

10th ACER Report on Congestion in the EU Gas Markets and How it is Managed

Period covered: 2022

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Executive summary

- (1) In this Report, the European Union Agency for the Cooperation of Energy Regulators ('the Agency') monitors contractual congestion in the EU gas markets in 2022 and how it was addressed. The presence of contractual congestion implies that some network users were not able to obtain the transmission capacity product of their choice and they had to rely on mitigating measures to access the market. Such measures are necessary to improve the efficient use of the network and the overall market efficiency, and to avoid investment in physical transmission capacity when contracted capacity remains unused, meaning there is no physical congestion. To harmonise the approaches for identifying and dealing with contractual congestion, the European Commission issued Commission Guidelines on Congestion Management Procedures ('CMP GL')¹.
- (2) At the end of 2022, Council Regulation (EU) 2022/2576 was adopted, which introduces in its Article 14, measures to optimise the availability of capacity. Member States had to decide by 31 March 2023 either to implement and apply a novel monthly use-it-or-lose-it mechanism, or to apply, by derogation, one of three congestion management measures at all interconnection points (IPs) regardless of the congested status.² This Council Regulation is in force for one year with the possibility of extension.
- (3) In the context of the gas market crisis, short-term mitigating actions are important and complementary to more long-term measures. The voluntary gas-demand reduction target³ has been extended until 31 March 2024 and storage-filling trajectories⁴ for 2023 have been updated. Addressing the most acute congestion fits this list of short-term actions.
- (4) This edition of the Report covers capacity products sold during 2022 for use in 2022, 2023 or 2024 and takes stock of the Congestion Management Procedures ('CMPs') that were used in 2022.
- (5) Year-on-year demand for gas transport capacity varies based on factors, including fundamental gas market supply and demand dynamics, LNG market dynamics and expiration of long-term contracts. The Report covers a year that was marked by volatile and exponentially rising gas prices due to the fundamental mismatch of supply and demand, requiring a restructuring of supplies to replace missing Russian volumes by LNG. Rising prices were already observed in the second half of 2021, before the invasion of the Ukraine by Russia, and continued and aggravated during 2022 until deep into the third quarter of the year. A relative cooling down of price levels and price volatility occurred in the fourth quarter of 2022, continuing in the first quarter of 2023. ACER's Market Correction Mechanism Effects Assessment Report observed that mild weather and reduced industrial consumption may have assisted in having lower than usual demand, while on the supply side storage-filling levels were relatively high and LNG supplies partially offset the lost Russian volumes.⁵
- (6) In the longer term, by 2030-2040, decarbonisation is likely to reduce gas demand by a significant amount, even if some fossil gas is replaced by low-carbon methane-based gases. Thus, also the demand for gas transport capacity is expected to decrease, leading to the need to decommission some gas assets. On the other hand, the potential repurposing of gas pipelines for transportation

¹ Commission Decision of 24 August 2012 on amending Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks (2012/490/EU), OJ L 213/16, 28.8.2012, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:231:0016:0020:en:PDF>.

² Applying Firm day-ahead Use-It-Or-Lose-It, applying Oversubscription by at least 5% of the firm technical capacity at the IP side, or offering non-nominated capacities as interruptible capacity on a day-ahead and within-day basis. ENTSOE published a map with the outcome of the NRA decisions: <https://www.entsoe.eu/sites/default/files/2023-04/Article%2014%20decisions.pdf>.

³ <https://www.consilium.europa.eu/en/press/press-releases/2023/03/28/member-states-agree-to-extend-voluntary-15-gas-demand-reduction-target/>.

⁴ https://commission.europa.eu/news/commission-sets-trajectories-filling-gas-storage-2023-2022-11-24-0_en.

⁵ <https://www.acer.europa.eu/news-and-events/news/acer-publishes-its-assessment-report-market-effects-resulting-gas-market-correction-mechanism>.

of hydrogen could lead to demand for capacity also in the future. The Union’s ambitions in this regard are evolving rapidly, with the RePowerEU communication as its most recent embodiment.⁶

- (7) For its analysis, the Agency relies on data provided by ENTSOG and by the booking platform operators. While an effort has been made to provide a basic validation of those data, the Agency is not responsible for their accuracy and uses the data as delivered for the assessment of congestion and congestion management procedures.
- (8) The Agency finds that in 2022:
- Congestion tripled to unprecedented levels following tight market conditions and the need to reroute gas flows away from historic east-west routes to predominantly west-east routes;
 - The number of auctions closing with premia for yearly, quarterly and monthly capacity products increased to 398, or more than five times the number of auctions closing with premia observed in 2021. The volume of unsuccessful requests amounted to nearly 40,000 GWh/d in 2022, which is about two and a half times the technical firm capacity at the congested points, and a steep 40-times increase from a level of 1,045 GWh/d in 2021;
 - Consequently, congestion revenues collected by transmission system operators rose sharply from a level of 55 million euro in 2021 to around 3.4 billion euro in 2022 (Congestion revenues are depicted in Annex III);
 - 27 out of 50 (54%) congested IP sides have been found congested for the first time. The shift of gas routes from east-west to west-east may have been a major reason, in addition to some IPs having been newly created in 2022;
 - The combined amount of capacity made available via secondary capacity trading and the allocation of interruptible capacity at congested IPs (~6,320 GWh/d) is well below the amount of capacity that has been requested unsuccessfully by network users (~40,000 GWh/d);
 - Oversubscription remains the most applied Congestion Management Procedure (‘CMP’) despite a small reduction of capacity released through this mechanism. Volumes released through Firm-Day-Ahead Use-It-Or-Lose-It (FDA UIOLI) remained stable, whereas Long-term Use-It-Or-Lose-It (LT UIOLI) volumes more than halved. Volumes released through the Surrender mechanism remain on the rise with a near 60% increase compared to 2021. The reasons for these year-on-year variations requires are not investigated in this Report.
- (9) Based on the data provided by the European Network of Transmission System Operators for Gas (‘ENTSOG’) and the three Booking Platforms, Table 1 summarises the Agency’s main observations regarding contractual congestion in the analysis year 2022.

Table 1: Main observations regarding congestion in the analysis year 2022

Statistics on the presence of congestion	Observations concerning analysis year 2022
Number of congested IP sides (out of 188 CMP-relevant IP sides with auction procedures)*	50 (26.6% of total)
- Due to auction premia	45 (24% of total)
- Due to non-offer	5 (2.6% of total)
Occurrences of auction premia per product** (out of 398 auction premia)	
- Yearly products	65 (7%)
- Quarterly products	146 (42%)
	187 (51%)

⁶ https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowerEU-affordable-secure-and-sustainable-energy-europe_en.

- Monthly products

* This report considers as relevant those IPs that are marked as CMP-relevant, have physical flow capacity (not where only virtual reverse flow exists) and were valid at least one day during the year of analysis (calendar year 2022).

** Multiple auction premia can occur at the same IP side.

- (10) For those IP sides that were found to be congested, the Agency examined the severity of the congestion with the following indicators: unsuccessful requests, capacity trades on the secondary market, demand for interruptible capacity (and effective interruptions), and recurrent⁷ presence of IPs in previous editions of the Congestion Report. Table 2 lists the main observations on severity of congestion aggregated for the congested IP sides.

Table 2: Main observations regarding severity of congestions (at congested IP sides)

Statistics on the severity of congestion	Observations concerning analysis year 2022
Number of IP sides found congested for the first time	27
Number of IP sides with recurrent inclusion in Congestion Reports	23
Total firm technical capacity of congested IP sides (from ENTSOG TP)*	15,846 GWh/d
Unsuccessful requests	39448.96 GWh/d
Capacity made available via secondary trades	1092.12 GWh/d
Interruptible capacity allocated	5226.68 GWh/d
Effective interruptions (counted as days on which interruption occurred across all congested interconnection points)	820 days

* where technical capacities were reported on the ENTSOG TP (maximum reported during 2022)

- (11) Physical congestion, indicated by actual interruptions of interruptible capacity, occurred at 20 contractually congested IP sides.⁸ Among the most interrupted IP sides were Virtualys (FR>BE, exit) on 233 occasions, VIP THE-ZTP (BE>DE, entry) on 211 occasions, VIP-BENE (BE>NL, entry) on 209 occasions and VIP Oberkappel (DE>AT, exit) on 74 occasions. The application of CMPs only helps with contractual congestion and would not resolve congestion that is physical. The latter is addressed through measures that expand the technical capacity of the gas system.
- (12) The Agency checked the application of CMPs at the congested IPs. The FDA UIOLI mechanism is already applied at 26 of the 50 IP sides detected as congested, meaning that capacities were effectively made available through the procedure.⁹ This means that at the remaining 24 congested IP sides, the respective National Regulatory Authorities ('NRAs') shall require the relevant Transmission System Operator(s) ('TSO(s)') to implement and apply the FDA UIOLI mechanism, according to Point 2.2.3(1) of the CMP GL, or show that the congested situation is unlikely to reoccur in the following three years. NRAs can use the information contained in this Report in their decision making. The list of congested IPs and their depiction on a map is available in Annex I and Annex II, respectively, of this Report. A separately published Technical Annex contains the full analysis of all IP sides regarding congestion and application of CMPs.
- (13) The Agency has been publishing Congestion Reports since 2014 and the observations vary from one year to the other. Currently, the Agency does not investigate the reasons underlying these changes, which would require a more advanced analysis. Nevertheless, the Agency observes the following evolutions over time of congestion and of the application of CMPs, as listed in Table 3. With regard to the number of congested IP sides, 2022 marks the year with the highest tally since

⁷ Recurrent means an IP side has been found contractually congested in at least one previous edition of the Congestion Report.

⁸ Interruptions of interruptible capacity are not the only indicator of physical congestion. As soon as all technical capacity is nominated and thus used, there is physical congestion.

⁹ FDA UIOLI is applied at Brandov / OPAL (DE>CZ, exit), but capacity has not been effectively made available.

congestion monitoring started in 2014. In 2015 (covered in the edition of 2016), 41 IP sides were labelled as congested and that was before the full implementation of the CAM NC.

Table 3: Evolution of congestion and CMP application (CMP-relevant and non-CMP relevant IPs)

Evolution over recent Congestion Reports	2019	2020	2021	2022
Number of congested IPs	37	19	18	50
Application of CMPs [GWh/d]				
- LT UIOLI	3,190.6	3,206.9	2,158.1	802.84
- FDA UIOLI	225,931.6	408,291.0	203,005.8	207,914.7
- Oversubscription	1,667,881.5	1,248,621.1	975,200.0	924,162.1
- Surrender	71,818.1	92,816.6	374,574.1	594,193.3

- (14) Based on its analysis, the Agency finds that contractual congestion significantly increased in 2022 and urges TSOs to take action to address congestions and maximise availability of capacities, and NRAs to monitor the congestion in their markets more closely to contribute to the efficient functioning of the internal market for gas.
- (15) In view of the observed congestion levels, the Agency is issuing separately a special report that takes a closer look at how congestion emerged in North-West Europe (Belgium, France, Germany and the Netherlands) and which actions have been taken by the concerned TSOs and NRAs.¹⁰
- (16) Previously formulated recommendations addressed to TSOs, ENTSOG and the European Commission are reiterated in Section 4 of this Report to the extent they are still valid.

¹⁰ To be published in Summer 2023

1. Introduction

- (18) The CMP GL, in particular its Point 2.2.1(2), stipulate that the Agency has to publish a yearly report on contractual congestion at IPs. The present Congestion Report is the tenth Report fulfilling this legal obligation and it covers the year 2022.
- (19) This Report uses the concepts of contractual congestion and physical congestion that are defined in Articles 2(21) and 2(23) of Regulation (EC) No 715/2009 in the following way:
- '*Contractual congestion*' means a situation where the level of firm capacity demand exceeds the technical capacity;
 - '*Physical congestion*' means a situation where the level of demand for actual deliveries exceeds the technical capacity at some point in time.
- (20) Contractual congestion during time periods without physical congestion can be tackled through the CMPs laid down in the CMP GL. Additionally, the CMP GL contain certain criteria that require the application of the FDA UIOLI mechanism.
- (21) The criteria which may lead to the application of the FDA UIOLI are set out in Point 2.2.3(1) of the CMP GL. In particular, FDA UIOLI shall be applied at IPs where, based on this Report, it is shown that demand exceeds supply at the reserve price when auctions are used, in the course of capacity allocation procedures for products for use in either that year or in one of the subsequent two years:
- for at least three firm capacity products with a duration of one month, or
 - for at least two firm capacity products with a duration of one quarter, or
 - for at least one firm capacity product with a duration of one year or more, or
 - where no firm capacity product with duration of one month or more has been offered.
- (22) The concepts above are used for the Agency's screening of the data made available by ENTSOG and auction data collected from the booking platform operators GSA Platform, PRISMA and RBP.
- (23) Given that the transitional period following the Withdrawal Agreement of the UK from the EU applied till 31 December 2020, the Agency stopped collecting and analysing the data for the UK interconnection points.
- (24) The remainder of this Report contains the congestion analysis in Chapter 2 and an analysis concerning the application of CMPs in Chapter 3. The Report concludes with a set of recommendations addressed to the European Commission, NRAs and TSOs, and suggestions for further analysis, e.g., for research institutes and scholars.

2. Analysis of contractual congestion

2.1 Assessment methodology

- (25) The congestion analysis contains two parts. The first part concerns the assessment of the existence of congestion at IP sides. The second part concerns the assessment of the severity of the identified congestions.
- (26) First, with respect to the assessment of the existence of contractual congestion, the data provided by ENTSOG were analysed. Furthermore, auction reports were collected from the booking platforms, consolidated and screened IP by IP, for the offer and non-offer of capacity products and for those auctions at IPs where the total capacity demand exceeded the offer and/or where auction premia occurred for monthly, quarterly and yearly products. The Agency appreciates the voluntary efforts from GSA Platform, PRISMA and RBP (the booking platform operators) to make available the auction data in an agreed template that structurally includes EIC codes. The structured data collection significantly improved combining auction data with data provided by ENTSOG.
- (27) In line with the criteria set out in Point 2.2.3(1) of the CMP GL, the IP sides for which auction premia and/or non-offers of firm products occurred were labeled as contractually 'congested'. The IP sides have been classified accordingly into four mutually exclusive categories:
- i. *'Congested'*: those which meet the criteria set in sub-Points (a) to (d) of Point 2.2.3(1) of the CMP GL, but do not fall into category (ii) below;
 - ii. *'Formally congested'*: those which only meet the criterion set in sub-Point (c) of Point 2.2.3(1) of the CMP GL because of a missing yearly product for the gas years 2023/24 and 2024/25 in the auction of July 2022;
 - iii. *'Close to be congested'*: those which had auction premia occurring at a lower frequency than the threshold defined in the CMP GL criteria, namely for either two monthly products or one quarterly product;
 - iv. *'Not congested'*: those which do not meet the criteria (a) to (d) of Point 2.2.3(1) of the CMP GL and do not fall into category iii above.
- (28) Second, with respect to the assessment of the severity of contractual congestion for those IP sides identified as congested (category (i) above), the Agency collected and analysed further information linked to the severity and alleviation of congestion. This analysis included an inquiry on 'unsuccessful requests', the products (monthly, quarterly, yearly) traded on the secondary market and whether interruptible capacity was allocated at an IP side. Finally, the Agency also connected the current analysis to the results of the previous editions of the Congestion Report.
- (29) The volume of 'unsuccessful requests' sheds light on the extent of congestion where auction premia have occurred. Unsuccessful requests are calculated by subtracting total allocated capacity from total requested capacity at the reserve price.¹¹
- (30) Secondary market trades allow a reallocation of transmission capacity from network users who do not plan to use (part of) their capacity in a particular period to those interested in obtaining capacity for the concerned period.
- (31) The information on interruptible capacity bookings can be used in the analysis to indicate that demand for capacity exceeded the actual offer of firm capacity. This is in line with the provision of the CMP GL 'to take into account the use of interruptible capacity'. Additionally, the occurrence of

¹¹ In the seventh edition of the Congestion Report, unsuccessful requests have been reported as the difference of requested capacity at the reserve price and the offered capacity.

actual interruptions of nominated interruptible capacity was documented as a potential indicator for physical congestion.

- (32) For the identified contractually congested IP sides, the Agency assessed the severity of congestion at IP sides based on:
- the amount of unsuccessful requests (where auction premia occur);
 - to which extent secondary capacity trading took place;
 - to which extent interruptible capacity was allocated and whether interruptions occurred;
 - whether they were found congested in the previous Congestion Reports;
- (33) The chapter closes with the conclusion concerning the application of FDA UIOLI at congested IPs.

2.2 Identification of contractually congested IPs

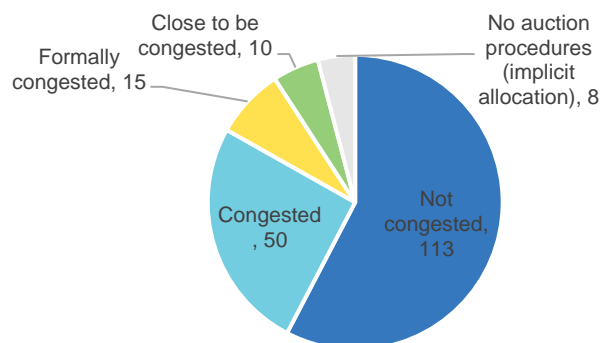
- (34) For this year's Report, 374 IP sides were considered to be CAM-relevant, of which 200 were considered CMP-relevant, based on the feedback received from the TSOs.
- (35) The year-to-year composition of IP sides changes for several reasons. For instance, several physical IP sides had been merged into a virtual interconnection points (VIPs) in 2020 and, in 2021, the German domestic IPs ceased to exist following the German market merger on 1 October 2021. New IPs started operation, including Stara Zagora and Komotini (both connected to the start of operation of Interconnector Greece-Bulgaria, 'ICGB'), Faxe and North Sea Entry (both connected to the start of operation of Baltic Pipe) and Santaka IP (connected to the start of operation of the Gas Interconnection Poland-Lithuania, 'GIPL').
- (36) This report considers as contractually congested only those IP sides labelled as 'congested'. IP sides labelled as 'formally congested' could potentially be congested in the future but are not the focus of this report. A Technical Annex that is published alongside this Report contains the full classification of IP sides and clarifications provided by TSOs and NRAs on possible reasons for the occurrence of congestion.
- (37) According to the criteria (a) to (d) of Point 2.2.3(1) of the CMP GL, 50 IP sides were identified as congested. The reasons why these IP sides were identified as such differ as follows.
- (38) The occurrence of auction premia resulted in 45 IP sides being classified as congested, of which:
- 23 IP sides had premia on monthly, quarterly and yearly products;
 - 11 IP sides had premia on monthly and quarterly products;
 - 6 IP sides had premia on yearly products only;
 - 2 IP sides had premia on monthly and yearly products;
 - 2 IP side had premia for monthly products only;
 - 1 IP side had premia for quarterly products only.
- (39) 5 IP sides were identified as congested due to the non-offer of firm capacity products.
- (40) Congestion triggered by occurrences of auction premia rose sharply to 45 in 2022 compared to a level of 10 in 2021.¹² Congestion triggered by occurrences of non-offer of firm capacity products

¹² Congestion triggered by auction premia was at a level of 9 in 2020, 30 in 2019, 16 in 2018, 6 in 2017 and 9 in 2016.

decreased to 5 in 2022 compared to 8 in 2021.¹³ Three IPs that were congested based on non-offer in 2021 were German internal IPs that ceased to exist after the German market merger.

- (41) 8 of the 196 CMP-relevant IP sides were not analysed because they allocate capacity implicitly and do not organise auctions for allocating yearly, quarterly and monthly products; the concerned IPs are Kiemenai (Ambergrid exit and entry, Conexus exit and entry) and Balticconnector (Elering exit and entry, Gasgrid Finland exit and entry). Based on the information from the respective TSOs, there is no contractual congestion as defined in this Report at these IPs. The Agency has not assessed the functioning of the implicit allocation mechanism that is applied in the Estonian, Finnish, Latvian and Lithuanian gas markets.
- (42) Figure 1 graphically presents the results of the analysis.

Figure 1: Result of the congestion analysis of 196 CMP-relevant IP sides - 2022



Source: ACER analysis based on booking platform data

2.3 Severity of contractual congestion

- (43) The Agency reports in this section on four indicators that shed light on the severity of congestion at an IP. These indicators are the unsuccessful requests, capacity traded on the secondary market, demand for interruptible capacity (and effective interruptions), and the recurrence of congestion over several years as recorded in the previous editions of the Congestion Report.
- (44) The unsuccessful requests based on the Agency's analysis of auction data concern 60 IP sides, of which 45 were congested due to the auction premia and 8 were close-to-be-congested IP sides.¹⁴
- (45) Most occurrences of unsuccessful requests occurred at the following (V)IPs:
- VIP THE-ZTP (BE>DE, both exit and entry);
 - VIRTUALYS (FR>BE, both exit and entry);
 - Überackern SUDAL (AT) / Überackern 2 (DE) (DE>AT, both exit and entry);
 - VIP-BENE (BE>NL, both exit and entry);
 - VIP Oberkappel (DE>AT, exit) and Oberkappel (DE>AT, entry); and
 - VIP TTF-THE (both exit and entry).

¹³ Congestion triggered by non-offer was at a level of 10 in 2020, 7 in 2019, 15 in 2018, 11 in 2017 and 14 in 2016.

¹⁴ The remaining 7 IP sides had 1 monthly premium each.

- (46) The largest volumes were requested at the following (V)IPs:
- VIP THE-ZTP (BE>DE, both exit and entry);
 - VIP-BENE (BE>NL, both exit and entry);
 - VIP TTF-THE (both exit and entry);
 - VIP Oberkappel (DE>AT, exit) and Oberkappel (DE>AT, entry).
- (47) The Agency observed that with 17 IP sides out of 50, the number of congested IP sides for which **secondary trades for capacity** occurred remained relatively low.
- (48) The congested IP sides with the most active secondary trading of capacity products are: Csanádpalota (HU>RO, exit) IP side, followed by Mosonmagyaróvár (AT>HU, entry) IP side and VIP Brandov (DE>CZ, entry). The largest capacities were traded for VIP Brandov (DE>CZ, entry), followed by Csanádpalota (HU>RO, exit) IP side.
- (49) The demand for **interruptible capacity** can also be used as an indicator for capacity demand exceeding the technical capacity, under the assumption that those who booked interruptible capacity would have preferred firm capacity.
- (50) Interruptible capacity, with a duration exceeding one day, was offered for at least one product for 29 of the 50 congested IP sides.¹⁵ The Agency encourages the relevant TSOs to offer interruptible capacity with a duration exceeding one day, according to the provisions of Article 32 of the NC CAM¹⁶, to ease the severity of congestion, and after maximising the offering of firm (bundled) capacities. While not a requirement in the NC CAM, the market may benefit as well from bundling interruptible capacity where possible.
- (51) Effective interruptions occurred at 20 congested IP sides. Among the most interrupted IP sides were:
- VIRTUALYS (FR>BE, exit) on 233 occasions;
 - VIP THE-ZTP (BE>DE, entry) on 211 occasions;
 - VIP-BENE (BE>NL, entry) on 209 occasions; and
 - VIP Oberkappel (DE>AT, exit) on 74 occasions.
- (52) In terms of amount of interruption, the most interrupted IP sides were:
- VIP-BENE (BE>NL, entry);
 - VIP TTF-THE (NL>DE, entry);
 - VIP THE-ZTP (BE>DE, entry); and
 - VIRTUALYS (FR>BE, exit).
- (53) Effective interruptions that occur structurally hint at physical congestion. CMPs do not resolve physical congestion as the network is in this case used up to its physical limits and the mid-term

¹⁵ Where interruptible capacities are offered at the daily level, their numbers are not included in this report.

¹⁶ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No 984/2013.

resolution would be to increase the physical capacity, for instance through increased compression power.

- (54) Of the 50 IP sides identified as congested, 27 are included for the first time. **Recurrence of congestion** in the three preceding years (2019-2022) has been observed at 17 IP sides: 9 IP sides were found congested in 2021, 9 were found congested in 2020, 15 were already found congested in 2019 and 7 IP¹⁷ sides have been identified as congested in the last three editions of the Congestion Report (current edition included), and 6 IP sides¹⁸ were continuously congested in the last four editions.

2.4 Application of FDA UIOLI

- (55) Annex I lists the IP sides for which the FDA UIOLI mechanism needs to be implemented and applied according to Point 2.2.3(1) of the CMP GL, unless it is shown that a congested situation is unlikely to reoccur in the following three years.
- (56) 24 IP sides labelled as congested already apply FDA UIOLI.¹⁹ The Agency notes that NRAs take the final decision on how to mitigate and prevent congestion, taking into account the severity of congestion and the application of FDA UIOLI or other CMPs. They can use the information contained in this report to support their decision making.

¹⁷ Csanádpalota (FGSZ exit), Csanádpalota (Transgaz entry), Mosonmagyaróvár (FGSZ entry), Mosonmagyaróvár (Gas Connect Austria exit), Greifswald / OPAL (OPAL Gastransport entry), Negru Voda II (Transgaz exit), Negru Voda III (Transgaz exit).

¹⁸ Csanádpalota (FGSZ exit), Csanádpalota (Transgaz entry), Mosonmagyaróvár (FGSZ entry), Mosonmagyaróvár (Gas Connect Austria exit), Negru Voda II (Transgaz exit), Negru Voda III (Transgaz exit).

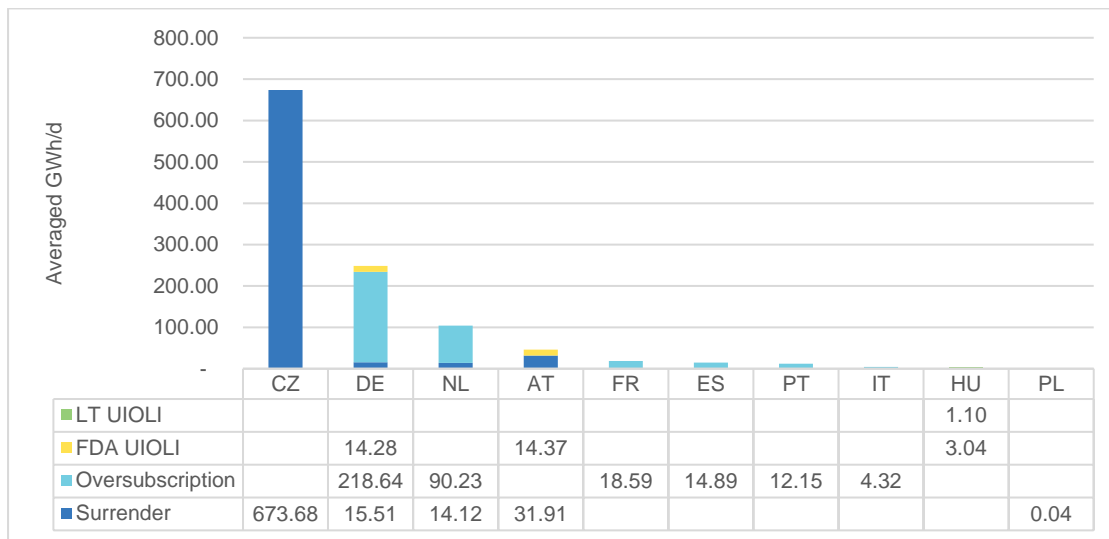
¹⁹ At these 24 IP sides, capacities effectively have been made available via the FDA UIOLI mechanism during 2022.

3. Application of CMPs

- (57) According to Point 2.2.3 of the CMP GL, any additional capacity made available through the application of one of the CMPs shall be offered by the respective TSO(s) in the regular allocation process.
- (58) The CMP GL Section 2.2 defines four CMP measures to mitigate congestion:
- *Oversubscription* allows TSOs to offer more firm capacity than is technically available at IPs on the assumption that not all the allocated capacity will be actually used by network users. This scheme provides financial incentives for the TSOs and requires basic modelling built on statistical scenarios.
 - *FDA UIOLI* brings unused firm capacity back to the market on a day-ahead basis. TSOs are not incentivised financially by this CMP. The network user loses its capacity and provides the additional capacity volumes by being subject to re-nomination restrictions.
 - *Surrender* is a CMP measure that allows network users to return their capacity to the TSO. The TSO will again offer this capacity in the primary market (by an auction on a booking platform). Capacity returned by network users will only be sold after the TSO has sold its own available capacity. During the auction, the capacity given back by a network user will not be distinguished from the TSO capacity, and it will be offered based on the standard volume and price units applied in the auctions. The Agency remarks that users could sell their capacity on the secondary market, which might be a faster option in liquid secondary markets, than triggering surrender.
 - *Long Term (LT) UIOLI* is described in Point 2.2.5 of the CMP GL. This mechanism aims at deterring capacity hoarding over the longer term and may not serve as an immediate tool for congestion per the criteria (a) to (d) of Point 2.2.3(1) of the CMP GL. LT UIOLI, nevertheless, plays an important role in the optimal management of transport capacities and dictates that NRAs require their TSOs to fully or partially withdraw systematically underutilised capacity if certain criteria are met. The process could trigger the release of yearly capacity products.
- (59) In 2022, 10 Member States ('MSs') reported capacity amounts made available via CMPs, while in 2016, 2017, 2018, 2019, 2020 and 2021 there were 7, 11, 10, 12, 10 (including the UK) and 10 Member States reporting such amounts, respectively. For calculating the average deployment of CMPs, the Agency calculated the occurrences by counting on how many days the application of CMPs took place. An increase of surrender (~60%) has been observed in 2022 compared to the previous year, while the use of oversubscription had a small decrease and FDA UIOLI a small increase. LT UIOLI remains small and decreased compared to 2021 (~60%).
- (60) While the deeper analysis of the year-on-year changes in CMP volumes is outside the scope of this Report, in a tighter market for transmission capacity, it may be expected that contractual congestion is managed through more oversubscription to make available more firm capacity and FDA UIOLI to ensure unused firm capacity can be re-offered on a day-ahead basis to interested market players. It is up to the concerned TSOs and NRAs to apply the instruments that may work best in their respective markets, ideally, harmonising as much as possible the measures at corresponding exits and entries of the same IP.
- (61) Figure 2 shows the results in 2022 per MS and per CMPs applied at CMP-relevant IP sides.²⁰

²⁰ The capacity numbers include all capacity released at CMP-relevant IP sides, in both directions and considering the days of application, as reported to ACER by ENTSOG. Compared to the previous Report, we changed the calculation slightly to consider more accurately CMP volumes that have been reported for a duration longer than one day. The numbers shown cover the application of CMP measures at CMP-relevant IP sides only, whereas previous reports included also non-CMP-relevant IP sides.

Figure 2: Capacity released by CMP measures [averaged GWh/d] via CMPs in the EU in 2022



Source: ENTSOG's TP data

- (62) Compared to 2021, LT UIOLI was no longer applied in the Czech market. Only Hungary reports application of LT UIOLI and the amounts remain small.
- (63) In 2022, FDA UIOLI continued to be applied at the Austrian, German and Hungarian IP sides. In terms of averaged capacity released, FDA UIOLI decreased compared to 2021 despite a doubling of volumes released in Austria as also the number of days on which the measure was activated multiplied by 5 (from ~600 days in 2021 to ~3100 days in 2022) leading to a lower average daily application.
- (64) The extent of application of Oversubscription and the corresponding capacity offered increased in absolute amounts in 2022 compared to 2021 as the reported volumes made available in Germany doubled. As in 2021, 2020 and 2019, the vast majority of the reported applications still concern IP sides of the Dutch TSO, GTS. The averaged numbers remain almost stable between 2022 and 2021 as the number of days of application in Germany tripled.
- (65) Czechia remains the market in which Surrender is most used. The absolute capacities released in the Netherlands via surrender dropped significantly, but the drop was compensated by a reduction of the number of instances of surrender, keeping the average stable. In 2022, there was no longer any surrender of capacities at IPs connected to the TAP pipeline.
- (66) The Agency remarks that in the presence of physical congestion, CMPs have limited effect in releasing and making available firm capacities as contracted capacities are used up to the technical limits.

4. Recommendations

- (67) The Agency acknowledges the gradual improvement that has been achieved on data quality and the data files from ENTSOG, including the CAM/CMP scope list and instructions being better prepared for the analysis. Nevertheless, in order to improve data availability, consistency and transparency, the Agency formulates the following recommendations.

4.1 Recommendations for ENTSOG and TSOs

- (68) On addressing the increased congestion in EU gas markets, the Agency urges the affected TSOs to take appropriate and coordinated cross-border actions to maximise capacities and manage contractual and physical congestions. The Agency invites ENTSOG to publicly report on the actions undertaken by the affected TSOs and to specify how much additional capacity has been made available in this way.
- (69) On improving data quality, implementing automated data processing and making the data available at one single platform, the Agency reiterates its previously formulated recommendations:
- ENTSOG/TSOs shall ensure that auction results with premia and data on all non-available capacity products are uploaded on the ENTSOG's TP, as required by the CMP GL, that these are consistent with the information published by the booking platforms and the findings of this Report. Based on the findings in this Report, ENTSOG shall adapt and update the CAM/CMP IP scope list on its TP continuously;
 - ENTSOG/TSOs shall ensure that the TP includes up-to-date information on the virtualised operation²¹, on the commercial and operational validity of the IP sides and on the identification IP sides where only virtual reverse flow is available in the absence of technical capacity in the concerned direction. The Agency appreciates that ENTSOG bilaterally made available an updated list of IPs where the dual model virtualisation applies and recommends that such information is also available on the TP;
 - The Agency found very effective for its analysis, the structured use of EIC codes ('unique identifier'²²) in booking platform data that were collected through an agreed Agency template. Continuous improvement and quality checks of consistency of EIC codes by data providers remain fundamental to allow data users to efficiently and effectively combine data sets from different providers;
 - ENTSOG's TP should aim to incorporate information on bundled capacities.²³

4.2 Policy recommendations

- (70) The Agency reiterates the following recommendations to the European Commission, taking into account the Commission's policy proposal:
- The Report fulfils the requirements of the CMP GL to analyse the auction data for a calendar year. However, the Agency has consistently highlighted that the CMP GL should be improved in two ways:

²¹ The dual model entails that a physical IP remains operational for existing contracts whereas future capacity offering is done at the VIP that the physical IP has been merged into.

²² An IP side can be uniquely identified with a combination of the following: TSO (EIC code), IP name (EIC code), direction, connected TSO (EIC code, if applicable).

²³ Currently, some commercial information on capacity products (e.g. on bundling and the level of firmness and allocability of firm capacity) is not available on the ENTSOG TP. Such data is only publicly accessible through the reporting of the three booking platforms. In order to fully comply with CMP GL's obligation to report on auction premia on the ENTSOG TP, at least an indicator on whether the auction premia occurred for bundled or unbundled capacity products is necessary. For the future, it would be desirable to have a single platform for all public gas transport data related to CAM, CMP, balancing and tariff data to enable stakeholders to efficiently access all the required information in a harmonised form.

- i. Gas capacity auctions follow an auction calendar that is organised according to the gas year, which lasts from 1 October of the calendar year until 1 October of the following calendar year. The scope of the analysis in the Congestion Report should be aligned and follow the auction calendar for the gas year. The current wording and timing in the CMP GL do not allow the Agency to do so;
 - ii. A clarified CMP GL with respect to its criterion d) of Point 2.2.3(1) – ‘where no firm capacity product with a duration of one month or more has been offered’ – could make the congestion analysis more market oriented. For network users it is relevant to have the opportunity to book capacity for delivery throughout the period under review – regardless of whether the booking takes place for any month during the year, in the form of either monthly, quarterly or yearly products. The current practice in the Congestion Reports has been to analyse whether at least one product with a minimum duration of one month has been offered during the period under review.
- The Agency welcomes the proposals of the ‘Hydrogen and decarbonised gas market package’ published by the EC in December 2021:
 - i. With respect to Point 2.2.1 of the CMP GL, the Agency notes the Commission’s proposal:
 - .i.1. To have a monitoring report at least every two years, or, upon substantiated request from the Commission, up to once a year;
 - .i.2. Without a deadline of when to publish the report, the Agency can decide whether to continue the current practice of monitoring congestion according to the calendar year or to monitor the gas year.
 - ii. The EC proposes an adjusted **criterion d)** of Point 2.2.3(1) of the CMP GL, ‘where **for at least six months** no firm capacity product with a duration of one month or more has been offered’, aligning it better with the other congestion criteria and making it more market oriented by covering a larger part of the year;
 - .ii.1.
- The legislative proposals treat the requests tabled by the Agency in previous Congestion Reports. The Agency also notes that Point 2.2.3 of the CMP GL refers to ACER’s yearly monitoring. The EC could clarify that this is to be understood as the biennial report covering the two preceding years.
- In addition, it should be further clarified that Article 6 of Regulation (EU) No 459/2017 regarding the joint method to maximise capacity and the dynamic approach to capacity **(re-)calculation, takes priority over the application of oversubscription** in the yearly, quarterly and monthly timeframe. The Agency has kept this recommendation from its previous reports and suggests that it is revisited in terms of its relevance, at the point in time when it is considered to be included in the NC CAM.

4.3 Topics for further analysis

- (71) This Report focuses on the identification of contractual congestion in line with the criteria set out in Point 2.2.3(1) of the CMP GL and on monitoring the use of CMPs.
- (72) The Agency acknowledges that deeper and broader analyses of the congestion data can provide additional insights and invites academia, research institutes and other interested parties to use the data, which is publicly available for several years, for other types of analysis than the one included in this Report.
- (73) Topics of interest to the Agency include in particular:

- The identification and statistical analysis of the factors that could explain the changes in the level of contractual congestion over time. Such factors can include market events (e.g., changes in transport tariffs, demand and supply changes and shocks) or non-market events (such as changes in national energy and climate policies) and other events (such as geopolitical events);
- A detailed analysis of the preventive and mitigating measures to deal with contractual congestion, including the role of CMPs therein;
- A critical review of the criteria for identification of contractual congestion as defined in the CMP GL, including the formulation of alternative criteria;
- The analysis of contractual congestion as a signal for market failures (that could trigger deeper and more specialized analysis such as investigating anti-competitive behaviour).
- A detailed analysis of contractual congestion between hubs in the day-ahead timeframe.

(74) Insights from such studies could feed into the Agency's monitoring of the gas markets and lead to a refinement of the Report and of policy recommendations based thereon.

Annex I: List of the 2022 IP sides for which NRAs should require the FDA UIOLI application

The list shows the congested IP sides, for which the FDA UIOLI mechanism needs to be applied according to Point 2.2.3(1) of the CMP GL, unless it is shown that a congested situation is unlikely to reoccur in the following three years. NRAs take the final decision on this matter, considering the severity of congestion and the application of all CMPs. The separate Technical Annex contains the full analysis and all TSO and NRA clarifications. In the table C stands for congested, FC for formally congested and CTBC for close to be congested. NA stands for not on the CMP relevant list.

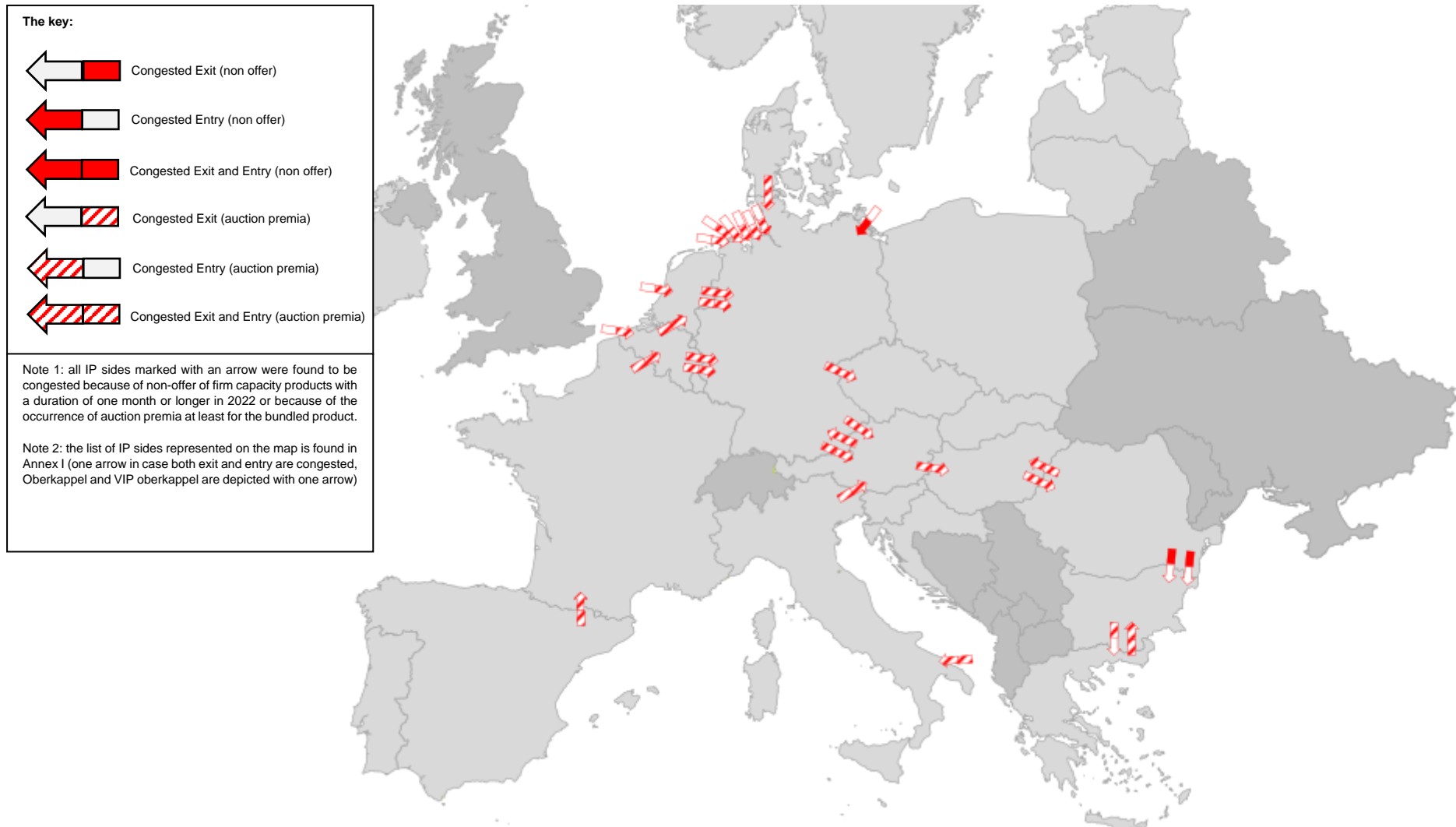
Operator	IP Name	Direction	Adjacent Operator	Congestion Status	FDA UIOLI already interruptible	LT	UIOLI (volume)	FDA UIOLI (volume)	OVERS	UBSCR	PTION	SURRE	NDER	(volume	Second	ary	trades	Day-	Ahead	and	Congestion Status s2021	Congestion Status s2020	Congestion Status s2019	Congestion Status s2018	Congestion Status s2017	Congestion Status s2016	Congestion Status s2015	Congestion Status s2014	Congestion Status in Q4/13
bayernets	Überackern SUDAL (AT) / Überackern 2 (DE)	entry	GCA	CONGESTED (auction premium M)	Y			Y										9											
bayernets	Überackern SUDAL (AT) / Überackern 2 (DE)	exit	GCA	CONGESTED (auction premium Y, Q, M)	Y			Y										153			C	C	C	C	C	C			
BBL company	Bacton (BBL)	entry	National Grid	CONGESTED (auction premium Q, M)														205			CTBC	FC	C						
Bulgartransgaz	Kulata (BG) / Sidirokastron (GR)	entry	DESFA S.A.	CONGESTED (auction premium Y, Q, M)		Y																		FC	C				
Bulgartransgaz	Kulata (BG) / Sidirokastron (GR)	exit	DESFA S.A.	CONGESTED (auction premium Q)		Y														FC	FC	FC			C	C	C	C	C
DESFA	Kulata (BG) / Sidirokastron (GR)	exit	Bulgartransgaz	CONGESTED (auction premium Y, Q, M)		Y									Y									FC	C				
Enagas	VIP PIRINEOS	exit	TERÉGA	CONGESTED (auction premium Y, Q, M)									Y					50											
Energinet	VIP DK-THE	exit		CONGESTED (auction premium Q)														19	CTBC		FC	NA	NA	NA	NA	NA	NA	NA	NA
FGSZ	Csanadpalota	entry	Transgaz	CONGESTED (auction premium Q, M)		Y									Y						C					FC			
FGSZ	Csanadpalota	exit	Transgaz	CONGESTED (auction premium Y, Q)	Y	Y	Y	Y							Y						C	C	C			FC			
FGSZ	Mosonmagyaróvár	entry	GCA	CONGESTED (auction premium Y, Q, M)	Y	Y	Y	Y							Y						C	C	C	C		C			
Fluxys Belgium	VIP-BENE	exit	GTS	CONGESTED (auction premium Y, Q, M)														261				NA	NA	NA	NA	NA	NA	NA	NA
Fluxys Belgium	VIP Belgium - NCG	exit	OGE	CONGESTED (auction premium Q)														117					NA	NA	NA	NA	NA	NA	NA

Operator	IP Name	Direction	Adjacent Operator	Congestion Status	FDA UIOLI already interruptible offered	LT	UIOLI (volume)	FDA UIOLI (volume)	OVERS	UBSCRIPTION	SURINDER	(volume)	Second ary trades	Day-Ahead and	Congestion Status 2021	Congestion Status 2020	Congestion Status 2019	Congestion Status 2018	Congestion Status 2017	Congestion Status 2016	Congestion Status 2015	Congestion Status 2014	Congestion Status in Q4/13
Fluxys Belgium	VIP THE-ZTP	exit	OGE	CONGESTED (auction premium Y, Q, M)										361									
Fluxys Belgium	VIRTUALYS	entry	GRTgaz	CONGESTED (auction premium Y, Q, M)										83	CTBC				FC				
Fluxys Belgium	Zeebrugge IZT	entry	Interconnector	CONGESTED (auction premium Y, Q, M)										100									
Gas Connect Austria	Mosonmagyaróvár	exit	FGSZ	CONGESTED (auction premium Y, Q, M)	Y	Y		Y			Y	Y			C	C	C	C	FC	FC			
Gas Connect Austria	Oberkappel	entry	OGE	CONGESTED (auction premium Y, Q, M)	Y	Y		Y			Y	Y		143			C	CTBC	C	CTBC			
Gas Connect Austria	Überackern SUDAL (AT) / Überackern 2 (DE)	entry	bayernets	CONGESTED (auction premium Y, Q, M)	Y	Y		Y			Y			153		C	C	C	C	FC	C	C	C
Gas Connect Austria	Überackern SUDAL (AT) / Überackern 2 (DE)	exit	bayernets	CONGESTED (auction premium M)	Y	Y		Y			Y			9	FC	FC	FC		FC	FC			
GASCADE Gastransport	VIP Brandov	exit		CONGESTED (auction premium Y, Q, M)	Y	Y		Y						28		CTBC	C	FC	NA	NA	NA	NA	NA
Gasunie Deutschland	Dornum / NETRA (GUD)	entry	Gassco	CONGESTED (auction premium Y)	Y	Y		Y										C		FC	C		
Gasunie Deutschland	Emden (EPT1) (GUD)	entry	Gassco	CONGESTED (auction premium Y)	Y	Y		Y						24									
Gasunie Deutschland	VIP DK-THE	entry		CONGESTED (auction premium Q)	Y	Y		Y						19	CTBC								
Gasunie Deutschland	VIP TTF-THE-H	entry		CONGESTED (auction premium Y, Q, M)	Y	Y		Y						108									
GRTgaz	VIRTUALYS	exit	Fluxys Belgium	CONGESTED (auction premium Y, Q, M)		Y								83	CTBC					FC			
GTS	VIP-BENE	entry	Fluxys Belgium	CONGESTED (auction premium Y, Q, M)					Y					261			NA	NA	NA	NA	NA	NA	NA
GTS	VIP TTF-THE-H	exit		CONGESTED (auction premium Y, Q, M)					Y			Y		108									
GTS	VIP TTF-THE-L	exit	Thyssengas	CONGESTED (auction premium Y)					Y			Y		15									
NET4GAS	VIP Brandov	entry		CONGESTED (auction premium Y, Q, M)		Y					Y	Y		33		CTBC	C	FC	NA	NA	NA	NA	NA
OPAL Gastransport	Brandov / OPAL	exit	LBTG	CONGESTED (non-offer)	Y																		
OPAL Gastransport	Brandov / OPAL	exit	N4G	CONGESTED (non-offer)	Y																		
OPAL Gastransport	Greifswald / OPAL	entry	Nord Stream	CONGESTED (non-offer)	Y			Y							C	C	FC		FC	FC	C		
Open Grid Europe	Dornum / NETRA (OGE)	entry	Gassco	CONGESTED (auction premium Y)	Y	Y		Y				Y		19		CTBC							

Operator	IP Name	Direction	Adjacent Operator	Congestion Status	FDA UIOLI already interruptible offered	LT UIOLI (volume)	FDA UIOLI (volume)	OVERSUBSCRIPTION	SURRENDER (volume)	Secondary trades	Day-Ahead and	Congestion Status 2021	Congestion Status 2020	Congestion Status 2019	Congestion Status 2018	Congestion Status 2017	Congestion Status 2016	Congestion Status 2015	Congestion Status 2014	Congestion Status in Q4/13
Open Grid Europe	Dornum GASPOOL	entry		CONGESTED (auction premium Y)	Y	Y	Y				11			C	FC					
Open Grid Europe	Emden (EPT1) (OGE)	entry	Gassco	CONGESTED (auction premium Y)	Y	Y	Y				29			C						
Open Grid Europe	VIP Belgium - NCG	entry	Fluxys Belgium	CONGESTED (auction premium Q)	Y	Y	Y	Y			117				NA	NA	NA	NA	NA	NA
Open Grid Europe	VIP Oberkappel	exit		CONGESTED (auction premium Y, Q, M)	Y	Y	Y				143			C	NA	NA	NA	NA	NA	NA
Open Grid Europe	VIP THE-ZTP	entry	Fluxys Belgium	CONGESTED (auction premium Y, Q, M)	Y	Y	Y	Y		Y	361									
Snam Rete Gas	Melendugno - IT / TAP	entry	TAP AG	CONGESTED (auction premium M)		Y					49	FC		NA	NA	NA	NA	NA	NA	NA
Snam Rete Gas	Tarvisio (IT) / Arnoldstein (AT)	exit	TAG GmbH	CONGESTED (auction premium Q)	Y		Y			Y	42				C	C				
TAG	Tarvisio (IT) / Arnoldstein (AT)	entry	SNAM RETE GAS	CONGESTED (auction premium Q)	Y	Y	Y			Y	42				FC	FC				
TAP	Melendugno - IT / TAP	exit	SNAM RETE GAS	CONGESTED (auction premium M)						Y	49	FC		NA	NA	NA	NA	NA	NA	NA
TERÉGA	VIP PIRINEOS	entry	Enagas	CONGESTED (auction premium Y, Q, M)		Y		Y			50				FC					
Thyssengas	Emden (EPT1) (Thyssengas)	entry	Gassco	CONGESTED (auction premium Y)	Y	Y	Y						FC	C						
Thyssengas	VIP TTF-THE-L	entry	GTS	CONGESTED (auction premium Y)	Y		Y			Y	15	CTBC								
Transgaz	Csanadpalota	entry	FGSZ	CONGESTED (auction premium Y, Q)						Y		C	C	C				FC		
Transgaz	Csanadpalota	exit	FGSZ	CONGESTED (auction premium Q, M)						Y		C			C			FC		
Transgaz	Negru Voda II	exit	Bulgartransgaz	CONGESTED (non-offer)								C	C	C	C			C	C	C
Transgaz	Negru Voda III	exit	Bulgartransgaz	CONGESTED (non-offer)								C	C	C	C			C	C	C

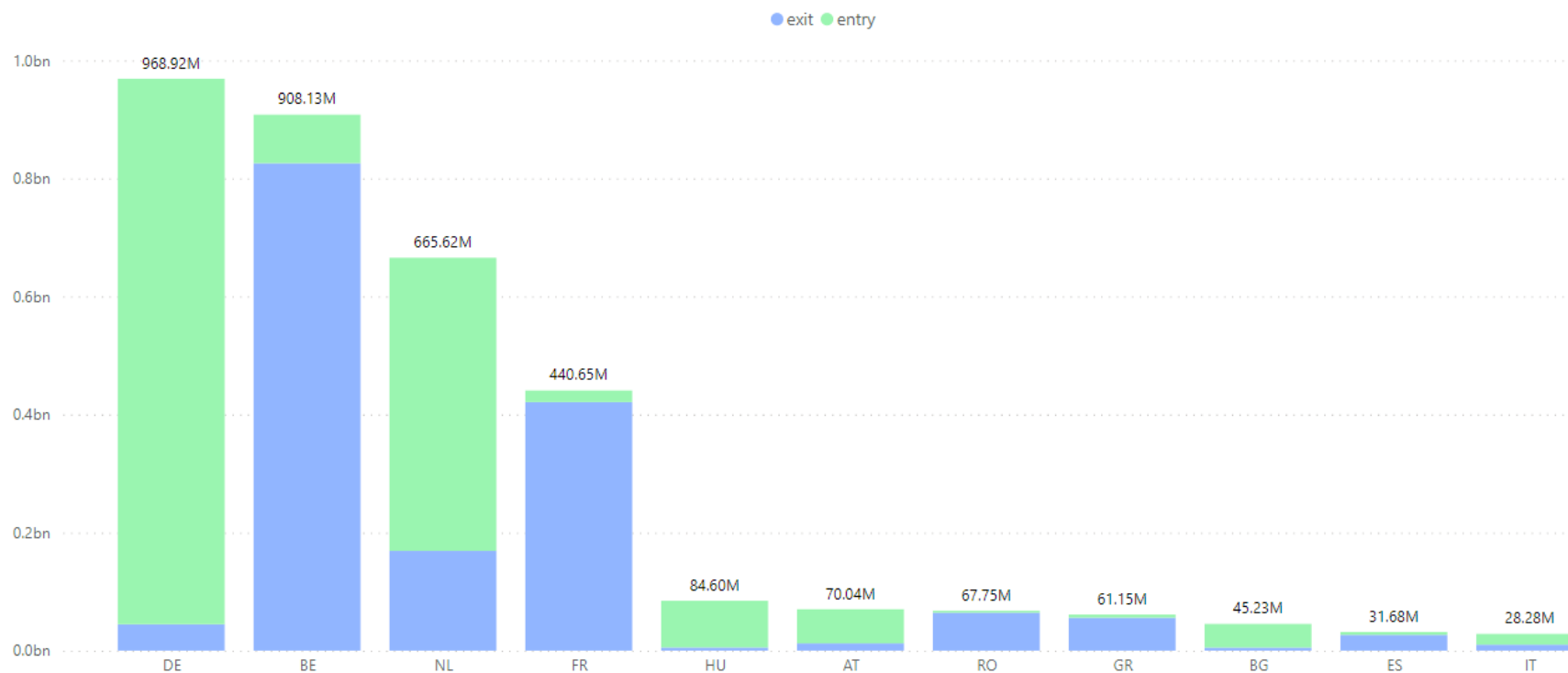
Notes: Where contractual congestion coincides with physical congestion, CMPs have limited effect in releasing firm capacities as the technically available capacities would be fully used. Where interruptible capacities are offered at the daily level, their numbers are not included in this table, which assesses the offer of yearly, quarterly and monthly interruptible capacities through auction procedures.

Annex II: Map depicting the 50 congested IP sides in 2022



Annex III: Congestion revenues from auctions held in 2022

Figure 3. TSOs' congestion revenues [euro] from auctions held in 2022 per country (depicting Member States where revenues exceeded 10 million euro); exit and entry respectively represent capacities to leave and enter a country (market) – Total congestion revenues for all EU Member States amounted to around 3.4 billion euro for auctions held in 2022 compared to 55 million pertaining to auctions held in 2021. Note: these revenues may include future payment not yet collected by the TSOs, e.g., when a capacity product pertains to a period after 2022.



Source: ACER calculation based on auction data provided by GSA Platform, PRISMA and RBP

The use of congestion revenues is regulated by Article 19 of Commission Regulation (EU) 2017/460 of 16 March 2017 establishing a network code on harmonised transmission tariff structures for gas (<https://eur-lex.europa.eu/eli/reg/2017/460/oj>).