

Competition between electricity exchanges in Germany

Chapter III of the 8th Energy Sector Report of the Monopolies Commission pursuant to § 62 EnWG

The full Report (in German) is accessible at:
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The Monopolies Commission is a permanent, independent expert committee, which advises the German government and legislature in the areas of competition policy-making, competition law and regulation. Its legal responsibilities encompass, among others, the preparation of a biennial reports analysing the development of competition in the markets of grid-bound electricity and gas supply (§ 62 of the Law on the Energy Industry). The Monopolies Commission has five Members appointed by the Federal President based on a proposal of the German government. Prof. Dr. Jürgen Kühling, LL.M., is the chairman of the Monopolies Commission.

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Summary

In the German Luxembourg (GER/LUX) bidding zone, short-term electricity trading (i.e., intraday trading) is possible from 3 pm a day ahead up to five minutes before delivery. For almost the entire period the order books of the two electricity exchanges, EPEX SPOT and Nord Pool, active in Germany are shared and accessible to all electricity traders via the pan-European trading platform XBID so that supply and demand of electricity can be matched efficiently. However, the incumbent, EPEX SPOT, on which over 90% of the market volume is traded in intraday trading in the GER/LUX bidding zone, stops sharing its order books 60 minutes before delivery. During the last hour, trading is only possible locally on the platforms of EPEX SPOT or Nord Pool.

Commission Regulation (EU) 2015/1222 establishing a guideline on capacity allocation and congestion management (CACM Regulation) determines in Article 59 a framework for the start and end of the cross-border intraday market as well as the sharing of the exchanges' order books during this period. Based on the CACM Regulation, the Agency for the Cooperation of Energy Regulators (ACER) set the start of cross-border intraday trading at 3 pm in 2017 and expected a gradual adjustment towards the starting time by January 2019. The end of cross-border trading was set at 60 minutes before delivery. However, in the GER/LUX bidding zone, it is possible to trade in the intraday market up to five minutes before delivery, unlike in most European bidding zones, where trading is only possible up to 60 minutes before delivery.

Until 1 June 2021, EPEX SPOT did not share its order books until 6 pm or 10 pm. Since 1 June 2021, trades are now shared from 3 pm. However, between 3 pm and 6 pm or 10 pm, trading is only possible within the GER/LUX bidding zone and not across bidding zones as expected by ACER.¹ The Monopolies Commission recommends that the German Federal Network Agency (Bundesnetzagentur (BNetzA)), in collaboration with the transmission system operators (TSOs), provide capacities not only within the GER/LUX bidding zone, but also at interconnections for cross-border trade. Thus, the sharing of order books may be implemented as quickly as possible also for cross-border trade from the start of the intraday market at 3 pm on the day before delivery.

The sharing of order books over the entire period of intraday trading is an interference in the market and in the original property rights of electricity platforms. However, the Monopoly Commission expects it will improve competition between electricity exchanges, which in turn promotes innovation and investment in the intraday market. In addition, by sharing order books, a better allocation of supply and demand can be achieved because all sales and purchases are matched efficiently. An optimal allocation of supply and demand close to delivery is becoming more important, as traders need to compensate electricity shortages and surpluses nowadays very close to delivery due the increased use of renewable energies.

Transaction data from both electricity exchanges show that EPEX SPOT's share of total trade volume increases by 6 percentage points in the last hour before delivery compared with cross-border trading. This result suggests that competition between the two electricity exchanges decreases in the last hour before delivery. Conversations with traders revealed that the lack of trade volume at Nord Pool in the last hour before delivery is a reason to only partially trade on Nord Pool or not at all. Furthermore, traders expect more competition based on price and service levels if the entire trade volume is available on both electricity exchanges over the entire period of intraday trading.

Furthermore, Article 7 of Regulation (EU) No. 2019/943 imposes the obligation to share order books over the entire period of intraday trading in the GER/LUX bidding zone. Article 7 of Regulation (EU) No. 2019/943, on which the CACM Regulation is based, provides that intraday markets shall be organised in such a way as to ensure that all market participants are able to access the market individually or through aggregation. All market participants shall have the opportunity to participate in cross-zonal trade as close as possible to real time across all bidding zones.

¹ The GER/LUX bidding zone includes two different European capacity calculation regions (i.e., geographic areas for which coordinated capacity calculations are performed). Hansa includes the Germany -Denmark border, and Core includes the borders between Germany and Austria and between Germany or Luxembourg and the Netherlands and France. Cross-border trade in the Hansa region begins at 6 pm and in the Core region from 10 pm.

There shall be no distinction between transactions within a bidding zone and across bidding zones. Furthermore, TSOs and exchanges shall jointly build and manage an integrated intraday market that reflects prices that correspond to the real-time value of energy and basic market conditions.

After weighing up all arguments, the Monopolies Commission recommends that the Bundesnetzagentur fully enforce Article 59(4) and (5) sentence 2 of the CACM Regulation and Article 7(1) of Regulation (EU) 2019/943, which oblige the sharing of order books over the entire period of intraday trading. For this purpose, the Monopolies Commission also welcomes the draft submitted by ACER to revise the current CACM Regulation, which specifies the sharing of order books further.

3.1 Structure of the short-term wholesale electricity market

41. Electricity is traded in different ways. Most of the transactions, so called “over-the-counter (OTC)” transactions, are long-term focused and mostly completed directly between a buyer and a seller. Electricity can also be traded on electricity exchanges as futures up to six years in advance. In the short term, electricity is mostly traded in the day-ahead and intraday market, where delivery takes place a day ahead or on the same day, yet at least five minutes after closure of trade. The following chapter deals solely with short-term electricity trading in Germany and the intraday market in particular.

3.1.1 The geographic landscape of the internal European electricity market

42. The liberalisation of the electricity market in the 1990s marked the starting point for an internal European electricity market. Since electricity cannot be stored easily and the frequency of electricity has to be stable at all times, the flow of electricity always needs to be balanced in the transmission network. This is why short-term electricity trading is an important tool to constantly keep the overall electricity system in equilibrium.

43. The internal European electricity market is divided into several bidding zones, which each form separate pricing areas that are driven by supply and demand. Electricity must move without capacity restrictions within a bidding zone from its source to its user, which means that the price for electricity is the same everywhere within a bidding zone. Physical shortage of electricity is either remedied by redispatch² and grid expansion, or the line overload is taken into account when estimating cross-border capacities.³

44. Trading between bidding zones is possible because interconnections link the different bidding zones of the internal European electricity market. Interconnections, which link the power lines of two bidding zones, are often natural bottlenecks, so that electricity between two bidding zones can only flow if enough capacity is available at these interconnections.

45. Market coupling of the individual bidding zones in Europe was designed in such a way that market participants only buy or sell electricity, but not capacity, on exchanges in the short term. To minimise price differences in the various bidding zones, exchanges take into account cross-border capacity constraints when setting prices. Cross-border electricity trading depends on the available transmission network capacity.⁴ Market coupling of the individual bidding zones guarantees the transmission of electricity.⁵

46. Germany is an exception among the European bidding zones, as it is divided into four control zones.⁶ The German-Luxembourg (GER/LUX) bidding zone forms one homogenous pricing zone and contains the four German

² The four transmission system operators in Germany use redispatch by requesting power plants to adjust the supply of active power into the grid to prevent bottlenecks in the system. When one power plant in one location lowers its electricity supply, another increases its supply in a different location; therefore the total supply of electricity into the grid overall remains the same.

Netztransparenz,
<https://www.netztransparenz.de/EnWG/Redispatch#:~:text=Redispatch%2DMa%C3%9Fnahmen,regelzonenintern%20und%20%2D%C3%BCbergreifend%20angewendet%20werden>. Access on 23.03.2021.

Bundesnetzagentur, Monitoringbericht 2020, p. 216.

³ The capacity calculation also takes into account internal network elements. Therefore, a line overload on one of the internal network elements can also limit cross-border trading.

Bundesnetzagentur, Email of 21.04.2021.

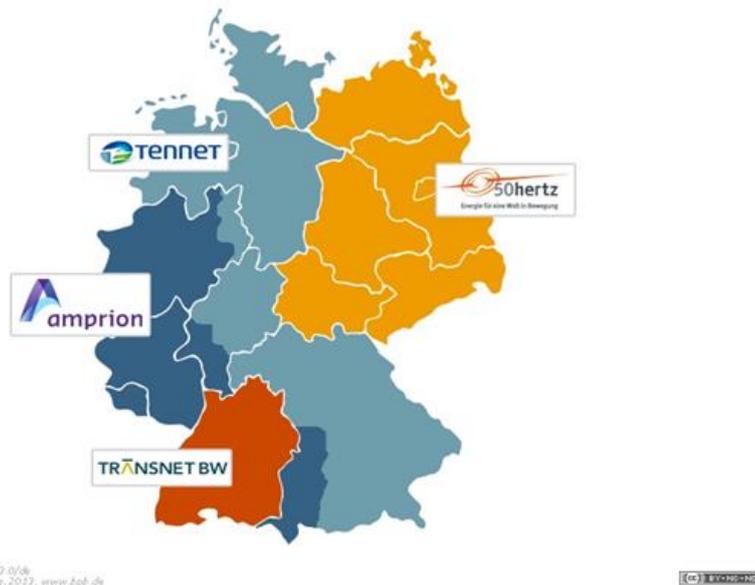
⁴ As long as there is capacity, electricity can flow. The less capacity is available at an interconnection at a certain point in time, the more expensive is the traded electricity that needs to go via this interconnection to arrive at the location of its use.

⁵ Bundesnetzagentur, Monitoringbericht 2020, p. 218.

⁶ Control zones are geographic areas of high- and maximum voltage networks. The transmission system operators (TSOs) are responsible for the network stability within control zones.

control zones as well as Luxembourg.⁷ The control zones are, similarly to bidding zones, linked via interconnections and geographically divided as shown in Figure 3.1.⁸

Figure 3.1: Control zones of the four transmission system operators (TSOs) in Germany



Lizenz: Creative Commons by-nc-nd/3.0/de. Bundeszentrale für politische Bildung, 2012, www.bpb.de

Source: Federal Agency for Civic Education.⁹

47. Electricity cannot flow without capacity restrictions between control zones. The transmission network operators (TSOs) have to balance feed-in and offtake across control zones via the integrated grid of the German transmission networks (i.e., *Netzregelverbund*). Therefore, TSOs can send excess electricity in one area via interconnections to another area where electricity is scarce. Price does not vary across the four control zones, since all control zones are part of the same pricing zone, which means that electricity in Berlin is as expensive as in Munich at all times.

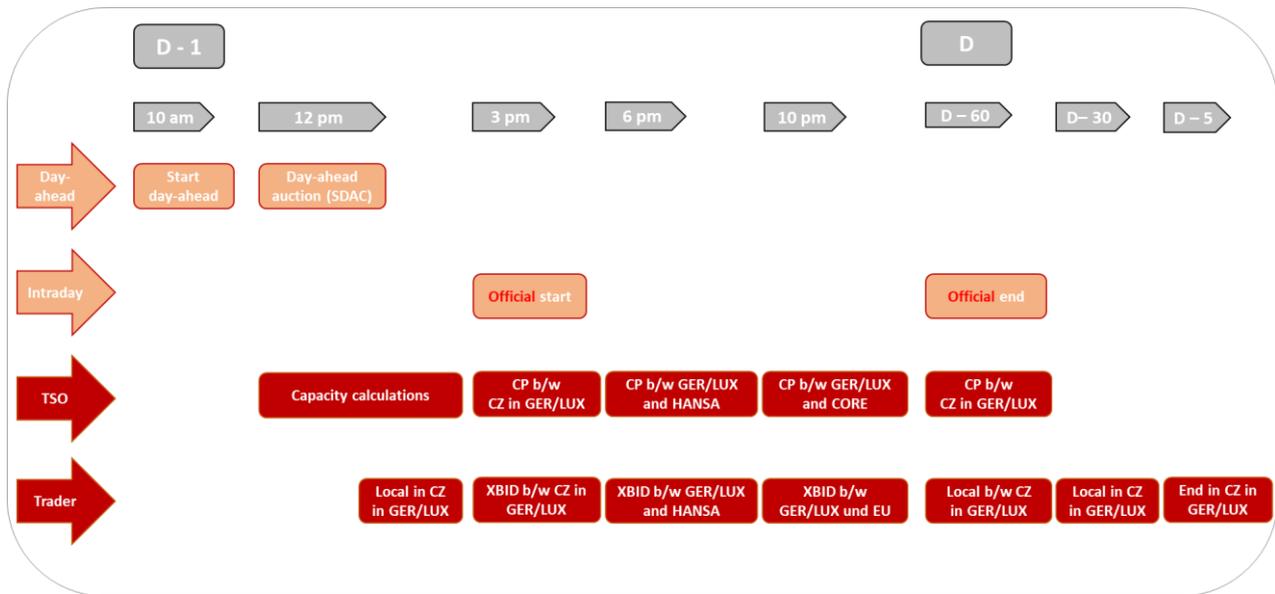
3.1.2 The timing of short-term electricity trading

48. The following figure provides an overview of short-term electricity trading in the day-ahead and intraday market and the TSOs' processes that run in the background. The figure can be used as a reference for the different procedures described in the following chapters.

⁷ BNetzA, Monitoringbericht 2020, p. 216.

⁸ The four German TSOs are TenneT TSO GmbH, 50 Hertz Transmission GmbH, Amprion GmbH and TransnetBW BW GmbH.

⁹ Federal Agency for Civic Education, <https://www.bpb.de/politik/wirtschaft/energiepolitik/148524/ausbau-des-stromnetzes>. Access on 29.03.2021.

Figure 3.2: Short-term electricity trading in Germany

Note: D-1=Day before delivery, D=Day of delivery, D-60/30/5=60/30/5 minutes before delivery, GER/LUX=GER/LUX bidding zone, CP=Capacity, CZ=Control zone.¹⁰

49. Short-term electricity trading mainly happens in two stages:

- In the day-ahead market, electricity is auction-based traded for the following day.
- In the intraday-market, electricity is mainly traded continuously. Exceptions are individual, local auctions.¹¹

50. The day-ahead and intraday markets are coupled across most of Europe in order to use transmission network capacities between participating bidding zones efficiently. Trading is done on the nominated electricity market operators (i.e., NEMOs), also known as electricity exchanges. The national regulatory authorities appoint NEMOs. Traders can trade electricity in the GER/LUX bidding zone on EPEX SPOT and Nord Pool across all of Europe. EPEX SPOT, set up in 2008, is the established electricity exchange in Germany. The German Federal Network Agency (i.e., *Bundesnetzagentur (BNetzA)*) appointed Nord Pool as NEMO in the GER/LUX bidding zone in 2016.¹²

51. Traders can trade electricity in the GER/LUX bidding zone until 5 minutes before delivery. Electricity exchanges collect purchase and sale offers in an order book, which reflects the price of electricity at any point in time. The exchange acts as a trading partner to both the buyer and the seller to guarantee the payment and delivery of electricity and to mitigate the risk vis-à-vis the other trading party.

3.1.2.1 The day-ahead market

52. Electricity trading in the day-ahead market starts on the day before delivery at 10 am and essentially consists of one pan-European auction (i.e., Single-Day-Ahead-Auction (SDAC)). All purchase and sales offers must be recorded in the shared order book (i.e., SOB) before it closes at 12 pm (see Figure 3.2).

53. During the SDAC, traders can make offers and bids for every time of delivery (i.e., quarter, half and full hours) of the following day, which reflects their willingness to sell and buy. In this auction, block products are also traded,

¹⁰ HANSA und Core are capacity calculation regions, which are explained in para. 69. XBID is the European trading platform; it is explained in para. 67.

¹¹ BNetzA, Monitoringbericht 2020, p. 217.

¹² BNetzA, Decision of 11 January 2016, BK6-15-044-N2.

which bundle products of different times of delivery. The market-clearing price reflects demand and supply of electricity at any given point in time of the following day. Electricity of all European bidding zones is traded in this auction including GER/LUX, the Baltic countries, the Nordic countries, Central Western Europe and Great Britain.

3.1.2.2 The intraday market

54. Electricity is traded around the clock in the intraday market, and trades are completed as soon as a bid can be matched with a sales offer. Given a specific time of delivery, electricity can be traded from 3 pm of the previous day until 60 minutes before delivery (see Figure 3.2).

55. In the GER/LUX bidding zone it is possible to trade up until five minutes before delivery, which is longer than in most European countries, where trading is only possible until 60 minutes before delivery. Similar to the day-ahead market one can trade quarter-, half- and full-hour products as well as block products.¹³ The intraday market offers market participants a high level of flexibility, as they can adjust their balance sheets at very short notice and hedge their positions close to real time.¹⁴

56. The GER/LUX bidding zone is coupled with the other European countries during most of the trading time in the intraday market. Therefore, market participants have access to the maximum amount of trade volume such that supply and demand are matched efficiently on the NEMOs.

3.1.3 The regulatory basis of the intraday market

57. In August 2015, the European Commission adopted Commission Regulation (EU) 2015/1222 (CACM Regulation), which establishes a guideline on capacity allocation and congestion management.¹⁵ The objectives of this regulation are an efficient coupling of the European electricity markets to maintain the security of energy supply, the strengthening of competition and the procurement of energy at affordable prices.¹⁶

58. The CACM Regulation provides with Article 59 a framework of two main features that are important for competition between electricity exchanges. These are the beginning (i.e., opening) and end (i.e., closing) of the cross-zonal intraday market in Article 59(2) to (4) of the CACM Regulation as well as the sharing of the NEMOs' order books during this time in Article 59(5) sentence 2 of the CACM Regulation.

59. Given the above-named rules of the CACM Regulation, in particular Article 59(4) and (5) sentence 2, it can be derived that the sharing of order books is directly hinged to the beginning of the cross-zonal intraday trade and ends with its closing. During the sharing of order books in the GER/LUX bidding zone, all trades on EPEX SPOT and Nord Pool are shared via the joint order book, and traders have access to the whole trade volume in the market via both NEMOs' trading platforms.

60. The CACM Regulation allows Member States to name only one NEMO in their region if a statutory national monopoly existed previously. According to the case law of the European Court of Justice (ECJ), the granting of an exclusive right to an undertaking by a Member State does not already constitute a violation of Article 106(1) in conjunction with Article 102 TFEU simply because it creates a dominant position or even a monopoly.¹⁷ The contrary only applies if an undertaking is already abusing its dominant position within the meaning of Article 102

¹³ Electricity is traded on exchanges for different periods. Such electricity contracts differ with regard to the amount of electricity traded for a different period of quarter-, half- full hours. They are named 15-, 30- and 60-minute contracts. Block products are bundles of multiple electricity contracts in order to trade electricity contracts of longer periods.

¹⁴ Network users have to form so-called balancing groups according to § 4 StromNZV. The balancing group manager, who is nominated by the network users, is responsible for keeping the feed-in and offtake in its balancing group levelled out.

¹⁵ Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, OJ L 197 of 14 August 2015, p. 24 (CACM Regulation).

¹⁶ Recital 1 of the CACM-Regulation.

¹⁷ ECJ, judgment of 12 September 2001, C-180- to -184/98 – Pavlov i.a., ECLI:EU:C:2000:428, pt. 127; judgment of 23 April 1991, C-41/90 – Höfner und Elser, ECLI:EU:C:1991:161, para. 29.

TFEU or if the State measure creates a situation that incentivises the undertaking to commit such a violation.¹⁸ Only in the event of a violation of Article 106(1) in conjunction with Article 102 TFEU would it have to be examined whether the state measure is justified under Article 106(2) TFEU, because it concerns a service of general economic interest.¹⁹

3.1.3.1 Intraday cross-zonal gate opening and closing time

61. The following discusses how the current CACM Regulation regulates the opening and closing of the cross-zonal intraday market and the resulting sharing of order books. Determining the time when the cross-zonal intraday trade should start in Europe, and in the GER/LUX bidding zone in particular, was and still is controversial. Besides, the actual opening time still differs from the official opening time in the GER/LUX bidding zone. The problem is that two objectives of the CACM Regulation have to be balanced. On the one hand, the period shall be chosen so that market participants can adjust their positions as close to real time as possible in order to maximise flexibility. On the other hand, TSOs shall have sufficient time for planning and balancing processes in order to be able to guarantee network and operational security.²⁰

62. After the CACM Regulation came into force in 2015, TSOs were supposed to propose the opening and closing times of the cross-zonal intraday market to the national regulatory authorities within 16 months.²¹

63. In 2016, the European Network of Transmission System Operators for Electricity (ENTSO-E) proposed to the national regulatory authorities (NRAs) to open the intraday market in the GER/LUX bidding zone at 6 pm or 10 pm.²² The GER/LUX bidding zone is part of two different European capacity calculation regions, which are geographic areas for which coordinated capacity estimations are made. Hansa contains the border of Germany and Denmark, and Core contains the borders of Germany and Austria as well as Germany or Luxemburg and the Netherlands and France. The TSOs in the Core region only considered an opening time of 10 pm as possible while the TSOs in the Hansa region agreed on an opening time at 6 pm.²³ After publication of the day-ahead auction results at 12:40 pm, TSOs in Germany (but also in other European countries) have to run a number of processes to technically execute the results (in particular redispatch estimation and request), and to start the intraday capacity calculations based on these results.²⁴ These processes apparently cannot run during intraday trading but have to be finished before the intraday market starts, which according to the TSOs cannot be before 6 pm or 10 pm. The NRAs expected an opening time before 6 pm or 10 pm to be possible and proposed gradually adjusting the opening time to three pm.²⁵

¹⁸ ECJ, judgment of 17 July 2014, C-553/12 P – DEI, ECLI:EU:C:2014:2083, paras. 45, 59; judgment of 25 October 2001, C-475/99 – Ambulanz Glöckner, ECLI:EU:C:2001:577, para. 39. See also Kühling in: Streinz, EUV/AEUV, 3rd Ed., München 2018, Art. 106 AEUV para. 26.

¹⁹ See ECJ, judgment of 25 October 2001, C-475/99 – Ambulanz Glöckner, ECLI:EU:C:2001:577, para. 51.

²⁰ Article 59(2) of the CACM Regulation. For the objectives of the CACM Regulation, see also Article 3 of this Regulation.

²¹ Article 59(1) of the CACM Regulation.

²² ENTSO-E, All TSOs' proposal for intraday cross-zonal gate opening and gate closure times in accordance with Article 59 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, 10 August 2017, Article 4(1)(b), (c).

²³ ENTSO-E, Supporting document to the amended all TSOs' proposal for intraday gate opening and gate closure times in accordance with Article 59 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, paras. 6.2. and 6.3.

²⁴ BNetzA, response to the Monopolies Commission's market questionnaire, p. 16.

²⁵ To change the opening time from 6 pm or 10 pm to 3 pm in one go is almost impossible for TSOs. Therefore, NRAs expected a gradual adjustment until 1 January 2019 to be more realistic.

ACER, Decision of the Agency for the cooperation of energy regulators of 24 April 2018 on all transmission system operators' proposal for intraday cross-zonal gate opening and intraday cross-zonal gate closure times, para. 10.

64. Because TSOs and NRAs could not come to an agreement, the decision was transferred to the Agency for the Cooperation of Energy Regulators (ACER).²⁶ ACER did not accept the TSOs' arguments and decided in 2018 in line with the NRAs, which means that the cross-zonal intraday market in Europe officially shall open at 3 pm and close 60 minutes before the start of the relevant market time unit (i.e., delivery time).²⁷

65. ACER considered that a start at 3 pm would be sufficient to finalise the day-ahead processes. A start of the intraday market at 3 pm may cause overlaps in some bidding zones between day-ahead and intraday timeframes in some bidding zones or regions due to existing scheduling rules; however, TSOs have some flexibility when estimating available cross-zonal capacity volumes at the beginning of the intraday market. Yet, the flexibility available to TSOs in determining the volume of cross-zonal capacities provides TSOs with sufficient time to gradually adapt these rules and phase out any overlaps.²⁸ Originally, ACER expected these processes to be finalised by 1 January 2019 in order for the cross-zonal trade in the intraday market of the GER/LUX bidding zone to start at 3 pm.²⁹

66. Since the start of the negotiations, TSOs and NRAs agreed on the cross-zonal intraday gate closing time set at 60 minutes before delivery.³⁰ While in most European countries short-term trading finishes at that time, intraday-trade is still possible in the four German control zones (and Luxembourg), where trade between the control zones is still possible until 30 minutes before delivery. Within a control zone, trade can still take place until five minutes before delivery.³¹

3.1.3.2 Sharing of order books

67. According to the CACM Regulation, all NEMOs in a bidding zone have to submit their orders for a given market time unit for single matching immediately after the orders have been received from market participants during the cross-zonal intraday trade, which is between 3 pm and 60 minutes before delivery.³² To implement this, the European Cross-Border Intraday Market (XBID) Solution was found in June 2018. XBID is based on a common IT system containing a shared order book, a capacity management module and a shipping module. The system allows one to match trades from market participants of different bidding zones as long as enough cross-zonal capacity is available.³³

68. The orders submitted by traders via the NEMOs' local trading platforms are centralised in the shared order book of XBID. Similarly, TSOs provide capacities at interconnections via the capacity management module. The shipping module offers all market participants information on all orders made via XBID. Market participants exclusively trade via the NEMOs' local platforms and do not directly interfere with XBID.³⁴ XBID is only a so-called

²⁶ *Ibid.*, para. 9.

²⁷ Article 59(3) of the CACM Regulation; ACER, Decision of the Agency for the cooperation of energy regulators of 24 April 2018 on all transmission system operators' proposal for intraday cross-zonal gate opening and intraday cross-zonal gate closure times, para. 48.

²⁸ ACER, Decision of the Agency for the cooperation of energy regulators of 24 April 2018 on all transmission system operators' proposal for intraday cross-zonal gate opening and intraday cross-zonal gate closure times, para. 48.

²⁹ *Ibid.*, para. 54.

³⁰ ENTSO-E, Supporting document to the amended all TSOs' proposal for intraday gate opening and gate closure times in accordance with Article 59 of Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, Article 6.

³¹ Feed-in and offtake of electricity is only possible within a control zone during internal control area trade.

³² Article 59(5) sentence 2 of the CACM Regulation.

³³ Amprion, [https://www.amprion.net/Strommarkt/Engpassmanagement/Multi-Regional-Coupling-Cross-Border-Intraday/Cross-Border-Intraday-\(XBID\)-Project.html](https://www.amprion.net/Strommarkt/Engpassmanagement/Multi-Regional-Coupling-Cross-Border-Intraday/Cross-Border-Intraday-(XBID)-Project.html), Access on 25.03.2021.

³⁴ XBID matches a trade between a customer of EPEX SPOT and a customer of Nord Pool, the NEMOs become contractual partners of the deal instead of the traders. This means that there is no exchange of personal information of traders between NEMOs when trades are matched via XBID.

backend solution, which connects trading platforms via the shared order book. During trading time in the intraday market, available capacities and the shared order book are constantly updated.³⁵

3.1.3.3 The CACM Regulation is currently not fully implemented in Germany

69. At the time of discussions between the Monopolies Commission and market participants, the German TSOs stated that they were unable to estimate the availability of capacities at 3 pm the day ahead for the intraday market in the GER/LUX bidding zone. According to the above-mentioned ACER-Decision, the intraday market begins in the bidding zone at 3 pm, but the TSOs do not immediately provide capacities in the system, which means that cross-border trading is actually not possible at this time. Cross-border trading in the intraday market can only begin when the TSOs provide capacities at 6 pm for the HANSA capacity calculation region and at 10 pm for the CORE capacity calculation region (see Figure 3.2).

70. Until June 2021, the TSOs also provided capacities at the interconnections of the four German control zones only from 6 pm, as they were just able to guarantee capacity restriction free trading in the bidding zone from this point on. Therefore, trading between 3 and 6 pm was only possible on the local electricity exchanges and not via the shared order books of XBID.³⁶

71. EPEX SPOT allowed trading from 3 pm on its local platform (e.g., EPEX Intraday-Auction at 3 pm), as it expected that trading within Germany was possible without capacity restrictions from 6 pm (see Figure 3.2). Such trading happened at the risk of the NEMO.³⁷ Trading without shared order books was not attractive to Nord Pool, as only a marginal amount of electricity is traded via its local platform.³⁸

72. At the end of March 2021, EPEX SPOT announced in a press release that TSOs will soon provide unlimited transmission capacities from 3 pm to 6 pm between the four German TSOs' control zones, so that intraday trading via the shared order book of XBID will be possible across all German control zones (see Figure 3.2).³⁹ This was implemented on 1 June 2021, according to the NEMOs.

73. Therefore, traders can now access electricity trades from 3 pm via both of the NEMOs in Germany, EPEX SPOT and Nord Pool. Current trading data shows that Nord Pool's traders are using this option. In the first three weeks of June, around 17% of the electricity traded between 3 pm and 6 pm was traded via Nord Pool. Cross-border intraday trading with Germany's neighbouring countries begins at 6 pm or 10 pm up to 60 minutes before delivery. In the last 60 minutes, market participants can trade electricity in Germany on the local NEMOs' exchanges up to 30 minutes before delivery (i.e., trading between the four control areas) and up to five minutes before delivery within a German control zone (see Figure 3.2).

74. In conclusion, it can be stated that the beginning and the end of cross-border intraday trading is set at 3 pm in the CACM Regulation in conjunction with the ACER Decision, yet it is currently not implemented consistently in Germany.

3.1.3.4 The CACM Regulation will be adapted

75. The current CACM Regulation of the European Commission is based on Article 18(3)(b) and (5) of Regulation (EC) No. 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003. Regulation (EC)

³⁵ Amprion, XBID Information Package, p. 2.

³⁶ Nord Pool, response to the Monopolies Commission's market questionnaire, p. 2.

³⁷ BNetzA, response to the Monopolies Commission's market questionnaire, p. 18.

³⁸ Nord Pool, response to the Monopolies Commission's market questionnaire, p. 5.

³⁹ EPEX SPOT, <https://www.epexspot.com/en/news/deutscher-intraday-markt-schlechtere-handelsbedingungen-dank-gemeinsamer-bemuhungen-vermieden>, Access on 26.03.2021.

No. 714/2009 has been amended significantly several times and is now revised as Regulation (EU) No. 2019/943 of the European Parliament and of the Council for reasons of clarity.

76. Regulation (EU) No. 2019/943 provides that intraday markets shall be organised in such a way as to ensure that all markets participants are able to access the market individually or through aggregation. They shall maximise the opportunities for all market participants to participate in cross-zonal trade as close as possible to real time across all bidding zones.⁴⁰ There shall be no distinction between transactions within a bidding zone and across bidding zones.⁴¹ Furthermore, TSOs and NEMOs shall jointly build and manage an integrated intraday market that reflects prices which correspond to the real-time value of energy and basic market conditions.⁴²

77. Currently, the existing CACM Regulation shall be adapted to Regulation (EU) No. 2019/943. Therefore, ACER has submitted a corresponding draft.⁴³ The consultation period ran until 10 June 2021. The implementation of ACER's recommendation to the European Commission is expected towards the end of 2022 at the earliest.

78. Particularly relevant for the intraday market is Article 36 of the draft, as it summarises some important points with regard to shared order books:

- a) All continuous intraday trading and all intraday auctions shall be processed via XBID.⁴⁴
- b) During continuous trading in the intraday market, NEMOs shall submit all orders received from market participants for a given market time unit immediately to the shared order book for matching. During this time, NEMOs shall not organise trading with intraday products outside of the shared order books.⁴⁵
- c) The continuous trading closure time shall be set in such a way that it ensures fair and effective competition between NEMOs, in particular those operating in the same bidding zone.⁴⁶
- d) It shall provide an efficient price signal to market participants⁴⁷, which will increase transparency in the market.

3.2 Promoting competition in the intraday market

79. Regulation (EU) No. 2019/943 provides the base to make continuous sharing of order books mandatory. The following chapter discusses the economic rationale and summarises relevant arguments that justify the sharing of order books.

3.2.1 Liquid markets are competitive

80. Liquidity describes how quickly market participants can buy and sell products. The level of liquidity in a market depends on the number of products available and the number of market participants who are willing to buy or sell these products. The larger a market or the higher its liquidity, the faster traders can buy or sell goods. In large or liquid markets, one single transaction does not cause a significant change in price and transaction costs are comparatively low. Therefore, liquid market is characterised by many buyers and sellers facing each other all times.

⁴⁰ Article 7(2)(h) and (c) of Regulation (EU) No. 2019/943.

⁴¹ Article 7(2)(a) and (g) of Regulation (EU) No. 2019/943.

⁴² Article 7(1) and (2)(d) of Regulation (EU) No. 2019/943.

⁴³ ACER, PC_2021_E_03 Public consultation on reasoned amendments to the Capacity Allocation and Congestion Management Regulation (CACM 2.0) (europa.eu), Access on 19.04.2021.

⁴⁴ ACER, 210413 PC AM IV.1.1 MC General requirements final, p. 1.

⁴⁵ ACER, 210413 PC AM IV.1.3 TCMs on market coupling operation final, p. 4.

⁴⁶ ACER, 210413 PC AM IV.1.3 TCMs on market coupling operation final, p. 3.

⁴⁷ ACER, 210413 PC AM IV.1.1 MC General requirements final, p. 3.

81. Liquidity is an important characteristic of well-functioning markets, and a liquid electricity stock market is desirable for a number of reasons:

- a) Large number of trading partners.
- b) Comprehensive and transparent information on prices and trade volumes for all market participants.
- c) Market prices close to the equilibrium price, which would arise in a market of perfect competition. Most trade deals cut outside electricity exchanges are also based on the electricity exchange price.
- d) Reducing the risk of market manipulation, since the market power of each market participant decreases as the number of market participants increases.
- e) Promoting market entry, as new entrants are assured to be able to buy and sell electricity at any time.

82. Electricity exchanges play an important role for electricity trading because they enable traders to balance their supply and demand at very short notice almost up to the time of delivery. Therefore, it is important that a large number of buyers and suppliers face each other on electricity exchanges at any given time to maximise efficiency in short-term trading.

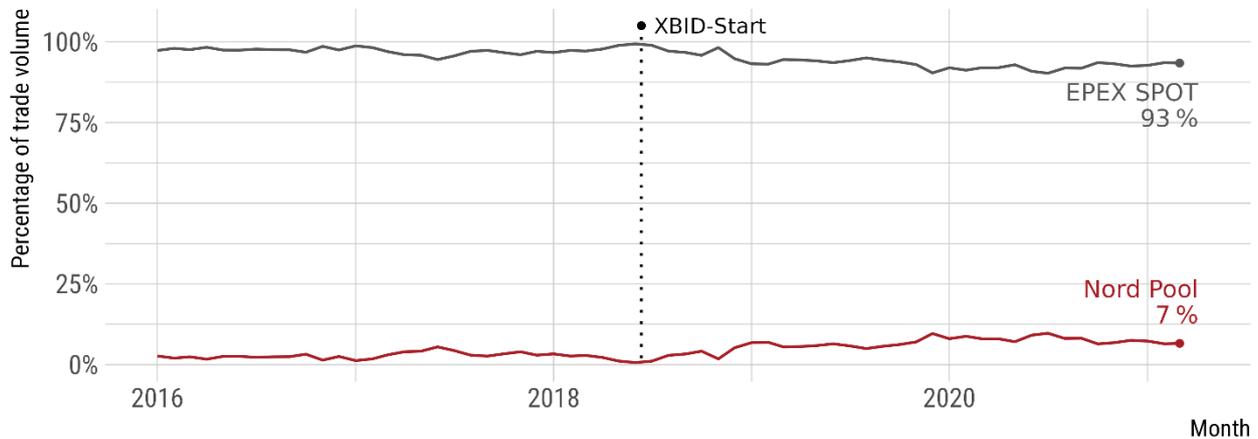
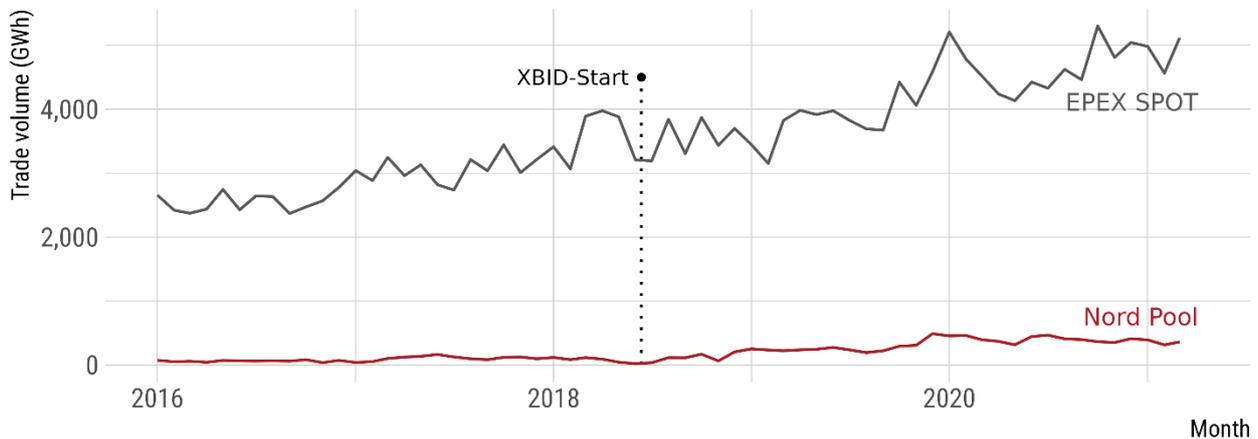
3.2.2 Access to trade volume promotes competition in the intraday market

83. In a well-functioning electricity stock market, there is sufficient supply and demand to match purchases and sales at any time. A single trade does not affect electricity prices on a well-functioning stock market. The more suppliers and buyers meet on an exchange, the closer the electricity price will be to the efficient equilibrium price. The number of sellers and buyers is maximised if the entire supply and demand accumulates on one trading platform only. However, if only a small amount of electricity is traded on an exchange, there may be deviations from the optimal price. In addition, trades may not be carried out immediately, as there may not necessarily be a counteroffer for a trade at all times. Therefore, traders generally favour the electricity exchange with the largest trade volume, since traders can assume to be matched immediately with a suitable counteroffer.⁴⁸

84. Trading platforms, such as power exchanges, benefit from indirect network effects. The more suppliers offer electricity on an exchange, the more attractive it is for buyers to trade on that exchange. Likewise, it is more attractive for electricity suppliers to offer their electricity on an exchange, the more buyers they face. Since buyers benefit indirectly when the number of sales increases, they choose an electricity exchange on which a comparatively large number of suppliers trade. The increasing number of buyers in turn increases the incentive for suppliers to place bids on the stock exchange and so on.

85. Most of the trade volume in the German intraday market is traded on the established electricity exchange, EPEX SPOT. To assess how intraday trading has developed in recent years on the two electricity exchanges, EPEX SPOT and Nord Pool provided the Monopolies Commission with transaction data from 2016 up to the first quarter of 2021. As Figure 3.3a shows, EPEX SPOT's share of intraday trades was constantly above 90% over the whole period. Since cross-border trading via XBID was implemented in mid-2018, Nord Pool's average share increased from around 2% to 7% in the first quarter of 2021.

⁴⁸ The criteria of providing prices that reflect market fundamentals, including the real time value of energy for the intraday market, is explicitly mentioned in Article 7(2)(d) of Regulation (EU) No. 2019/943.

Figure 3.3: Monthly shares and trade volume of the electricity exchanges in GER/LUX intraday trading, 2016–2021**a) Shares****b) Trade volume**

Note: Percentage of trade volume is defined as monthly trade volume in watt-hours over the total sum of trade volume at both exchanges. When transactions are made across both exchanges, half of the trade volume is attributed to each exchange, respectively.
Source: EPEX SPOT, Nord Pool, own calculations.

86. The annual volume of continuous intraday trading in Germany roughly doubled between 2016 and 2020 from around 31 terawatt hours to around 61 terawatt hours. Since EPEX SPOT processes over 90% of the intraday trade volume, this market trend also reflects the market leader's growth rate. The trade volume on Nord Pool has increased by a factor of six during the same period, yet from a much lower starting point in 2016. Monthly trade volumes on both electricity exchanges, as can be seen in Figure 3.3b, also show that Nord Pool's growth in the GER/LUX bidding zone began with the start of cross-border trading in June 2018. Thus, the sharing of order books seems to have a positive impact on new competitors' growth in shares of supply.

3.2.3 Sharing of order books over the whole trading period strengthens competition

87. Nowadays, both NEMOs have access to the entire trade volume of the GER/LUX bidding zone for most of the intraday trading period. Although intraday trading between 3 pm and 6 pm is only possible within Germany and not beyond national borders, as required by the CACM Regulation, there is enough volume available in the German electricity market to enable efficient electricity trading. In December 2020, 56% of EPEX SPOT's total intraday trade volume was traded in Germany. EPEX SPOT traded more than twice as much electricity in Germany as in

Great Britain, its second largest market, and more than five times as much electricity as in France, its third largest market.⁴⁹

88. Extending intraday trading between 3 pm and 10 pm to the entire European market would result in a better match of supply and demand because the number of suppliers and buyers increases by the number of electricity traders from abroad and, therefore, the trade volume increases. However, a geographic expansion of the market including the other European bidding zones and a resulting increase in trade volume will not intensify competition between NEMOs as long as the same amount of trade volume can be accessed via both exchanges.

89. When traders select an exchange to buy or sell electricity, the following factors influence their choice: fees, service quality, availability of market data, product range, quality of additional services, technology of the platform and the volume that is available for trading. While electricity exchanges can directly influence most of these factors, only a large customer base achieves high trade volumes.

90. EPEX SPOT stops sharing its order books via XBID 60 minutes before delivery and processes all transactions locally via its trading platform. Nord Pool processes all transactions over the entire period via XBID. The lack of access to EPEX SPOT's trade deals is a disadvantage for Nord Pool customers because trade volume is not distributed evenly between EPEX SPOT and Nord Pool. For competition to work, it is important that all market participants have access to relevant market information at all times. Exchanges are well known for transparent information on pricing and trade volume and reference prices are derived to also set prices for deals outside the exchange. If trade volume is split between two trading platforms in the last hour, there will be no efficient and uniform pricing. While prices of EPEX SPOT will remain almost unchanged during this period, due to the remaining high trade volumes, Nord Pool's customers will not have access to transparent information about volumes and prices on its trading platform during this period. Sharing order books between EPEX SPOT and Nord Pool in the intraday market offsets this competitive disadvantage.

91. A survey of electricity traders, which the Monopolies Commission carried out as part of its research, supports these findings.⁵⁰ The qualitative research showed that liquidity is an important criterion for most respondents when choosing an electricity exchange. EPEX SPOT customers state that liquidity is very important to them when choosing a NEMO, while Nord Pool customers predominantly value low fees.

92. When comparing EPEX SPOT and Nord Pool's customer lists with the list of electricity traders who took part in the survey, a disproportionately large number of respondents trade on both NEMOs.⁵¹ Traders multi-home to mitigate risks if a NEMO's system fails. However, traders also name cost advantages and the use of a second exchange as a secondary market as reasons to multi-home. All surveyed traders rate EPEX SPOT's liquidity as better than Nord Pool's. In addition, EPEX SPOT's technology is rated superior. According to a majority of those surveyed, Nord Pool offers better fees, customer service and service quality. In conclusion, for the majority of traders Nord Pool is an alternative to EPEX SPOT, but the lower level of liquidity prevents them from trading partially or exclusively on Nord Pool.

93. Furthermore, traders were asked whether sharing order books may promote competition in the intraday market. When order books are shared, the majority of traders expect efficient competition to take place based on fees and service instead of liquidity. Some emphasise the importance of shared order books specifically for the last

⁴⁹ EPEX SPOT, <https://www.epexspot.com/en/news/year-closes-trading-record-epex-spot-markets>. Access on 27.07.2021.

⁵⁰ The Monopolies Commission could distribute the survey via one of the NEMOs and two associations to 40% of traders who were active in March 2021 at one of the NEMOs in the GER/LUX bidding zone. In total, 23% of the addressed traders responded to the survey. The traders who participated in the survey traded approximately a quarter of the total trade volume in the intraday market in 2020. The aim of the study was to test what factors traders take into account when choosing electricity exchanges, how important liquidity is when making a choice and to what extent shared order books can lead to better competition and why.

⁵¹ Among the electricity traders who took part in the survey, almost four in five trade on both exchanges, whereas in reality only about every fifth trades on both NEMOs. Therefore, so-called "multi-homers" are overrepresented in the survey.

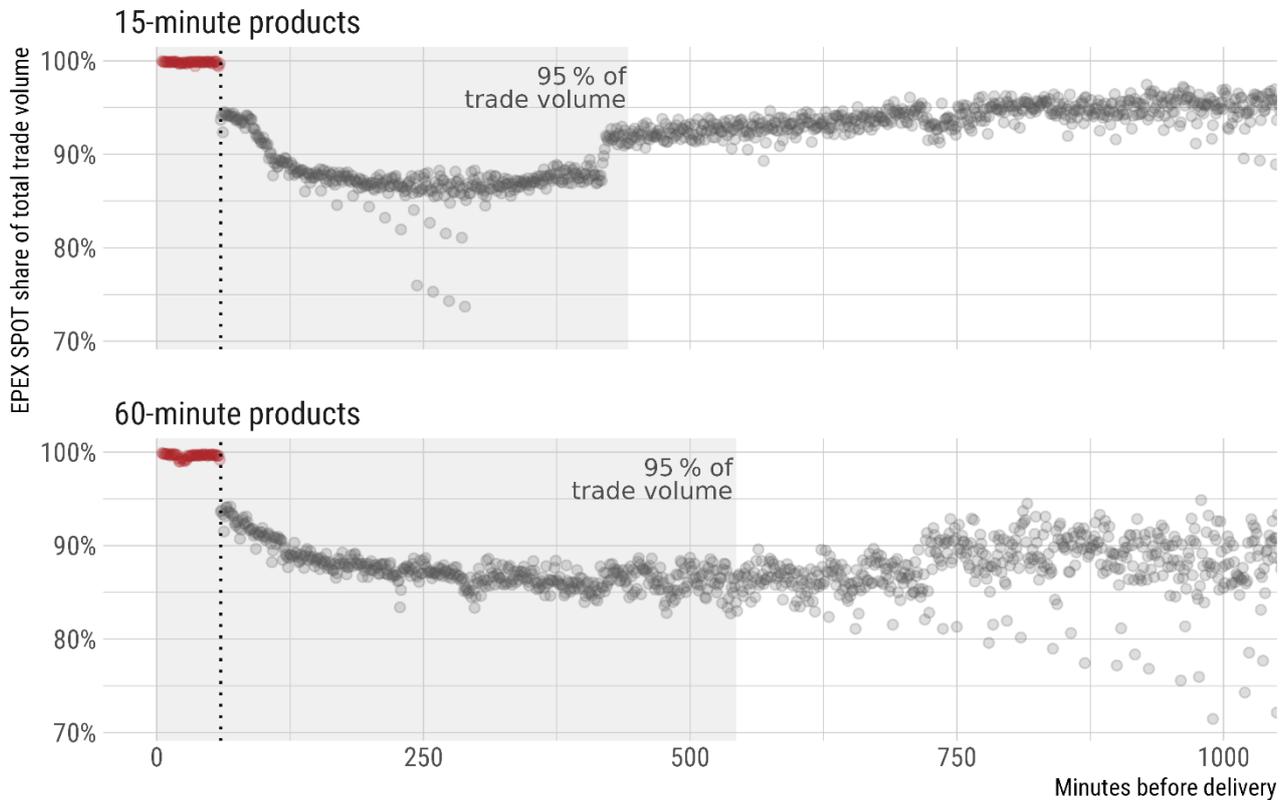
hour of trading before delivery. Some also explicitly mention the elimination of EPEX SPOT's current competitive advantage by accumulating almost all liquidity on its trading platform.

94. The following analysis, based on shares of trade volume, assesses whether and how the restricted order book sharing in the last hour before delivery affects competition between the two electricity exchanges. A regression discontinuity analysis is used, which estimates the causal effect of discontinuing to share order books via XBID on shares in trade volume. The basic idea is to use a discontinuity over time up to the delivery of the individual electricity products in order to specify whether discontinuing to share order books in the last hour affects the NEMO's shares of trade volume. The discontinuity exists because all trades up until 60 minutes to delivery are accessible via XBID; within the last 60 minutes, trading is restricted to the respective exchange. From the electricity trader's perspective, the 60 minutes before delivery is a given threshold that cannot be influenced; hence, it represents a suitable discontinuity for quantifying a possible difference in the proportions to the left and right of this threshold.

95. Transaction data of both NEMOs are merged to determine their respective shares of total trade volume at any given time before delivery for each electricity product⁵². Due to the comprehensive transaction data, these shares can be calculated for every minute before delivery.⁵³ Finally, the time-specific shares of supply for 15- and 60-minute products are aggregated into daily volume-weighted means. Figure 3.4 visualises the result of these calculations and shows EPEX SPOT's average share of trade volume by time to delivery in 2020. On the dotted vertical line, a sudden increase in EPEX SPOT shares of trade volume appears at the 60-minute threshold for both products, which marks the transition from shared order books to local trading. In addition, the figure shows that EPEX SPOT had a lower share of trade volume in the grey shaded area, which highlights the period up to a maximum of nine hours before delivery and during which 95% of electricity volume was traded, than on average over the total period.

⁵² The amount of electricity to be delivered at a certain point in time and over a certain time period defines an electricity product, e.g., 1 MWh on 15 June 2021 from 8 am to 9 am.

⁵³ Given the data available to the Monopolies Commission, EPEX SPOT only logs transactions accurate to the second since the beginning of December 2019. Hence, an analysis accurate to the minute is only possible from this point onwards. Therefore, the following analysis is initially limited to the year 2020, because the finest possible temporal resolution is important for the regression discontinuity analysis and, at the same time, sufficient amounts of data are available. However, data from 2019 and 2021 is also analysed to check the robustness of the results.

Figure 3.4: EPEX SPOT's average share of trade volume by delivery time and product type (2020)

Note: Each point indicates the volume-weighted average share of total trade volume for each product type respectively in 2020, which was traded on EPEX SPOT at a certain point in time measured in minutes before delivery. The shares within the last hour before delivery are shown in red. The grey shaded areas highlight the periods before delivery during which 95% of the electricity volume of the respective product type was traded.

Source: EPEX SPOT, Nord Pool, own calculations.

96. The regression discontinuity model estimates the difference in shares of trade volume at the discontinuity (i.e., 60 minutes before delivery) by modelling the delivery-time-specific shares of trade volume to the left and right of the threshold. There are various approaches to specify the model, which mainly differ in how far to the left and right of the threshold observations are considered and whether they are weighted differently. Parametric models assume a linear relationship between the shares of trade volume and assign the same weight to all observations within the selected range around the changing point. Non-parametric models are more flexible and assume a non-linear relationship; a kernel function assigns a lower weight to remote observations. This allows for a more precise estimation of the effect because greater relevance is attached to observations closer to the discontinuity. It is common practice to carry out sensitivity analyses with different models and parameters, as it is impossible to define the best approach. summarises the estimated models and their results.

Table 3.1: Results of the regression discontinuity analysis

Method	Bandwidth (15/60)	Kernel	15-minute products	60-minute products
Parametric	All data	uniform	0.057	0.063
Parametric	10/10	uniform	0.060	0.063
Parametric	5/5	uniform	0.062	0.059
Non-parametric	10.69/19.34	triangular	0.059	0.059
Non-parametric	21.38/38.67	triangular	0.058	0.059
Non-parametric	5.34/9.67	triangular	0.059	0.06
Non-parametric	9.51/17.62	Fpanechnikov	0.059	0.06
Non-parametric	7.11/8.68	uniform	0.059	0.062

Note: Columns 4 and 5 contain the estimated increase in EPEX SPOT's share of total trade volume of the specified product type, which is due to the change from sharing order books to local trading. Parametric models use linear regressions and non-parametric models use kernel regressions. The bandwidth for estimates of 15- and 60-minute products indicates the area to the left and right of the discontinuity in minutes that the respective models take into account. The kernel specifies the weighting of the individual observations subject to their distance from the threshold.

Source: Own calculations.

97. All models estimate almost the same effect regardless of the specification. EPEX SPOT's share of total trade volume increases by about 6 percentage points due to restricting all trade to its local platform in the last hour. A small shift in the shares of 6 percentage points in such a short time period may still amount to a significant change in total shares of trade volume, given the steady increase in importance of short-term trading as discussed in Section **Fehler! Verweisquelle konnte nicht gefunden werden.** In 2020, around 25% of the 60-minute volume and almost 48% of the 15-minute volume were traded within the last 60 minutes before delivery. Nord Pool's trade volume would be approximately 22% higher and thus its total share around 10%, all else being equal.

98. To test the robustness of these results, a common model can be used instead of analysing the two product types (i.e., 15- and 60-minute blocks) separately. The results of an increase in EPEX SPOT's share of trade volume by 6 percentage points remain the same. When estimating the NEMO's shares of trade volume for two-minute time windows, trade data from 2019 can also be included in the analysis. The estimated effect on EPEX SPOT's share of trade volume from 2019 is 8 percentage points. The average effect over the whole two-year period is just under 7 percentage points.

99. However, since the regression discontinuity analysis only determines the average effect at the discontinuity, one cannot draw the conclusion that EPEX SPOT benefits less each year by restricting trade to its local platform. Rather, the decreasing difference in the shares of trade volume at the changing point is due to EPEX SPOT's increasing share of trade volume shortly before the end of trade via shared order books. Accordingly, Figure 3.3 above shows no growth in Nord Pool's average shares of trade volume since 2020 and a slight decline in the sec-

ond half of the year. Yet, it cannot be derived from trading data alone whether this development reflects competition between electricity exchanges or traders' reactions to the lack of trade volume available on Nord Pool. The increasing importance of short-term electricity trading may suggest that traders choose the exchange that offers them the necessary trade volume up until the delivery of electricity products.

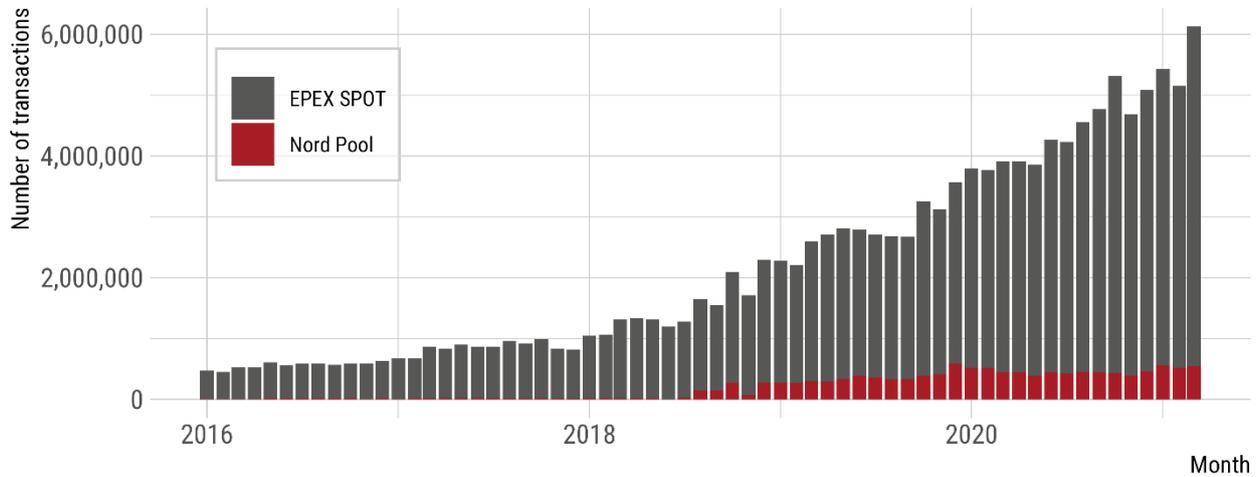
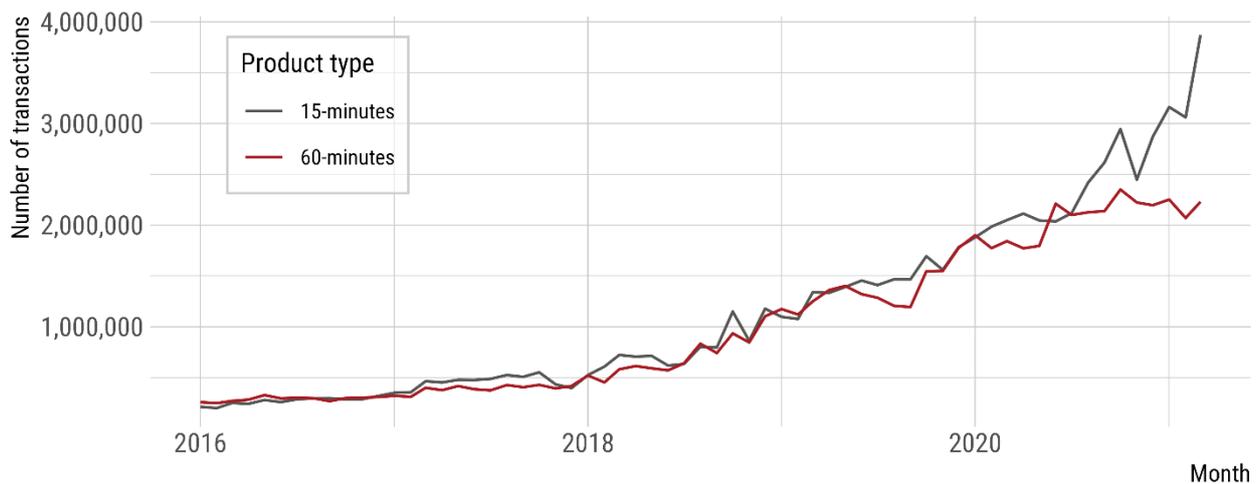
3.2.4 The trade volume in the last hour before delivery is increasing

100. The higher the total trade volume is during the time the order books are not shared, the greater the competitive disadvantage of a stock exchange with low trade volume. In fact, there seems to be a trend towards trading just before the start of delivery in the short-term electricity market. According to BNetzA, electricity trade is increasing in the last 60 minutes before delivery and is becoming more important, especially due the increase in renewable energy.⁵⁴ The importance of short-term trading is also reflected in the current CACM Regulation, which states that the development of more liquid intraday markets, which give parties the ability to balance their positions closer to real time, should help to integrate renewable energy sources into the Union's electricity market and thus, in turn, facilitate renewable energy policy objectives.⁵⁵

101. EPEX SPOT and Nord Pool's transaction data that are available to the Monopolies Commission also shows a trend towards trading just before the start of delivery in the short-term electricity market. The data shows a general trend towards short-term trading of small amounts of electricity in short time windows. On the one hand, this becomes clear when looking at the increased number of trades processed: since the start of 2016, trade volume approximately doubled while the number of transactions increased almost eightfold (see Figure 3.5a). The trade volume per transaction thereby fell from over 12 megawatt hours (MWh) to just under 2 MWh on a monthly average. On the other hand, the relative shares of the different traded electricity products also shifted. The demand for 15-minute products, which allow for better balancing of over- or under-capacities, has grown significantly in the entire bidding zone. Between 2016 and mid-2020, their share of all transactions was similar to the share of 60-minute products. However, since mid-2020 15-minute products are traded more often, and their share rose to over 60% of all transactions in the first quarter of 2021 (see Figure 3.5b). At Nord Pool, 15-minute products have only been traded to a significant extent since the opening of XBID. Similarly, the demand for 60-minute products fell from just under 70% to just under 50% during this period.

⁵⁴ BNetzA, response to the Monopolies Commission's market questionnaire, p. 18.

⁵⁵ Recital 16 of the CACM Regulation.

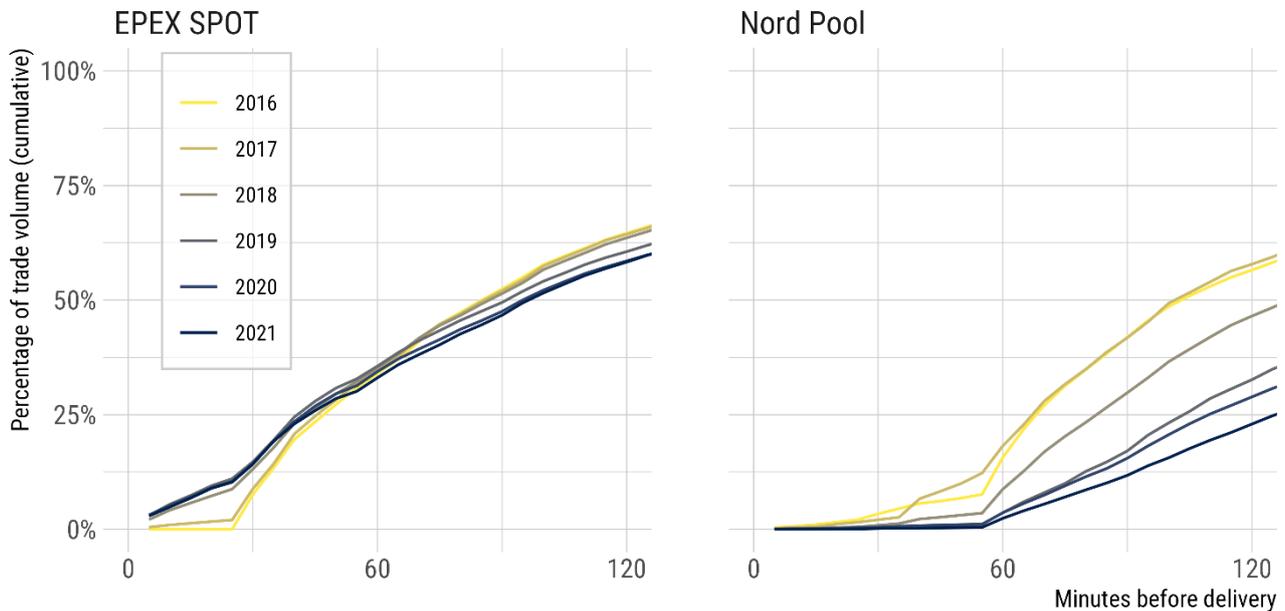
Figure 3.5: Monthly transactions in the GER/LUX intraday market**a) by exchange****b) by product type**

Note: The figures show the monthly total of transactions in continuous intraday trading where at least one trade partner was based in the GER/LUX bidding zone. Figure a) also contains 30-minute products; due to their small number, they are not shown in Figure b).

Source: EPEX SPOT, Nord Pool, own calculations.

102. The trend towards real-time trading is also reflected in the steadily shortening period between trading and delivery. At EPEX SPOT, almost 5% of electricity is now traded five to ten minutes before delivery. In 2017, this was only the case for around 1% of the volume. A reverse trend can be observed on Nord Pool. While in 2017 an average of just under 13% of the trade volume was traded in the last 60 minutes, the value in the first quarter of 2021 was almost zero. The cumulative trade volume as a function of time to delivery, shown in Figure 3.6, illustrates this development. In the last 120 minutes before delivery, around 63% of total trade volume was traded on EPEX SPOT in 2017, which decreased slightly to 57% by 2020. In comparison, 55% of trade volume was traded in the last 120 minutes before delivery on Nord Pool in 2017, which decreased significantly to 31% by 2020. While market participants traded relatively stably between 31% and 33% of trade volume between 2017 and 2020 on EPEX SPOT in the last 60 minutes before delivery, the share traded on Nord Pool dropped from 12% initially to almost 0% over the same period. Moreover, total trade volume traded on EPEX SPOT in the last 30 minutes before delivery increased from 2% in 2017 to over 10% in 2020.

Figure 3.6: Share of trade volume (cumulative) in the last 120 minutes before delivery by year and electricity exchange



Note: The graphs depict the cumulative share of total traded electricity volume of the respective exchange for a given time before delivery per year.

Source: EPEX SPOT, Nord Pool, own calculations.

103. The liquidity disadvantage for traders on Nord Pool in the last 60 minutes before delivery would further increase if trading on EPEX SPOT continues to increase and trading on Nord Pool to decrease in the last hour before delivery, as indicated by recent trends. Furthermore, Nord Pool would become even less attractive as an alternative trading venue.

3.3 More pros than cons expected from shared order books

104. Market participants brought forward the following arguments to the Monopolies Commission against shared order books:

- a) An exchange worked hard for accumulating large volumes of trade on its platform. Sharing order books retrospectively would dampen incentives for investment and innovation in the future.
- b) Trading solely via XBID and not on local trading platforms prevents product innovation, since exchanges can only trade standardised products via XBID.
- c) Without competition on liquidity, NEMOs only compete on price, which jeopardises quality and system security.

105. Until 2016, EPEX SPOT was the only NEMO in the GER/LUX bidding zone. As already discussed in 3.2.2, exchanges benefit from indirect network effects, which made it difficult for Nord Pool to newly enter the market and prompt traders to switch platforms. Hence, it is likely that the unevenly distributed trade volume reflects EPEX SPOT's advantage in time and the existence of network effects and not primarily the preference of traders on which exchange they like to trade.

106. Therefore, the argument that the electricity exchange, which was initially the only one in the market, developed its customer base because of innovation and investment is at least partly wrong. Only with Nord Pool entering the market was competition introduced into the intraday market in Germany. When companies compete for customers, they want either to keep these customers or to attract them by investing and innovating in the market.

107. In the intraday market, competition currently only exists in the period in which order books are actually shared. For example, it has been noticed that some indicators of liquidity at EPEX SPOT worsen significantly in the last hour before delivery, when order books are no longer shared and competition between NEMOs disappears. If the sharing of order books is extended to the last hour before delivery, investment and innovation incentives for EPEX SPOT may increase instead of decreasing.

108. Furthermore, it is rather unlikely that the sharing of order books will dampen product innovations. Traders switching electricity exchanges or just the threat of switching should give both NEMOs enough incentive to offer customers the optimal product range. For example, a trader told the Monopolies Commission that the NEMO in use considered limiting the possible number of bids on its trading platform because of the increase in number of transactions in the past (see Figure 3.5). This prompted the trader to shift some of the trade volume to the other NEMO's trading platform. As a result, the NEMO in use significantly upgraded its trading system so that the trader would not face any trade restrictions and, therefore, switching was no longer necessary. The trader's consideration of switching exchanges was enough of a threat for the NEMO in use to optimise its offer.

109. Moreover, there are indications that competition is driving innovation and investment in the intraday market. For example, market participants mentioned several times in conversations that, when Nord Pool entered the market, it extended the trading period. Nord Pool introduced in September 2016 that traders can bid up to 20 minutes before delivery in the intraday market within the GER/LUX bidding zone.⁵⁶ In March 2017, EPEX SPOT reduced the lead-time for bids on its local trading platform from 60 minutes to 30 minutes.⁵⁷

110. The Monopolies Commission is not aware that order books of stock exchanges are shared in other sectors of the economy. Requirements to share order books interfere with trading on electricity exchanges and with the exchanges' original property rights. However, the following reasons support the sharing of order books between electricity exchanges. To start with, electricity seems difficult to compare with other products, since it is limited in its usage to a certain location and period. When in need of electricity in Germany at a given time, one can only purchase it at a limited number of electricity exchanges at short notice. Furthermore, the goal of a functioning electricity market in Germany and the internal EU electricity market is a secure energy supply⁵⁸, which is best achieved by optimising the electricity grid. In order to optimise the use of resources, supply and demand shall be allocated efficiently. This is achieved by sharing order books, where total demand meets total supply.⁵⁹ According to Article 7(1) of Regulation (EU) No. 2019/943, TSOs and NEMOs are required to work together at Union or regional level in order to ensure the highest possible efficiency and effectiveness of intraday electricity trading.

111. Therefore, after weighing all the arguments, the Monopolies Commission concludes that sharing order books promotes competition among electricity exchanges in intraday trading, which enhances the efficient allocation of supply and demand of electricity and thus supports the goal of secure energy supply.

3.4 Refusal to share order books may represent an abuse of a dominant position

112. In principle, an obligation of a dominant undertaking to share order books may be considered under the principles of the *Essential Facilities Doctrine*. This requires that, under certain circumstances, a dominant undertaking must grant competitors access to a facility which it controls – here: the order books. According to the most prominent decision of the ECJ (i.e., the *Bronner* case), such obligation arises if (i) the access refusal eliminates all

⁵⁶ Nord Pool, <https://www.nordpoolgroup.com/message-center-container/newsroom/exchange-message-list/2016/q4/no-262016---10-more-minutes-trading-in-the-german-intraday-market-from-28-september/>. Access on 16.06.2021.

⁵⁷ EPEX SPOT, <https://www.epexspot.com/en/news/30-minute-continuous-intraday-trading-successfully-launched-france-germany-and-switzerland>. Access on 16.06.2021.

⁵⁸ Recital 1 of the CACM Regulation.

⁵⁹ Para. 83.

competition in the downstream market, (ii) the access is essential to compete in the downstream market and there is no actual or potential substitute for the facility and (iii) the behaviour cannot be objectively justified.⁶⁰

113. If these conditions are satisfied and the dominant undertaking still does not grant access to the facility, it violates Article 102 TFEU, which prohibits the abuse of a dominant position. The exceptional obligation of the dominant undertaking to grant access is an expression of the special responsibility of the undertaking for competition in the downstream market. Accordingly, the following general considerations can be made in the present case.

114. Concerning the possibility of eliminating all competition in the downstream market (above (i)), it could be argued against the fulfilment of this criterion that several exchanges are currently active in intraday electricity trading. However, it is debatable whether this is sufficient to reject a violation of the prohibition of abuse. The General Court of the European Union (EGC) has ruled that the remaining competition does not have to be eliminated by the refusal of access, yet the likelihood for this is sufficient, whereby the existence of other companies in “market niches” is unproblematic.⁶¹

115. According to the European Union judicature, existing regulatory obligations must be observed as well.⁶² In this respect, the legislature already decided in favour of a corresponding obligation to grant access after balancing the arguments for and against access.⁶³ This aspect may be relevant when assessing the requirement of access to the facility to compete in the downstream market (above (ii)) as well as in the present case. The CACM Regulation and Regulation (EU) 2019/943 impose an obligation to share order books during the entire period of intraday trading, which a dominant undertaking may not have implemented so far. In order for the refusal of access to be considered abusive, the access also has to be non-substitutable. In addition, it would under antitrust law be decisive for a possible obligation of a dominant undertaking to share the order books that goes beyond existing regulatory obligations that the access is not substitutable. Therefore, the competing exchanges must not be able to provide sufficient access to liquidity in the intraday market even with reasonable effort. However, the refusal to grant access could be justified, which would have to be examined in more detail on a case-by-case basis.⁶⁴

116. The UK Office of Gas and Electricity Markets (OFGEM) has been pursuing the sharing of order books to promote competition between electricity exchanges in the UK for several years.⁶⁵ The British discussion primarily focuses on the market coupling between Great Britain, the Republic of Ireland and Northern Ireland and the use of a common trading platform for all electricity exchanges during the day-ahead and intraday auctions.⁶⁶

117. OFGEM welcomes competition between electricity exchanges in order to keep trading fees low and to put pressure on exchanges to improve quality and service levels. Furthermore, OFGEM explicitly recommends the sharing of order books to ensure that all NEMOs have access to the day-ahead and intraday auctions.⁶⁷

118. The gas and electricity market authority (GEMA), which OFGEM supports in its work, initiated formal antitrust proceedings in November 2019 against EPEX SPOT for the abuse of dominance pursuant to Article 102 TFEU. In

⁶⁰ ECJ, judgment of 26 November 1998, C-7/97 – Bronner, ECLI:EU:C:1998:569, para. 41.

⁶¹ EGC, judgment of 17 September 2007, T-201/04 – Microsoft, ECLI:EU:T:2007:289, paras. 561, 563.

⁶² ECJ, judgments of 25 March 2021, C-152/19 P – Deutsche Telekom, ECLI:EU:C:2021:238 and C-165/19 P – Slovak Telekom, ECLI:EU:C:2021:239, each para. 57; EGC, judgment of 18 November 2020, T-814/17 – Lithuanian Railways, ECLI:EU:T:2020:545, para. 91 f.

⁶³ EGC, judgment of 18 November 2020, T-814/17 – Lithuanian Railways, ECLI:EU:T:2020:545, para. 91 f.

⁶⁴ Behaviour that – viewed in isolation – is abusive, may be objectively necessary, for example, due to technical or safety-relevant aspects; see M. Scholz in: Wiedemann, *Handbuch des Kartellrechts*, 4th Ed., München 2020, § 22 para. 75 f.

⁶⁵ OFGEM, Retail Market Review: Intervention to enhance liquidity in the GB power market, p. 13.

⁶⁶ OFGEM, Notice of Decision to accept binding commitments offered by EPEX SPOT SE and EEX in relation to electricity wholesale trading activities, para. 2.4.

⁶⁷ *Ibid.*, para. 4.14.

April 2019, EPEX SPOT made commitments to mitigate GEMA's competition concerns, which GEMA accepted in June 2019.⁶⁸

119. According to GEMA, there were reasonable grounds to suspect that EPEX SPOT holds a dominant position in a market comprising the provision of cross-border intraday electricity trading platforms and related services between Great Britain and the island of Ireland. Moreover, it may be abusing that dominant position by failing to take the steps necessary to allow other NEMOs to access the coupled intraday auctions.⁶⁹

120. By failing to take the steps necessary to allow other NEMOs to access the intraday auctions between Great Britain and the island of Ireland, EPEX SPOT is likely to have prevented its rivals from entering the relevant market according to GEMA'S preliminary assessment. The resulting reduction in competition between trading platforms has the potential to lead to an increase in fees, or a reduction in service levels or choice, for customers using the cross-border intraday markets compared to what would otherwise be expected.⁷⁰

121. GEMA highlights in its decision the importance of liquidity to traders' choice of where to trade, and the resulting direct network effects (with one customer's choice of market affecting which platform other customers use). Even small differences in the trading opportunities that electricity exchanges are able to offer can have the potential to result in a significant distortion to competition. In addition, GEMA is concerned that the alleged conduct of EPEX SPOT could distort the level of competition over time in other closely associated markets. For example, it may reduce the ability of EPEX SPOT's rivals to compete in the day-ahead market, if trading parties were to choose a single platform for all near-term trading in order to avoid the need for multiple IT interfaces.⁷¹

122. On 30 March 2021, the European Commission also initiated formal proceedings against EPEX SPOT for the abuse of dominance pursuant to Article 102 TFEU.⁷² The subject of the ongoing investigation is the exchange's behaviour to hinder the activities of competitors on the market for electricity intraday trading facilitation services in at least six Member States (including Germany and Luxembourg). The European Commission is examining whether EPEX SPOT is refusing its competitors' customers "access to the entire liquidity of the intraday market" in order to foreclose competing electricity exchanges. According to the European Commission, this behaviour could result in higher electricity prices for consumers and a slowdown in the greening of the electricity supply.⁷³ The European Commission's abuse proceedings are at an early stage; no statement of objections has been issued so far. Therefore, at the moment little is publicly known about the authority's allegations.

3.5 Shared order books should be regulated regardless of cross-border intraday trading

123. Article 59(5) sentence 2 of the CACM Regulation states that order books shall be shared during cross-border trading. The sharing of order books is technically not connected with the provision of capacities for cross-border trading. The shared order book and the capacity management module in XBID are two independent processes, so that NEMOs can theoretically share trade orders via XBID in the shared order book at any time and regardless of the TSOs' provision of capacities and thus cross-border trading.

124. Moreover, the obligation of NEMOs to share order books under the CACM Regulation does not seem to be limited to cross-border cases. Such limitation does neither result from the wording of Article 59(5) sentence 2 of the CACM Regulation nor from the system of the regulation. Where the CACM Regulation refers to cross-border impact, it primarily relates to the TSOs' provision of cross-border capacity. Article 59 of the CACM Regulation re-

⁶⁸ Ibid., para. 7.2.

⁶⁹ Ibid., para. 1.2.

⁷⁰ Ibid., para. 4.12.

⁷¹ Ibid., para. 4.18 f.

⁷² AT.40700 – Intraday trading of wholesale electricity.

⁷³ European Commission, press release of 30 March 2021, IP/21/1523, Antitrust: Commission opens investigation into possible anti-competitive behaviour by the power exchange EPEX Spot.

fers to a cross-border intraday market in relation to uniform market coupling. However, the provision seems to rather refer to the scope of the market as a whole; yet, the obligations it imposes do not necessarily require cross-border trade. Such an interpretation is also in line with the goal of ensuring a functioning internal market for electricity.⁷⁴ The scope of the CACM Regulation should be understood broadly in order to remove any obstacles that might prevent a functioning internal market for electricity, because this goal can also be jeopardised by behaviour at national or sub-national level.⁷⁵ Article 7(1) sentence 2 of Regulation (EU) 2019/943 makes this clear by stating that *“Transmission system operators and NEMOs shall cooperate at Union level or, where more appropriate, at a regional level in order to maximise the efficiency and effectiveness of Union electricity day-ahead and intraday trading”*. In addition, Article 7(2)(g) of Regulation (EU) No. 2019/943 states that, when jointly administering intraday markets, no distinction shall be made between transactions within a bidding zone and those across. As already stated, Regulation (EU) 2019/943 replaces Regulation (EC) No. 714/2009, on which the current CACM Regulation is still based. Yet, the CACM Regulation is in the process of being adapted to Regulation (EU) 2019/943.

125. In its revision of the current CACM Regulation, ACER defined the period for trading within and across bidding zones separately. The continuous trading closure time and the intraday cross-zonal gate closure time shall be, at the earliest, one hour before the start of the relevant intraday market time unit. It shall be set in such a way that they:

- a) maximise market participants’ opportunities for adjusting their balances by trading in the intraday market timeframe as close as possible to real time;
- b) provide TSOs and market participants with sufficient time for their scheduling and balancing processes in relation to network and operational security; and
- c) ensure fair and effective competition between NEMOs, in particular those operating in the same bidding zone.⁷⁶

126. However, even the adjusted wording links the sharing of order books to the official trading period in the intraday market. In Germany, the TSOs officially allow trading up to 20 minutes before delivery, after which the sharing of order books would end even after the newly revised CACM Regulation. Theoretically, according to TSOs, balanced schedules can be submitted up to zero minutes before delivery. Hence, even the proposed amendment of ACER’s CACM Regulation does not regulate the sharing of order books on German NEMOs for the entire trading period (i.e., up to zero minutes before delivery).

127. In order to create a level playing field for all NEMOs, the sharing of order books should not be linked to any period but should generally apply to all bids in the intraday market.

3.6 Conclusion: Promote competition between electricity exchanges

128. A dominant undertaking has a special responsibility to ensure that its conduct does not impair genuine competition on the market. After weighing all arguments, the Monopolies Commission concludes that the failure to share order books in the last hour before delivery in intraday trading dampens competition between electricity exchanges in the GER/LUX bidding zone.

129. Therefore, the Monopolies Commission recommends that the Bundesnetzagentur enforce the continuous sharing of order books over the entire period of intraday trading in the GER/LUX bidding zone. The legal basis for action is the CACM Regulation and Article 7 of Regulation (EU) 2019/943. The Monopolies Commission also wel-

⁷⁴ See Article 194(1)(a) TFEU and recital 1 of the CACM Regulation. Article 3 of the CACM Regulation specifies the objectives pursued by this regulation

⁷⁵ Applicability of the CACM Regulation to only domestic cases also affirmative in König/Baumgart, EuZW 2018, 491, 492 f.; yet differently – at least for the configuration of the bidding zones regulated in Chapter 2 of the CACM Regulation – German Federal Government, Verordnung zur Änderung der Stromnetz Zugangsverordnung, BR-Drs. 719/17 of 22 November 2017, p. 5 f., 8.

⁷⁶ ACER, 210413 PC AM IV.1.3 TCMs on market coupling operation final, p. 3 f.

comes ACER's draft of the revised CACM Regulation, which specifies in Article 36 the processing of all continuous intraday trading and all intraday auctions via XBID. Furthermore, the full implementation of the current CACM Regulation in the GER/LUX bidding zone should be pursued as quickly as possible. Here, it is recommended that the Bundesnetzagentur guarantee in collaboration with the TSOs to provide capacities not only within Germany, but also at cross-border interconnections for cross-border trading from the start of the intraday market at 3 pm of the previous day, as expected by ACER since January 2019, which guarantees the sharing of order books.