port of Qinhuangdao, which reached record levels at the end of July, helped to lower the coal price. Domestic Chinese production had reached historic highs in 2022, while demand was held back by the country's COVID-19-related isolation policy. Weakening macroeconomic conditions around the world from October and the attendant worries about growth added to the bearish mood. The downtrend continued towards the end of the year, maintained by EU measures to reduce demand, the greater availability of French nuclear power stations, and the German decision in October to extend operations at the country's three remaining nuclear plants until April 2023, all of which downgraded expectations with regard to how much coal would be burned during the winter.

Over the course of the year, the coal price rose from just under EUR 80/t to just short of EUR 173/t with temporary highs of over EUR 345/t.

Prices for CO_2 certificates embarked on an initial uptrend from the beginning of the year up to the start of the war in Ukraine, advancing from EUR 85/t to EUR 96/t on the day before war broke out. Key drivers

were the limited availability of French nuclear power stations, which resulted in higher carbon emissions and a corresponding increase in demand for CO_2 certificates, as well as cancelled auctions and technical signals. Tracking the global financial markets, which had been shaken by the Russia-Ukraine crisis, CO_2 prices dropped when the conflict began. Uncertainty among investors caused them to liquidate EUA holdings, with the EUA Dec 23 contract hitting a low of EUR 60/t on 7 March. Prices swiftly recovered, however, to hover around EUR 80/t after dip buying and technical signals had triggered a buying spree and the related EUA auctions had delivered strong price signals. They trended sideways in April, before rising as high as EUR 90/t in early May on the strength of robust auctions, technical trading, speculative buying and acquisitions for compliance reasons. There was then a sharp increase in prices at the end of May in response to the news that certificates would be released by the Market Stability Reserve (MSR) and the ambitious targets for energy efficiency and the use of clean sources of energy put forward by the European Commission. The Commission proposed selling certificates worth EUR 20 billion from the MSR to create a flexible financing facility to fund moves to end European dependence on Russian gas. It later emerged that the planned release from the MSR might be phased over four years to soften a sudden sharp rise in the supply of certificates. This information pushed their prices higher again.

Over the summer months, warmer weather throughout Europe and lower wind farm output increased fossil fuel-based power generation and thus raised demand for CO_2 certificates. The Dec 23 contract peaked on 19 August at EUR 101/t. EU action to reduce demand for electricity, and the weaker European economy subsequently made for a downtrend that lasted until mid-October, when the price of CO_2 certificates fell to EUR 68/t. From then on, and as the price broke through the EUR 70/t barrier, the technical conditions changed to support a more bullish trend. Prices were also sustained by higher coal-fired electricity volumes and the action taken by power companies before the winter to secure supplies. By mid-December the CO_2 price was back up at EUR 94/t. The 2022 price trend for the 2023 product for CO_2 (EUA[10]), gas (THE[11]) and coal (ARA[12] region) is shown in Figure 27.

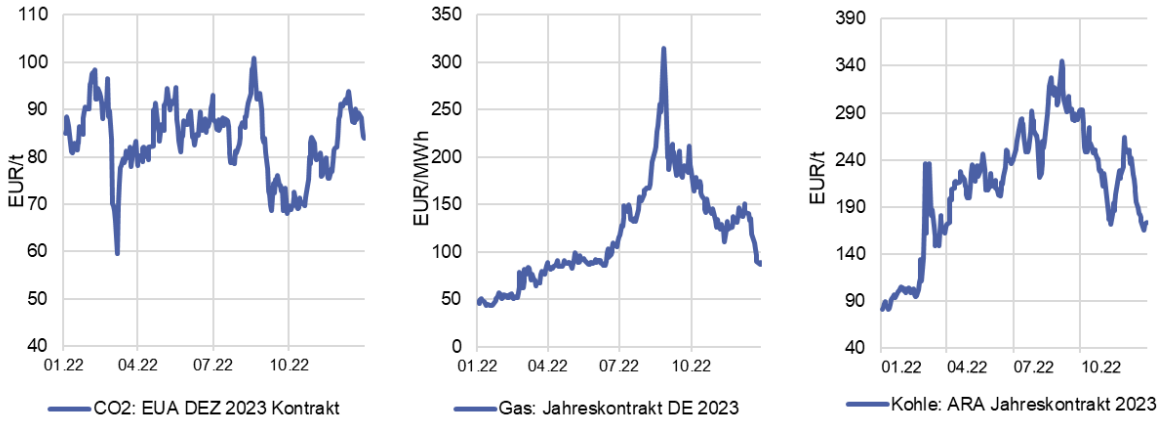

Figure 27: 2022 price trend for the 2023 product for CO_2 (EUA), gas (THE) and coal (ARA region), data source: EEX and Refinitiv Power Research

2.3 Weekly reporting to the Federal Council

The current energy crisis jeopardised security of supply for the winter of 2022/2023 and continues to do so for the winter of 2023/2024, and also resulted in Alpiq requesting financial support from the federal government (it later withdrew its application). The Federal Council therefore decided that, from 1 March 2022 onwards, it wished to receive weekly reports on the latest developments on the energy markets. ElCom was responsible for providing information on electricity.

[10] EUA: European emission allowances.
[11] NCG: Reference price for the German gas price of the market operator NetConnect Germany and Trading Hub Europe (THE).
[12] ARA: Reference price for thermal coal delivered to one of the coal terminals in Amsterdam, Rotterdam or Antwerp, Europe's main coal market.

The weekly report involved a chart of price trends in the key wholesale electricity products (cf. Figure 28), as well as an explanation of the fundamental reasons behind those price movements. Price trends for gas, coal and CO_2 were usually an important factor here. Reporting on the prevailing risks to security of electricity supply was a further point of focus. Elements here included the availability of gas in the EU, the status of gas deliveries to the EU via pipelines or in the form of LNG, the levels of gas at storage facilities in north-western Europe, the availability of French nuclear power plants, gas storage levels in Switzerland, the availability of the Swiss transmission network, and import capacities.

In addition, appreciation was always shown for updates on the action taken by the EU in response to high energy prices and their impact on Switzerland, as well as the latest news on possible liquidity problems and steps to nationalise major EU energy providers such as Uniper and EDF.

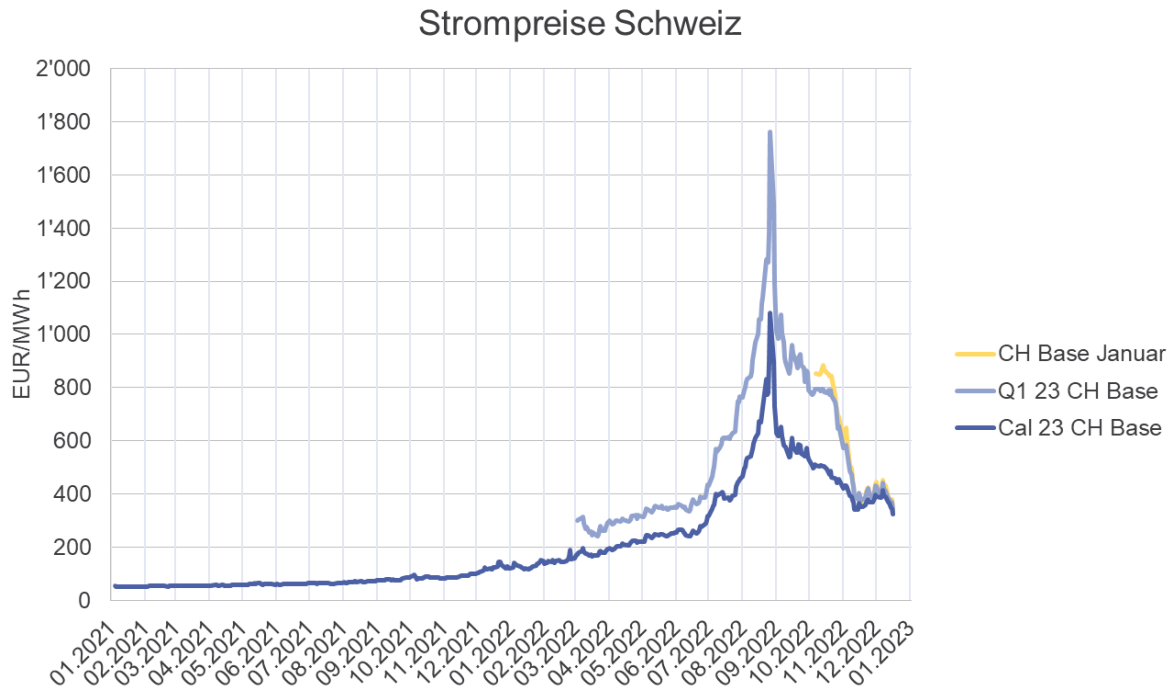

Figure 28: Wholesale prices for electricity products with Switzerland as the delivery destination, supplied to the Federal Council as part of reporting in December 2022

3 ElCom's key market surveillance activities

3.1 Analysis statistics for 2022

Under Articles 26b and 26c of the Electricity Supply Ordinance, ElCom can process the data received from persons obliged to provide information. This is done using a purpose-built IT system, the Market Monitoring System (MMS). The MMS is also used to process the analyses conducted by the Market Surveillance Section. One of the objectives of ElCom's analysis work is to ensure greater transparency in the Swiss wholesale energy market. The aim here is to ensure that prices formed on these markets reflect an undistorted interplay between supply and demand on the basis of fair and open competition. At the same time, ElCom's analyses have also proven useful to other federal offices in certain matters, for example in determining which companies in the Swiss electricity industry are to be classified as system-critical, or in drawing up the financial backstop scheme.

The data supplied is processed and evaluated according to certain predefined criteria through the use of alerts, particularly with regard to suspicious phenomena that could indicate market manipulation or insider trading.

Analyses are also carried out following indications of anomalies concerning Swiss market participants, which ElCom receives from the trading surveillance bodies of the organised marketplaces. These are known as Suspicious Transaction and Order Reports (STORs). In 2022, three such incidents were again reported to ElCom.

As in previous years, in addition to the investigations of anomalies triggered by alerts in the MMS and STORs received, ElCom also performed ad-hoc analyses on specific topics. Given the reduced resources in the Market Surveillance Section and the increase in enquiries from politicians and the public, the focus was on monitoring the rapidly changing market situation and prices and on various other topics of relevance to market design and security of supply; particularly with regard to the hydropower reserve and reporting to the Federal Council, fewer specific analyses were carried out than in previous years. In 2022 there were seven. This Market Transparency Report contains a summary of the analysis of the impacts of renewable energies on volumes and prices on the Swiss, German and French day-ahead and intraday markets (see section 3.2.1) and the analysis of trading volumes on the EEX exchange (exchange-traded volumes versus exchange-cleared volumes) (see section 3.2.2). Two further analyses – on a CRE survey and the monitoring of winter product spreads – are briefly outlined in ElCom's 2022 Activity Report. Figure 29 below gives a detailed overview of the Market Surveillance Section's analysis activities.

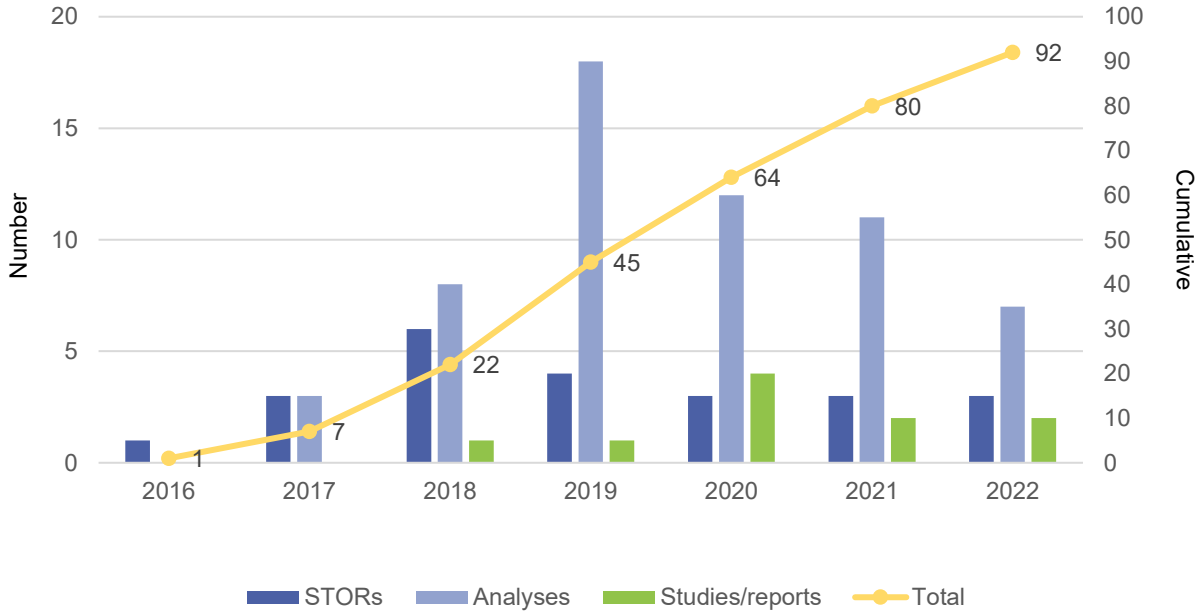

Figure 29: Overview of the STORs received by ElCom

3.2 Analysis activities in 2022

3.2.1 Analysis of the impacts of renewable energies on volumes and prices on the Swiss, German and French day-ahead and intraday markets

Recent years have seen a significant expansion in renewable energies. Whereas trading portfolios based on renewable energies were previously only optimised up to the day-ahead, forecast deviations are now increasingly being balanced out shortly before delivery on the intraday market using algorithmic trading. The intraday market is proving increasingly popular with market participants in view of the growing development of renewable energies and automated trading strategies.

This analysis sought to identify trading volume and price trends on the day-ahead market (see Figure 30) and the intraday market (see Figure 31) for deliveries to Switzerland, Germany and France. The aim was to analyse whether short-term price fluctuations on these markets have increased and to observe trends in the difference in price fluctuations between the day-ahead and intraday market (see Figure 32). The net revenue for one megawatt of power from a gas-fired power plant which can be ramped up or down based on day-ahead or intraday prices is also calculated. This provides key information about the value of flexibility. Due to the higher market liquidity, this calculation was only carried out for the market area Germany, although for all markets there, continuous or auction, hourly or 15-minute slots (see Figure 33).

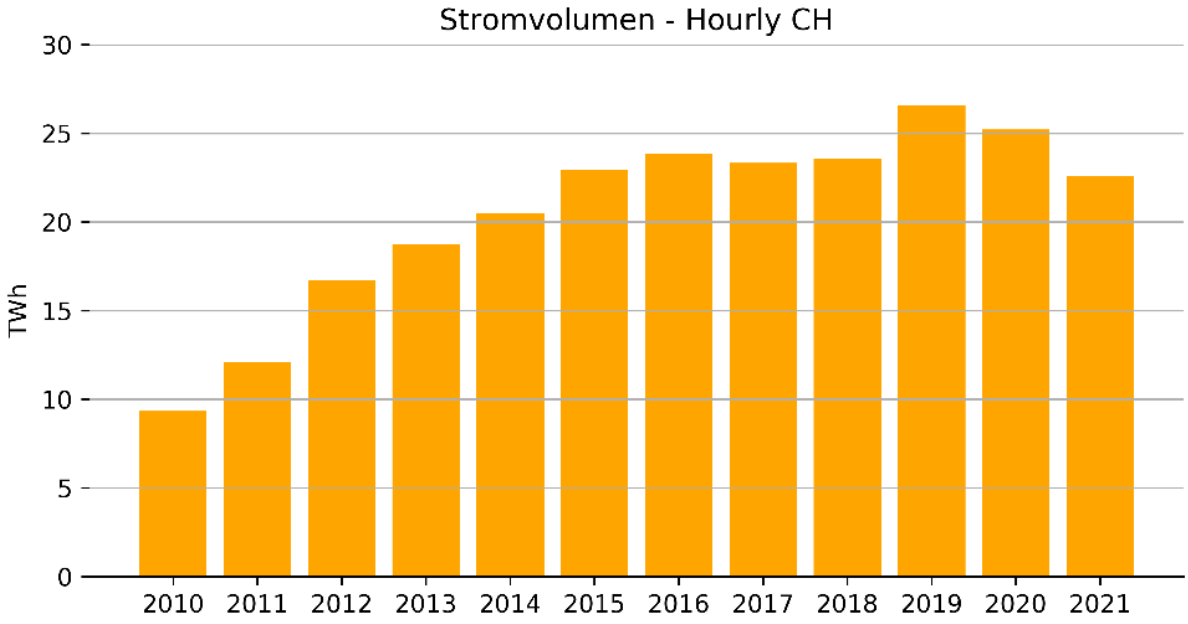

Figure 30: Total annual volume traded on the day-ahead auction in Switzerland

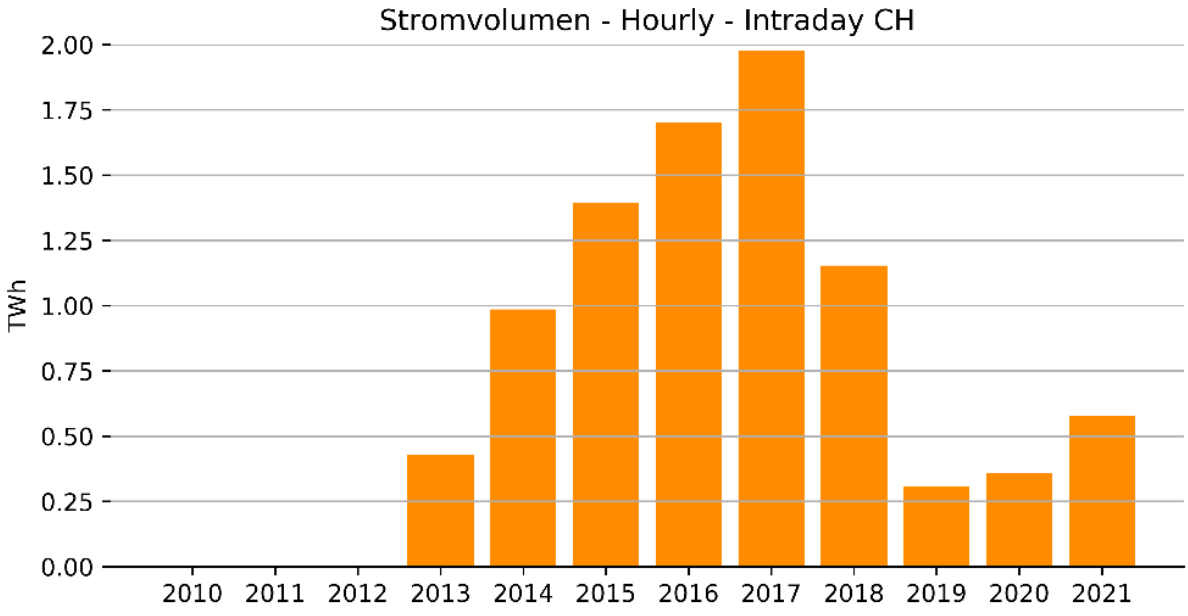

Figure 31: Total annual volume traded in Swiss intraday continuous trading for hourly products

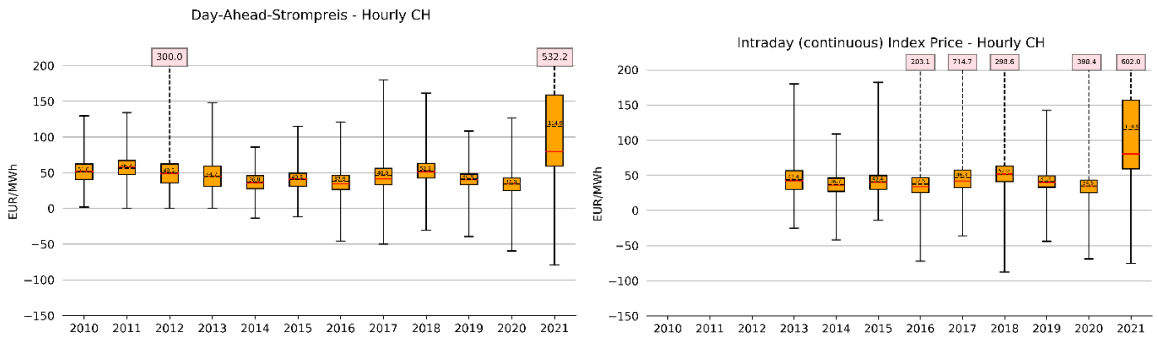

Figure 32: Price of box plots day-ahead index vs. intraday hourly for deliveries to Switzerland

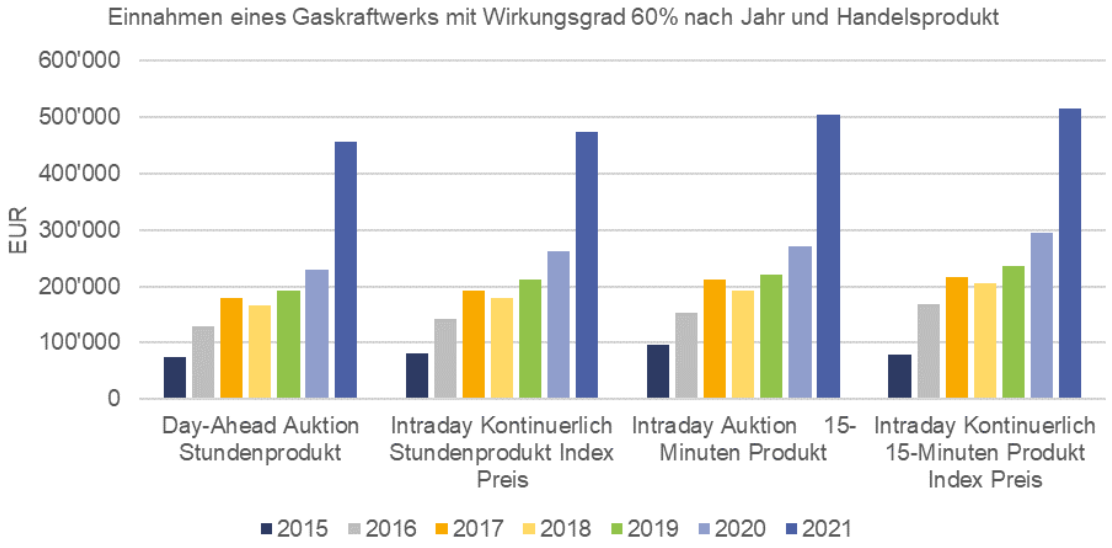

Figure 33: Revenue of a gas-fired power plant with 1 MW capacity and 60% efficiency for deliveries to Germany by market (day-ahead, intraday auction, intraday continuous) and by delivery period (hourly vs. 15-minute)

This analysis highlights the significance of the intraday market for cost-effective provision of sufficiently flexible resources to support intermittent power generation. Granular products, such as 15/30-minutes (and possibly 5-minutes at a later stage), improve the price signal for operation of the electricity system and provide guidance for investment in flexibility in countries likely to see strong growth in intermittent generation capacity over the next few years. There is growing demand for sufficient flexibility to take account of large production ramp events. The value of flexibility has also risen due to the surge in prices over recent months on the electricity market – with hourly prices reaching several hundred euros in some cases – in combination with fluctuating renewable energy. If this level remains high, this may be a major signal for investment in flexibility.

However, this analysis also highlights that the intraday market in Switzerland has dried up considerably since 2018, while the intraday markets in neighbouring countries are developing strongly, and trading volumes in the various products are increasing in order to counteract this need for flexibility in the energy transition due to the increasing fluctuating renewables. The absence of an agreement with the EU is having a major impact on the Swiss electricity markets and is jeopardising Switzerland's competitiveness in terms of long-term flexibility. Swiss flexibility must be marketed abroad, which means overcoming technical and commercial hurdles, and Swiss flexibility is at a disadvantage with respect to flexibility abroad. The calculation of net revenues for one megawatt from a gas-fired power plant that can be ramped up and down based on day-ahead or intraday prices shows that the intraday market generates high potential revenues, even in a market with high gas prices. The Swiss hydropower plants are unable to fully harness this potential as the domestic intraday market has lost a great deal of its liquidity and appeal. This means optimisation is primarily taking place abroad, although the cross-border capacity available restricts the potential use of flexibility.

3.2.2 Analysis of trading volumes on EEX (exchange-traded volumes versus exchange-cleared volumes)

2022 was characterised by liquidity problems as well as a marked decline in exchange-traded volumes.

On EEX, the leading European energy exchange, volumes on the derivatives market declined by 27% compared to 2021. As can be seen from Figure 34, this decline in volume was observed in particular at the end of the first quarter of 2022.

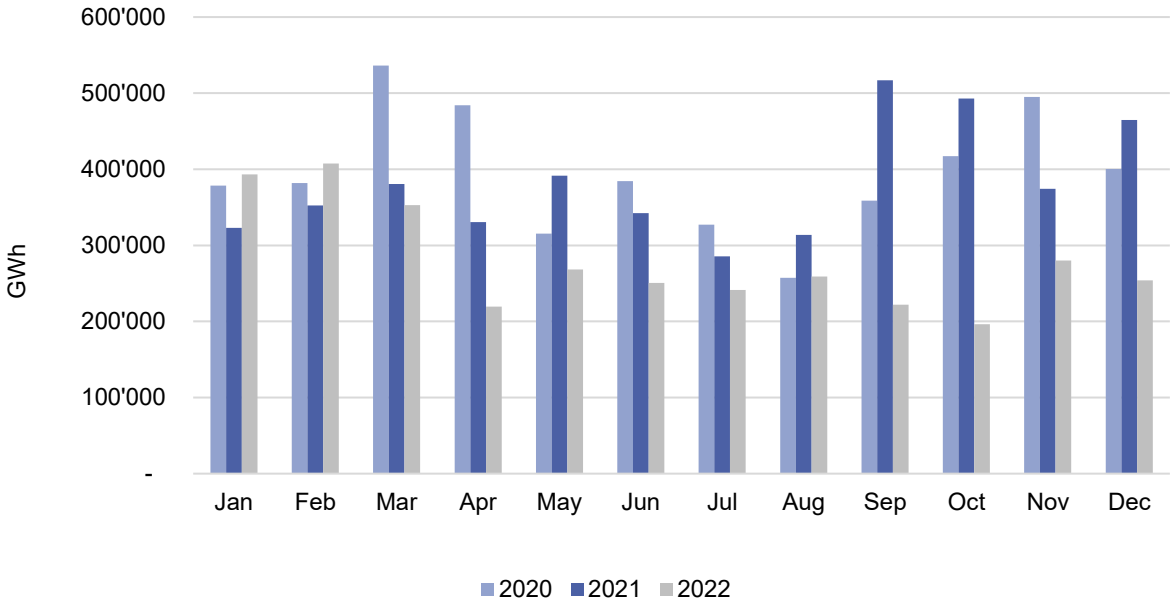

Figure 34: Monthly trading volume on EEX from 2020 to 2022. Source of EEX data.

The fall in volume compared to 2021 occurred in most of Switzerland's European neighbours, i.e. Germany (–27%), France (–16%) and Italy (–18%). In contrast, the trading volume of electricity trading products for deliveries to Switzerland increased strongly (+63%). In 2021, the total volume on EEX was 9,679 TWh compared to 15,762 TWh in 2022. Figure 35 illustrates the monthly development of the total volume on EEX.

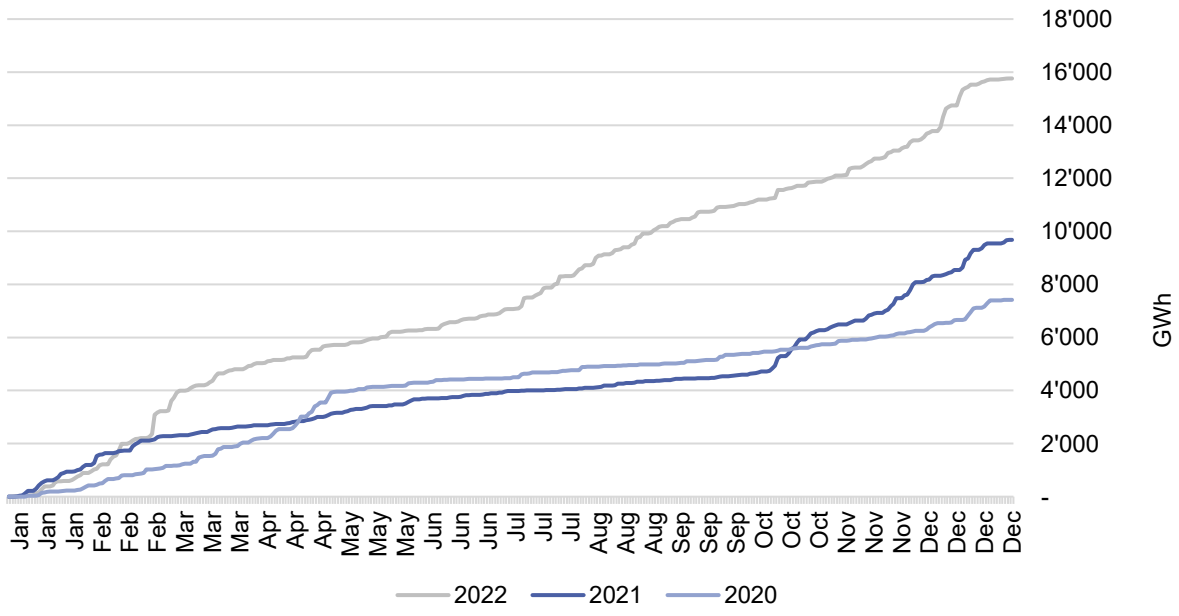

Figure 35: Annual comparison of the total volume on EEX for deliveries to Switzerland.

One of the reasons for this increase in the total volume on EEX becomes apparent when analysing its composition. As it happens, the total volume on EEX represents the sum of two different types of transaction. The first type are transactions which are settled directly on EEX, while the second type are transactions made in over-the-counter (OTC) trading and subsequently registered or cleared on EEX. Market participants may decide to clear their transactions on the exchange in order to benefit from the lower counterparty risk.

A breakdown of the total EEX volume for the Swiss market reveals that the increase mainly results from the rising volume of transactions cleared on EEX and not particularly from an increase in the volume of transactions settled directly on EEX. The volume traded directly on EEX Switzerland increased from 1,194 GWh in 2021 to 1,616 GWh in 2022, i.e. by 422 GWh or 35%, while the volume registered or cleared on EEX increased from 8,485 GWh in 2021 to 14,146 GWh in 2022, i.e. by 5,661 GWh or 67%.

Figure 36 reveals the origin of the total increase by breaking it down into the volume traded directly on EEX Switzerland and the volume registered on EEX Switzerland, as explained above.

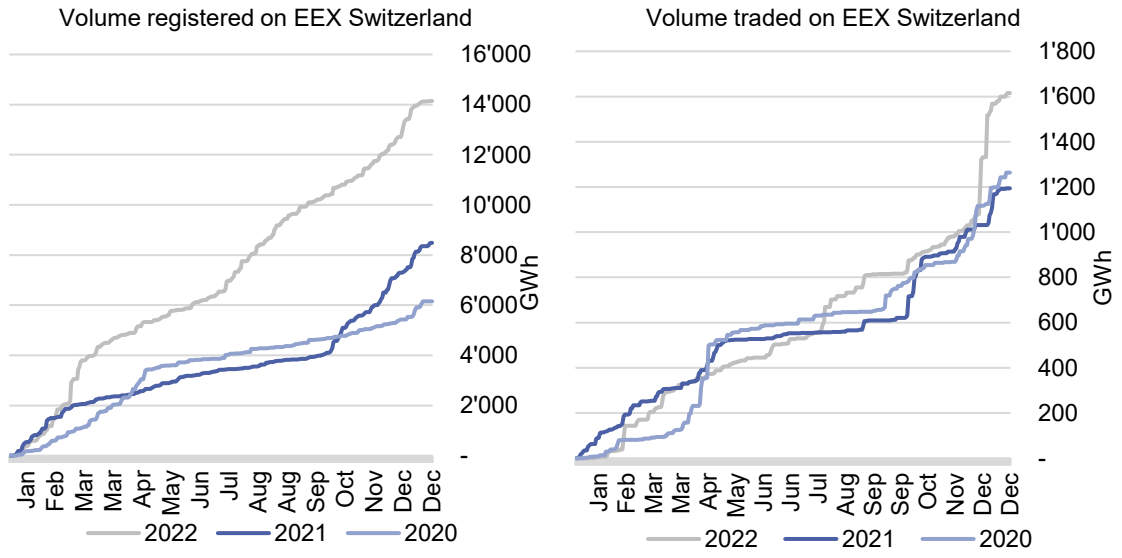

Figure 36: Comparison of volumed traded directly on EEX and volume cleared on EEX, for deliveries to Switzerland, in GWh

There was an increase in the volume traded directly on EEX, but it was less pronounced and mainly occurred at the end of the year. The trend of the volume registered on EEX decoupled at the end of February 2022 from what was observed in 2020 or 2021. Since then, the volume registered on EEX has grown more robustly than in 2020 and 2021.

In view of these differences, the increase in the total volume on EEX Switzerland should not be interpreted as an inflow of liquidity to Switzerland or as increasing activity on the Swiss market in 2022; instead, it underlines the fact that market participants have registered a larger volume of OTC transactions on the exchange than before.

One possible reason why a larger volume was registered on EEX is that market participants are increasingly relying on the exchange to eliminate the credit risk that OTC transactions once entailed. Traders try to protect themselves from the counterparty risk associated with extremely volatile and expensive markets. This hypothesis is supported by the fact that on the other markets analysed, such as Germany in Figure 37, the decline in the volume of transactions settled on EEX is greater in percentage terms than the decline of transactions registered on EEX. Accordingly, the share of registrations in relation to the total volume is larger than before despite the reduced total volume on EEX (settlements and registrations), as is also the case in Switzerland.

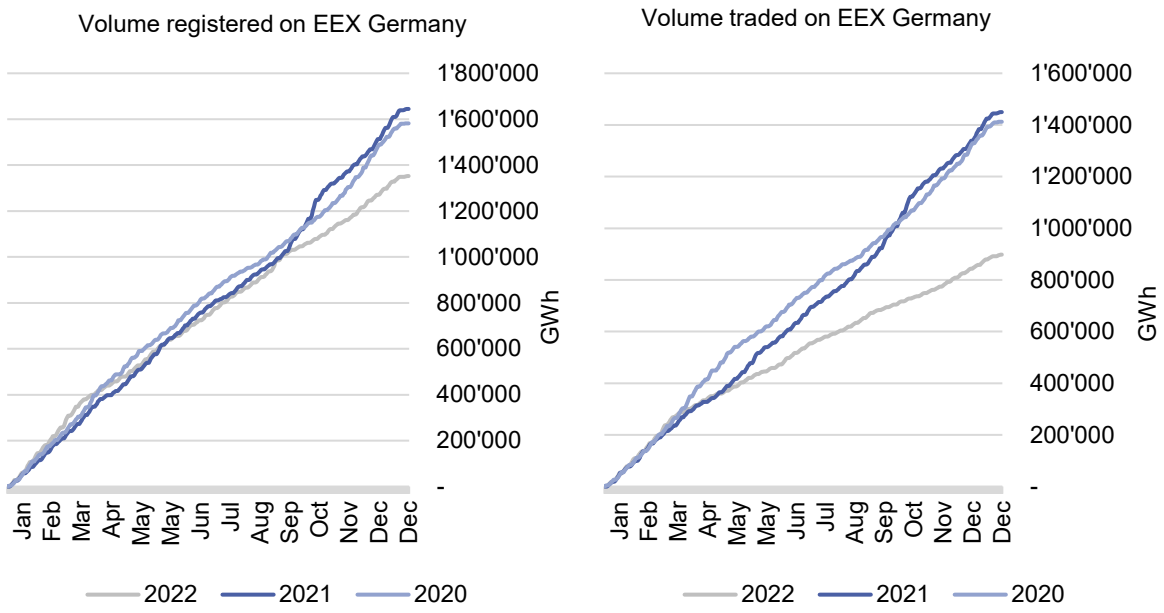

Figure 37: Comparison of the volume traded directly on EEX and the volume registered on EEX, for deliveries to Germany, in GWh

The volume registered directly on EEX for deliveries to Germany declined from 1,644,682 GWh in 2021 to 1,352,390 GWh in 2022, i.e. by 18%, while the volume traded directly on EEX for deliveries to Germany fell from 1,449,701 GWh in 2021 to 897,874 GWh in 2022, i.e. by 38%. For EEX, the share of volumes settled directly on EEX consequently decreased for these two transaction types, namely from 46% of the total volume in 2021 to 40% in 2022.

Finally, it should be noted that these analyses only take account of developments on EEX and not those on other exchanges and, moreover, they do not include the OTC transactions that are not subsequently registered on EEX. It is therefore not possible to draw more general conclusions about the overall volumes in Switzerland or in Europe.

3.2.3 Three EPEX SPOT Light Reporting Cases

EPEX SPOT is a day-ahead and intraday power exchange operating in the following European countries: Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, the Netherlands, Norway, Poland, Sweden, the United Kingdom and Switzerland. Whenever a trading activity on a specific day-ahead or intraday market in one of its member countries requires in-depth analysis, EPEX SPOT sends what is known as a Light Reporting Case to the regulator in question. ElCom may be contacted by EPEX SPOT for trading activities originating from companies established in Switzerland, as well as for foreign companies operating on Swiss markets.

ElCom has the necessary information and means at its disposal to review the various price and volume movements on the markets of the EPEX SPOT exchange, as well as for the other activities within the scope of electricity market supervision. In its role as a regulatory authority, ElCom strives to ensure the smooth functioning of the markets and their transparency.

In the course of 2022, EPEX SPOT notified ElCom of three Light Reporting Cases for analysis of the participating companies' trading activities. For each Light Reporting Case, EPEX SPOT received a statement of justification from the party concerned and forwarded it to ElCom. In the Light Reporting Cases presented, EPEX SPOT is of the opinion that neither market manipulation nor insider trading has taken place.

Two of the Light Reporting Cases from EPEX SPOT concerned significant volume movements, while another dealt with orders entered at a price that did not correlate with the market.

The first Light Reporting Case related to a large trading volume concerning power purchased on the French intraday market at prices above the day-ahead market. Based on an initial statement from the company in question, there was no justified reason for the situation. ElCom analysed the case in further detail and requested another, more precise statement. This contained more details on the reason for the intraday activity in question, which turned out to be legitimate.

The second Light Reporting Case was opened as a result of large volumes of power purchased by a participant on the Swiss day-ahead market. The trading volumes were substantial in relation to the size of the company involved. ElCom was able to close this case following an examination of the trading activity. The conclusion was in line with the company's original statement submitted to EPEX SPOT.

The Light Reporting Case regarding a number of buy orders entered in the intraday market at significantly higher prices than competing bids within a single hour was treated as a fat-finger error. The orders placed at a price level that did not correlate to the rest of the market and executed by a third party were not cancelled within the five-minute period prescribed by EPEX SPOT. The company triggering this event has since taken the necessary measures to prevent the recurrence of such operational errors. The company did not gain from the situation; in fact, it suffered an immediate loss.

All Light Reporting Cases in 2022 reported by EPEX SPOT were officially closed.

3.2.4 Reporting of ramps in the case of power plant outages

Swiss market participants have been publishing inside information, in particular power plant outages, on the basis of an industry agreement.

ElCom received this agreement. Because of a discrepancy between the Swiss industry standard and the recommendations of ACER or the EEX transparency Platform, ElCom wrote to all parties mentioned in the industry agreement on 17 September 2020, calling for market participants to revise the agreement so as to ensure a uniform reporting practice and increase transparency.

For example, the industry agreement stated that the start time of the revision/outage event in the message on the Transparency Platform should refer to the time the target value is reached (0 MW is considered the target value in the case of shutdown). Since the period of time until the target value is reached may extend over several hours, particularly in the case of nuclear power plants, ElCom criticised this situation and said that the start time of the revision/outage should refer to the beginning of the ramp event. In other words, the starting point should refer to the time the start-up or shutdown of the power plant begins.

The industry has not been publishing power plant ramp events. In the course of 2021, further discussions were held with industry stakeholders as it was noted in the exchange with the EU regulators that a ramp event, especially in the case of large power plants, is also considered to be inside information. Swiss market participants had not previously been publishing power plant ramp events as inside information.

In order to minimise the workload and the number of reports, ElCom has agreed with the industry that in future the technically relevant points of the power plant will be reported as a ramp event in the info text field of the EEX Transparency Platform (see Figure 38). This information is known in advance and does not change. This measure was implemented in 2022.

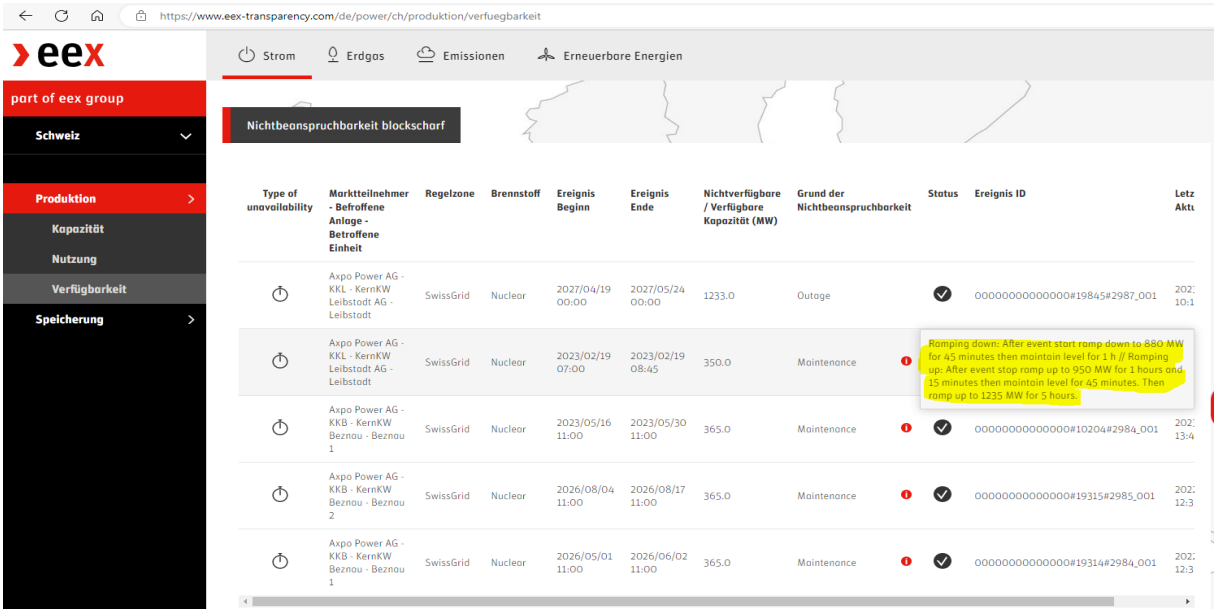

Figure 38: Info text field of the EEX Transparency Platform concerning an outage at Leibstadt nuclear power plant, highlighted in yellow

4 Liquidity monitoring

Since the outbreak of the war in Ukraine and the attendant reduced gas supplies from Russia to Europe, the situation regarding security of electricity supply has also changed drastically. Many countries, including Germany, Austria and especially Italy, use gas-fired power plants to generate electricity. With lower gas supplies, the possibility of generating electricity was initially called into question. Tensions on the gas markets led to high gas prices, which in turn led to high electricity prices. This resulted in much tighter liquidity requirements for electricity companies, as higher electricity prices on the exchanges led to higher margin calls.

4.1 Calculation of margin parameters for monitoring the liquidity developments of a benchmark portfolio

Electricity prices already started to rise sharply at the end of 2021, with exceptionally high prices and volatility peaking in the summer of 2022. Accordingly, margin calls were also high.

A margin call is a request for funds when money must be deposited into a margin account to meet the minimum capital requirements to continue trading on the exchange. The exchange distinguishes between two types of margin, the variation margin and the initial margin.

For both, however, the net position of a market participant in a trading product is always relevant. If a market participant is net short, the demand for funds from the variation margin also increases as prices rise. If, on the other hand, a market participant is net long, the variation margin requirements decrease as prices rise. The initial margin, on the other hand, increases by definition as prices rise and market volatility increases. The initial margin is required for each open position (long or short) to cover close-out risks that the exchange may encounter in a default scenario. It is intended to cover potential changes in the value of positions held by market participants in order to be able to close out a position within two business days. The parameters are calibrated to cover the default risk with a confidence level of 99% and using a predefined look-back period.

In order for ElCom to be better able to monitor higher liquidity requirements of market participants resulting from the initial margin, benchmark portfolios were formed, and the margin parameters and the resulting initial margin requirements were calculated on a daily basis.

By implementing the ECC (European Commodity Clearing) calculation methodology for the initial margin, ElCom was not only able to calculate the initial margin on the basis of the current closing prices, but was also able to model scenarios (e.g. prices rising by x% from one day to the next) and simulate the effect on the initial margin.

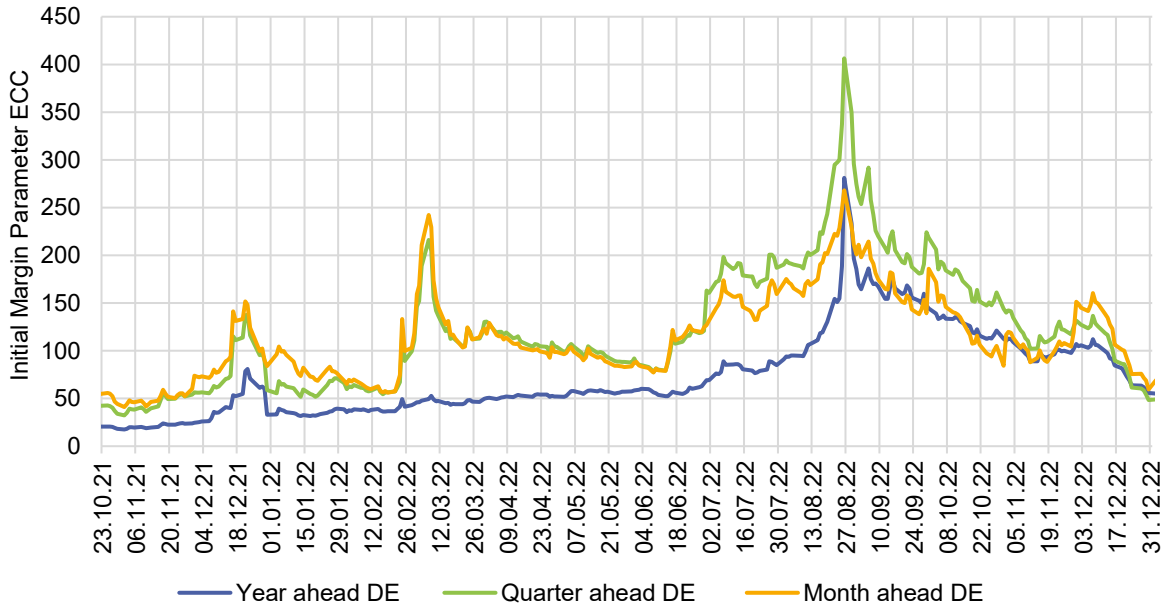

Figure 39: Development of the margin parameters for base contracts for deliveries to Germany

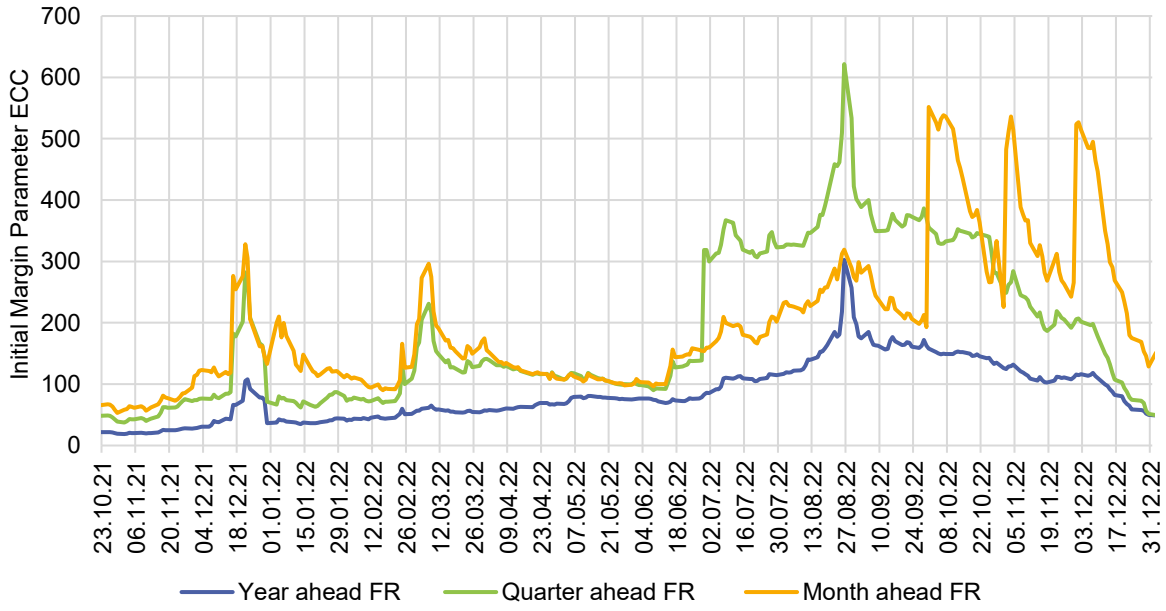

Figure 40: Development of the margin parameters for base contracts for deliveries to France

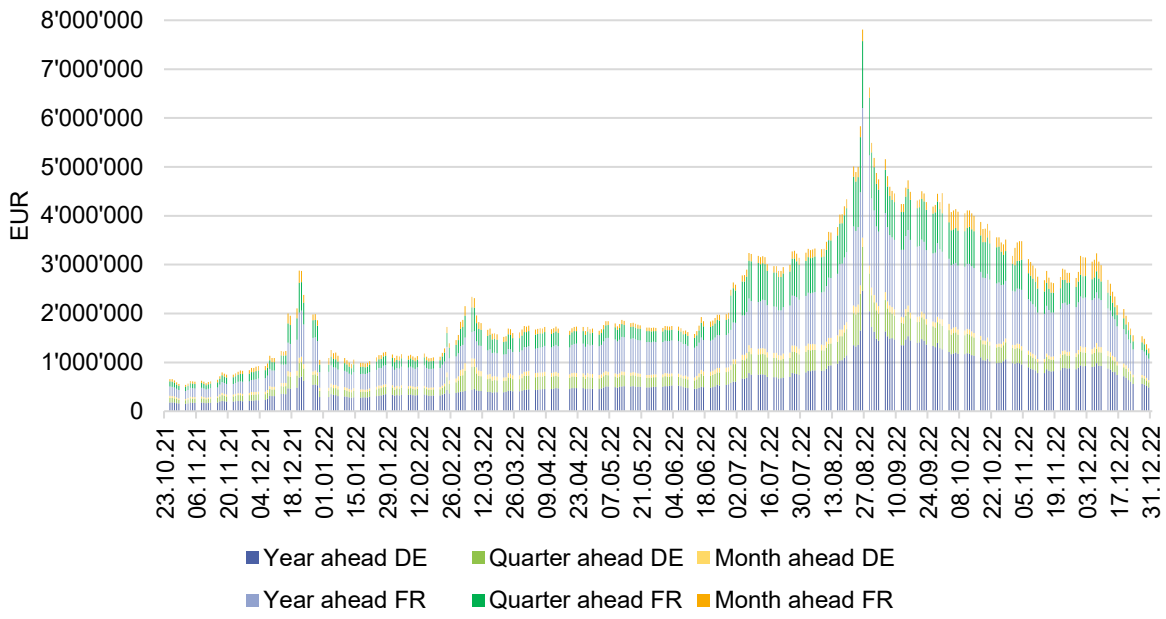

Figure 41: Development of the initial margin requirements for a portfolio in which 1 MW base long is held for each trading product (year ahead, quarter ahead, month ahead) for both deliveries to Germany and deliveries to France

4.2 Internal monthly reporting on the wholesale market and liquidity situation of Swiss market participants

In 2022, the Market Surveillance Section drafted monthly internal confidential reports on the wholesale market and the liquidity situation of Swiss market participants. The focus was on price changes of important wholesale electricity products, the development of fundamental drivers in the electricity market, temperature forecasts (possible cold spell), but also on the risk premiums (market prices compared to the price of a fundamental model) observed on the futures market. In addition, based on price forecasts for the spot market (with confidence intervals), an assessment was made as to whether there was a possibility that supply and demand would not meet at the day-ahead auction and that the day-ahead market would not close for certain delivery hours and settle at the technical maximum (currently EUR 4,000/MWh). Also, news affecting the liquidity of large European energy companies was listed (e.g. Uniper) in order to identify possible credit risks for Swiss market participants.

In addition, internal data analyses led to findings regarding potentially higher liquidity requirements of Swiss market participants.

General findings from this report were shared at the monthly meetings of the Energy Security of Supply Steering Committee, which were attended by ElCom's Director.

4.3 Decision issued by ElCom on the transmission of data on electricity trading transactions carried out

From the middle of the year onwards, the situation regarding the security of electricity supply had deteriorated even more: Russia had further cut gas supplies, the important Nord Stream 1 pipeline was sabotaged, the availability of French nuclear power plants was extremely low and there were bottlenecks in coal supplies resulting from the prolonged drought and low rainfall, leading to reduced shipping on the Rhine.

Due to the aforementioned intensified energy policy situation and current market developments, it was necessary for ElCom to request data on wholesale electricity transactions for the purpose of monitoring supply security in Switzerland. Article 25 paragraph 1 ESA requires that companies in the electricity industry provide the competent authorities with the information required for enforcement of the Act and make the necessary documents available.

The information provided gives ElCom an insight into trading activities in the Swiss marketplace. This is particularly important in order to analyse the hedging activities of individual companies in the electricity industry as well as the interconnections between them and to be able to draw conclusions about the situation in Switzerland, including possible liquidity requirements of the Confederation to support system-critical companies.

In its decisions of 22 July 2022, ElCom required that system-critical companies submit data by 31 August 2022 on all standard contracts concluded for the 2022 supply period and future supply periods up to this date relating to wholesale electricity for delivery to Switzerland and a delivery period of at least one month. This does not include data on products traded on EPEX SPOT. The data was initially transmitted in XML or CSV format via the SFTP server provided by ElCom. From 1 January 2023 at the latest, the companies were required to transmit the data automatically on a daily basis via the delivery channel (RRM) already in place for data deliveries in accordance with Article 26a ESO.

4.4 New supervisory tasks under FiRECA

With the entry into force of the Federal Act on Subsidiary Financial Aid to support Systemically Critical Companies in the Electricity Industry (FiRECA) on 1 October 2022, data delivery in accordance with ElCom's decisions was replaced by data delivery under FiRECA.

This Act is intended to help ensure that the electricity supply in Switzerland is guaranteed even in the event of unforeseen developments (Art. 1 para. 1 FiRECA).

FiRECA regulates financial assistance for subsidiary support of system-critical companies in the electricity industry that are threatened with or affected by illiquidity due to a liquidity bottleneck as a result of unforeseen developments, despite measures taken by the companies, their financing partners and their direct or indirect owners (Art. 1 para. 2 FiRECA). Art. 3 FiRECA allows the federal government to grant subsidiary financial assistance in the form of loans.

Pursuant to Article 19 FiRECA, the system-critical companies must provide the necessary information and documents, in particular to ElCom and the Swiss Federal Audit Office (SFAO), as well as to the third parties called in for enforcement of this Act, in order to ensure enforcement of FiRECA. Under Article 19, the information required from system-critical companies depends on the phase and, accordingly, ElCom's supervisory duty.

Phase 1 started when FiRECA came into force. According to Article 19 paragraph 2, system-critical companies must provide the following documents in particular:

a. Documents and information on the current financial situation
b. Documents and information on the energy trading transactions concluded
c. An outline of market developments that could lead to the system-critical company requiring additional liquidity.

Phase 2 starts from the time of application for a loan. .Pursuant to Article 19 paragraph 3, system-critical companies must provide the following documents in particular:

a. Financial planning for the period during which the Act is in force
b. Information on the amount and drawdown of loans and credit lines from existing financing partners
c. Open risk positions with counterparties
d. Disaggregated information on margin calls at all organised marketplaces

Phase 3 starts from the date on which the loan is first drawn.

The aim of the FiRECA supervisory concept is to monitor the liquidity development of system-critical companies and to anticipate the liquidity needs resulting from their trading activities. The relevant bodies are regularly informed about ElCom's monitoring.

5 Federal Act on Supervision and Transparency in the Wholesale Energy Markets (GATE)

At its meeting on 16 December 2022, the Federal Council opened the consultation on the Federal Act on Supervision and Transparency in the Wholesale Energy Markets (GATE). The next step is for the SFOE to process the comments and adapt the Act accordingly. ElCom will then be consulted within the framework of the second office consultation in mid-2023, before Parliament deals with the Act (probably in spring 2024), so that it can possibly enter into force in 2025. Once the Act comes into effect, insider trading and market manipulation will be prohibited on the Swiss wholesale energy markets.

The key points about GATE are as follows:

- GATE creates more market transparency in the energy markets, i.e. electricity and gas markets. ElCom is designated as the supervisory authority for both markets.
- The new Act obliges market participants to provide ElCom with information on their transactions and trading orders.
- As the short-term markets are increasingly converging, GATE includes reporting obligations of system services data. This is not provided for in REMIT, which means it would go beyond REMIT; in other countries, such as Austria and Germany, national legislation allows system service data to be integrated into market surveillance.
- Market participants covered by the reporting obligation also include Swissgrid and the operators of the gas transmission network.
- GATE also provides for ElCom to charge fees for this supervisory activity.
- Contracts for the distribution and supply of electricity or gas to end consumers are only considered wholesale energy products if they can have a significant influence on the prices of these products due to their high consumption capacity. The threshold value for the reporting obligation will be specified at a later date in an ordinance.
- The possibility of cooperation with domestic and foreign authorities is also important for ElCom.
- The various possible penalties for market manipulation and insider trading are set out in detail.

This Act extends ElCom's duties under Article 26a^{bis} ff. of the Electricity Supply Ordinance to OTC trading in Switzerland and to all players on the Swiss wholesale energy markets. Parliamentary deliberations will commence in 2024 at the earliest. This means that GATE is not expected to enter into force until 2026 at the earliest.

6 Other work in market transparency and market surveillance

6.1 Cooperation in Switzerland and abroad

Price increases and the associated monitoring tasks meant that not only ElCom, but also all the surrounding energy regulatory authorities and ACER were very busy with new tasks. Few energy regulators had previously acquired much expertise in financial regulation. Therefore, this knowledge and the interconnections between energy market regulation and financial market regulation first had to be built up.

As a result, very few meetings with neighbouring regulators were held in 2022. In March, however, there was one meeting each with the Federal Network Agency and CRE. The main topics discussed were monitoring and the effects of the high prices on the market participants.

The work on FiRECA led to a lively exchange with the Swiss Financial Market Supervisory Authority (FINMA) at the beginning of the year regarding the monitoring of liquidity requirements. At the annual exchange of methodological experience with FINMA, it was reported that there was a new focus on technical developments and automation in the monitoring of markets.

The Market Surveillance departments of EPEX SPOT and ElCom meet once or twice a year to discuss matters of joint interest and current developments. At the last meeting, EPEX SPOT noted that market surveillance on all its markets has changed a lot due to the high prices.

The annual bilateral meeting with SIX took place this time in Bern. This was because ElCom was providing SIX market surveillance with insights into the energy market and presenting the modes of operation of market surveillance.

A subject-specific exchange, mainly concerning the publication of the tender for the hydropower reserve, took place with Swissgrid throughout the year.

On account of developments in Europe, work in the European area was intensified. ElCom continued to attend the meetings of the Council of European Energy Regulators' (CEER) Market Integrity and Transparency Working Group (CMIT). The focus this year was on monitoring price developments in the various markets as well as the effects of financial market regulation and the associated margin calls on European market participants. Discussions were held with the financial supervisory authorities in countries where European clearing houses are located and exchanges were sought with ESMA. These discussions eventually led to the relaxation of the regime for the deposit of collateral in the energy sector towards the end of the year, and the deposit of certain bank guarantees (instead of cash) was also permitted.

In parallel, as every year, it again conducted a survey amongst national regulatory agencies (NRAs) on the implementation status of the REMIT Regulation in EU member states. Even though Switzerland applies national legislation rather than REMIT, ElCom has supported the initiative from the outset.

ElCom's Technical Secretariat again took part in the REMIT forum organised online by ACER this year. The forum was dominated by the wholesale energy markets under pressure and the attendant high prices and high volatility, exacerbated by increasing requirements for collateral and margin calls. Reference was made to the trend on wholesale energy markets of more and more financial products being traded instead of traditional wholesale energy products and also to the rise of high-frequency trading. Some participants were cautious about market design measures, which are being discussed under high political pressure; although they solve short-term problems, they can also have detrimental consequences. It was agreed that REMIT needs more evolution than revolution.

In this context, ACER provided information on the planned changes regarding REMIT. To begin with, Organised Marketplaces (OMPs) will be obliged to report directly to ACER for data quality reasons. Furthermore, the scope of REMIT is to be extended to contracts for system services for electricity and natural gas and contracts for the supply or transport of hydrogen and related derivative contracts. Regarding the disclosure of inside information, a central platform managed by ACER would be welcomed, together with defined thresholds. ACER reported that the collection of REMIT fees has been implemented and they have been granted ten additional staff for market surveillance and coordination up to 2027. It was also of interest to learn that ACER is planning 100% monitoring coverage of EU markets by 2027. All participants confirmed the value of REMIT, especially in times of stressed markets.

As market surveillance and market integrity are cross-border issues, subject-specific communication with the market surveillance departments of other regulatory authorities is of great importance, and ElCom will continue to maintain such exchange.

6.2 Additional market transparency and market surveillance activities

Apart from the weekly spot and futures market reports with market commentaries and the Market Transparency Report 2021, the Technical Secretariat also published other studies and communications produced by the Market Surveillance Section which contribute towards improving transparency for production and consumption-side market participants. These have been published on ElCom's website under the 'Reports and studies' section.

In 2022, the Market Surveillance Section also devoted a great deal of attention to the topic of EU measures to reduce energy prices and their potential impact on Switzerland. The exchange took place both in the CEER working groups and bilaterally with the SFOE and Swissgrid.

7 Outlook

The year 2022 was dominated by an impending energy shortage and the associated efforts to monitor market volatility and maintain security of supply, not only in Switzerland but also other European countries. A great deal has been achieved in this regard across Europe. A wide variety of measures were introduced in the energy market in 2022 (see ElCom's Activity Report). Potential impacts on Switzerland are to be observed. The European Commission launched a public consultation on a reform of the EU's electricity market design from 23 January 2023 to 13 February 2023. It can be assumed that further measures will also follow in the course of 2023. Appropriate regulations, such as contracts for difference (CfD), could play a role here in order to increase liquidity on the long-term market and further promote the expansion of new renewable energies.

Ensuring security of supply is not just about the physical availability of power plants – it also means maintaining the financial stability of system-critical companies. It has become clear that in a crisis situation it is particularly important that the competent authorities have sufficient access to data. This is the only way to assess the impact of the measures taken and to determine, on this basis, any additional need for action.

As a first step in this direction, Parliament passed the urgently needed Federal Subsidiary Financial Aid Act (FiRECA) in October 2022. This Act is limited in time to the end of 2026, after which it will be replaced by other legal provisions. One aspect of the next step in this direction is GATE, the law designed to create more transparency, improve supervision and strengthen confidence in the integrity of the wholesale energy market and system stability in the electricity and gas sectors.

GATE expands ElCom's scope of legal competence regarding the supervision of electricity and gas wholesale markets. This allows ElCom to better assess risks in the electricity and gas trading market, and also the liquidity situation of the companies involved.

After the adoption of the Federal Act on Subsidiary Financial Aid, a motion was submitted in the Council of States instructing the Federal Council to limit the economic risks emanating from system-critical energy companies with legal measures (22.4132 Mo. Herzog). The Federal Council has recommended this proposal for approval, and the Council of States has already approved it.

In a second step towards replacing FiRECA, REMIT+ addresses measures to make the electricity sector more resilient. This includes requirements for the liquidity and capitalisation of (electricity) companies as well as the use of appropriate risk management. Furthermore, it is to be determined which rules are to increase transparency with regard to trading transactions in connection with the management of assets and proprietary trading. This is also with regard to possible requirements for more transparent

accounting of these transactions. The aim is to increase the stability of system-critical (electricity) companies. It is not yet clear what ElCom's scope of authority will be in this regard. REMIT+ is currently still in the draft stage and not yet in force.

These planned framework conditions for crisis management in the electricity and gas sector are intended to adapt the possibilities of market surveillance to current developments and to strengthen the security of energy supply as a whole.

Given that market developments, price swings and liquidity issues know no borders, the exchange of experience with regulators is becoming increasingly important. The planned legislative proposals will make this urgently needed coordination possible.

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Glossary

ACER	Agency for the Cooperation of Energy Regulators
ACM	*Autoriteit Consument & Markt* (Netherlands regulator)
ARA	Reference price for thermal coal delivered to one of the coal terminals in Amsterdam, Rotterdam or Antwerp
ARERA	*Autorità di Regolazione per Energia Reti e Ambiente* (Italian regulator)
API2	Rotterdam Coal Futures Index
SFOE	Swiss Federal Office of Energy
BNetzA	*Bundesnetzagentur* (German regulator)
CACM	Capacity Allocation and Congestion Management
CEER	Council of European Energy Regulators
CEREMP	Centralised European Register of Energy Market Participants
CMIT	CEER Market Integrity and Transparency Working Group
CNE	*Comisión Nacional de Energía* (Spanish regulator)
CRE	*Commission de régulation de l'énergie* (French regulator)
ECC	European Commodity Clearing
E-Control	*Energie-Control GmbH* (Austrian regulator)
EEX	European Energy Exchange (European electricity exchange for futures contracts)
EEX TP	European Energy Exchange Transparency Platform
ElCom	Swiss Federal Electricity Commission
ENTSO-E	European Network of Transmission System Operators for Electricity
ENTSO-E TP	European Network of Transmission System Operators for Electricity Transparency Platform
ENVI	EU Committee on the Environment, Public Health and Food Safety
EPEX SPOT	European Power Exchange for spot and intraday trading
EU	European Union
EUA	European Emission Allowances
FINMA	Swiss Financial Market Supervisory Authority
FiRECA	Federal Act on Subsidiary Financial Aid to support Systemically Critical Companies in the Electricity Industry
GATE	Federal Act on Supervision and Transparency in the Wholesale Energy Markets
GW	Gigawatt
GWh	Gigawatt hour
HMMCP	Harmonised maximum and minimum clearing prices
IIP	Inside Information Platform
IPCEI	Important Projects of Common European Interest
AI	Artificial intelligence
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MIT	Market Integrity and Transparency
MMS	Market Monitoring System
MSR	Market Stability Reserve
MW	Megawatt
MWh	Megawatt hour
NCG	Reference price for the German gas price from the market area operator NetConnect
NEMO	Nominated electricity market operator
Ofgem	Office of Gas and Electricity Markets (UK regulator)
OMP	Organised market places
OTF	Organised trading facility
REMIT	Regulation on Wholesale Energy Market Integrity and Transparency
RRM	Registered reporting mechanism
SDAC	Single day-ahead coupling
SIDC	Single intraday coupling
STOR	Suspicious Transaction and Order Report
ESO	Electricity Supply Ordinance

Terna	*Gestore della rete di trasmissione italiana* (Italian network operator)
TTF	Virtual trading point in the Dutch gas network and reference price for the gas market in the Netherlands
TWh	Terawatt hour
URE	*Urząd Regulacji Energetyki* (Polish regulator)
VPP	Virtual power plant
XBID	Cross-border intraday
ZEV	Community for self-consumption (*Zusammenschluss zum Eigenverbrauch*)