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Implementation Monitoring Report  
on the  
Capacity Allocation Mechanisms  
Network Code

First Edition

27 October 2016

ACER - Agency for the Cooperation of Energy Regulators  
Trg Republike 3, 1000 Ljubljana, Slovenia

Mr David Merino

Tel. +386 (0)8 2053 417

E-mail: [David.Merino@acer.europa.eu](mailto:David.Merino@acer.europa.eu)

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## 1 Conclusions and recommendations

- (1) In the light of the analysis performed for this Report, the Agency has come to the following conclusions and recommendations:

### (a) NC CAM implementation is well on track on core requirements...

- (2) The Network Code on Capacity Allocation Mechanisms<sup>1</sup> ('NC CAM') was applicable as of 1 November 2015. According to the results of surveys run in the first quarter of 2016, the overall level of NC CAM implementation is good. In a scoring where all mandatory NC CAM provisions are weighted evenly, the **average EU compliance level is 82%**. This is caused by a number of factors, including a successful and widely supported early implementation process under the Gas Regional Initiatives.
- (3) In particular, the average implementation level of the core requirements of NC CAM chapters III and VI (namely the auctioning of standard products via booking platforms) is high: 94% for both.
- (4) However, a few Member States (in particular Bulgaria and Lithuania, the latter being in a special situation<sup>2</sup>) are lagging behind, and only the TSOs of United Kingdom and Belgium have implemented all the mandatory provisions of the code.

### (b) ... but full implementation is still outstanding

- (5) The Agency urges a prompt implementation of the remaining NC CAM provisions by the respective TSOs and asks NRAs to facilitate quick progress. Priority should therefore be given to the areas of **capacity bundling, virtual IPs and capacity maximisation**, as easy access to capacity is essential for gas markets and competition to develop further:
- A) The offer of bundled capacity products via booking platforms, as well as the single nomination procedure, should be promptly implemented at all IPs where this is not yet the case. This enables network users to access and nominate such cross-zonal capacities easily.
- B) Next to that, the Agency supports the development of VIPs as an important measure to simplify the commercial layer of gas transport and capacity handling for shippers. Therefore, the Agency urges TSOs to start or continue their analyses and subsequently realise all possible VIPs (cf. Figure 3) before 4 November 2018, as required by the NC CAM.
- C) Regarding the maximisation of capacity (offers) at IPs, the Agency observed some implementation issues with respect to certain TSOs and NRAs in various Member States (cf. Table 3), including:

<sup>1</sup> COMMISSION REGULATION (EU) No 984/2013 of 14 October 2013 establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation (EC) No 715/2009 of the European Parliament and of the Council, OJ L 273/5, 15.10.2013.

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0984&from=EN>

<sup>2</sup> Lithuania has one IP with an EU MS, the non-congested IP Kiemenai between LT and LV. The NC CAM does not apply there as long as LV has a derogation under Art. 49 of Directive 2009/73/EC. However, some NC CAM provisions of Chapter II, III and V are already implemented by the Lithuanian TSO at that single relevant IP, forming the basis for a full implementation by the time the derogation expires.

- (1) the lack of NRA oversight/involvement in the application of a joint method to analyse and remove technical capacity mismatches at the two sides of an IP,
- (2) the lack of dynamic recalculation of technical capacities at a frequency jointly agreed among TSOs at each IP, as well as
- (3) the lack of TSOs' efforts to request and make use of network user data on their expected future flows in the capacity calculations.

In particular at potentially contractually congested IPs, proper capacity maximisation should be a priority for the involved TSOs.

### **(c) Dynamic (re-)calculation of technical capacity shall be improved**

- (6) One of the key responsibilities of TSOs specified in the NC CAM and the Regulation (EC) No 715/2009<sup>3</sup> ('Gas Regulation') is to maximise the offer of technical capacity. The dynamic technical capacity re-calculation is a tool to achieve this goal. It is applied only by 10 TSOs of DE, BE and FR, covering about 39% of all IP sides in the EU. Still, for at least 45% of IP sides, technical capacity is only recalculated once per year<sup>4</sup> or even less frequently, for 11% it is done twice per year and for the remaining 5% no data was provided.
- (7) Regrettably, the Agency has no indications nor data confirming that the recalculation frequency was jointly identified by TSOs at any IP. Therefore, the Agency requests NRAs to support the Agency to deepen its analysis on the commonly agreed frequency next year.
- (8) The Agency is of the view that 'dynamic recalculation of the technical capacity' refers to technical capacity being maximised at all times during the year, and not just set upfront based on the yearly flat minimum technical capacity. The Agency promotes that individual capacity levels are calculated at least for individual quarters or months, in line with the aim of the NC CAM and the Commission's Guidelines on Congestion Management Procedures<sup>5</sup> ('CMP GL') to maximise the offer of firm capacity to the market.
- (9) As the NC CAM does not specify what "dynamic recalculation" exactly means and what frequency would be an appropriate one, the Agency requests NRAs and TSOs to discuss and clarify this term. Depending on the outcome, the Commission may need legally to define this term later on.
- (10) In addition, the legislation is not explicit on the priority between the dynamic (re)calculation of technical capacity and the oversubscription measure from the CMP GL. The Agency is of the view that the dynamic recalculation of technical capacity is to be exhausted before oversubscription is applied. The Agency calls on the Commission to clarify this.
- (11) Further improvements on capacity recalculation could be achieved by TSOs asking network users to submit regularly their data on expected future flows to improve capacity recalculation. Additionally,

<sup>3</sup> Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, OJ L211/36, 14.8.2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0036:0054:en:PDF>

<sup>4</sup> There is a special situation for the UK TSOs: Although technical / baseline capacity is set only once per year, a dynamic recalculation of additional capacity (e.g. from oversubscription) is done on a daily basis.

<sup>5</sup> 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>

NRAs should take an active role in this field, better exploiting the options offered in Article 6 of the NC CAM (such as a market consultation on the applied capacity calculation method, and NRA approval of the TSOs' specific actions on the joint method).

#### **(d) NC CAM indicators show limited effects**

- (12) The NC CAM indicators were calculated over 2014 and 2015, based on partial and sometimes inconsistent data from the Transparency Platform. The indicators, therefore, do not allow to draw definite conclusions on possible NC CAM effects and the effectiveness of its provisions.
- (13) Nevertheless, the Agency finds that:
  - A) The offer of bundled capacity has increased since 2013, with more TSOs offering it. The total amounts, however, are still at a low level: in 2015, less than 5% of the total technical (exit) capacity of all IP sides within the scope of the NC CAM was on average offered as a bundled day-ahead product). The amounts are expected to increase over time, as unbundled contracts will expire and all available capacity on both sides of an IP should be offered as bundled capacity.
  - B) Total capacity bookings for peak days increased, while physical flows remained rather stable. An increased (commercial) capacity utilisation, which better coincides with the actual (short-term) needs to flow gas across borders, was one of the aims of the NC CAM. The auctioning of standardised products (including day-ahead capacity) as well as the Congestion Management Procedures have contributed to reaching that goal.
- (14) These are initial observations based on a two-year timeline and incomplete data; trends can be observed only over a longer assessment period.
- (15) When calculating the average technical capacity development at EU and border level (cf. Annex IV), the Agency found significantly diverging values across the analysed years. The differences at border level require further analyses. Concerned NRAs and TSOs of the border sides identified in Annex IV (Figures 12 - 14) should find out whether the differences are due to data errors or real capacity increases/decreases and explain the reasons. The Agency requests their feedback before the end of the year.

#### **(e) ENTSOG's Transparency Platform transport data availability and quality to improve**

- (16) Data quality is crucial for implementation and effects monitoring. The CAM surveys have shown that more detailed questions (such as in the IP survey) sometimes lead to different - and presumably more accurate - answers than the more general questions (such as in the TSO/NRA survey) on the same topic.
- (17) Transport data in ENTSOG's Transparency Platform ('TP') needs to be regularly checked and timely updated by TSOs. The Agency also urges NRAs to verify regularly the TSO data submission to the TP, as well as data reliability, quality and consistency, to allow an effective data analysis by the Agency. The Agency will request support from the NRAs in this context.

- (18) Technical and booked capacity, as well as physical flow data, were used to calculate the CAM.1, CAM.5 and CAM.6 indicators. The Agency requests that data checks take place by ENTSOG with the help of the TSOs before the bulk data exports are delivered to the Agency.
- (19) In order to distinguish the different causes leading to technical capacity changes, ENTSOG should regularly provide qualitative data at IP level on the causes of capacity changes. This data should be transferred to the Agency annually together with the bulk data export files from the Transparency Platform.
- (20) In addition, the Agency requests the TSOs to use the existing “remarks” section of the ENTSOG TP to indicate whether physical flow data and also renominations contain TSO operational actions and if so to what extent.
- (21) For an effective data analysis, ENTSOG should implement without delay any updates to the NC CAM / CMP IP scope list on its Transparency Platform.



## 2 The report: purpose, scope and data

### 2.1 Legal basis, purpose and scope of the report

- (22) The NC CAM was applicable as of 1 November 2015 at Interconnection Points ('IPs') in the EU.<sup>6</sup>
- (23) The obligation to report on the implementation of network codes is included in Article 9(1) of the Gas Regulation. According to this article, the Agency shall monitor and analyse the implementation of the Network Codes and the Guidelines adopted by the Commission and their effect on the harmonisation of applicable rules aimed at facilitating market integration, as well as on non-discrimination, effective competition and the effective functioning of the market, and report to the Commission.
- (24) Articles 8(8) and 8(9) of the Gas Regulation task ENTSG with analysing and monitoring the implementation of the network codes and Guidelines adopted by the Commission and to make available information to the Agency, to facilitate the latter's reporting tasks.
- (25) This Report not only covers the information on the implementation status of the specific NC CAM provisions (Chapter 2) across the EU Member States<sup>7</sup>, but also provides a first assessment of the NC CAM specific market monitoring indicators (Chapter 3). These indicators were developed in cooperation with a consultant<sup>8</sup> to allow for a quantitative evaluation of the implementation effects on the gas (capacity) markets. The description of effects on competition and gas market integration is part of the annual Market Monitoring Report of the Agency<sup>9</sup>.

### 2.2 Data sources & methodology applied for the implementation monitoring

- (26) For the NC CAM implementation monitoring presented in Chapter 3, ENTSG and the Agency ran surveys among TSOs and NRAs from December 2015 to March 2016. Those surveys included detailed questions on the implementation of the specific NC CAM provisions both at TSO and IP level. NRAs were given the opportunity to further amend and update the survey results until mid-October 2016.

<sup>6</sup> The IP sides within the scope of the CAM NC & CMP GL have been compiled in a list by ACER & ENTSG, which is regularly being updated. The latest version was published on 24.6.2016:

[http://www.entsoe.eu/public/uploads/files/publications/INT%20Network%20Code/2016/20160623\\_NC%20CAM%20%20CMP%20IP%20scope%20lists\\_v6.xlsx](http://www.entsoe.eu/public/uploads/files/publications/INT%20Network%20Code/2016/20160623_NC%20CAM%20%20CMP%20IP%20scope%20lists_v6.xlsx)

<sup>7</sup> Four TSOs from Member States with a derogation from the application of the Gas Regulation (Estonia, Finland, Latvia and Luxemburg) were excluded from the analysis. Sweden applies no booking procedures at their IP with Denmark (and therefore does not apply NC CAM) and Malta as well as Cyprus have no gas markets (yet). Therefore, they do not appear in this report.

<sup>8</sup> Cambridge Economic Policy Associates Ltd, "Implementation Monitoring and evaluation of the impact of the gas network codes and guidelines on the internal market", October 2015 :

[http://www.acer.europa.eu/en/Gas/Market\\_monitoring/Documents/CEPA%20FinalReport\\_Monitoring%20%20Evaluation%20of%20Impacts%20of%20Gas%20NCs\\_FINAL\\_Oct15.pdf](http://www.acer.europa.eu/en/Gas/Market_monitoring/Documents/CEPA%20FinalReport_Monitoring%20%20Evaluation%20of%20Impacts%20of%20Gas%20NCs_FINAL_Oct15.pdf)

<sup>9</sup> See ACER/CEER Annual Report on the Results of Monitoring the Internal Natural Gas Markets in 2015 (Sept. 2016), chapter 5:

[http://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER%20Market%20Monitoring%20Report%202015%20-%20GAS.pdf](http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202015%20-%20GAS.pdf)

- (27) ENTSOG published its findings - providing the TSOs' perspective - in its CAM NC implementation monitoring report<sup>10</sup> and in its annual report<sup>11</sup> on 8 June 2016.
- (28) One of the core elements, the implementation of the capacity allocation methodologies on the three existing capacity booking platforms<sup>12</sup>, was already explored in great detail by a consultancy study<sup>13</sup>, commissioned by a number of NRAs and published in September 2015.
- (29) Chapter 4 of this Report presents the NC CAM implementation monitoring indicators suggested by a consultant<sup>14</sup> and calculated by the Agency on the basis of bulk export files for transport data from ENTSOG's Transparency Platform<sup>15</sup> and from PRISMA's monthly auction reports<sup>16</sup>.
- (30) The detailed bulk transport data was requested by the Agency for each IP side within the scope of NC CAM for each day of the year 2014, and 2015 respectively. The same data was also utilised for the annual analyses of contractual congestion at IPs<sup>17</sup>.
- (31) The bulk transport data was used to calculate the 2014 and 2015 indicators CAM.1 ("Evolution of technical capacity over time") and CAM.5 and 6 ("Aggregate utilisation of contracted capacity at IPs<sup>18</sup>"). For this purpose, the recently developed CMP IP scope list, representing a subset of the NC CAM IPs<sup>19</sup>, was applied to the bulk data to filter only those IP sides within the scope of the CMP GL, for which available data was most reliable.
- (32) The CAM.2 and 3 indicators ("bundled capacity offered and sold at EU IPs") were calculated on the basis of publicly available auction reports from the PRISMA platform only (as respective data from GSA and RBP is only available for the last quarter of 2015).

<sup>10</sup> ENTSOG's CAM NC Implementation Monitoring Report 2015, 8 June 2016:

[http://www.entsog.eu/public/uploads/files/publications/Implementation%20Monitoring/2016/CAP0661-16%20CAM%20NC%20Implementation%20Monitoring%20Report%202015%20TB%20published\\_Final%20\(2\).pdf](http://www.entsog.eu/public/uploads/files/publications/Implementation%20Monitoring/2016/CAP0661-16%20CAM%20NC%20Implementation%20Monitoring%20Report%202015%20TB%20published_Final%20(2).pdf)

<sup>11</sup> ENTSOG Annual Report 2015, 8 June 2016:

[http://www.entsog.eu/public/uploads/files/publications/AWP%20&%20Annual%20Report/2016/entsog\\_ar2015\\_16053\\_0\\_web.pdf](http://www.entsog.eu/public/uploads/files/publications/AWP%20&%20Annual%20Report/2016/entsog_ar2015_16053_0_web.pdf)

<sup>12</sup> The three booking platforms are: PRISMA, GazSystem Auctions and the Regional Booking Platform.

<sup>13</sup> Capacity Booking Platforms Assessment, Final Report by Baringa Partners LLP, 15.9.2015:

[http://www.acer.europa.eu/en/Gas/Framework%20guidelines\\_and\\_network%20codes/Documents/Gas%20Capacity%20booking%20platforms%20assessment.pdf](http://www.acer.europa.eu/en/Gas/Framework%20guidelines_and_network%20codes/Documents/Gas%20Capacity%20booking%20platforms%20assessment.pdf)

<sup>14</sup> See footnote 5.

<sup>15</sup> <https://transparency.entsog.eu/>

<sup>16</sup> PRISMA is the largest of 3 capacity booking platforms in the EU and the only one for which auction data was available both for 2014 and 2015. <https://platform.prisma-capacity.eu/#/reporting/standard>

<sup>17</sup> The latest ACER annual report on contractual congestion at interconnection points (Period covered: 2015) was published on 31.05.2016:

[http://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER%202016%20Report%20on%20Congestion%20at%20IPs%20in%202015.pdf](http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%202016%20Report%20on%20Congestion%20at%20IPs%20in%202015.pdf)

<sup>18</sup> CAM.5 (booked capacity / technical capacity), CAM.6 (physical flows / technical capacity)

<sup>19</sup> For example, the CMP GL IP list does not include any NC CAM IP sides without any firm technical capacity ("virtual reverse flow IP sides"). Latest version of the list → see footnote 2.

### 3 Results of the NC CAM implementation monitoring

#### 3.1 Overall Implementation Status of NC CAM

- (33) The main outcome of the CAM implementation monitoring based on the TSO and NRA surveys is summarised in Table 1. It shows the level of implementation of the NC CAM rules across the different EU Member States<sup>20</sup>, in percentage terms for each NC CAM chapter and as a total. It does not present IP-specific survey results, which are summarised separately in Annex III, as they could not be evaluated or “scored” at a Member State level.
- (34) For reasons of simplicity, all NC CAM chapters (and the included individual NC CAM obligations) monitored via the TSO/NRA-level surveys have been weighted equally<sup>21</sup>. In Member States with more than one TSO, where the individual TSOs’ level of implementation was similar (e.g. DE, PL, UK), a joint single result for the respective Member State was determined. In the case of France, the level of implementation differed among the two TSOs. That is why their results of the assessment are presented in separate columns.

Table 1: Level of Implementation of NC CAM provisions in the Member States of the EU (status as of April 2016)

NC CAM chapters	MS																			Average per chapter			
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT*	NL	PL	PT	RO		SI	SK	UK
I. General Provisions	no scorable provisions monitored																						
II. Principles of Cooperation	50%	100%	50%	50%	75%	50%	50%	50%	100%	50%	50%	50%	50%	50%	50%	60%	50%	50%	50%	50%	50%	100%	59%
III. Allocation of Firm Capacity	100%	100%	70%	80%	100%	100%	80%	100%	90%	90%	90%	100%	100%	89%	10%	100%	100%	100%	88%	100%	90%	100%	94%
IV. Bundling of Cross-Border Capacity	66%	100%	0%	100%	87%	66%	66%	100%	100%	100%	33%	66%	100%	100%	0%	100%	66%	66%	100%	33%	100%	100%	79%
V. Interruptible Capacity	92%	100%	22%	91%	92%	100%	92%	100%	92%	58%	58%	50%	90%	100%	73%	100%	92%	82%	92%	100%	92%	100%	85%
VI. Tariffs & Capacity Booking Platforms	100%	100%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	66%	100%	100%	100%	94%
<b>Total average score</b>	<b>82%</b>	<b>100%</b>	<b>28%</b>	<b>84%</b>	<b>91%</b>	<b>83%</b>	<b>78%</b>	<b>90%</b>	<b>96%</b>	<b>80%</b>	<b>66%</b>	<b>73%</b>	<b>88%</b>	<b>88%</b>	<b>N/A</b>	<b>92%</b>	<b>82%</b>	<b>80%</b>	<b>79%</b>	<b>77%</b>	<b>86%</b>	<b>100%</b>	<b>82%</b>

\* For as long as LV has a derogation under Art. 49 of Directive 2009/73/EC, NC CAM does not apply to LT, i.e. to its only relevant IP Kiemenai connecting LT with LV. All scores for LT are therefore only informative and have not been considered in the total and average scores per chapter.

- (35) The applied colour scheme visualises the comparison of the level of implementation in the Member States per NC CAM chapter and as a total. The scheme goes from dark red (comparably lowest level of implementation of the respective chapter), spanning over shades of orange and yellow to dark green (comparably highest level of implementation of the respective chapter). The percentages give

<sup>20</sup> The following Member States were excluded from the assessment: SE (Entry of IP Dragor is not subject to booking procedures); EE, FL, LV, LU (holding a derogation from applying - among others - the NC CAM regulation); CY, MT (having no IPs / gas markets).

<sup>21</sup> Total result = average of individual chapter results

the scoring results derived per NC CAM chapter and the last line shows the total score, averaging the individual chapter results.

- (36) The first line of the table contains no scoring, since the underlying questions and answers are only of an informative nature.
- (37) As can be deduced from the table above, to date, all – except two – Member States have on average implemented at least two thirds of the monitored NC CAM provisions. However, only two Member States are fully compliant.
- (38) The highest overall level of implementation is reached for NC CAM Chapter III (70 – 100%, on average 94%) and for Chapter VI (mostly 100% implementation, except for 2 Member States: 0% and 66%, on average 94%). The lowest level of implementation is observed for the “Principles of Cooperation” Chapter II (on average 59%), where only two obligations have been scored and one of them is not yet implemented in most countries.
- (39) Member States where implementation is lacking substantially (i.e. on average less than 30% of the rules implemented) are Bulgaria and Lithuania.
- (40) However, Lithuania is in a specific situation where no IP exists where NC CAM provisions have to be applied. Lithuania only has interconnection points with Russia, Belarus (both non-EU countries) and Latvia (which has a derogation from NC CAM application). The Lithuanian regulatory authority has not decided to apply NC CAM to its exit and entry points to third countries, which is optional according to Article 2(1) of NC CAM. Article 2(2) excludes those IPs - such as the LT-LV IP Kiemenai - from the scope of NC CAM, where one of the connected Member States holds a derogation on the basis of Article 49 of Directive 2009/73/EC. The partial NC CAM implementation<sup>22</sup> at the Lithuanian side of the IP Kiemenai is therefore based on the TSO’s rules on the usage of the transmission system, which have been approved by the national regulatory authority. This prepares the ground for a full NC CAM implementation at the IP Kiemenai (LT-LV) by the time the derogation for Latvia expires.
- (41) The following sections show how the percentages for the individual NC CAM chapters have been built up in detail. The individual chapter results were calculated as a ratio of “number of positive replies / total number of monitored obligations of this chapter”. In case the respondent did not reply to an (obligatory) implementation question, no implementation of the respective provision was assumed (thus lowering the score for this chapter). In case “not applicable” was given as a response, this answer was not scored/counted for this Member State. Questions marked with a star (\*) are also excluded from the scoring, as they are of an informative nature only (no legal obligation).

<sup>22</sup> Some provisions of NC CAM Chapters II, III and V (i.e. regarding TSO cooperation and the offer of standard capacity products and interruptible capacity) are already implemented by the Lithuanian TSO.

## 3.2 Implementation status by NC CAM chapters

### 3.2.1 Chapter I GENERAL PROVISIONS

- (42) The following table summarises the assessment of the monitored general provisions of NC CAM (Chapter I) addressed in the TSO/NRA-level questionnaires.

Table 2: Implementation level of chapter I provisions

NC CAM articles	MS																					
	AT	BE	BG	CZ	DE	DK	EL	ES	FR	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
2.1 Comments on IP list	yes	yes	no	no	yes	no	no	no	no	no	no	no	no	no	yes	yes	no	no	no	no	no	yes
2.5 Measures to limit up-front bidding	no	no	no	no	no	no	no	no	yes	no	no	no	no	no	no	no	no	no	no	no	no	no

Key: yes no NRA & TSO question

- (43) Regarding the scope of the NC CAM, TSOs and NRAs of seven Member States provided several comments on the NC CAM IP scope list (including data and label corrections, additions to and deletions from the list), which eventually led to an updated publication of this list<sup>23</sup>.
- (44) The option provided in the NC CAM to limit capacity access for network users in order to prevent foreclosure of downstream supply markets was only used in France. An up-front bidding limitation of 20% of offered capacity was set by the NRA for the French IP “Liaison Nord-Sud”.
- (45) At the same IP (and only there), also an implicit allocation method is applied for unsold firm capacity under the NC CAM auctions and for a small amount of interruptible capacity. This means that both commodity and capacity are jointly allocated to network users. In such instances, the NC CAM gives NRAs the option to decide on not applying the Articles 8 to 27 of the NC CAM there. However, this was not the case for this IP and the NC CAM is fully applicable.
- (46) Due to the informative character of the information provided with respect to Chapter I (none of the provisions entail a legal obligation), this chapter could not be scored.
- (47) However, the IP-level survey results for Chapter I show that the uniform Gas day, as defined in Article 3 of the NC CAM, was not yet applied at seven Romanian and Greek IP sides, all of which are connected with Bulgaria. Compliance for six IP sides is expected by 1 January 2017, one IP side will follow later (cf. details in Annex III (3)).

<sup>23</sup> cf. footnote 2

3.2.2 Chapter II PRINCIPLES OF COOPERATION

(48) Table 3 presents the implementation level for the monitored NC CAM provisions on the “Principles of Cooperation”, with a focus on the “joint method” for the maximisation of bundled capacity at IPs.

Table 3: Implementation level of Chapter II provisions

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
NC CAM articles																							
<b>4. Coordination of maintenance</b>																							
<b>6.1.a Core elements of joint cap. calc. method provided?*</b>					(3)					NR													
<b>6.1.a.1 Was detailed info on cap. calc. requested by NRA?*</b>																							
<b>6.1.a.1 Was detailed info on cap. calc. received by NRA?*</b>																							
<b>6.1.a.1 Approval for TSOs' specific actions on joint method?*</b>															NA						NA		
<b>6.1.a.2 Dynamic recalculation of technical capacity? (IP level survey)</b>	Y	D <sub>Flux</sub> Y <sub>UK</sub>	NR	Y	D <sup>(8)</sup> Y <sup>(4)</sup>	ad hoc	Y	Y	M	Y	Y	Y	Y	Y	NR	HGTS Y <sub>BBL</sub>	Y	Y	Y	Y	Y	Y/D	
<b>6.1.a.4 Network user info used for recalculation of tech. cap.?*</b>		NA	NA	NA	(9)	NA	NA	NA					NA		NA				NA	NA	NA	(1)	
<b>6.3 Market consultation on the applied cap. calc. method?*</b>				NR																			
Count of 'yes' (except *)	1/2	2/2	1/2	1/2	1.5/2	1/2	1/2	1/2	2/2	1/2	1/2	1/2	1/2	1/2	1/2	1.2/2	1/2	1/2	1/2	1/2	1/2	2/2	
Implementation level in %	50%	100%	50%	50%	75%	50%	50%	50%	100%	50%	50%	50%	50%	50%	50%	60%	50%	50%	50%	50%	50%	100%	

Key: 

yes	no	NR - no reply	NA - not applicable	NRA question	TSO question
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Frequency of recalculation of technical capacity: yearly (Y), monthly (M), twice per year (H), other dynamic f. (D)

In the case of UK, 'Y/D' refers to a yearly setting of the technical / baseline capacity, while additional capacity (e.g. from oversubscription) is recalculated on a daily basis.

(Number of concerned TSOs) - For detailed results please check Annex I(2).

\* This question was not considered in the chapter's scoring as it does not cover a direct legal obligation.

(49) It appears that in particular the level of NRA involvement in the implementation of the “joint method” described in Article 6(1)(a)(1) of NC CAM is low in a number of Member States. Six NRAs have not requested detailed information on the “joint TSO approach on capacity maximisation” (and three of these have not received such information). Three NRAs (AT, CZ, LT) have not received such information, although they requested it. In addition, except for Ofgem<sup>24</sup>, no NRA has adjusted the regulatory regime or approved any cost recoveries related to the TSO efforts on the joint method. Only one NRA (PT) has so far consulted the applied calculation method and joint approach with network users.

<sup>24</sup> Ofgem has approved all joint methods via approvals of NGG's interconnection agreements with its adjacent TSOs.

- (50) As the NRAs have no direct legal obligations with regards to the “joint method”, those results have not been “scored”. Instead, the implementation level of chapter II provisions has been solely calculated on the basis of two obligations: 1) the coordination of maintenance and 2) the dynamic recalculation of technical capacity with a joint frequency agreed by TSOs for each IP.
- (51) While the coordination of maintenance is fulfilled by all TSOs according to their responses to the questionnaire, this is not the case for the dynamic recalculation of technical capacities (as required in Article 6(1)(a) of NC CAM). The latter is an important tool aimed at maximising technical firm capacity that can be offered to the market.
- (52) For an effective dynamic capacity recalculation and maximisation, among other data, network user information on expected future flows are desirable. TSOs would have to consider such data, which may be provided by network users. However, there is no obligation for network users to do so. This may explain why only 17 TSOs of nine Member States have used such network user information for the recalculation of technical capacities.
- (53) The IP level survey results on the frequency of technical capacity recalculation reveal that a dynamic recalculation of technical capacities is done only for 39% of relevant IP sides. While technical capacity is recalculated twice per year for 11% of the relevant IP sides, for 45% of the IP sides this is done only once per year<sup>25</sup> or even less often (“ad hoc”). No data were provided for 5% of relevant IP sides (cf. Figure 2). In addition, the Agency has no information on whether the frequency was jointly agreed upon by the adjacent TSOs for each IP.
- (54) The survey showed some positive examples of dynamic capacity recalculation performed by TSOs. In France, TIGF mentioned a monthly recalculation frequency. In Belgium (Fluxys) and Germany (eight TSOs) a dynamic calculation is applied, however the frequency is irregular.
- (55) An indicative sample check of concerned IP side data at ENTSOG’s Transparency Platform showed limited changes in the technical capacity levels within the gas year(s). The actual frequency of the recalculation cannot be proven through such checks at the Platform, as there could be theoretically cases where the technical capacity is recalculated (more frequently), but the capacity level is the same. Additionally, the platform data is not always reliable or updated. The following Figure 1 should be understood with the considerations above.

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<sup>25</sup> There is a special situation for the UK TSOs: Although technical / baseline capacity is set only once per year, a dynamic recalculation of additional capacity (e.g. from oversubscription) is done on a daily basis.

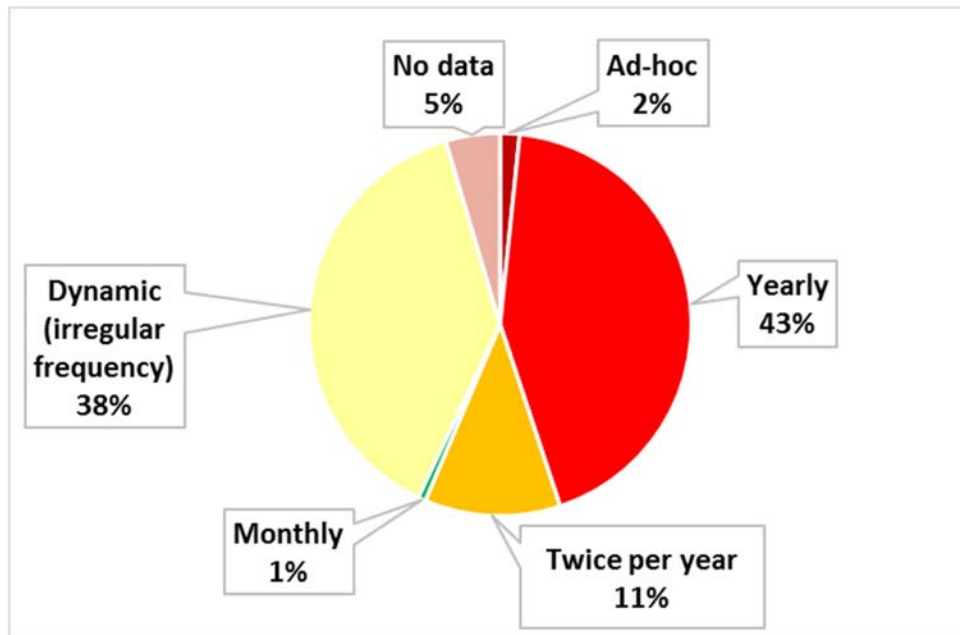


Figure 1: Frequency of technical capacity (re-)calculation at IP sides according to the survey results<sup>26</sup>

(56) On the topic of capacity bundling and maximisation, TSOs were asked to provide reasons for those of their IP sides at which a maximisation of bundled capacity did not take place. Nine TSOs of six Member States admitted, in their response to the IP-level survey in Q1/2016, that this was still the case for 26 IP sides (~7%), to which the NC CAM provisions are applicable<sup>27</sup>. The reasons are manifold:

- absent agreement on the choice of the capacity booking platform (7 IP sides),
- the late connection to the platform (1 IP side),
- TSO on the other side of the IP not ready to offer bundled capacity (6 IP sides),
- existence of a “competing capacity”<sup>28</sup> situation (6 IP sides),
- difference in technical capacities at both sides of the IP and one side being booked long-term (2 IP sides), and
- delayed implementation at the IP Überackern (4 IP sides) in Feb 2016 (cf. Annex III (4) for more details).

<sup>26</sup> 305 relevant IP sides form the basis of this figure, since 37 IP sides had to be excluded for the following reasons: no obligation for adjacent TSO (non-EU), derogation, exemption, no technical firm capacity.

<sup>27</sup> i.e. in line the scope of the NC CAM, IP sides from/to third countries or derogated countries or from/to exempted infrastructure(s) are excluded from the bundling obligations, as well as an IP side with a DSO on the other side of the IP and an IP side, where only interruptible capacity is offered (no bundling obligation of firm with interruptible cap.).

<sup>28</sup> “‘competing capacity’ means capacities for which the available capacity in one of the concerned auctions cannot be allocated without fully or partly reducing the available capacity in the other concerned auction.” (Art. 3 (5) of NC CAM)



- (57) Although the required joint in-depth analysis of technical capacity differences at IPs was finalised by the end of 2015 for 194 IP sides<sup>29</sup>, the expected effects of this optimisation are spread over a number of years, with the main impacts in 2015 (cf. Figure 2).

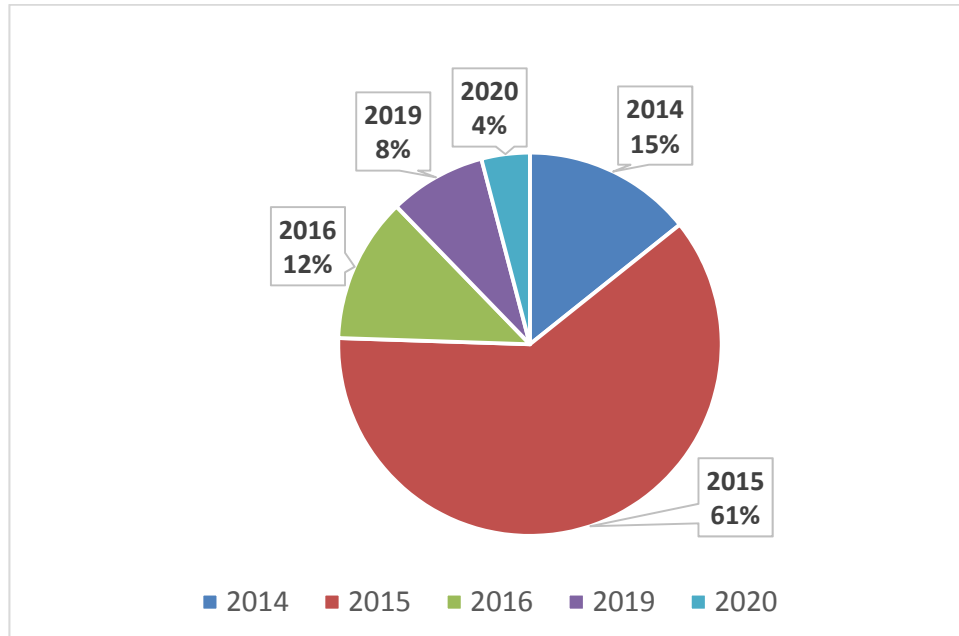


Figure 2: Timing for capacity optimisation

- (58) As indicated by TSOs at IP side level, the joint assessment included all the parameters mentioned in Article 6(1)(b) of NC CAM for more than 75% of the 352 IP sides listed in the original CAM IP scope list and surveyed. For 43 IP sides, even other parameters, such as gas quality or flow commitments were jointly assessed (cf. Annex III (4)).

<sup>29</sup> The joint method has been discussed with other affected TSOs for only 183 IP sides (52%). More details can be found in Annex III (4.).

### 3.2.3 Chapter III - ALLOCATION OF FIRM CAPACITY

- (59) Table 4 shows the implementation status for the monitored NC CAM provisions on the “Allocation of firm capacity”. The assessment of the capacity booking platforms’ implementation was performed by a consultant in 2015<sup>30</sup>. The study focused on the offer of standard products, their allocation, the auction rules and IT performance. The study showed overall positive results, as most NC CAM provisions were already implemented even from before the NC CAM application date, thanks to the early implementation process. As expected, the high implementation level in this area is confirmed by the survey(s) and represents the best outcome of all areas/chapters analysed.

Table 4: Implementation level of Chapter III provisions

NC CAM articles	MS																											
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT**	NL	PL	PT	RO	SI	SK	UK						
8.6 Set at least 20% aside?					(1)														NA			(1)						
8.7 Set aside all available cap.?		NA		NR	NA	NA		NA		NR	NR	NA	NA	NA	NR			NA	NA	NA		NA						
8.9 Increased % of cap. set aside?*																												
9. Offer only standard cap. prod.?																												
10. Cap. unit is kWh/d or kWh/h?																												
11.3 Cap. auctions <= 15 years?																												
11.6 Auction for Years: compliant?																												
12.6 Auct. f. Quarters: compliant?																												
13.5 Monthly auctions: compliant?																												
14.7 Day-ahead auct.: compliant?																												
15.8 Within-day auct.: compliant?					(1)																							
Count of 'yes' (except *)	10/10	9/9	7/10	8/10	9/9	9/9	8/10	9/9	9/10	9/10	9/10	9/9	9/9	8/9	1/10	10/10	10/10	9/9	7/8	9/9	9/10	9/9						
Implementation level in %	100%	100%	70%	80%	100%	100%	80%	100%	90%	90%	90%	100%	100%	89%	10%	100%	100%	100%	88%	100%	90%	100%						

Key: 

yes	no	NR - no reply	NA - not applicable	NRA question	TSO question
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\* This question was not considered in the chapter’s scoring (no legal obligation).

\*\* For as long as LV has a derogation under Art. 49 of Directive 2009/73/EC, NC CAM does not apply to LT, i.e. to its only relevant IP Kiemenai connecting LT with LV. All scores for LT are therefore only informative and have not been considered in the total and average scores per chapter in table 1.

(1) Number of concerned TSOs. For detailed results please check Annex I (3).

- (60) There are only a few exceptions, where individual provisions lack implementation in some Member States (cf. Annex I (3) for details).
- (61) TSOs/NRAs of six countries reported that they have increased the percentage of capacity set aside beyond the minimum of 20% as required in Article 8(6) of the NC CAM. However, the results of the

<sup>30</sup> Capacity Booking Platforms Assessment, Final Report by Baringa Partners LLP, 15.9.2015:

[http://www.acer.europa.eu/en/Gas/Framework%20guidelines\\_and\\_network%20codes/Documents/Gas%20Capacity%20booking%20platforms%20assessment.pdf](http://www.acer.europa.eu/en/Gas/Framework%20guidelines_and_network%20codes/Documents/Gas%20Capacity%20booking%20platforms%20assessment.pdf)

IP-level survey do not match these answers and show increased percentages for only three IP sides (cf. Annex III (6)).

- (62) 85% of the TSOs confirmed that they set aside at least 20% of technical capacity, as required by the Code. 20 out of 41 TSOs of 7 Member States confirmed that, if the available capacity was less than 20% of the technical capacity, they set aside all available capacity to be offered in accordance with Article 8(7). For a number of TSOs, this latter obligation was not applicable, probably because they were able to set aside the required 20%. Four TSOs did not reply to this question (see Annex I (3) for further details).
- (63) The results of the IP-level questionnaire (cf. Annex III (5)) confirm that CAM auctions are used on almost all EU IP sides now, except for the Lithuanian IP Kiemenai<sup>31</sup> (where first-come-first-served or, in case of congestion, pro-rata is applied) and all Romanian IP sides (where auctions are planned from 1 January 2017 on). The NC CAM does not allow the offer of non-standard capacity products. At the Lithuanian IP sides of Kiemenai, a calendar yearly product was offered, instead of applying only gas years (cf. annex III (7)).
- (64) Although all TSOs confirmed that they do not offer any standard yearly capacity products beyond the next 15 gas years' time horizon (as prescribed by the NC CAM), auction data analyses, as well as some NRAs, have revealed that a number of TSOs are not offering gas yearly products for all the 15 years. As already found in ACER's latest Congestion Report<sup>32</sup>, some TSOs (such as in PT and DK) are only offering the upcoming gas year (in the absence of contractual congestion). In this context, the Agency recommended in its Congestion Report to consider specifying in the NC CAM a minimum number of upcoming gas years to be offered. This aspect has recently been taken up by the Member States in the Gas Committee meeting, voting on the amendments of the NC CAM. The minimum number of upcoming gas years to be offered by TSOs will be 5.

<sup>31</sup> The NC CAM does not apply to the non-congested IP Kiemenai between LT and LV as long as LV has a derogation under Art. 49 of Directive 2009/73/EC. However, some NC CAM provisions of chapter II, III and V are already implemented by the Lithuanian TSO at that single relevant IP, forming the basis for a full implementation by the time the derogation expires.

<sup>32</sup> ACER 2016 Report on Congestion at IPs in 2015, 31.5.2016:

[http://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER%202016%20Report%20on%20Congestion%20at%20IPs%20in%202015.pdf](http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%202016%20Report%20on%20Congestion%20at%20IPs%20in%202015.pdf)

3.2.4 Chapter IV – BUNDLING OF CROSS-BORDER CAPACITY

(65) The following table summarises the implementation status for the monitored NC CAM provisions on the “Bundling of cross-border capacity”.

Table 5: Implementation level of Chapter IV provisions

NC CAM articles \ MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT**	NL	PL	PT	RO	SI	SK	UK
19.1 Offer of max. possible of avail. cap. as bundled?					(2)						NR											
19.5 Unbundl. cap. auctioned w/ auction calendar?					(2 NA)																	(1 NA)
19.7 Single nomination procedure for bundled cap.?					(4) (1 NA)																	
19.9 Start of VIP analysis?*				NR		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR				NR	NR	NR	NR
20.1 Any volunt. bundling arrangements reached?*																						
Count of 'yes' (except *)	2/3	3/3	0/3	3/3	2,6/3	2/3	2/3	3/3	3/3	3/3	1/3	2/3	3/3	3/3	0/3	3/3	2/3	2/3	3/3	1/3	3/3	3/3
Implementation level in %	66%	100%	0%	100%	87%	66%	66%	100%	100%	100%	33%	66%	100%	100%	0%	100%	66%	66%	100%	33%	100%	100%

Key: 

yes	no	NR - no reply	NA - not applicable	NRA question	TSO question
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\* This question was not considered in the chapter’s scoring.

\*\* For as long as LV has a derogation under Art. 49 of Directive 2009/73/EC, NC CAM does not apply to LT, i.e. to its only relevant IP Kiemenai connecting LT with LV. All scores for LT are therefore only informative and have not been considered in the total and average scores per chapter in table 1.

(Number of non-compliant TSOs) → for detailed results please check Annex I (4) & Annex II (4).

The responses for 20.1 for AT & DE were altered, as the arrangements reported do not qualify as bundling agreement between different shippers.

- (66) Both the bundling of capacity and the creation of Virtual Interconnection Points (‘VIPs’) are important measures to simplify the commercial layer of gas transport activities for shippers.
- (67) The bundling of exit and entry capacity at an Interconnection Point results in one bookable product, which is then usable via a single nomination. This makes capacity booking and its use more efficient compared to separate bookings and nominations of unbundled capacities.
- (68) In the TSO-level survey, 32 out of 41 TSOs confirmed for most Member States that TSOs offer the maximum possible of available capacity as bundled capacity as required in Article 19(1) of NC CAM. In Lithuania, no bundled capacity is offered, as Latvia has a derogation based on Article 49 of Directive 2009/73/EC.
- (69) The IP-level survey exposed greater non-compliance. 10 TSOs (for 33 IP sides) did not upload all available capacity to the booking platform for a bundled offer. Additionally, at four other IPs no bundled capacity is offered (cf. Annex III (8) for details). The main reasons that prevented some TSOs from offering all available capacity at IPs as bundled capacity was the pending booking platform

selection (for AT/HU, PL/DE and BG) in 2015.<sup>33</sup> Partly for the same reason but also for other technical reasons, the single nomination procedure for bundled capacity was not established by 10 TSOs in eight countries.<sup>34</sup>

- (70) Details on the offer of unbundled capacities at IP sides (exceeding the capacity on the other side) in compliance with Article 19(5) are provided in Annex III (8). The auction calendar is followed for these products in all Member States, except Bulgaria and Lithuania (cf. Annex I (4.2)).
- (71) The NRA survey on the voluntary arrangements to bundle existing capacity contracts by 1 January 2016 resulted in positive replies for Austria and Germany. However, those arrangements only concern one single IP (Oberkappel, between DE and AT), at which the same network user on both sides of the IP bundled its unbundled capacities. This information was already published in ACER's Bundling Progress Report<sup>35</sup> and confirms that voluntary bundling is not taken up by network users.
- (72) The reasons why network users holding unbundled capacity contracts did not reach an agreement with their counterparties could include:
- Missing TSO services that "convert" unbundled contracts into bundles, taking account of the price paid for the unbundled part,
  - Missing TSO facilitation to find matching counterparties holding unbundled capacity on the other side of an IP,
  - Limited motivation of the network user to find or agree with another user on how to arrange bundling, which might turn out to be commercially sensitive and complex,
  - Network users under the same mother company holding unbundled contracts on both sides of an IP can bundle those themselves (without reporting it),
  - Network users buying themselves the missing unbundled capacity (interruptible or firm) on the other side of the IP in capacity auctions from the TSOs or on the secondary market (no reporting).
- (73) As in particular the first mentioned reason had been raised by stakeholders at several occasions, possible solutions were discussed during 2015. The discussions resulted in ENTSOG's recommendation paper on capacity bundling<sup>36</sup> and subsequently in ACER's position paper on capacity conversion.<sup>37</sup> The latter proposes a mechanism preventing network users from having to pay twice for the same capacity, if bundled capacity is bought in addition to an overlapping existing

<sup>33</sup> While the Booking Platform selection for the AT-HU IP is still ongoing (via a tender), the decision for BG to join RBP has been taken. The decision for the PL-DE IPs is still pending.

<sup>34</sup> Those countries are DE (4TSOs), DK, BG, EL, HR, PT, all of which intended to implement the single nomination procedure before the end of 2016. In SI, it is still under discussion (no implementation deadline provided), and in LT it cannot be implemented, as LT has only IPs with 3<sup>rd</sup> countries and a derogated country (LV) (cf. Annex I (4.2))

<sup>35</sup> ACER's Bundling Progress Report 2015 of 4.11.2015:

[http://www.acer.europa.eu/Official\\_documents/Acts\\_of\\_the\\_Agency/Publication/ACER%20Bundling%20Progress%20Report%202015.pdf](http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Bundling%20Progress%20Report%202015.pdf)

<sup>36</sup> ENTSOG' recommendation paper on issues related to bundling of capacities (31.07.2015):

<http://www.entsog.eu/public/uploads/files/publications/incrementalcapacity/CAP0607-15%20ENTSOGs%20recommendation%20paper%20on%20issues%20related%20to%20bundling%20of%20capacities.pdf>

<sup>37</sup> ACER position on capacity mismatch issue (14.12.2015):

[http://www.acer.europa.eu/Official\\_documents/Position\\_Papers/Position%20papers/ACER%20position%20on%20capacity%20mismatch%20issue.pdf](http://www.acer.europa.eu/Official_documents/Position_Papers/Position%20papers/ACER%20position%20on%20capacity%20mismatch%20issue.pdf)

unbundled contract. With an amendment of the NC CAM, which was voted on by the Member States in the Gas Committee on 13 October 2016, the conversion service will become legally binding on 1 January 2018.

- (74) The creation of VIPs – the merging of physical IPs connecting the same entry-exit zones into one bookable VIP, which connects neighbouring gas hubs – further reduces complexity for the network user, as the total number of bookable IPs is reduced. Network users just chose from which hub/market area to which neighbouring hub/market area they want to move the gas, not having to care about the selection of a physical IP / specific TSO anymore.
- (75) The required analysis for the establishment of Virtual Interconnection Points (VIPs) shall be concluded by 1 November 2018. This analysis has already started in seven Member States (cf. Annex I (4.3)).
- (76) The map in Figure 3 below indicates - next to the three existing VIPs (PT-ES, ES-FR, DE-PL) - at which other entry-exit system borders VIPs could theoretically be created.

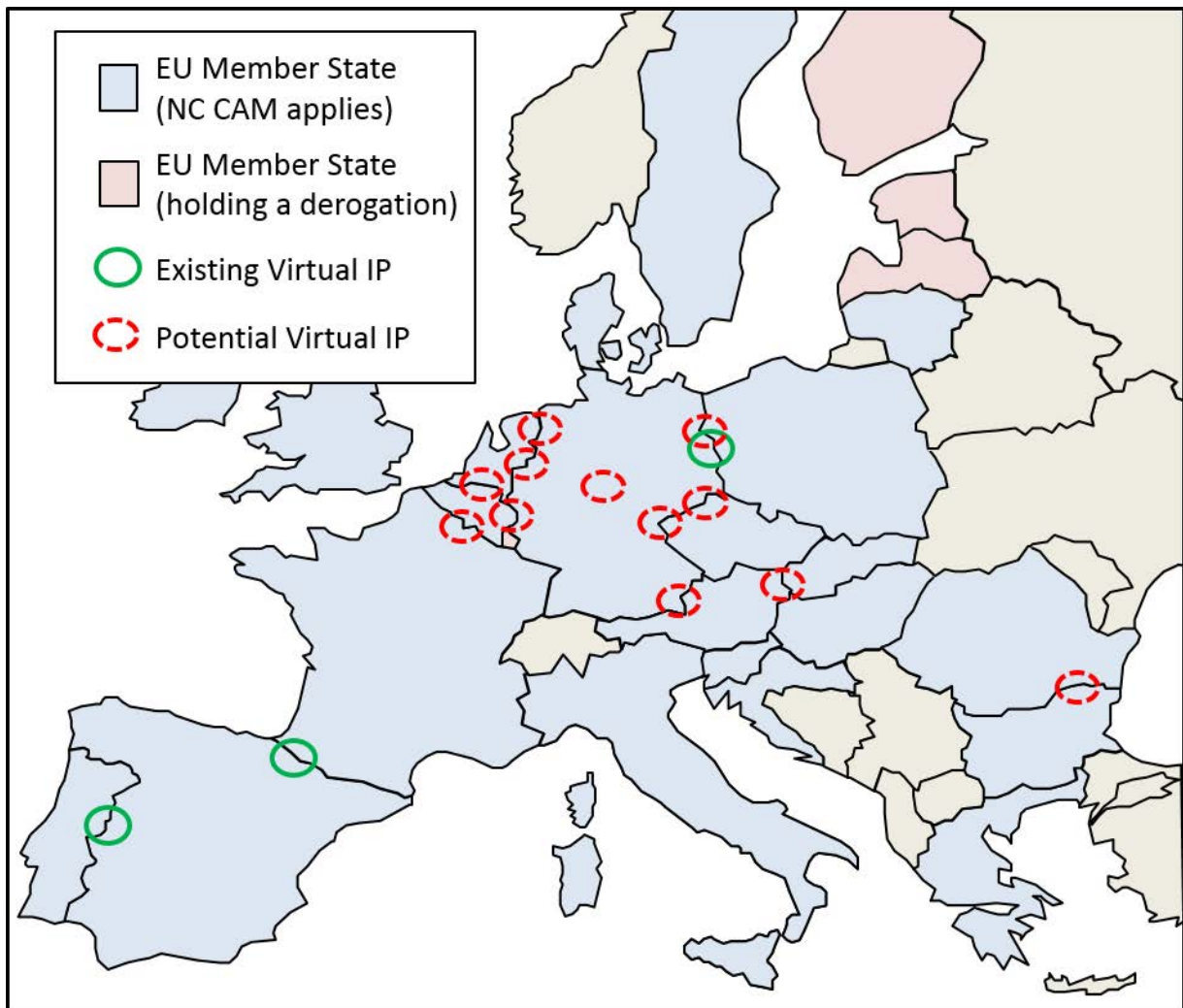


Figure 3: Map of existing and potential Virtual Interconnection Points

- (77) A systematic establishment of VIPs at all relevant entry-exit zone borders, as shown in the map above, could result in a reduction of (individually) bookable points as indicated in Table 6 below, making the selection of physical IPs (“routes”) by the network user obsolete and thereby reducing complexity.

**Table 6: List of 12 theoretically possible Virtual Interconnection Points (VIP) within the EU**

Entry-Exit Zone 1	Entry-Exit Zone 2	Possible VIPs	Number of physical IPs <sup>1</sup>	Number of related IP sides <sup>2</sup>
DE (GP)	DE (NCG)	1	13	52
DE (NCG)	NL	1	8	31
AT	DE (NCG)	1	7	22
CZ	DE (GP)	1	5	12
BG <sup>3</sup>	RO <sup>3</sup>	1	5	9
BE	NL	1	4	16
DE (GP)	NL	1	4	14
AT	SK	1	4	9
BE (H)	FR (Nord)	1	3	9
BE	DE (NCG) <sup>4</sup>	1	3	12
DE (GP)	PL <sup>3</sup>	1	1 IP + 1 VIP	8
CZ	DE (NCG)	1	2	6
<b>Total</b>		<b>12</b>	<b>60</b>	<b>200</b>

<sup>1</sup>: as defined by a unique EIC, <sup>2</sup>: aggregated based on NC CAM IP scope list (published 06/2016),

<sup>3</sup>: would require an entry-exit zone merger in the footnoted Member State(s),

<sup>4</sup>: concerns 3 DE TSOs at the IP Eynatten 2 with 3 different EICs (but just one physical IP).

- (78) The highest potential of complexity reduction could be achieved within Germany, at the German borders and around the BE-NL market, where a number of physical IPs connect the same zones. If, for example, a VIP is created between the entry-exit zones of Gaspool (GP) and Net Connect Germany (NCG), in the best case this could combine up to 13 physical IPs (or 52 IP sides) into one (bidirectional) VIP. This inevitably requires a very close cooperation of the different TSOs in the respective two market areas.
- (79) If all possible VIPs were established, 59 physical IPs and one VIP (or 200 IP sides altogether) of the current NC CAM IP scope list<sup>38</sup> would be affected and could theoretically be merged into 12 VIPs (i.e. 48 sides<sup>39</sup>), thereby **almost halving the number of IP sides currently on the NC CAM IP scope list, bringing it down to 187.**<sup>40</sup>

<sup>38</sup> The latest published version (see footnote 2) is amended by the newly established VIP “GCP Gaz-System/Ontras” between PL and DE (combining the 3 IPs Kamminke, Gubin, Lasow into 1 VIP) and contains 339 IP sides (or 111 physical and 3 virtual IPs (counted on the basis of their distinct EIC-Codes).

<sup>39</sup> This simplified calculation assumes that all VIPs are bidirectional, therefore having an entry and exist on both sides of the zone border.

<sup>40</sup> “IP side saving” = 200 – 48 = 152. Remaining list would comprise 339 - 152 = 187 IP sides.

3.2.5 Chapter V – INTERRUPTIBLE CAPACITY

(80) The implementation status of NC CAM provisions on interruptible capacity is presented in table 6 below, which shows full compliance in five Member States. Another nine countries lack implementation on one specific provision. The lowest compliance level is reached by Bulgaria, Hungary and Croatia.

Table 7: Implementation level of Chapter V provisions

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
<b>Allocation of interruptible capacity</b>																						
21.1 Offer daily int. cap. in both directions?	(2)				(1)																	(1)
21.2 Not diminished firm cap. to offer as int.?																						
21.4 How is int. cap. allocated (DA,M,Q,Y)?	A	A	PR	A	A	A	A	A	A	A	A	A	A	A	FCFS	A	A	A	A	A	A	A
21.5&21.6 WD int. cap. via over-nomination?*	(1)	NA					NA													NA		(1)
21.7 Publication of amounts of int. cap.?			NA		(1)										NA			NA				
<b>Minimum interruption lead times</b>																						
22.1 Jointly decided on min. int. lead time?	(1 i)		i	NA	(1 NA) (2 NO) (5 i)			NA		i		i										
22.2 Shortened min. int. lead time NRA approved?*	NA	NA			NA	NA	NA	NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	NA	NA
22.2 Shortened min. int. lead time jointly?*																						
<b>Coordination of interruption process</b>																						
23 Notification of adjacent TSO, in case of interrupt.?																						(1)
23 Being notified by adjacent TSO of interrupt.?	(1)		NA		(1)								NA									NA
23 Notification of network users in case of interrupt.?	(1)		NA																			
<b>Defined sequence of interruptions</b>																						
24.1 Timestamp approach for interr. sequence?																						(1)
24.2 Application of a pro-rata reduction in sp. cases?																						
24.3 Coordination on an IP basis for joint procedure?	(1)																					
<b>Reasons for interruptions</b>																						
25. Inclusion of reasons for interrupt. in contracts?	(1)												NA									(1)
Count of 'yes' (except *)	11/12	12/12	2/9	10/11	11/12	12/12	11/12	11/11	11/12	7/12	7/12	6/12	9/10	12/12	8/11	12/12	11/12	9/11	11/12	12/12	11/12	11/11
Implementation level in %	92%	100%	22%	91%	92%	100%	92%	100%	92%	58%	58%	50%	90%	100%	73%	100%	92%	82%	92%	100%	92%	100%

Key: 

yes	no	NR - no reply	NA - not applicable	NRA question	TSO question
-----	----	---------------	---------------------	--------------	--------------

PR – Pro Rata                      FCFS – First-come-first-served                      A – Auction                      i – individual decision

\* This question was not considered in the chapter’s scoring.

(1) For detailed results (non-compliant TSOs) please check Annex I.

(2) TSOs offer the daily interruptible product in both directions, also in case the firm day-ahead product is still offered.



- (81) Obligations less complied with are:
- the offer of a daily interruptible product in both directions of an IP (five Member States and one TSO in the UK and DE are not compliant);
  - the within-day capacity allocation via over-nomination (although the offer of within-day interruptible capacity itself is not an obligation, which is why it was not scored);
  - the establishment of a joint procedure to define the sequence of interruption (six TSOs not compliant).
- (82) The lowest compliance was reached with the obligation to jointly decide on the minimum interruption lead time (TSO of 10 Member States did either not decide or decided individually).
- (83) In LT interruptible capacity has never been offered, as there is no contractual or physical congestion. No coordination with LV has taken place, as LV has a derogation under Art. 49 of Directive 2009/73/EC.
- (84) The IP level questionnaire (Annex III (9)) showed that at most of the IP sides (206), all standard interruptible products are offered, although there is only an obligation to offer a day-ahead interruptible product if firm capacity is sold out. No interruptible products are offered at eight IP sides – VIP IBERICO (both directions by REN Gasodutos), Bacton and Zeebrugge (IUK).
- (85) The recently voted amendment of the NC CAM brings clarity on when and how interruptible standard capacity products can be offered. The amended NC CAM states that from 1 January 2018 on, interruptible products with a duration longer than one day may only be offered, if the equivalent firm capacity product was sold out, not offered or sold at an auction premium.

### 3.2.6 Chapter VI – TARIFFS AND CAPACITY BOOKING PLATFORMS

- (86) Table 7 summarises the implementation level of the Tariff and Booking Platform provisions of NC CAM. Full compliance with all provisions is reached by all but three Member States.

Table 8: Implementation level of Chapter VI provisions

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT**	NL	PL	PT	RO	SI	SK	UK	
NC CAM articles																							
26.1 Regulated tariffs as reserve price?																							(1)
26. Same reserve price for bundled/unbundld. cap.?					(2)																		
26.5 Approved auction prem. split not 50/50?*													NR										
26.6 Approved over/under recovery mechanisms?*				NA											NA		NA					NA	
26.6 Approved usage of revenues (if PC)?*	NR	NR	NR	RC-PC	RC		RC	RC	NR	NR	NA	RC	NR	HA	NA	NR		RC	RC	NR	NR	RC	
27 Booking platforms used for all IPs?																							
Count of 'yes' (except *)	3/3	3/3	0/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	3/3	0/3	3/3	2/3	3/3	2/3	3/3	3/3	3/3	
Implementation level in %	100%	100%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%	66%	100%	100%	100%	

Key:

yes	no	NR - no reply	NA - not applicable	NRA question	TSO question
-----	----	---------------	---------------------	--------------	--------------

HA: Hybrid approach    RC: Revenue cap    PC: Price cap

\* This question was not considered in the chapter's scoring.

\*\* For as long as LV has a derogation under Art. 49 of Directive 2009/73/EC, NC CAM does not apply to LT, i.e. to its only relevant IP Kiemenai connecting LT with LV. All scores for LT are therefore only informative and have not been considered in the total and average scores per chapter in table 1.

(1) & (2) For detailed results (TSOs) please check Annex II.

- (87) The tariff provisions in NC CAM were designed to facilitate the selling of capacity on the booking platforms. The provisions contain only general principles.
- (88) The regulated tariffs are not applied as reserve prices in the capacity auctions in BG and LT, where no regular NC CAM auctions have taken place yet.
- (89) Most TSOs offer their bundled/unbundled capacity product (of the same runtime) at the same reserve price as required by Article 26(4) of NC CAM, except for TSOs in BG and LT and two TSOs in DE, which did not apply bundling of capacities (cf. Annex I (6)). LT cannot offer bundled capacity due to the Latvian derogation under Article 49 of Directive 2009/73/EC.
- (90) The default auction premium split between two TSOs selling bundled capacities is 50:50. This was only altered at one IP (Mallnow) under specific circumstances (see Annex II (6)).
- (91) According to Article 26(2) of NC CAM, the payable price determined in a capacity auction can be either a fixed or a variable price or can be subject to other arrangements. The IP-level questionnaire

showed that for most IP sides (288) a floating payable price was applied in 2015. The application of a fixed price was reported only for 38 IP sides (see Annex III (10)).

- (92) The TSOs of five countries (BG, LT<sup>41</sup>, RO, HU, PL) reported that booking platforms were not used for all IPs at the time of the survey, due to pending decisions on the choice of the platform for all or some of their IPs. In the meantime, the decisions have been taken for BG and RO. For the offer of bundled capacity at the IPs between PL-DE and AT-HU, the platform decision is still pending. Unbundled capacities for those IPs are still offered separately on the 3 respective booking platforms.

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<sup>41</sup> The NC CAM does not apply to the non-congested IP Kiemenai between LT and LV as long as LV has a derogation under Art. 49 of Directive 2009/73/EC. However, some NC CAM provisions of chapter II, III and V are already implemented by the Lithuanian TSO at that single relevant IP, forming the basis for a full implementation by the time the derogation expires.

## 4 Analysis of effects of NC CAM implementation

- (93) This chapter presents the effects of the implementation of the CAM NC, to the extent that they can currently be assessed. The delays in NC CAM implementation in some Member States and, most importantly, the limited quality and availability of the underlying data limit an in-depth analysis and interpretation of possible effects at this stage.
- (94) Nevertheless, the quantitative indicators have been calculated on the basis of ENTSOG’s Transparency Platform transport data and PRISMA auction results – as described in Chapter 2.2. The results are presented in this chapter separately for each indicator. The labels of the indicators “CAM.1 – CAM.6” correspond to the indicators detailed in the consultant’s report<sup>42</sup>. The indicators comprise the evolution of technical capacity (CAM.1), bundled capacity offers (CAM.2) and sales (CAM.3), as well as ratios of bookings (CAM.5) and physical flows (CAM.6) over technical capacity.

### 4.1 CAM.1: Evolution of technical capacity

- (95) Figure 4 shows the aggregated yearly averages of daily technical firm capacities at EU IP sides<sup>43</sup>.

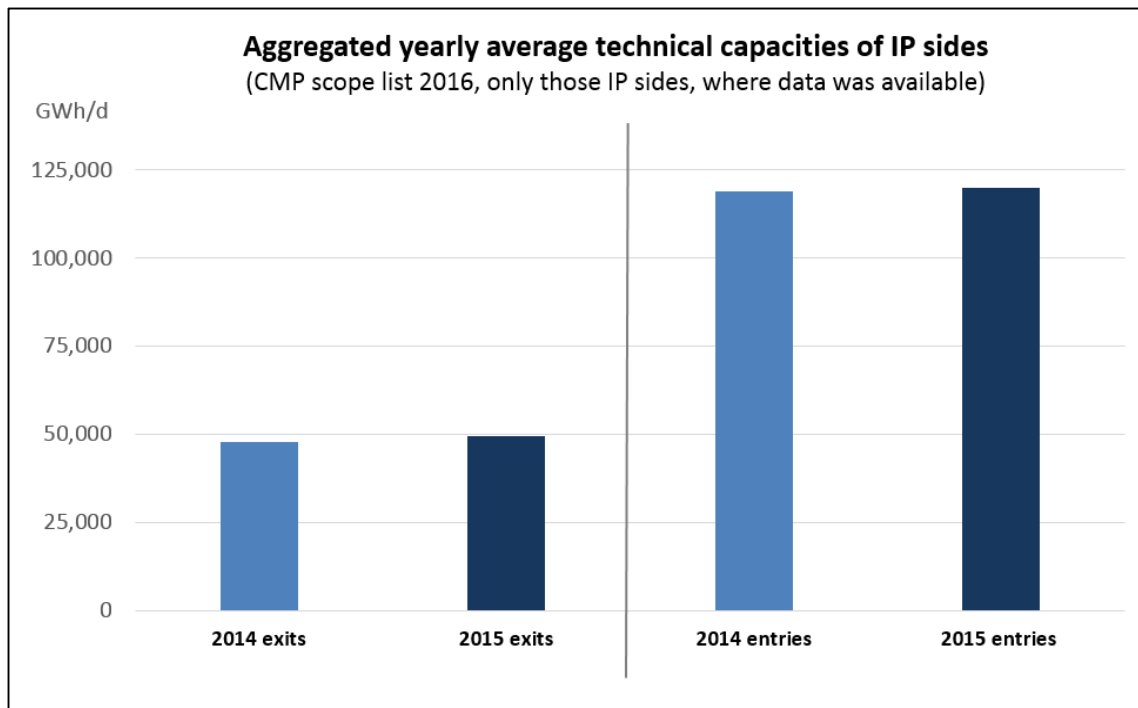


Figure 4: CAM.1 indicator – technical capacity at EU level

<sup>42</sup> Cambridge Economic Policy Associates Ltd, “Implementation Monitoring and evaluation of the impact of the gas network codes and guidelines on the internal market”, October 2015: [http://www.acer.europa.eu/en/Gas/Market\\_monitoring/Documents/CEPA%20FinalReport\\_Monitoring%20%20Evaluation%20of%20Impacts%20of%20Gas%20NCs\\_FINAL\\_Oct'15.pdf](http://www.acer.europa.eu/en/Gas/Market_monitoring/Documents/CEPA%20FinalReport_Monitoring%20%20Evaluation%20of%20Impacts%20of%20Gas%20NCs_FINAL_Oct'15.pdf)

<sup>43</sup> Only IP sides within the scope of the CMP GL have been used, for which technical capacity was larger than “0”.

- (96) From 2014 to 2015, the aggregated average technical capacity at EU IP sides has increased slightly, according to the available data. Generally, an increase in technical and thereby marketable capacity should allow for further gas market integration and development of competition.
- (97) However, it is not possible to conclude from the above figure whether the application of the dynamic (re)calculation of capacity (Art. 6(1)(a)(2) of NC CAM) has resulted in the observed increase in technical capacity. This is because quality and availability of underlying data was limited and even different for the two years. In addition, data on possibly realised physical network expansion was not available, which is why such influences on the total increase could not be discounted.
- (98) Detailed results of the CAM.1 indicator<sup>44</sup> assessment at border-side level are provided in Annex IV. They show that for most of the assessed borders, average technical capacity levels remained rather stable from 2014 to 2015. However, there were also a number of borders where capacity was increased or decreased, in some cases substantially. As the available data do not include information on possible physical expansion of the networks, effects stemming solely from the dynamic capacity recalculation could not be determined.
- (99) Since the quality and reliability of data reported on the ENTSOG Transparency Platform is limited, further assessments of the borders with substantial capacity changes are needed. Those could be done at border level among the concerned NRAs and TSOs, facilitated by the Agency.
- (100) Such further analyses require additional TSO data, which ENTSOG is requested to collect. The data, needed at IP-side level, should explain the reason(s) of a change in technical capacity (for instance dynamic capacity recalculation, physical network expansion, network optimisation [“shifting of capacities among IPs”] etc.).

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<sup>44</sup> The calculation of the (average) technical capacity on the top 10 peak flow days (a second option for the CAM.1 indicator assessment) resulted in a total decrease of capacity at EU entry sides in 2015 as compared to 2014, which is explained by missing and faulty underlying data. That is why the results are not presented in this report.

## 4.2 CAM.2 & 3: Bundled capacity offered and sold at EU IPs

- (101) Figure 5 shows the results of the indicator calculations on firm bundled<sup>45</sup> capacity offers and sales per product type in 2013, 2014 and 2015. The CAM.2 indicator quantifies the amount of offered firm bundled capacity per year. The CAM.3 indicator measures the amount of firm bundled capacity sold in the respective auctions at PRISMA. The analysis covers only PRISMA IPs, as the required data from GSA and RBP are only available from the last quarter of 2015 onwards.

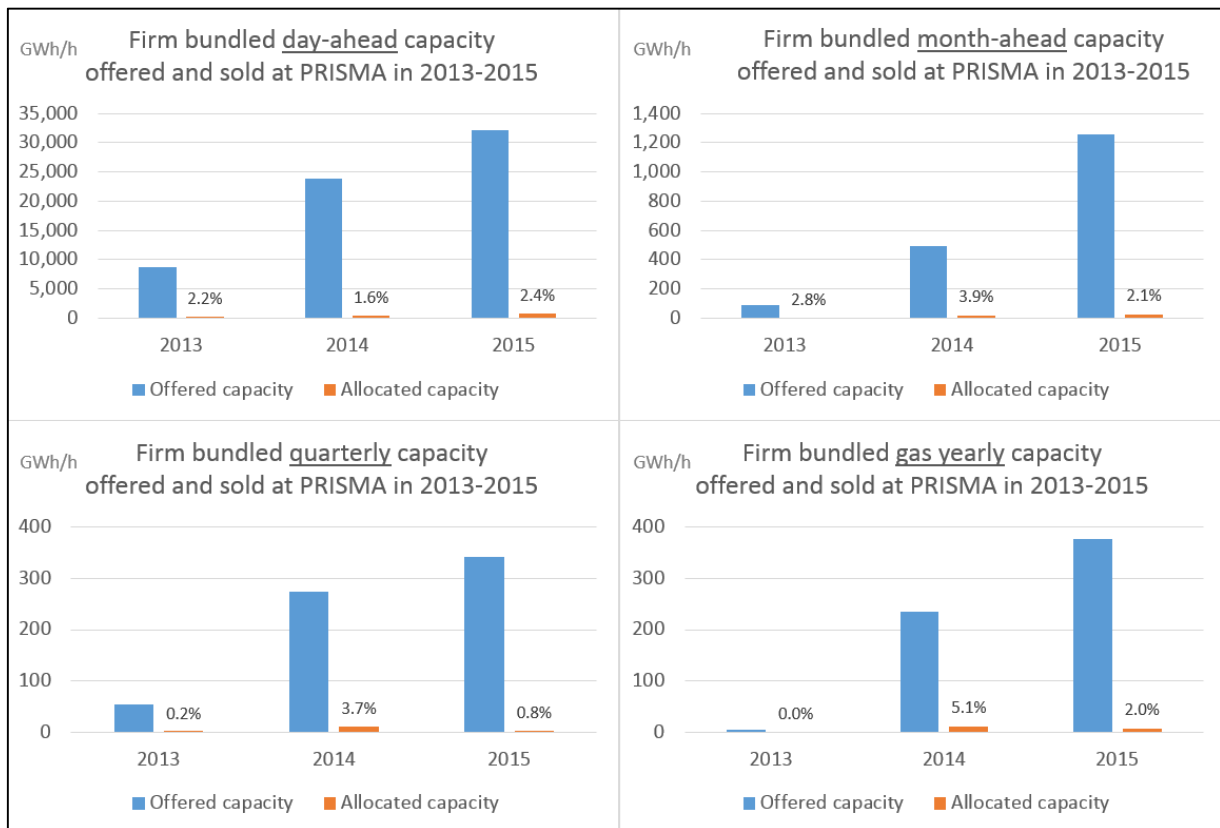


Figure 5: CAM.2 & 3 – Firm bundled capacity offers and allocations at PRISMA in 2013 - 2015

- (102) Through the “cascading” (re)offers of unsold bundled capacity in the subsequent auctions for shorter product durations<sup>46</sup>, a simple aggregation of bundled capacity offers (and sales / allocations) would be misleading. Figure 5 therefore distinguishes the different products’ offers and allocations in order to avoid potential multiple accounting for the same (re)offered (“cascaded”) firm bundled capacity.<sup>47</sup>

<sup>45</sup> Bundled means that the offer, allocation and nomination of capacity at both sides of an IP (i.e. exit and entry) takes place as if it were for a single capacity product. Capacity bundling – together with the creation of Virtual Interconnection Points – should therefore make it easier for network users to access, book and use cross-border capacities efficiently.

<sup>46</sup> Capacity is first offered in annual yearly auctions, any unsold capacity is then (re)offered in the quarterly auctions, then in the month-ahead, day-ahead and within-day auctions.

<sup>47</sup> Each figure shows aggregates of all capacity offers / allocations per product type occurring in each calendar year. For the gas yearly products, for example, this implies that all offered / allocated capacity volumes of up to 15 upcoming

- (103) As Figure 5 shows, the aggregated amounts offered as bundled capacity at PRISMA have clearly increased since 2013 for day-ahead, month-ahead, quarterly and gas yearly products, with more TSOs offering it. From 2014 to 2015, the highest percentage increase is observed for month-ahead capacity offers.
- (104) The actual market demand (allocations or sales), however, was in general very low for the bundled capacity offered at the respective IPs. Both actual allocation levels (comparative orange bars) and percentages (for allocations/offers) are shown in Figure 5. The highest ratio of allocations/offers occurred in 2014 for gas yearly products. The figure includes all gas yearly products sold in 2014 (partially for several future gas years).
- (105) Comparing the average total capacity amounts offered as bundled day-ahead<sup>48</sup> capacity products on PRISMA in 2015 (from Figure 5)<sup>49</sup> with the total volume of technical capacity in the EU, which could be bundled (Figure 4)<sup>50</sup>, a ratio<sup>51</sup> of 4.3% is observed in 2015, which is low. This confirms that bundling of capacity - from an EU perspective - has just started.
- (106) The bundled capacity amounts are expected to increase over time, as all available capacity on both sides of an IP should be offered as bundled capacity. Capacity covered by existing contracts of unbundled capacity would be bundled over time, as the contracts expire.

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gas years are summed up. As the NC CAM only requires firm capacity to be bundled, all bundled offers with at least one part being interruptible or “backhaul” capacity were excluded from the analysis.

<sup>48</sup> The ratio is calculated based on day-ahead capacity in order to deal with two data issues: (I.) the rolling-over of capacity which was offered, but not sold in the previous auction as a longer-term product into the next auction as a shorter-term product (for instance from annual to quarterly) and (II.) the fact that the annual yearly auction may cover up to 15 gas years. Therefore, the ratio calculated is a lower limit to the actual ratio, as it does not cover capacity which was not rolled-over (as it was sold).

<sup>49</sup>  $32,065.3 \text{ GWh/h} \times 24\text{h/d} \times 1/365 = \mathbf{2,108.4 \text{ GWh/d (on average)}}$

<sup>50</sup> 2015 total technical firm capacity in the EU (based on NC CAM IP scope list) for exits is 49,419 GWh/d, for entries the sum is 119,891 GWh/d. Assuming correctness and completeness of this data, the theoretical maximum of firm technical that can be bundled is the lower of the two values, i.e. **49,419 GWh/d**.

<sup>51</sup>  $2,108.4 / 49,419 = 4.3\%$

### 4.3 CAM.5 & 6: Aggregate utilisation of contracted capacity at IPs

- (107) Figures 5 and 6 represent the CAM.5 and 6 indicator calculation results aggregated at EU level for the IP sides within the scope of the CMP Guidelines (i.e. with technical capacity larger than 0).
- (108) CAM.5 is the ratio of booked over technical, CAM.6 the ratio of physical flows / technical capacity.

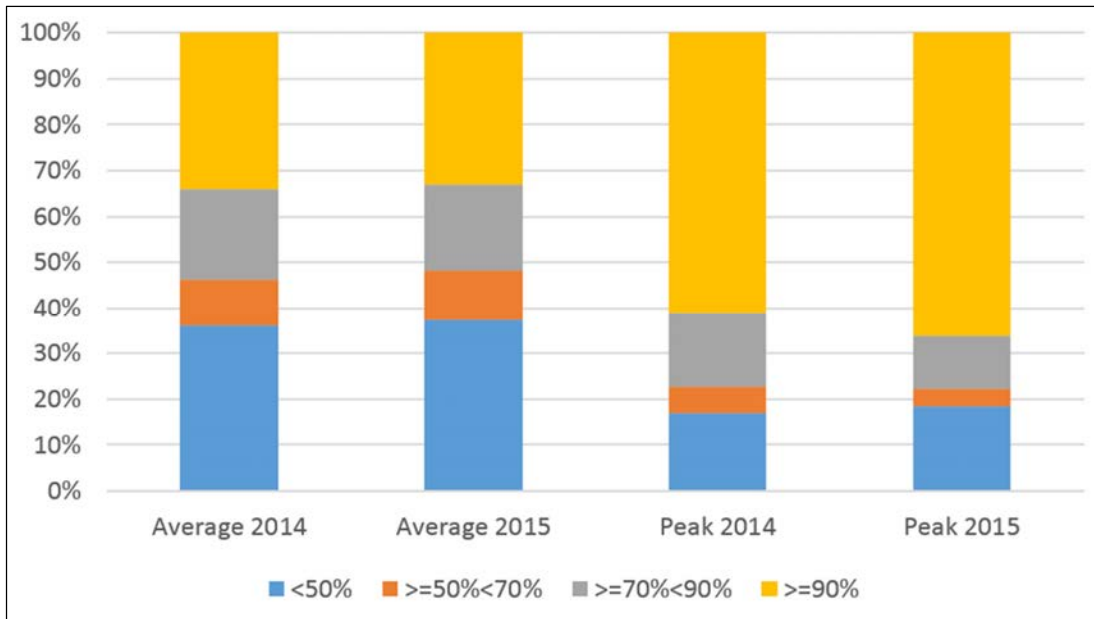


Figure 6: CAM.5 – Average contractual capacity utilisation (booked / technical capacity) (ratio distribution of CMP IP sides)

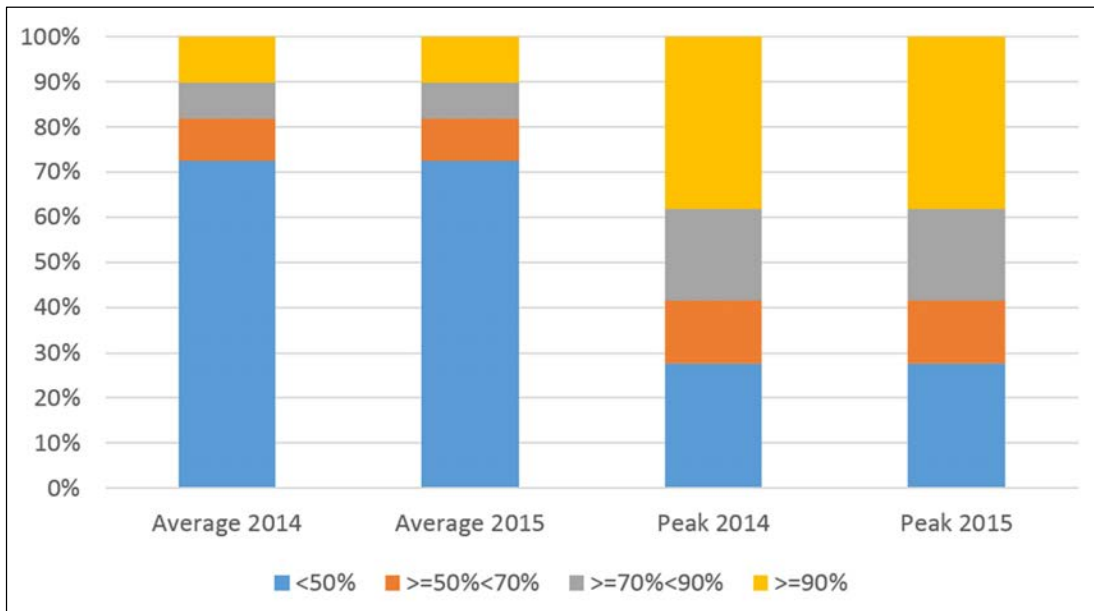


Figure 7: CAM.6 - Average physical capacity utilisation (physical flow / technical capacity) (ratio distribution of CMP IP sides)



- (109) For each year, both graphs show the calculated ratio distribution of IP sides within four ranges (0 to 50%, 50% to 70%, 70% to 90% and above 90% capacity utilisation level). The two bars on the left are based on yearly average utilisation levels, while the two bars on the right are based on the three peak utilisation levels.<sup>52</sup>
- (110) On average, from 2014 to 2015, the ratios between bookings and flows over technical capacity remain stable. For the peak values, there is a significant increase in booking levels (in particular above 90% utilisation), compensated by the decrease in the range 50-70% utilisation. However, there are no significant changes in physical flow levels.
- (111) Shippers increasingly book capacity on a short-term basis to cover needs associated to gas demand (“high season”, “profiling” of the bookings) or to profit from gas price differences on short-term gas markets. Overall, the Agency expects that it will become increasingly difficult to withhold capacity (also due to applicable CMP measures), which leads to a higher capacity availability and, generally, to a more efficient capacity utilisation.
- (112) The assessment of both indicators, over the years, could illustrate the development of overall capacity utilisation in the European network, giving insight into an effective application of both the NC CAM and the CMP GL. The NC CAM has been implemented only recently (1 November 2015). The CMP GL are applicable since 1 October 2013, but implementation was delayed in some countries. Therefore, effects of these measures on market functioning may not yet be evident and immediate in the short period (2014-15) analysed so far.
- (113) The detailed results of the CAM.5 and CAM.6 indicator calculations at border-side level are presented in Annex IV.

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<sup>52</sup> “Three peak utilisation level” means the average ratio of CAM.5 (capacity bookings / technical capacity) [and CAM.6 (physical flows / technical capacity), respectively] occurring at an IP side on the three peak days (of physical flow) within a calendar year.

## Annex I: Summary of responses received by the TSO survey

This annex summarises the responses received for the TSO questionnaire on the implementation monitoring of the NC CAM (status as of end of March 2016).

Each question of the survey is restated in this annex together with the corresponding Article of the NC CAM and the possible answers in [brackets], where applicable. Underneath each question, the responses of TSOs (checked by NRAs), are summarised.

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## 1. Chapter I – General provisions and replies from TSOs

For the CAM NC implementation monitoring, ENTSOG and the Agency ran a survey among TSOs during December 2015 and March 2016. This survey included detailed questions on the implementation of the specific CAM NC provisions. 44 TSOs replied to this survey (see Table 8), however the responses from 3 TSOs (marked with \*) were not taken into account. The following analysis will focus only on 21 concerned MS, because EE, FI, LV have a derogation. Luxembourg holds a derogation according to article 49 of Gas Directive 2009/73/EU.

Sweden, as no reply was received from Sweden's TSO, is not considered in the following report (due to the design of the Swedish gas market, where no capacity can be booked in the IP from the Swedish side). Cyprus and Malta are not considered, as there is no gas market there.

**Table 9: List of responding TSOs**

No	Responding TSO (company name)	MS	No	Responding TSO (company name)	MS
1	Energinet.dk	DK	23	ONTRAS Gas transport GmbH	DE
2	Elering Gaas AS*	EE	24	Plinacro Ltd	HR
3	Thyssengas GmbH	DE	25	Fluxys Belgium	BE
4	Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer)	DE	26	ENAGAS	ES
5	Gasunie Transport Services	NL	27	FGSZ Ltd.	HU
6	Nowega GmbH	DE	28	TIGF	FR
7	Gastransport Nord GmbH	DE	29	Gas Transmission Operator GAZ - SYSTEM S.A.	PL
8	jordgasTransport GmbH	DE	30	BBL Company V.O.F.	UK
9	Creos Luxembourg*	LU	31	terranets bw GmbH	DE
10	GAS CONNECT AUSTRIA GmbH	AT	32	National Grid Gas	UK
11	Open Grid Europe GmbH	DE	33	eustream, a.s.	SK
12	Gasunie Deutschland Transport Services GmbH	DE	34	Interconnector (UK) Limited	UK
13	GRTgaz Deutschland GmbH	DE	35	Gas Networks Ireland	IE
14	GASCADE Gastransport GmbH	DE	36	PLINOVODI d.o.o.	SI
15	NEL Gastransport GmbH	DE	37	Gasum*	FI
16	OPAL Gastransport GmbH	DE	38	AB Amber Grid	LT
17	bayernets GmbH	DE	39	GRTgaz	FR
18	Premier Transmission Limited	IE	40	REN-Gasodutos, S.A.	PT
19	BULGARTRANGAZ EAD	BG	41	Lubmin-Brandov Gastransport GmbH	PL
20	Snam Rete Gas S.p.A	IT	42	Trans Austria Gasleitung GmbH	AT
21	DESFA S.A. (GR)	EL	43	SNTGN Transgaz SA	RO
22	NET4GAS, s.r.o.	CZ	44	GNI (UK)	UK

## 2. Chapter II - Principles of cooperation

### 2.1 Coordination of maintenance

**Art. 4: Where maintenance of parts of the transmission network impacts the capacity offer, do you fully cooperate with your adjacent TSOs regarding your maintenance plans?**

All TSOs confirmed that they **fully cooperate with their adjacent TSOs regarding maintenance plans**, when maintenance of parts of the transmission network impacts the capacity offer.

### 2.2 Capacity calculation and maximization

**Art. 6(1)(a) Please explain shortly the core elements that your "joint method" includes?**

33 out of 41 TSOs explained the core elements which their **"joint method"** include (Art. 6.1). 3 TSOs, jordgasTransport GmbH (DE), NEL Gastransport GmbH (DE) and OPAL Gastransport GmbH (DE), indicated the provision as not applicable.

The group of TSOs (GTS, Thysengas, Gastransport Nord GmbH, Opengrid, GUD, GRTgaz Deutschland, GASCADE, Ontras, Fluxys Belgium and Terranets) provided the same responses.

3 TSOs did not provide a reply to this question - Nowega GmbH (DE), GRTgaz (FR) and Lubmin-Brandov Gastransport GmbH (DE).

**Art. 6(1)(a)4: If you have received any information from network users regarding projected nominations or future capacity bookings at IPs, did you take that information into account when re-calculating technical capacities?**

Out of 41 TSOs, 14 confirmed that, if they have received any information from network users regarding **projected nominations or future capacity bookings at IPs**, they took that information into account when re-calculating technical capacities (Art. 6(1)(a)).

26 TSOs did not receive any information. Those TSO were: Thyssengas GmbH (DE), Gasunie Transport Services (NL), Nowega GmbH (DE), GAS CONNECT AUSTRIA GmbH (AT), Gasunie Deutschland Transport Services GmbH (DE), bayernets GmbH (DE), Snam Rete Gas S.p.A (IT), FGSZ Ltd. (HU), Gas Transmission Operator GAZ - SYSTEM S.A. (PL), Terranets bw GmbH (DE), Interconnector (UK) Limited (UK), GRTgaz (FR), REN-Gasodutos (PT) and Trans Austria Gasleitung GmbH (AT).

2 TSOs - Plinacro Ltd (HR) and TIGF (FR), replied negatively to this question.

TIGF explained that the process relied on TSOs demands (current and forecast), so it was overall more accurate than the sum of the shippers' nominations.

25 TSOs informed that this provision was not applicable, as no information was received: Energinet.dk (DK), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Gastransport Nord GmbH (DE), jordgasTransport GmbH (DE), Open Grid Europe GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH

(DE), OPAL Gastransport GmbH (DE), Premier Transmission Limited (NI), BULGARTRANGAZ (BG), DESFA (EL), NET4GAS (CZ), ONTRAS Gastransport GmbH (DE), Fluxys Belgium (BE), ENAGAS (ES), BBL Company (UK), National Grid Gas (UK), eustream (SK), Gas Networks Ireland (IE), PLINOVODI (SI), Amber Grid (LT), Lubmin-Brandov Gastransport GmbH (DE), SNTGN Transgaz (RO) and GNI (UK).

In general, TSOs used this information for shifting the capacity, evaluating the potential for capacity maximization and ensuring the availability of the capacity.

Table 10: Overview of the replies on the implementation questions on Chapter II

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
4. Coordination of maintenance					(1)				NR													
6.1.a Core elements of joint cap. calc. method provided?					(3)					NR												
6.1.a.4 Network user info used for recalculation of tech. cap.?		NA	NA	NA	(9)	NA	NA	NA					NA		NA				NA	NA	NA	(1)

Legend:

yes	n.a. / no reply	no
-----	-----------------	----

(3) 3 TSOs jordgasTransport GmbH (DE), NEL Gastransport GmbH (DE) and OPAL Gastransport GmbH (DE) indicated the provision as not applicable, 3 TSOs did not provide a reply to this question - Nowega GmbH (DE), GRTgaz (FR) and Lubmin-Brandov Gastransport GmbH (DE).

(9) NA responses for the following DE TSOs: Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Gastransport Nord GmbH (DE), jordgasTransport GmbH (DE), Open Grid Europe GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), ONTRAS Gastransport GmbH (DE) Lubmin-Brandov Gastransport GmbH (DE).

UK (1) Not applicable for GNI (UK).

### 3. Chapter III – Allocation of firm capacity

#### 3.1 Allocation methodology

##### **Art. 8(6): Did you set at least 20% of capacity aside to be offered in accordance with Article 8(7)?**

35 out of 41 TSO confirmed that they set at least **20% of capacity aside to be offered** in accordance with Article 8(7).

3 TSOs replied negatively (DESFA (EL), TIGF (FR) and AB Amber Grid (LT)).

In addition, 3 TSOs replied that this provision is not applicable: Interconnector (UK) Limited (UK), Lubmin-Brandov Gastransport GmbH (DE) and SNTGN Transgaz SA (RO).

**Art. 8.7: If your available capacity is less than 20% of your technical capacity, did you set aside all your available capacity to be offered in accordance with Article 8(7)?**

21 out of 41 TSOs confirmed that, if available capacity was less than 20% of technical capacity, they set aside all available capacity to be offered in accordance with Article 8(7). Those TSOs were from DE, NL, AT, BU, EL, FR, PL and SK: Thyssengas GmbH (DE), Fluxys TENP GmbH & Fluxys Deutschland GmbH (DE, joint answer), Gasunie Transport Services (NL), Gastransport Nord GmbH (DE), jordgasTransport GmbH (DE), GAS CONNECT AUSTRIA GmbH (AT), Open Grid Europe GmbH (DE), Gasunie Deutschland Transport Services GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), bayernets GmbH (DE), BULGARTRANGAZ EAD (BG), DESFA (EL), ONTRAS Gastransport GmbH (DE), TIGF (FR), Gas Transmission Operator GAZ - SYSTEM S.A. (PL), Eustream a.s. (SK) and Trans Austria Gasleitung GmbH (AT).

In addition, 17 TSOs replied that it is not applicable: Fluxys Belgium (BE), Energinet.dk (DK), Nowega GmbH (DE), Premier Transmission Limited (NI), Snam Rete Gas S.p.A (IT), ENAGAS (ES), FGSZ Ltd. (HU), BBL Company V.O.F. (UK), terranets bw GmbH (DE), National Grid Gas (UK), Interconnector (UK) Limited (UK), Gas Networks Ireland (IE), PLINOVODI d.o.o. (SI), REN-Gasodutos (PT), Lubmin-Brandov Gastransport (DE), Transgaz SA (RO) and GNI (UK).

4 TSOs did not reply to this question: NET4GAS (CZ), Plinacro Ltd (HR), AB Amber Grid (LT) and GRTgaz (FR)

***If not, are there any issues/barriers you are facing? Please elaborate and describe mitigating measures taken, if applicable.***

3 TSOs gave their reasoning for any issues/barriers they were facing:

1. As regards France and Spain, the TIGF=>Enagas capacity was booked LT at a level of 89% of annual firm capacity, therefore it was not possible to sell more firm capacity. However, TIGF offered interruptible capacity on a DA basis. On other side, the Enagas=>TIGF firm capacity was booked LT at a level of 78% of annual firm capacity.
2. Problematic issues for transit character TSOs which were forced to set aside a lot of capacities, as was mentioned by Eustream (SK).
3. No multi-annual capacity auctions were in place for REN-Gasodutos (PT).

### 3.2 Standard capacity products

**Art. 9: Do you offer any non-standard capacity products? If so, please describe those products and indicate at which IP sides those are offered in the attached EXCEL IP list.**

40 out of 41 TSOs **did not offer any non-standard capacity products**. Amber Grid (LT), replied positively, but did not describe them.

### 3.3 Applied capacity unit

**Art. 10: Which energy units are you using to express capacity amounts offered?**

9 out of 41 TSOs use kWh/d **energy units** to express capacity amounts offered: Premier Transmission Limited (NI), DESFA S.A. (EL), ENAGAS (ES), Eustream (SK), Gas Networks Ireland (IR), Amber Grid (LT), GRTgaz (FR), REN-Gasodutos (PT) and GNI (UK).

3 TSOs indicated using other units, namely:

1. BULGARTRANGAZ (BG) uses MWh/d, they plan to use kWh/h or kWh/d from 1/10/2016.
2. According to Snam Rete Gas (IT) Network Code capacity was also expressed in Sm<sup>3</sup>/d using a published conversion factor.
3. Eustream (SK) provides capacity/tariff data in dual units: MWh/d in line with national regulation and kWh/h and booking platforms. In addition, they use **cubic meters** for Eustream website as the previous used unit, as preferable by some network users.

Plinovodi (SI) TSO mentioned barriers they are facing: TSO shows the data about capacity in different kind of units on the website (for example in MWh/d), but on PRISMA platform the capacities were expressed in kWh/h.

The remaining 28 TSOs use kWh/h.

**Table 11: Overview of the replies on the implementation questions on Chapter III and calculation of the capacity offered in auctions**

NC CAM articles \ MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
8.6 Set at least 20% aside?					(1)														NA			(1)
8.7 Set aside all available cap.?		NA		NR	NA	NA		NA		NR	NR	NA	NA	NA	NR			NA	NA	NA		NA
9. Offer only standard cap. prod.?																						
10. Cap. unit is kWh/d or kWh/h?																						
11.3 Cap. auctions <= 15 years?																						
11.6 Auction for Years: compliant?																						
12.6 Auct. f. Quarters: compliant?																						
13.5 Monthly auctions: compliant?																						
14.7 Day-ahead auct.: compliant?																						
15.8 Within-day auct.: compliant?					(1)																	

Legend: yes n.a. / no reply no

8.6 - (1) Not applicable for Lubmin-Brandov Gastransport GmbH (DE) and (1) Interconnector (UK) Limited (UK).

15.8 - not applied by Fluxys TENP GmbH & Fluxys Deutschland GmbH.

### 3.4 Capacity auctions

**Art. 11(3):** *In case you are offering yearly capacity products, beyond the upcoming 15 gas years, please specify how many years you are offering and why.*

No TSO indicated an offer of **yearly capacity products beyond the upcoming 15 gas years** (Art. 11(3)).

**Articles 11 – 15:** *Do you calculate the capacity offered during the respective capacity auctions in accordance with the respective formulas set out in articles 11 - 15 of NC CAM?*

The answers to those compliance questions are represented in Table 11. There are no auctions used in Lithuania, and no technical capacity is set aside in accordance with Article 8(7)(b). However, as there is no congestion at the only IP with an EU Member State, network users may book both long-term and short-term capacity products.

## 4. Chapter IV - Bundling of capacity

### 4.1 Offers of maximum possible of available capacity as bundled capacity

**Art. 19(1):** *Please indicate whether you are offering the maximum possible of your available capacity as bundled capacity at each IP as indicated in Article 19.1.*

33 out of 41 TSOs confirmed that they were **offering the maximum possible of available capacity as bundled capacity** at each IP as indicated in Article 19.1: Energinet.dk (DK), Thyssengas GmbH (DE), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Gasunie Transport Services (NL), Nowega GmbH (DE), Gastransport Nord GmbH (DE), Open Grid Europe GmbH (DE), Gasunie Deutschland Transport Services GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), Premier Transmission Limited (NI), Snam Rete Gas S.p.A (IT), DESFA (EL), NET4GAS (CZ), ONTRAS Gastransport GmbH (DE), Fluxys Belgium (BE), ENAGAS (ES), TIGF (FR), BBL Company V.O.F. (UK), terranets bw GmbH (DE), National Grid Gas (UK), Eustream (SK), Interconnector (UK) Limited (UK), Gas Networks Ireland (IE), GRTgaz (FR), REN-Gasodutos (PT), Lubmin-Brandov Gastransport GmbH (DE), Trans Austria Gasleitung GmbH (AT), SNTGN Transgaz (RO) and GNI (UK).

No reply was received from Plinacro Ltd (HR).

8 TSOs negated: jordgasTransport GmbH (DE), GAS CONNECT AUSTRIA GmbH (AT), bayernets GmbH (DE), BULGARTRANGAZ EAD (BG), FGSZ Ltd. (HU), Gas Transmission Operator GAZ - SYSTEM S.A. (PL), PLINOVODI (SI) and AB Amber Grid.

The reasons/issues that prevent from offering/uploading all available capacity at IPs as bundled capacity were the following:



- The platform selection solution was pending (4 TSOs: AT, HU, PL and BG);<sup>53</sup>
- No bundling possible now or in preparation (2 TSOs: SI, DE);
- Derogation for a neighboring Member State (1 TSO - Amber Grid (LT));
- Other reasons, such as IP to Norway (1 TSO(DE)).

**Table 12: List of TSOs and their reasoning for not offering the maximum possible of available capacity as bundled**

MS	TSOs	Reasoning
DE	jordgasTransport GmbH	IP to Norway (Dornum) - n/a
AT	GAS CONNECT AUSTRIA GmbH	<b>Oberkappel / Überackern:</b> National competition situation between both Points (solution in discussion) <sup>54</sup> <b>Mosonmagyaróvár:</b> Platform solution pending
DE	Bayernets GmbH	Concerning <b>VIP Kiefersfelden-Pfronten:</b> DSOs on the other side - no bundling possible. Concerning <b>Überackern 1 and 2, entry/exit:</b> at the moment [of the survey] implementation of bundled capacities was ongoing between Gas Connect Austria and Bayernets under the supervision of the NRAs Bundesnetzagentur and E-Control. Bundling was expected to be implemented February 2016. <sup>55</sup>
BG	BULGARTRANS GAZ EAD	No joint capacity platform with the neighboring TSOs (It was at the final stage of public procurement procedure).
HU	FGSZ Ltd.	There was no agreement between GCA and FGSZ about the booking platform, yet.
PL	Gas Transmission Operator GAZ - SYSTEM S.A.	Common rules on joint method for the maximization of the offer of bundled capacity at the interconnection point (according to art. 6) were agreed between GAZ-SYSTEM and ONTRAS, GAZ-SYSTEM and NET4GAS. The rules have not been agreed between GASCADE and GAZ-System. The competing capacity issues have been discussed. Capacity booking platform where TSOs offer the relevant standard capacity product has not been agreed between GAZ-SYSTEM and Germany TSOs (ONTRAS and GASCADE). Neither on GAZ-

<sup>53</sup> The same reason (although not mentioned by the concerned TSOs) applies to the German / Polish border, where Ontras, Gascade and GazSystem have not agreed on a joint platform for the allocation of bundled capacity, yet.

<sup>54</sup> NRA update: A procedure, according to Article 8 (1) of the CAM NC, has been conducted and agreement and approval on the allocation of competing capacity has been reached. This procedure was successfully concluded and bundled capacity is allocated since 2 May 2016.

<sup>55</sup> NRA update: A procedure, according to Article 8 (1) of the CAM NC, has been conducted and both, agreement and approval on the allocation of competing capacity, have been reached. This procedure was successfully concluded and bundled capacity is allocated since 2 May 2016.

		SYSTEM/ONTRAS, nor on GAZ-SYSTEM /GASCADE IPs, has available capacity not been offered as bundled one.
<b>SI</b>	PLINOVODI d.o.o.	At IP <b>Rogatec</b> , due to late connection Croatian TSO Plinacro to PRISMA platform, it was impossible to offer the bundled capacity on IP Rogatec - it was in preparation.
<b>LT</b>	AB Amber Grid	No bundled capacity was offered, as Latvia has <b>derogation, based</b> on Article 49 of Directive 2009/73EC.

## 4.2 Bundling of capacity / Auctioning of unbundled capacity products

### **Art. 19(5): Do you auction all your unbundled capacity products in accordance with the auction calendar?**

36 TSOs out of 41 confirmed that they **auction all their unbundled capacity products** in accordance with the auction calendar (Art. 19(5)), namely: Energinet (DK), Thyssengas GmbH (DE), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Gasunie Transport Services (NL), Gastransport Nord GmbH (DE), jordgasTransport GmbH (DE), GAS CONNECT AUSTRIA (AT), Open Grid Europe GmbH (DE), Gasunie Deutschland Transport Services GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), bayernets GmbH (DE), Premier Transmission Limited (NI), Snam Rete Gas (IT), DESFA (EL), NET4GAS (CZ), ONTRAS Gastransport (DE), Plinacro (HR), Fluxys Belgium (BE), ENAGAS (ES), FGSZ (HU), TIGF (FR), Gas Transmission Operator GAZ - SYSTEM (PL), BBL Company (UK), terranets (DE), National Grid (UK), Eustream (SK), Gas Networks Ireland (IE), PLINOVODI (SI), GRTgaz (FR), REN-Gasodutos (PT), Trans Austria Gasleitung (AT), Transgaz (RO) and GNI (UK).

Two TSOs negated that: BULGARTRANGAZ (BG) and AB Amber Grid (LT).

3 TSOs mentioned that this provision is not applicable: Nowega GmbH (DE), Interconnector (UK) Limited (UK) and Lubmin-Brandov Gastransport GmbH (DE).

### **Art. 19(7): Can your network users nominate bundled capacity via a single nomination procedure?**

29 out of 41 TSOs confirmed that their network users nominate bundled capacity via a single nomination procedure: Thyssengas (DE), Gasunie Transport Services (NL), Gastransport Nord (DE), Open Grid Europe (DE), Gasunie Deutschland Transport Services (DE), GRTgaz Deutschland (DE), GASCADE Gastransport (DE), NEL Gastransport (DE), OPAL Gastransport (DE), Premier Transmission Limited (NI), Snam Rete Gas (IT), NET4GAS (CZ), ONTRAS Gastransport (DE), Fluxys Belgium (BE), ENAGAS (ES), FGSZ (HU), TIGF (FR), Gas Transmission Operator GAZ - SYSTEM (PL), BBL Company (UK), terranets (DE), National Grid Gas (UK), Eustream (SK), Interconnector (UK), Gas Networks Ireland (IE), GRTgaz (FR), Lubmin-Brandov Gastransport (DE), Trans Austria Gasleitung (AT), SNTGN Transgaz (RO) and GNI (UK).

11 TSOs replied negatively (Energinet.dk (DK), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Nowega GmbH (DE), bayernets GmbH (DE), BULGARTRANGAZ (BG), DESFA S.A. (EL), Plinacro (HR), PLINOVODI (SI), Amber Grid (LT) and REN-Gasodutos (PT). 1 TSO mentioned it as non-applicable (jordgasTransport (DE).

***If not, when do you expect to establish the "single nomination" procedure?***

In general, issues/barriers which TSOs were facing in relation to the "single nomination procedure" were the following: the lack of customer requests and the associated costs, time needed to implement the new procedures, no interconnection agreements or they were under discussion, some technical problems (i.e. IT operational tests pending) and others.

**Table 13: Implementation date of the single nomination procedures and issues**

MS	TSO	Issues/barriers	Date of implementation
DK	Energinet.dk		01/05/2016
DE	Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer)		01/04/2016
DE	Nowega GmbH		01/10/2016
DE	bayernets GmbH	Business Requirement Specifications (BRS) for nomination and matching were published by ENTSOG in October 2015. The new procedure needs to be implemented in the interconnection agreements, as well as in the internal IT systems, which at least takes half a year.	01/05/2016
BG	BULGARTRANGAZ	There were no Interconnection agreements with the neighboring TSOs at the moment. Final stage of negotiations with Transgaz and DESFA.	01/10/2016
EL	DESFA	-	01/12/2016
HR	Plinacro		01/10/2016
SI	PLINOVODI	The possibility for introduction of "single nomination procedure" was still discussed with neighboring TSOs.	
LT	Amber Grid		
PT	REN-Gasodutos	It was necessary to conclude the IT operational tests jointly with the adjacent TSO.	01/04/2016

### 4.3 Establishment of Virtual IPs

**Art. 19(9): When did or will you start the analysis aiming to establish Virtual IPs?**

17 out of 41 TSOs indicated **the start of the analysis aiming to establish Virtual IPs** (Art. 19(9)) as the following (see Table 7 below).

**Table 14: Establishment of Virtual IPs (VIPs) – starting dates for the analyses**

Date	No of TSOs	Names	MS
01/10/2012	1 TSO	REN-Gasodutos, S.A	PT
01/01/2013	1 TSO	GAS CONNECT AUSTRIA GmbH	AT
04/11/2013	2 TSOs	terranets bw GmbH, Gasunie Deutschland Transport Services GmbH	DE
15/10/2013	1 TSO	bayernets GmbH	DE
01/01/2014	1 TSO	terranets bw GmbH	DE
01/01/2015	1 TSO	Fluxys Belgium	BE
01/11/2015	3 TSOs	Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer), Gastransport Nord GmbH, GRTgaz Deutschland GmbH	DE
01/09/2015	1 TSO	BULGARTRANGAZ EAD	BG
05/10/2015	3 TSOs	GASCADE Gastransport GmbH, NEL Gastransport GmbH, OPAL Gastransport GmbH	DE
08/09/2015	1 TSO	Open Grid Europe GmbH	DE
29/10/2015	1 TSO	ONTRAS Gastransport GmbH	DE
01/05/2016	1 TSO	Gasunie Transport Services	NL
01/04/2016	1 TSO	GAZ-SYSTEM/ONTRAS	PL*

\* PL - Only the available capacity for GCP were planned to be offered

HERA (NRA from HR) informed that this question is not applicable. 23 TSOs did not reply to this question: Energinet (DK), Nowega (DE), jordgasTransport (DE), Premier Transmission Limited (NI), Snam Rete Gas (IT), DESFA (EL), NET4GAS (CZ), ENAGAS (ES), FGSZ (HU), TIGF (FR), Gas Transmission Operator GAZ – SYSTEM (PL), BBL Company (UK), National Grid Gas (UK), Eustream (SK), Interconnector (UK), Gas Networks Ireland (IE), PLINOVODI (SI), Amber Grid (LT), GRTgaz (FR), Lubmin-Brandov Gastransport (DE), Trans Austria Gasleitung (AT), SNTGN Transgaz (RO) and GNI (UK).

Regarding any plans to establish VIPs, if already developed and agreed with the adjacent TSO(s), the TSOs indicated that there were no relevant IPs, TSOs not operating there, no VIP or the issue was under discussion.

Table 14: TSOs' plans to establish Virtual IPs

TSOs	Plans to establish VIPs, if already developed and agreed with the adjacent TSO(s)
<b>Energinet.dk</b>	No VIP's in Danish system
<b>Fluxys Belgium</b>	Analysis is ongoing, but not yet developed and agreed with our adjacent TSOs.
<b>Gas Transmission Operator GAZ - SYSTEM S.A.</b>	GAZ-SYSTEM and ONTRAS agreed to offer the gas transport service realization at ONTRAS and GAZ-SYSTEM interconnection points at one Grid Connection Point (GCP). The new interconnection agreement has been agreed. The available capacity for Grid Connection Point GAZ-SYSTEM/ONTRAS (GCP GAZ-SYSTEM/ONTRAS) will be offered beginning from 1st April 2016. First auction for GCP GAZ-SYSTEM/ONTRAS will be conducted in March 2016, for yearly capacity. First auction for monthly GCP GAZ-SYSTEM / ONTRAS will be conducted in March, whilst the daily and within day products auctions should be held on 31 <sup>st</sup> March 2016.
<b>Gas Networks Ireland</b>	Gas Networks Ireland does not have two or more IPs connecting the same two adjacent Entry/Exit Systems, therefore there are no plans to establish a VIP.
<b>Trans Austria Gasleitung</b>	Currently, TAG is not operating any IP subject to the conditions of art. 19(9).

Those TSOs who have already established a virtual interconnection point, as an early implementation measure, specified the name of the VIP and which IPs were "joined" in this VIP.

1. VIP Kiefersfelden-Pfronten: Points Kiefersfelden and Pfronten.
2. VIP PIRINEOS (IPs Irún-Biriatou and Larrau).
3. VIP IBÉRICO: (IPs Valença do Minho-Tuy and Badajoz-Campo Maior).
4. VIP Grid Connection Point GAZ-SYSTEM/ONTRAS (Gubin, Kamminke and Lasów).

Table 15: List of possible future cross-border VIPs

MS	Possible cross borders VIPs
AT	Possible 2 VIP between AT -SK and AT DE
BE	Possible 2 VIP between BE -FR and BE-NL
BG	1 VIP possible between BG and RO
CZ	1 VIP possible between CZ and DE
FR	1 possible VIP FR-BE*
HU	1 VIP possible SK-HU
IE	1 VIP possible IE- UK
NL	at least 2 VIP possible, NL-DE, NL-BE
PL	at least 1 VIP possible PL-DE
RO	at least 1 VIP possible RO-BG*
SK	at least 2 VIP possible, SK-AT and SK – HU*
IE	1 VIP possible IE- UK*
DE	At least 5 VIPs possible, DE - AT, DE-CZ, DE -NL, DE -BE, DE- PL

Table 16: Overview of the replies on the implementation questions on Chapter IV

NC CAM articles	MS																										
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK					
19.1 Offer of max. possible of avail. cap. as bundled?					(1)						NR																
19.5 Unbundl. cap. auctioned w/ auction calendar?					(2)																		(1)				
19.7 Single nomination procedure for bundled cap.?	NA				(1*)																						
19.9 Start of VIP analysis?*				NR		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR					NR	NR	NR	NR				

Legend: yes n.a. / no reply no

19(1) - (1) Negative for Bayernets, 19.5 – (2) NA for 2 DE TSOs not applicable for Nowega GmbH (DE,) and Lubmin-Brandov Gastransport GmbH (DE), this provision NA also for Interconnector (UK) Limited (UK).

19(7) (1\*) - 3 TSOs replied negatively Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Nowega GmbH (DE), bayernets GmbH (DE), 1 DE TSO mentioned it as non-applicable (jordgasTransport).

## 5. Chapter V - Interruptible capacity

### 5.1 Allocation of interruptible capacity

**Art. 21(1): Do you offer a daily interruptible capacity product in both directions at all your IP sides, if firm capacity is sold out day-ahead?**

34 out of 41 TSOs confirmed that they **offer a daily interruptible capacity product in both directions**, at all IP sides, if firm capacity was sold out day-ahead (Art. 21.1). However, 5 TSOs denied that:

- BULGARTRANGAZ EAD (BG)
- Plinacro Ltd (HR)
- GRTgaz (FR)
- REN-Gasodutos, S.A. (PT)
- SNTGN Transgaz SA (RO)

2 TSOs informed that this is not applicable for them: Interconnector (UK) and Lubmin-Brandov Gastransport GmbH (DE).

Gas Connect Austria (as well as TAG) always offer daily interruptible capacity in both directions, also in case firm capacity is not sold out day-ahead.

**Art. 21(2): Have you diminished firm capacity at any IP side, in order to offer it as interruptible capacity?**

All TSOs denied **diminishing firm capacity at any IP side** in order to offer it as interruptible capacity.

**Art. 21(4): How do you allocate interruptible capacity products (except within-day interruptible capacity)?**

Allocation of interruptible capacity products (except within-day interruptible capacity) (Art. 21.4) was done in this way:

- Auctions in line with Art. 21.8 & 21.9 – 39 TSOs;
- First-Come-First-Served – 1 TSO, AB Amber Grid (LT) mentioned that as at this time there was no congestion at IP);
- Pro rata - 1 TSO BULGARTRANGAZ (BG).

**Art. 21(5) & 21(6): Do you allocate within-day interruptible capacity via an over-nomination procedure and only once firm capacity is sold out?**

28 out of 41 TSOs **allocated within-day interruptible capacity via an over-nomination procedure** and only once firm capacity was sold out (Art. 21(5) & 21(6)).

7 TSOs denied that (Energinet.dk (DK), Gasunie Transport Services (NL), Plinacro Ltd (HR), FGSZ Ltd. (HU), National Grid Gas (UK), and SNTGN Transgaz SA (RO)). Trans Austria Gasleitung GmbH (AT) does not offer within-day interruptible capacity at all.

6 TSOs indicated it as not applicable: GAS CONNECT AUSTRIA GmbH (AT)<sup>56</sup>, Premier Transmission Limited (NI), DESFA S.A. (EL), Fluxys Belgium (BE), BBL Company V.O.F. (UK) and PLINOVODI (SI).

**Table 17: TSOs, not allocating within-day interruptible capacity via an over-nomination procedure and only once firm capacity was sold out**

MS	TSO	Reasons
DK	Energinet	The WD interruptible procedure is, according to CAM, not mandatory. Energinet.dk has therefore assessed the product from a cost/benefit perspective, and it was decided that, due to the current capacity situation, (no commercial or physical bottlenecks), and due to the IT costs, it was decided not to implement (p.s. in dialogue with market).
NL	Gasunie Transport Services	GTS has chosen to implement the CMP measure Oversubscription and Buy Back (OBB), instead of over-nomination. GTS implemented OBB in such a way that additional firm capacity that was available on a day ahead basis will be automatically made available also on the within day auction.
HR	Plinacro	
HU	FGSZ	According to FGSZ's interpretation, within -day interruptible capacity was not mandatory to be allocated under CAM NC Chapter V, Article 21 1. FGSZ does not plan to introduce such product.
UK	National Grid Gas	A within-day interruptible product was not offered. There were no current plans to introduce a within day interruptible product. The over-run model will continue to apply in UK.
AT	Trans Austria Gasleitung	Due to the structure of the Austrian market model involving that the parties submitting the re-nomination (balance group responsible parties) were not necessarily network users holding capacity contracts with the TSOs, the way of implementation of the over nomination procedure was still under evaluation for implementation.
RO	Transgaz	No offer of this type of product at the moment. There were ongoing analyses in this respect, at the level of Transgaz. In the network code for the NTS, revised recently (November 2015), some provisions were inserted regarding the possibility that the NU performs intra-day nominations.

In summary, this provision was considered as not mandatory, its implementation was under discussion, a within-day interruptible product was not offered or other CMP measure was chosen. One TSO explained that, due to the current capacity situation (no commercial or physical bottlenecks), and due to the IT costs, it was decided not to implement.

<sup>56</sup> NRA update: GCA answered N/A because within-day interruptible capacity is offered in a uniform price auction on PRISMA, and not via an over-nomination procedure. GCA offers within-day interruptible capacity products **not only (i.e. independently)** if firm capacity was sold out.



**Art. 21(7): Do you publish the amounts of interruptible capacity products (with a duration longer than within-day) on offer before the auction starts?**

36 out of 41 TSOs have answered that they **publish the amounts of interruptible capacity products** (with a duration longer than within-day) on offer, before the auction starts (Art. 21(7)). Two TSOs (NET4GAS (CZ) and Nowega (DE) negated doing that. 3 TSOs informed that it is not applicable for them: BULGARTRANGAZ (BG), Amber Grid (LT) and REN-Gasodutos (PT).

**5.2 Minimum interruption lead time**

**Art. 22(1): Have you decided jointly with your adjacent TSOs on a minimum interruption lead time?**

20 out of 41 TSOs have decided **jointly with their adjacent TSOs on a minimum interruption lead time**, 11 did that individually, and 7 TSOs negated that.

- **Yes [20]-** Energinet.dk (DK), Thyssengas GmbH (DE), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Gasunie Transport Services (NL), Nowega GmbH (DE), jordgasTransport GmbH (DE), Gasunie Deutschland Transport Services GmbH (DE), GRTgaz Deutschland GmbH (DE), Premier Transmission Limited(IE), Snam Rete Gas S.p.A (IT), ONTRAS Gastransport GmbH(DE), Fluxys Belgium (BE), BBL Company V.O.F.(UK), National Grid Gas (UK), Interconnector (UK) Limited (UK), Gas Networks Ireland (IE), PLINOVODI d.o.o.(SI), REN-Gasodutos, S.A. (PT), Trans Austria Gasleitung GmbH (DE) and SNTGN Transgaz SA (RO).
- **No, not jointly, but individually [11]-** GAS CONNECT AUSTRIA (AT), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), Bayernets GmbH (DE), BULGARTRANGAZ (BG), FGSZ (HU), Gas Transmission Operator GAZ - SYSTEM (PL), GRTgaz (FR), Gastransport GmbH (DE) and GNI (UK).
- **Not at all [7]-** Gastransport Nord GmbH (DE), Open Grid Europe GmbH (DE), DESFA S.A. (EL), Plinacro (HR), TIGF (FR), Eustream (SK) and Amber Grid (LT).
- **N/A [3]-** NET4GAS (CZ), ENAGAS (ES) and Terranets (DE).

Table 18: Decision on a minimum interruption lead time

CAM NC	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT <sup>3</sup>	NL	PL	PT	RO	SI	SK	UK
Decided jointly	•	•			•	•						•	•		•		•	•	•			•
individually	•		•		•					•		•					•					•
Not at all					•		•		•		•				•						•	
NA				•	•			•														

Legend:

• Yes, implemented	Not reported
--------------------	--------------

**Art. 22(2): Please specify the start and the length of the minimum interruption lead time for your network users.**

The start and the length of the **minimum interruption lead time** for the network users was - by default – 45 min in most of the countries, following the provisions of the Art. 22(2).

A summary of the results is provided in the table below.

**Table 19: Minimum interruption lead time for the network users (list)**

Minimum interruption lead time	No of TSOs	TSOs names	MS
<b>by default - 45 min</b>	24	Energinet.dk, Thyssengas GmbH, Gasunie Transport Services, Gastransport Nord GmbH, jordgasTransport GmbH, GAS CONNECT AUSTRIA GmbH, Open Grid Europe GmbH, Gasunie Deutschland Transport Services GmbH, GRTgaz Deutschland GmbH, GASCADE Gastransport GmbH, NEL Gastransport GmbH, OPAL Gastransport GmbH, Snam Rete Gas, DESFA, ONTRAS Gastransport GmbH, Plinacro Ltd Fluxys Belgium, terranets bw GmbH, National Grid Gas, Gas Networks Ireland, PLINOVODI d.o.o. REN-Gasodutos, Lubmin-Brandov Gastransport GmbH, GNI (UK)	DK, DE, NL, AT, IT, EL, HR, BE, UK, IE, SI, PT
<b>75 min</b>	1	Premier Transmission Limited	IE
<b>2 hours</b>	4	FGSZ Ltd, SNTGN Transgaz SA, Interconnector (UK) Limited, Trans Austria Gasleitung	HU, RO, UK-ICs, AT
<b>Minimum 1h 45 min before start of gas hour</b>	1	Fluxys TENP GmbH & Fluxys Deutschland	DE
<b>3 hours</b>	2	Nowega GmbH, bayernets GmbH	DE
<b>1 day</b>	1	GRTgaz	FR
<b>NA/blanks</b>	6	BULGARTRANGAZ, NET4GAS, ENAGAS, TIGF eustream, AB Amber Grid	BG, CZ, ES, FR, SK, LT

Table 20: Minimum interruption lead time for the network users per countries

Min. Lead Time	AT	BE	BG	CZ	DE	DK	EL	ES	FR	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
45 min (default)	•	•			•	•	•			•		•	•		•		•		•		•
75 min												•									
2 hours	•										•							•			
1h 45 min					•																
3 hours					•																
1 day									•												
NA			•	•				•	•					•						•	

Legend:

• Yes, implemented	Not reported
--------------------	--------------

2 TSOs indicated that it depends on the typology of the interruptible capacity (1) or was in accordance to the Edigas/Easee gas (1).

**Art. 22(2): Have you shortened the minimum interruption lead time jointly with your adjacent TSOs?**

However, none of the 41 TSOs have shortened the minimum interruption lead time jointly with their adjacent TSOs.

### 5.3 Coordination of interruption

**Art. 23: Do you notify your adjacent TSO in case you initiate an interruption?**

36 out of 41 TSOs have notified their adjacent TSO in case they initiated an interruption (Art. 23). 3 TSOs negated that FGSZ (HU), GRTgaz (FR) and GNI (UK).

**Art. 23: Have your adjacent TSOs notified you as soon as possible when they initiated interruptions?**

32 out of 41 TSOs confirmed that their adjacent TSOs notified them as soon as possible when they initiated interruptions (Energinet.dk, Thyssengas GmbH, Gasunie Transport Services, Nowega GmbH, Gastransport Nord GmbH, Open Grid Europe GmbH, Gasunie Deutschland Transport Services GmbH, GRTgaz Deutschland GmbH, GASCADE Gastransport GmbH, NEL Gastransport GmbH, OPAL Gastransport GmbH, bayernets GmbH, Snam Rete Gas S.p.A, DESFA, NET4GAS, ONTRAS Gastransport GmbH, Plinacro Ltd, Fluxys Belgium, ENAGAS, TIGF, Gas Transmission Operator GAZ - SYSTEM S.A.BBL Company, Terranets bw GmbH, Eustream, Interconnector (UK) Limited, PLINOVODI, AB Amber Grid, REN-Gasodutos, S.A, Lubmin-Brandov Gastransport GmbH, Trans Austria Gasleitung GmbH and Transgaz.

4 TSOs denied that: Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer), GAS CONNECT AUSTRIA GmbH, FGSZ Ltd. and GRTgaz.

6 TSOs indicated this provision as not applicable: jordgasTransport GmbH (DE), Premier Transmission Limited (NI), BULGARTRANGAZ EAD (BG), National Grid Gas (UK), Gas Networks Ireland (IE) and ICs (UK).

**Art. 23: Do you notify your respective network users, as soon as possible, if you are informed by an adjacent TSO initiating an interruption?** Regarding **notification of network users** as soon as possible, 38 out of 41 TSOs confirmed that, and only the Hungarian TSO (FGSZ Ltd.) denied it. 2 TSOs indicated that this provision was not applicable: GAS CONNECT AUSTRIA GmbH (AT) and BULGARTRANGAZ (BG).

#### 5.4 Defined sequence of interruption

**Art. 24(1): Do you apply the timestamp approach for determining the interruption sequence as defined in Art. 24(1)?**

37 out of 41 TSOs have applied **the timestamp approach for determining** the interruption sequence, as defined in Art. 24 (1), 4 TSOs have not: BULGARTRANGAZ (BG), Plinacro (HR), Gas Networks Ireland (IE) and GNI (UK).

**Art. 24(2): Do you apply a pro-rata reduction in specific cases, as described in Art. 24(2)?**

Regarding **application of a pro-rata reduction** in specific cases as described in Art. 24(2), 40 out of 41 TSOs confirmed that, and only one denied it (BG).

**Art. 24(3): Have you coordinated with your adjacent TSOs on an IP basis for reaching joint procedures as required in Art. 24(3)?**

35 out of 41 TSOs have **coordinated with their adjacent TSOs, on an IP basis, for reaching joint procedures** as required in Art. 24(3).

6 TSOs denied doing that (BULGARTRANGAZ (BG), FGSZ (HU), Gas Transmission Operator GAZ - SYSTEM (PL), Amber Grid (LT), Trans Austria Gasleitung (AT), and Plinacro (HR)).

#### 5.5 Reasons for interruptions

**Art. 25: Have you included reasons for interruptions in the interruptible contracts or in the general terms and conditions for those contracts?**

Regarding **inclusion of the reasons for interruptions** in the interruptible contracts, or in the general terms and conditions for those contracts, 4 TSOs negated (GAS CONNECT AUSTRIA GmbH (AT), Plinacro (HR), GRTgaz (FR), REN-Gasodutos (PT). 4 TSOs confirmed doing that in interruptible contracts: BULGARTRANGAZ (BG), Gas Networks Ireland (IE), Trans Austria Gasleitung (AT), GNI (UK).

29 TSOs confirmed that by accepting general terms and conditions. 2 TSOs did it for both (Energinet (DK) and Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer)).

1 TSO informed that this provision is not applicable: Interconnector (UK).

Table 21: Implementation level for Chapter V provisions

MS \ NC CAM articles	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
21.1 Offer daily int. cap. in both directions?					(1)																	(1)
21.2 Not diminished firm cap. to offer as int.?																						
21.4 How is int. cap. allocated (DA,M,Q,Y)?	A	A	PR	A	A	A	A	A	A	A	A	A	A	A	FCFS	A	A	A	A	A	A	A
21.5&21.6 WD int. cap. via over-nomination?	(1)	NA					NA													NA		(1)
21.7 Publication of amounts of int. cap.?			NA		(1)										NA			NA				
22.1 Jointly decided on min. int. lead time?	(1 i)		i	NA	(1 NA) (2 NO) (5 i)		NA			i	i											
22.2 Shortened min. int. lead time jointly?*																						
23 Notification of adjacent TSO, in case of																						(1)
23 Being notified by adjacent TSO of interrupt.?	(1)		NA		(1)								NA									NA
23 Notification of network users in case of interrupt.?	(1)		NA																			
24.1 Timestamp approach for interr. sequence?																						(1)
24.2 Application of a pro-rata reduction in sp.																						
24.3 Coordination on an IP basis for joint procedure?	(1)																					
25. Inclusion of reasons for interrupt. in contracts?	(1)												NA									(1)

Legend: yes n.a. / no reply no

\* This question was not considered in the chapter's scoring.

PR – Pro Rata                      FCFS – First-come-first-served                      A – Auction                      i – individual decision

Art. 21(1): NA (1) for 1 DE TSO Lubmin-Brandov Gastransport GmbH (DE) and Interconnector (UK).

Art. 21(5): NA (1) for GAS CONNECT AUSTRIA GmbH (AT) and BBL Company V.O.F. (UK).

Art. 23: NA (1) for 1 DE TSO - jordgasTransport GmbH and 1 AT TSO - GAS CONNECT AUSTRIA GmbH.

Art. 23, 24(1), 25: Not applicable for Interconnector (UK).

Art. 24(3). 25: Negative reply from Trans Austria Gasleitung (AT).

## 6. Chapter VI - Tariffs and capacity booking platforms

### 6.1 Tariffs

**Art. 26(1): Do you apply the regulated tariffs as reserve prices in all auctions for all standard capacity products for firm and interruptible capacity at all CAM IPs?**

38 out of 41 TSO have applied the **regulated tariffs as reserve prices** in all auctions for all standard capacity products for firm and interruptible capacity at all CAM IPs (Art. 26.1).

2 TSOs denied that - BULGARTRANGAZ EAD (BG) and AB Amber Grid (LT). BULGARTRANGAZ EAD (BG) explained that they were not using auctions at the moment and should start using auctions after capacity platform was in place, approximately from 1 June 2016.

AB Amber Grid (LT) explained that there were no auctions used yet.

1 TSO indicated that this is not applicable - Interconnector (UK), explaining that tariffs were set in accordance with methodology agreed by NRAs.

**Art. 26(4): If you offer a bundled capacity product at an IP, are you offering your capacity product at the reserve price, which would also apply to an unbundled product of the same runtime?**

36 out of 41 TSOs have **offered their capacity product at the reserve price**, which would also apply to an unbundled product of the same runtime.

4 TSOs denied this because they do not offer bundled capacities: NEL Gastransport GmbH (DE), Bayernets (DE), BULGARTRANGAZ (BG), and Amber Grid (LT).

### 6.2. Booking platforms

**Art. 27: Please name those IPs from the latest NC CAM IP scope list (see attached EXCEL) for which you DO NOT solely use one of the 3 booking platforms (PRISMA, GSA, RBP) for capacity allocation. Please indicate for those IPs, when are you going to use one platform.**

4 out of 41 TSOs mentioned IPs, for which they did not solely use one of the 3 booking platforms (PRISMA, GSA, RBP) for capacity allocation. Those were: BULGARTRANGAZ (BG), FGSZ (HU), Gas Transmission Operator GAZ - SYSTEM S.A. (PL) and Transgaz (RO).

14 out of 41 TSOs did not reply to this question: Energinet (DK), Fluxys TENP GmbH & Fluxys Deutschland GmbH (joint answer) (DE), Nowega GmbH (DE), GAS CONNECT AUSTRIA GmbH (AT), bayernets GmbH (DE), NET4GAS (CZ), Plinacro (HR), Fluxys Belgium (BE), BBL Company (UK), terranets bw GmbH (DE), GRTgaz (FR), Lubmin-Brandov Gastransport GmbH (DE) and Trans Austria Gasleitung GmbH (AT).

24 out of 41 TSOs replied that this provision is not applicable: Thyssengas GmbH (DE), Gasunie Transport Services (NL), Gastransport Nord GmbH (DE), jordgasTransport GmbH (DE), Open Grid

Europe GmbH (DE), Gasunie Deutschland Transport Services GmbH (DE), GRTgaz Deutschland GmbH (DE), GASCADE Gastransport GmbH (DE), NEL Gastransport GmbH (DE), OPAL Gastransport GmbH (DE), Premier Transmission Limited (NI), Snam Rete Gas S.p.A (IT), DESFA, (EL), ONTRAS Gastransport GmbH (DE), ENAGAS (ES), TIGF (FR), National Grid Gas (UK), eustream, (SK), Interconnector (UK), Gas Networks Ireland (IE), AB Amber Grid (LT), REN-Gasodutos (PT), GNI (UK) and Plinovodi (SI).

In sum, 8 IPs were mentioned for which the date of using one platform was still under discussion or subject to the finalisation of the IA.

Table 22: TSOs not solely using one of the 3 booking platforms (PRISMA, GSA, RBP) and IPs

MS	TSOs	IPs
BG	BULGARTRANGAZ	Kulata (BG) / Sidirokastron (EL), Negru Voda I (RO) / Kardam (BG), Negru Voda II, III (RO) / Kardam (BG). Approx. 01.06.2015
HU	FGSZ	Mosonmagyaróvár: RBP on FGSZ side.
PL	Gas Transmission Operator GAZ - SYSTEM	Kamminke (as GCP GAZ-SYSTEM/ONTRAS) - to be going to use one platform/ under discussion with Germany TSOs Gubin (as GCP GAZ-SYSTEM/ONTRAS) - to be going to use one platform/ under discussion with Germany TSOs Lasów (as GCP GAZ-SYSTEM/ONTRAS) - to be going to use one platform/ under discussion with Germany TSOs Mallnow/Mallnow reverse - to be going to use one platform/ under discussion with Germany TSOs
RO	Transgaz	Negru - Voda I, II, III. TSO was going to use a booking platform on these points as soon as the corresponding Interconnection Agreements with the adjacent TSO will be concluded.

Table 23: Implementation level of Chapter IV provisions

NC CAM articles	MS																						
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
26.1 Regulated tariffs as reserve price?																							(1)
26. Same reserve price for bundled/unbundld. cap.?					(2)																		
27 Booking platforms used for all IPs?																							

Legend: yes n.a. / no reply no

26(1): Not applicable for 1 UK TSO Interconnector (UK), 26.4: Negative reply for 2 DE TSOs: NEL Gas-transport GmbH (DE), Bayernets (DE)

LT: There are no auction procedures used. It is foreseen to use one of the platforms, after GIPL will be implemented, or when the derogation will not be applied anymore for Latvia.

## 7. Final remarks

Most of the TSOs indicated problems with cross border IPs to Third Countries. Some TSO repeated that they have derogations or depend on the derogation in the adjacent countries.

Table 20: Final TSO remarks

TSO	Remark
<b>Energinet (DK)</b>	The answers on bundling and cross border corporation are solely answered for our border point towards Germany (Ellund), as Sweden have exemptions from CAM, and therefore, do not offer bundled capacity, and are not present at PRISMA.
<b>ThyssenGas (DE)</b>	Regarding cross border IPs to Third Countries, the application of certain rules of the NC CAM (e. g. bundling of capacities) is dependent on the obligation and willingness of the adjacent TSO to apply these rules.
<b>jordgasTransport (DE)</b>	All questions have been answered taking into account the possibility of a TSO to apply the NC CAM rules to cross border IPs to non-EU-Countries. In case the EU-TSO fulfils NC CAM to the extent possible, this is reflected within the answers in this questionnaire.
<b>Open Grid Europe (DE)</b>	Regarding cross border IPs to Third Countries, the application of certain rules of the NC CAM (e. g. bundling of capacities) is dependent on the obligation and willingness of the adjacent TSO to apply these rules.
<b>Gasunie Deutschland Transport Services (DE)</b>	Regarding cross border IPs to non-EU countries, the application of certain rules of the NC CAM (e. g. bundling of capacities) is dependent on the obligation and willingness of the adjacent TSO to apply these rules.
<b>NEL Gastransport (DE)</b>	Since Greifswald is a point to third country bundling obligations and related coordination foreseen in Art. 6 NC CAM cannot be fulfilled. Furthermore, transport in both directions is not feasible.
<b>OPAL Gastransport (DE)</b>	Since Greifswald is a point to third country bundling obligations, and related coordination foreseen in Art. 6 NC CAM cannot be fulfilled. Furthermore, transport in both directions is not feasible. With respect to Brandov: no coordination as foreseen in Art. 6 NC CAM possible (no capacity to match / exemption).
<b>BULGARTRANGAZ (BG)</b>	Joint capacity platform with the neighboring TSOs at final stage of public procurement procedure. Joint IAs with neighboring TSOs, at a final stage of negotiations with Transgaz and DESFA.
<b>DESFA (EL)</b>	Please note that replies to the questions of this questionnaire regarding articles 9, 10, 19.5, 21.4, 24, 26.1, and 26.4 of the CAM Code, reflect DESFA's design for the implementation of CAM, as included in a proposal for the amendment of the Greek Gas Network Code and the Greek Tariff Regulation, already submitted to the Greek NRA (RAE). DESFA's proposals have been put on a public consultation launched by RAE, until the middle of February 2016. The aforementioned proposals, including any amendments requested by the regulator, will be implemented when the updated versions of the Gas Network Code and the Tariff Regulation come into force, following RAE's approval.



<b>TSO</b>	<b>Remark</b>
<b>NET4GAS (CZ)</b>	NET4GAS is currently using for allocation of transmission capacities at IPs two Capacity Booking Platforms, i.e. PRISMA and GSA, that are both automatically interconnected with back-end system of NET4GAS. The whole mechanism works very well without complications.
<b>terranets (DE)</b>	All questions have been answered taking into account the possibility of a TSO to apply the NC CAM rules to cross border IPs to non-EU-Countries. In case the EU-TSO fulfils NC CAM to the extent possible, this is reflected within the answers in this questionnaire.
<b>National Grid (UK)</b>	NG believes it is compliant with the CAM obligations.
<b>Gas Networks Ireland (IE)</b>	The only interruptible product being offered currently at the Gas Networks Ireland IPs is a VRF product. In the event that there is contractual congestion at either of these points, an interruptible forward flow product will be offered.
<b>Amber Grid (LT)</b>	The only IP in Amber Grid's system is with Latvia's transmission network. As Latvia has derogation based on Article 49 of Directive 2009/73/EC, according to Art. 2.2 of CAM NC, provisions of CAM NC at Kiemenai IP shall not apply. Also it should be noted that, there is no congestion at an IP point with Latvia.
<b>Lubmin-Brandov Gastransport (DE)</b>	In Lubmin (Entry Point interconnected to Nord Stream), bundling cannot be realized, as Nord Stream is a 3rd country TSO. Hence, bundling is also not possible in Brandov (Exit Point to Net4Gas), as this capacity refers to the Entry Point and is exempted.

## Annex II: Summary of responses received by the NRA survey

This annex summarises the responses received for the NRA questionnaire on the implementation monitoring of the NC CAM.

Each question of the survey is restated in this annex together with the corresponding Article of the NC CAM and the possible answers in [brackets], where applicable. Underneath each question, the responses of NRAs are summarised.

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For the CAM NC implementation monitoring ENTSOE and the Agency have run surveys among TSOs and NRAs during December 2015 and March 2016. Those surveys included detailed questions on the implementation of the specific CAM NC provisions, at both TSO and IP level. NRAs were given the opportunity to further amend and update the survey results, where necessary, until early September 2016. Below are presented the results of the NRA survey.

23 NRAs replied to this questionnaire: ILR (LU), CREG (BE), ACM (NL), URSO (SK), SEWRC (BG), CNMC (ES), DERA (DK), CRE (FR), AEEGSI (IT), The Swedish Energy Markets Inspectorate (SE), CER (IE), Bundesnetzagentur (DE), RAE (EL), MEKH (HU), URE (PL), ERU(CZ), HERA (HR), Ofgem (with input from UR) (UK), ANRE (RO), ERSE (PT), NCC (LT), Energy Agency (SI) and E-Control (AT).

The following analysis will focus only on 21 concerned MS, because EE, FI, LV have a derogation. Luxembourg holds a derogation according to article 49 of Gas Directive 2009/73/EU. The Swedish Energy Markets Inspectorate's replies are not considered in the following report, as many of the questions in the survey are difficult to answer, due to the design of the Swedish gas market, where no capacity can be booked in the IP from the Swedish side.

## 1. Scope (Chapter I)

### 1.1 Listing of CAM relevant points

**Art. 2(1): Does the current CAM IP scope list (latest version published as CAM Roadmap annex here) correctly list all (your) CAM relevant points?**

16 of 21 NRAs confirmed that the current CAM IP scope list (latest version published as CAM Roadmap annex here), correctly listed all CAM relevant points, however, 7 NRAs provided amendments and suggestions for updates and corrections, which are reflected in the latest published version of the NC CAM & CMP IP scope list.

### 1.2 Measures to limit up-front bidding for capacity by any single network user

**Art. 2(5): Have you (or any other competent authority in your country) decided to take measures to limit up-front bidding for capacity by any single network user?**

20 NRA denied that they have decided to take any measures to limit up-front bidding for capacity by any single network user. Only CRE (FR) answered 'Yes' and explained that 'in line with CAM Art 2.5 (prevention of downstream market foreclosure), CRE (FR) decided to limit, up-front, the capacity bids at the internal French IP "Liaison Nord Sud" between PEG Nord and Trading Region South. Only 20% of the capacity offered for sale can be booked by a single shipper.'

Table 25: Implementation level for Chapter I provisions

NC CAM articles	MS																					
	AT	BE	BG	CZ	DE	DK	EL	ES	FR	HR	HU	IE	IT	LT <sup>3</sup>	NL	PL	PT	RO	SI	SK	UK	
2.1 Comments on IP list	yes	yes	no	no	yes	no	no	no	no	no	no	no	no	no	yes	yes	no	no	no	no	no	yes
2.5 Measures to limit up-front bidding	no	no	no	no	no	no	no	no	yes	no	no	no	no	no	no	no	no	no	no	no	no	no

Legend: 

yes	no	NRA & TSO question
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## 2. Capacity calculation and maximization (Chapter II, Art 6)

### 2.1 Detailed information on the applied calculation method and the joint approach

**Art. 6(1)(a) 1: Have you asked your TSO(s) for detailed information on the applied calculation method and the joint approach?**

13 out of 21 NRAs confirmed that they had asked their TSO(s) for detailed information on the applied calculation method and the joint approach, 6 NRAs denied (SEWRC (BG), DERA (DK), Bundesnetzagentur (DE), RAE (EL), Ofgem (UK), ANRE (RO)) and 1 NRA indicated this as not applicable (National Commission for Energy Control and Prices (NCC)). In addition, no reply was received from Energy Agency (SI).

### 2.2 Applied calculation method and the joint approach

**Art. 6(1)(a) 1: Have you received detailed information on the applied calculation method and the joint approach from your TSO(s)?**

14 out of 21 NRAs confirmed that they received detailed information on the applied calculation method and the joint approach, 6 NRAs denied (SEWRC (BG), DERA (DK), ERU (CZ), ANRE (RO), NCC (LT) and E-Control (AT)). In addition, no reply was received from Energy Agency (SI).

Detailed information was not received on the applied calculation method and the joint approach, but it seems that 3 NRAs did not ask for that information: SEWRC (BG), DERA (DK) and ANRE (RO).

### 2.3 TSOs' specific actions (of the joint method to maximize the offer of bundled capacity) leading to regulatory approvals necessary to recover costs

**Art. 6(1)(a) 1: Have any of your TSOs' specific actions (of the joint method to maximize the offer of bundled capacity) led to regulatory approvals necessary to recover costs?**

19 out of 21 NRAs denied that any TSOs' specific actions (of the joint method to maximize the offer of bundled capacity) led to regulatory approvals, necessary to recover costs. 2 NRAs indicated that this is not applicable (URSO (SK) and NCC (LT)).

## 2.4 Consultation on the applied calculation method and the joint approach

**Art. 6(3): Have you consulted or are you planning to consult network users on the applied calculation method and the joint approach (where appropriate)?**

19 out of 21 NRAs denied that they consulted or planned to consult network users on the applied calculation method and the joint approach. In addition, no reply was received from Energy Agency (SI) and ERU (CZ). Only ERSE (PT) replied positively, specifying the start date of the (past or future) consultation as of 15 June 2016 and the end as of 15 July 2016.

Table 21: Implementation level for Chapter II provisions

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
6.1.a.1 Was detailed info on cap. calc. requested by NRA?	yes	yes	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	no
6.1.a.1 Was detailed info on cap. calc. received by NRA?	no	yes	no	no	yes	no	no	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	no	yes	yes	yes
6.1.a.1 Approval for TSOs' specific actions on joint	no	no	no	no	no	no	no	no	no	no	no	no	no	no	NA	no	no	no	no	no	NA	no	no
6.3 Market consultation on the applied cap. calc. method?	no	no	no	NR	no	no	no	no	no	no	no	no	no	no	no	no	no	yes	no	no	no	no	no

Legend: yes n.a. / no reply no

## 3. Allocation methodology (Chapter III, Art.8)

### 3.1 Percentage of capacity set aside and offered in accordance with Article 8(7)

**Art. 8(9): Have you increased the percentage of capacity set aside and offered in accordance with Article 8(7)? If yes, please provide the percentage set per IP side in the attached EXCEL IP list.**

16 out of 21 NRAs denied that they increased the percentage of capacity set aside and offered in accordance with Article 8(7). 5 NRAs confirmed that: CNMC (ES), CRE (FR), CER (IE), ERSE (PT) and Energy Agency (SI).

Table 27: Implementation level for Chapter III provisions

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
NC CAM articles																							
8.9 Increased % of cap. set aside?*	no	no	no	no	no	no	no	yes	yes	no	no	yes	no	no	no	no	yes	no	yes	no	no	no	yes

Legend: yes n.a. / no reply no

## 4. Bundling of existing contracts (Chapter IV, Art. 20)

### 4.1 Bundling arrangements reached by network users by 1.1.2016

**Art. 20(1):** *If you are aware of any bundling arrangements reached by network users by 1.1.2016 for their unbundled contracts, please provide: - IP name & direction (IP side) - Number of existing unbundled contracts (of at least one year's duration)*

Out of 21 concerned NRAs, only Bundesnetzagentur (DE) and E-Control (AT) provided the following information on the bundling arrangements reached by network users by 1 January 2016 for their unbundled contracts, see table 28 below.

**Table 28: Bundling arrangements reached by network users by 1.1.2016**

NRA	Explanation
<b>Bundesnetzagentur (DE)</b>	Number of existing unbundled contracts (of at least one year's duration) for which a bundling arrangement had been reached by 1. January 2016: 7 - total amount of capacity that was bundled at each IP (direction) in kWh/h: 1.180.693.
<b>E-Control (AT)</b>	Oberkappel entry (1 contract) and Oberkappel exit (6 contracts). Total amount of capacity that was bundled is not known to us. It has to be noted that one and the same network user held corresponding capacity on both sides of the IP (Oberkappel) and requested the bundling. So, there was not an explicit "agreement" between different network users regarding the bundling of existing capacity.

**Table 29: Implementation of voluntary bundling arrangements**

NC CAM articles	MS																					
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
<b>20.1 Any volunt. bundling arrangements reached?*</b>	yes	n.a. / no reply	n.a. / no reply	n.a. / no reply	yes	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply	n.a. / no reply

Legend: 

yes	n.a. / no reply	no
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## 5. Minimum interruption lead times (Chapter V, Art.22)

### 5.1 Approval of the agreement on the shortened lead time

**Art. 22(2):** *If your TSO has shortened the minimum interruption lead time jointly with its adjacent TSO, has the agreement on the shortened lead time been approved by the competent authority?*

6 out of 21 NRAs informed that they did not approve the agreement on the shortened lead time (SEWRC (BG), CRE (FR), RAE (EL), ERU (CZ), HERA (HR) and ERSE (PT)). In addition, no reply was received from Slovenia. 14 NRAs indicated it as not applicable.

The fact that the agreement on the shortened lead time was not approved by number of NRAs might lead to the conclusion that there was no need to approve such agreement from the NRA side.

Table 30: Implementation of Chapter V provisions

NC CAM articles	MS																					
	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK
22.2 Shortened min. int. lead time NRA approved?*	NA	NA			NA	NA		NA				NA	NA	NA	NA	NA	NA		NA	NR	NA	NA

Legend:

yes	n.a. / no reply	no
-----	-----------------	----

## 6. Tariffs (Chapter IV, Art. 26)

### 6.1 Approval of any agreements reached by TSOs on the split of the auction premium revenues

**Art. 26(5): Have you approved any agreement reached by TSOs on the split of the auction premium revenues?**

17 out of 21 NRAs denied that they approved any agreement reached by TSOs on the split of the auction premium revenues. In addition, no reply was received from CER (IE). 3 NRAs indicated that it was the case – CNMC (ES), URE (PL), and ERU (CZ).

Table 31: NRA approvals of auction premium revenue splits

No	NRA	Explanation
1	CNMC (ES)	The auction premium applies to every border of the VIPs.
2	URE (PL)	Yes, we approved an agreement between GAZ-SYSTEM and GASCADE on allocation of revenues from the auction premium from bundled capacity auctions on Mallnow IP. The provisions of the agreement specify that all auction premia from all auctions (on the direction from DE to PL) shall be granted to GAZ-SYSTEM, as a compensation of the Mallnow metering station extension costs (until 2020 or earlier but not earlier than GAZ-SYSTEM will recover the whole costs).
3	ERU (CZ)	50/50.

## 6.2 Over and under recovery mechanisms

### **Art. 26(6): Have you approved over and under recovery mechanisms?**

5 out of 21 NRAs denied that they approved any agreement reached by TSOs on the split of the auction premium revenues (SEWRC (BG), CNMC (ES), RAE (EL), HERA (HR) and ERSE (PT)). 12 NRAs indicated that it was the case. 4 NRAs indicated this as not applicable.

**Table 32: NRA approval status of over and under recovery mechanisms**

No	Approval status	NRAs
1	Approved over and under recovery mechanisms by NRAs	CREG (BE), ACM (NL), DERA (DK), CRE (FR), AEEGSI (IT), CER (IE), Bundesnetzagentur (DE), MEKH (HU), Ofgem (UK), ANRE (RO), Energy Agency (SI), E-Control (AT)
2	Not approved by NRAs	SEWRC (BG), CNMC (ES), RAE (EL), HERA (HR), ERSE (PT)
3	Not applicable	URSO (SK), NCC (LT), URE (PL), ERU (CZ)

## 6.3 Usage of revenues from auction premium

### **Art. 26(6): Where a price cap regime is applied, have you approved the usage of revenues from auction premium?**

12 out of 21 NRAs denied that they approved the usage of revenues from auction premium, see Table below for more detailed results. Most of the NRAs indicated that no price cap regime was in place, therefore, not applicable. In practice only CZ has a price cap regime in place. In addition, no reply was received from URSO (SK), CREG (BE), ACM (NL), CRE (FR), CER (IE), Energy Agency (SI) and E-Control (AT). 2 NRAs indicated that it was the case: DERA (DK) and URE (PL).

**Table 33: List of TSOs, where the usage of revenues from auction premia is not approved**

NRA	Explanations	Comments
SEWRC (BG)		
CNMC (ES)	There is not a cap regime applied and the revenues in the VIPs.	No price cap regime
AEEGSI (IT)	AEEGSI adopted a hybrid approach for infrastructure tariff regulation, which includes an incentive-based regulation (price-cap) for commodity charges, linked to the flows actually transported and cost-of-service regulation scheme for capacity charges. AEEGSI did not publish a specific deliberation concerning the usage of revenues from auction premium. It is already foreseen that these kind of revenues shall be taken into account for the determination of capacity charges for the subsequent years.	Hybrid approach
Bundesnetz-agentur (DE)	Not applicable, since revenue cap regime.	Revenue cap
RAE (EL)		



NRA	Explanations	Comments
MEKH (HU)	A revenue cap regime is utilized in Hungary, the auction premiums are not part of the regulated revenue.	Revenue cap
ERU (CZ)	Price cap is being used on exit IP, where no auction premium is expected. Moreover, as it is price cap, the TSO bears the risk, so it should benefit from the premium.	Price cap and revenue cap
HERA (HR)	Not applicable.	NA
Ofgem (UK)	Art. 26(6) - Question 1: we have approved over and under recovery mechanisms for National Grid (NGG). There are no under or over recovery mechanism for IUK and BBL (merchant interconnectors). There is no price cap regime in GB.	No price cap regime
ANRE (RO)	No price cap regime applied.	No price cap regime
ERSE (PT)	There is no price cap regime established.	No price cap regime
NCC (LT)	No applicable for the IPs with Latvia, which currently has a derogation based on Art. 49 of Directive 2009/73/EC.	Derogation

Table 34: Implementation level of Chapter VI provisions

NC CAM articles	MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR TIGF	FR GRTgaz	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
		26.5 Approved auction prem. split not 50/50?*														NR								
26.6 Approved over/under recovery mechanisms?*					NA											NA		NA					NA	
26.6 Approved usage of revenues (if PC)?*		NR	NR	NR	RC-PC	RC		RC	RC	NR	NR	NA	RC	NR	HA	NA	NR		RC	RC	NR	NR	RC	

Legend: 

yes	n.a. / no reply	no
-----	-----------------	----

## 7. Checking of TSO responses and final remarks

### 7.1 Checking of TSO responses to the questionnaire of the TSO(s)

*In early February 2016, the responses of TSOs to the TSO questionnaires (online + IP list) will be made available to NRAs. Please check the responses to the questionnaire of the TSO(s) of your jurisdiction.*

Table 35: NRA comments on TSO responses to the TSO survey (general + IP level)

NRA	Comments
<b>BNetzA (DE)</b>	Since, on the basis of the information provided, not all answers are verifiable to us, no full responsibility for the correctness of the TSO answers can be given. At Interconnection Points to third countries, but also to Poland and Austria, the available capacity offered is currently not bundled. The answers of the respective TSOs differ partially in this issue. This needs to be discussed further.
<b>ERU (PL)</b>	As far as we were informed, no in-depth joint analysis (6(1)(a)(1)) was provided for the public consultation. We were told that this in-depth analysis will be prepared later on.
<b>Ofgem (UK)</b>	GNI (UK) and PTL have answered `Yes` to the question on Article 21(1), `Do you offer a daily interruptible capacity product in both directions at all your IP sides, if firm capacity is sold out day-ahead?`. GNI (UK) and PTL do not currently sell out of capacity, therefore no process is in place, should they sell out of day ahead.
<b>National Commission for Energy Control and Prices (LT)</b>	Please note that, some questions, such as <i>“Please specify per IP side the percentage of capacity set aside and offered, but only if it was increased (and NRA approved) beyond the levels provided for in Art. 8(7).”</i> , are not applicable to us, considering the ongoing Latvian derogation. However, in what concerns the questions in which it is asked about products offered on each side (21.1 & 21.3), we note that it is offered from our side, but may not be correlating with the country having derogation.
<b>E-Control (AT)</b>	There are several points on which we have a different view on the TSOs' answers: 1.) Contrary to what the TSOs (GCA and TAG) stated, we are of the opinion, that Article 6 has not been applied properly. E-Control requested GCA and TAG to submit the "joint method" for information, so that E-Control can check the correct implementation of Article 6. GCA and TAG did not submit a satisfactory response, so E-Control cannot confirm the correct implementation of Article 6(2.) We do not share GCA's views regarding bundled capacity (see GCA's answer to the questions on Article 19(7) and 26(4) which state that bundled capacity does not exist. However, we share GCA's view that TSOs are obliged to offer the single-sided nomination but network users are not obliged to use this possibility. 3.) We cannot confirm GCA's answer to the question on Article 19(9) that the analysis of VIPs already started on 1 January 2013, because we have not yet seen any results of this analysis.

Table 22 : Final NRA remarks

NRA	Comments
<b>RAE (EL)</b>	The TSO submitted to the NRA a proposal for the amendment of the Greek Gas Network Code, that includes its design proposal for the implementation of CAM, on November 24, 2015. RAE set this proposal under public consultation until January 29, 2016, and is currently reviewing it.
<b>ERU (CZ)</b>	NRAs should have been given the right to decide on amount of capacity set aside for short term products (Art. 8). It would be worth, for a transparent approach, at least at an early stage.
<b>NCC (LT)</b>	There is question about Art. 2(1) Does the current CAM IP scope list correctly list all your CAM relevant points? We marked `Yes`, but we would like to explain that the list currently does not include any Lithuanian IPs, since the only ones within Union are with Latvia, which currently has a derogation, based on Art. 49 of Directive 2009/73/EC. Please note that a lot of answers are indicating answer `No`, but it actually means `Not applicable`, in our case, since the Latvian IP has the aforementioned derogation, following Article 2(2) of CAM NC.

Table 23: Summary table of NRA responses

MS	AT	BE	BG	CZ	DE	DK	EL	ES	FR	HR	HU	IE	IT	LT	NL	PL	PT	RO	SI	SK	UK	
NC CAM articles																						
2.1 Comments on IP list																						
2.5 Measures to limit up-front bidding																						
6.1.a.1 Was detailed info on cap. requested by NRA information received on the applied calc?																						
6.1.a.1 Approval for TSOs' specific actions														NA						NA		
6.3 Consultation on the applied calc method				NR																		
8.9 Higher % of cap set aside																						
20.1 Bundling arrangements																						
22.1 Agr. on short. lead time - not approved by NRAs	NA	NA			NA	NA		NA			NA	NA	NA	NA	NA	NA		NA	NR	NA	NA	
26.5 Approval of the any agreement												NR										
26.6 Over and under recovery mech.				NA										NA		NA				NA		
26.6 Usage of revenues (not scored)	NR	NR	NA	RC-PC	RC		RC	RC	NR	NA	RC	NR	HA	NA	NR		RC	RC	NR	NR	RC	
Total preliminary scoring %	40%	30%	0	40%	40%	20%	10%	60%	40%	20%	40%	70%	40%	40%	40%	60%	40%	20%	60%	60%	40%	

Legend:

yes
n.a. / no reply
no

## Annex III: Summary of TSO & NRA responses on the IP level questionnaire

This Annex summarises the responses received for the TSO and NRA questionnaire on the implementation monitoring of the NC CAM at IP level (status as of end of March 2016). The IP level questionnaire was also used to check with TSOs and NRAs, whether the current list of NC CAM and CMP relevant IP sides is complete and correct. As a result of this check, a number of amendments and corrections have been introduced and – after having been double-checked with ENTSOG – have led to the release of an updated version of the NC CAM & CMP IP scope list.<sup>57</sup>

Each question of this questionnaire is restated in this annex together with the corresponding Article of the NC CAM and the possible answers in [brackets], where applicable. Underneath each question, the responses of TSOs (checked by NRAs) and/or NRAs, are summarised.

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<sup>57</sup> Latest version published on ENTSOG's website on 24 June 2016:  
[http://entsog.eu/public/uploads/files/publications/INT%20Network%20Code/2016/20160623\\_NC%20CAM%20%20CMP%20IP%20scope%20lists\\_v6.xlsx](http://entsog.eu/public/uploads/files/publications/INT%20Network%20Code/2016/20160623_NC%20CAM%20%20CMP%20IP%20scope%20lists_v6.xlsx)

## 1. Implicit allocation methods

### Questions for NRAs & TSOs

**Article 2(4): Are implicit allocation methods applied [yes / no / n.a.]?**

In most of the cases, implicit allocation methods are not applied (312 IP sides). Only in the case of Liaison Nord-Sud within France, the answer was positive for the respective IP sides.

**Article 2(4): Where implicit allocation methods are applied, please state whether you have decided not to apply Articles 8 to 27 (and specify).**

The explanation, provided by Liaison Nord-Sud (GTRgaz) is stated below:

Yes – “We apply art 8 to 27. Implicit mechanism only concerns unsold capacities under CAM auctions and a small amount of interruptible capacities”.

## 2. Competing Capacity

### Question for TSOs

**Article 3.5: In case ‘competing capacity’ is offered, please mark the respective IP sides by adding “competing with [network point’s name]” in the respective field of this column.**

For 39 out of 352 IP sides from the original IP scope list it was indicated that competing capacity was offered and with which IP sides it is competing. Those concern 6 Austrian, 10 Belgian, 2 German, 1 French, 15 Dutch, 3 Slovakian, and 2 UK IP sides. For another 5 German IP sides, competing capacity was indicated without further specification.

## 3. Gas Day

### Question for TSOs

**Article 3(7): Only if you are not applying the uniform gas day, yet, please add the expected application date for the common “gas day” in the respective field. [DD/MM/YYYY]**

Most of the IP sides are already applying the uniform gas day. Just 7 IP sides are not - Negru Voda I (RO) / Kardam (BG) and Ruse (BG) / Giurgiu (RO); all of them in both directions. The respective TSOs are Transgaz and DEFSa. The common element is that all mentioned IP sides are connected with one specific TSO – Bulgartransgaz.

For Kulata (BG) / Sidirokastron (GR) the expected date is the second semester of 2016, while for Negru Voda I (RO) / Kardam (BG), the date is specified – 01.10.2016 (01.01.2024 for Transgaz), for Ruse (BG) / Giurgiu (RO), the expected date is 01.01.2017.

## 4. Capacity calculation and maximisation

### Questions for TSOs

**Article 6(1)(a): Please indicate the IP sides, at which the bundled capacity has NOT been maximised and made available yet, and give reasons for that.**

In Q1/2016, 9 TSOs from DE, AT, PL, HU, GR and SI stated that bundles capacity was not yet offered / maximised at 26 IP sides, to which the NC CAM provisions are applicable.<sup>58</sup> The individual reasons are listed below:

- Open Grid Europe (DE): 4 IP sides of Überackern ABG (AT) and Oberkappel (AT) – Not bundled. Austrian TSO GCA only offers unbundled capacity.
- Bayernets (DE): 4 IP sides of Überackern SUDAL (AT) / Burghausen (DE) (2) and Überackern ABG (AT) // Burghausen (DE) (1) - Implementation of bundled capacity under supervision of BNetzA and E-Control was still ongoing and expected to be implemented in February 2016.
- GRTgaz Deutschland (DE): 2 IP sides of Oberkappel (AT) - GRTgaz Deutschland ready to bundle, but waiting for GCA to upload capacity to a bundled IP.
- GAS Connect Austria (AT): 1 Exit IP side of Mosonmagyaróvár (HU) – Platform decision pending
- FGSZ (HU): 1 Entry IP side of Mosonmagyaróvár (AT) – No agreement yet on platform
- GAS Connect Austria (AT): 6 IP sides of Oberkappel (DE), Überackern ABG (DE) and Überackern SUDAL (DE) - Multiple competition situation: common solution of TSOs and NRAs concerned established; testing ongoing.
- Gaz-System + Gaz-System (ISO) (PL): 5 IP sides of Kamminke, Mallnow, Gubin, Lasow (DE) - Due to the fact that capacity booking platform where TSOs offer the relevant standard capacity product has not been agreed, the available capacity has not been offered as bundled one.
- DESFA (GR): 2 IP sides of Kulata – Sidirokadastrion (BG) – Technical capacity at the Bulgarian side, in the flow direction BG → GR, has been already booked on a long term basis. The technical capacity in Greek side is greater than the respective capacity in the Bulgarian side, in both flow directions.
- Pliovodi (SI): 1 Exit IP side of Rogatec (HR) - Due to late connection of Plinacro to PRISMA.

**Article 6(1)(a)(1): Please indicate for your IP sides (at which you have applied a "joint method") the finalisation date of the in-depth analysis of technical capacity discrepancies. [DD/MM/YYYY]**

In the majority of responses (186 IP sides), the finalisation date of the in-depth analysis of technical capacity discrepancies was in 2015. For 34 of the IP sides, the final analysis was implemented in the beginning of 2016. Only 2 IP sides, both directions of Ruse – Giurgiu (Transgaz), the analysis is expected to be finished in 2017. 8 IP sides have already done that in 2014.

For the rest of the respondents, the question is not relevant or explanations are provided (non-EU countries, derogations in place, no technical firm capacity available).

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<sup>58</sup> i.e. in line the scope of the NC CAM, IP sides from / to third countries or derogated countries or from / to exempted infrastructure(s), are excluded from the bundling obligations, as well as an IP side with a DSO on the other side of the IP and an IP side, where only interruptible capacity is offered (no bundling obligation of firm with interruptible cap.).

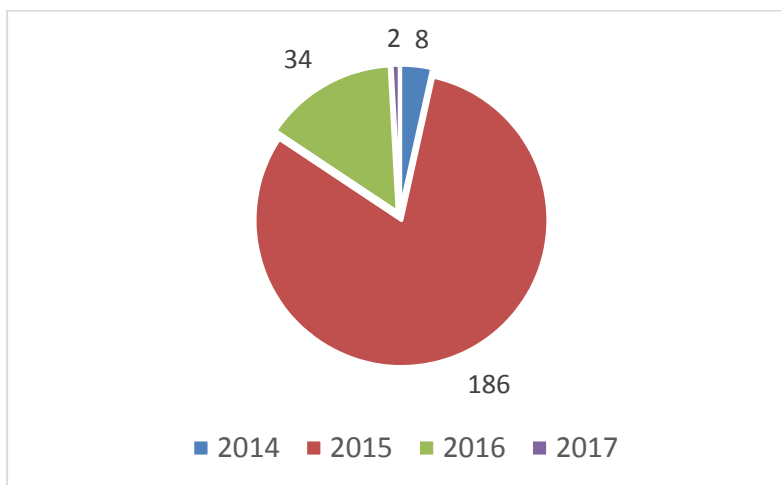


Figure 8: Finalisation period of the joint method for the capacity discrepancy analysis [number of IP sides]

**Article 6(1)(a)(1): Please indicate for your IP sides the date at which a capacity increase (optimisation) took or will take place. [DD/MM/YYYY]**

Again, in most cases, capacity increases took place in 2015, but there are also few cases for 2013 and 2014. Some TSOs reported an expected date for 2016 for the following IP sides (Bunder-Tief, Emsbüren-Berge) - Gasunie Deutschland Transport, SNAM (coinciding with the PRISMA auction in March). At Csanadpalota and Ruse (BG) / Giurgiu (RO), capacity optimisation will take place in 2019.

For the Hungarian TSO, FGSZ, the expected date is 2020, as a result of a project implemented jointly by Austria, Hungary and Romania.

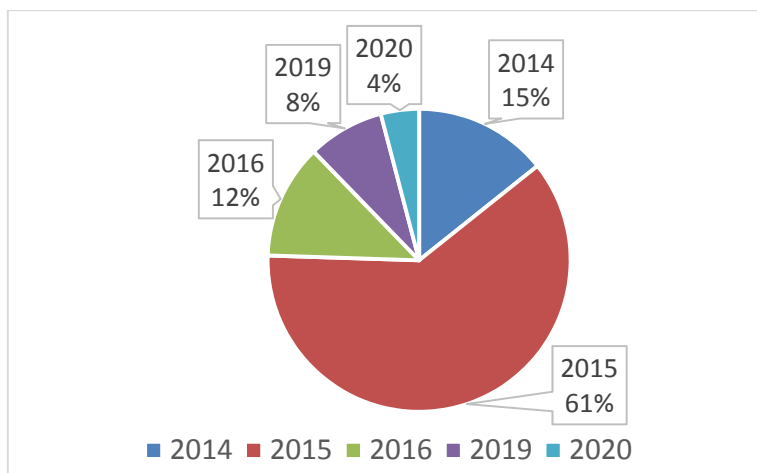


Figure 9: Timing for capacity optimisation

**Article 6(1)(a)(2): Please specify for each of your IP sides, at which frequency the technical capacity is re-calculated. [Yearly / Quarterly / Monthly / other (please specify)]**

Technical capacity is recalculated on a yearly basis at 103 IP sides. Monthly calculations are implemented only at the two directions of VIP PIRINEOS operated by TIGF. In most cases (182 IPs), the frequency chosen is different. The answers vary – in some of the cases the calculation is made “case by case”, “on request”, “ad-hoc” or “dynamically” (117 IP sides), while in others – 26 IP sides, operated by Gasunie Transport Services, capacity is recalculated twice per year. For 65 of the 352 IP sides from the applied IP scope list, the information was not provided for different reasons (e.g. “no obligation”, “no firm technical cap”, “IP with 3<sup>rd</sup> country”, “not applicable” etc.).

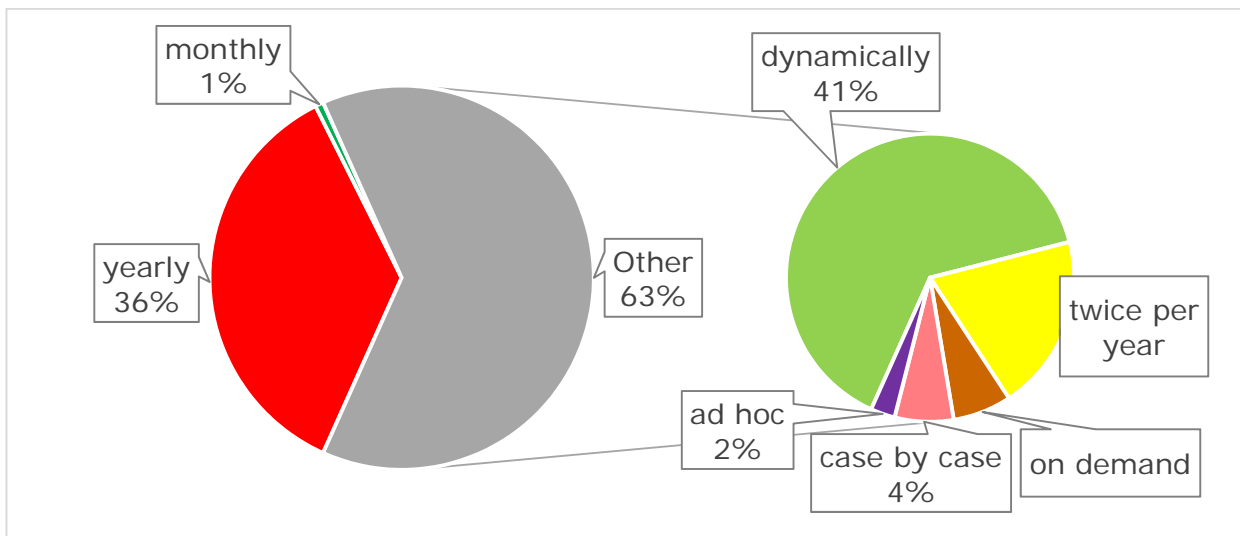


Figure 10: Frequency of technical capacity (re-)calculation at IP sides (basis 287 IP sides)

**Article 6(1)(a)(3): Please indicate for each IP side, whether the joint method has been discussed with other affected TSOs (other than the one with which you applied the "joint method") by listing the name(s) of the affected TSO(s).**

The joint method has been discussed with other affected TSOs for slightly more than half of the IP sides. 183 positive answers at IP level have been given in the survey. The information was missing for 73 IP sides, while for another 27 IP sides, a justification was provided, why the joint method was not discussed with other affected TSOs (such as “no obligation”, “no bundled IP”, “no other affected TSO”, “IP with 3<sup>rd</sup> country”, “no technical firm cap.”, etc.). For 69 IP sides, the question was negated without any further explanation (“no”, “n/a”, “not relevant”).



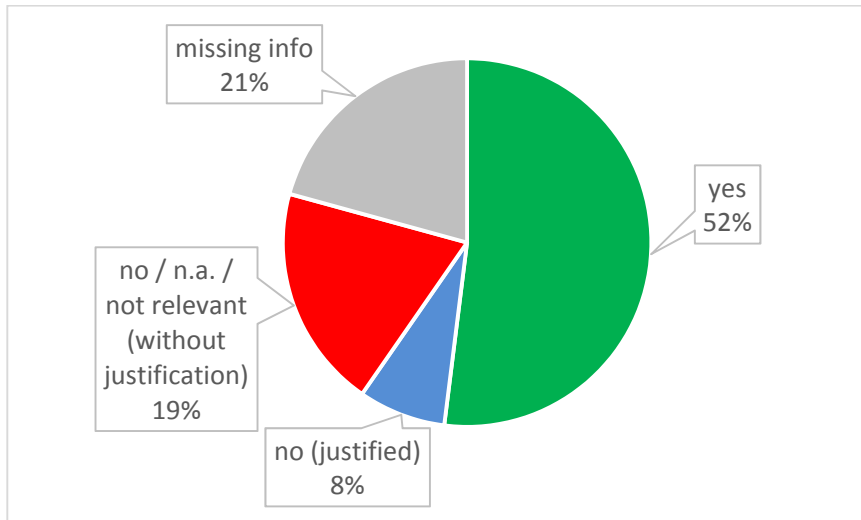


Figure 11: Discussion of joint method with adjacent TSOs (at IP side level)

**Article 6(1)(b): Have you jointly assessed with the adjacent TSO the parameter of pressure commitments? [yes / no] If not, please specify why not.**

The vast majority of TSOs have assessed jointly with the adjacent TSO the parameter of pressure commitments (at 286 IP sides). Negative answers are provided by the TSOs from Norway and Switzerland, as they do not have an obligation to do so. In the case of Romania, a joint method is under discussion. For 41 IP sides, this information was not provided. Answers from Member States holding a derogation from applying the NC CAM were not taken into account.

**Article 6(1)(b): Have you jointly assessed with the adjacent TSO all relevant demand and supply scenarios (incl. reference climatic conditions and network configurations associated with extreme scenarios) [yes / no] If not, please specify why not.**

All relevant demand and supply scenarios have been jointly discussed by the TSOs for the majority (>78%) of IP sides (275/352).

Norway and Switzerland have no obligation to discuss it, as Norway and Switzerland are not EU member states.

In Romania the method is under discussion. In Poland (GAZ-SYSTEM), the above-mentioned assessments will take place in case new or incremental capacity is determined.

For 46 IP sides, the information was not provided. Answers from Member States holding a derogation from applying the NC CAM were not taken into account.

**Article 6(1)(b): Have you jointly assessed with the adjacent TSO parameter "calorific value"? [yes / no] If not, please specify why not.**

Calorific value was jointly assessed for 275 TSOs. 39 negative answers were provided. The reasoning is similar to the one stated in the previous questions – “no obligations for adjacent TSO” or “no technical firm capacity available”. For 41 IP sides, this information was not provided.

**Article 6(1)(b): Have you jointly assessed with the adjacent TSO other parameters? [yes / no] If yes, please specify.**

43 positive answers were given to this question, mentioning parameters such as gas quality, flow commitments, supply/offtake pressure, nomination procedures, climatic conditions, etc. The great majority of respondents have answered “no” for 248 IP sides (without further explanation), for another 16 IP sides the negative answer was reasoned (varying from “no obligation” to “no technical firm capacities available”). For 45 IP sides, this information was not provided.

## 5. Capacity auctions

**Article 8(1): Please indicate the IP side where you are NOT using the CAM auctions (by marking it with "No auctions") and explain the allocation method applied.**

Most of the respondents are using the CAM auctions for capacity allocation. Only two TSOs [Amber Grid (LT), Transgaz (RO)] don't apply CAM auctions on their IP sides. An explanation was provided only by Amber Grid for the IP Kiemenai: “There are time limits for capacity booking. If the demand for long-term capacity (from 1-year inclusive) exceeds technical capacity, pro rata principle shall be used. Short-term capacity (up to 1-year) shall be allocated on the first-come-first-served principle. The first-come-first-served principle shall be applied only when there is no contractual congestion.”

**Article 8(1): When do you expect to fully apply the CAM auctions? [DD/MM/YYYY]**

At most IP sides, the CAM auctions are already fully applied, while a significant part of them have stated applications dates in 2015 (109 IPs). At Csanadpalota, the CAM auctions were already fully applied in 2014. For Kulata (BG) / Sidirokastron (GR), DESFA side, the implementation is expected during the second semester of 2016, while for Ruse (BG) / Giurgiu (RO) and all the Romanian IP sides, the estimated application date is 1 January 2017. Only at Negru Voda III (RO) / Kardam (BG) – Exit, the expected date is 1 January 2024.

## 6. Capacity set aside

**Question to NRAs only**

**Article 8(9): Please specify per IP side the percentage of capacity set aside and offered, but only if it was increased (and NRA approved) beyond the levels provided for in Art. 8(7).**

The percentage of capacity set aside was increased beyond the levels provided for in Art. 8(7) only at 3 IP sides. The details are listed below.

VIP IBERICO (Exit)	REN - Gasodutos	80% extra capacity beyond the levels provided for in Art. 8(7).
VIP IBERICO (Entry)	REN - Gasodutos	15,6% extra capacity beyond the levels provided for in Art. 8(7).
Rogatec (Exit)	Plinovodi	21,3% only for the yearly capacity for gas year 2016/2017

For the French IP sides at Liaison Nord-Sud, the short term quota are compliant with Art 8(7) of NC CAM. No capacity will be sold after 2019, following the date of completion of the zone merger.

At the VIP IBERICO (Enagas Entry + Exit), regarding Article 8(7) paragraph a), 90% of the technical capacity is sold only for the first gas year. No capacity is sold beyond the first gas year.

At the VIP PIRINEOS (Enagas Entry + Exit), regarding Article 8(7) paragraph a), 90% of the technical capacity is sold for the first five gas years.

## 7. Non-standard capacity products

### Question to TSOs

**Article 9: If you offer any non-standard capacity products at any IP, please describe them shortly in the respective fields below.**

Only Amber Grid (LT) offers a non-standard yearly capacity product, starting on 1<sup>st</sup> of January for two IP sides (Kiemena entry and exit).

## 8. Bundling of capacity products

### Questions to TSOs

**Article 19(1)-(2): If applicable, please mark concerned IP sides ('x'), where you are NOT UPLOADING all your available capacity to the booking platform to offer it as bundled capacity.**

10 TSOs at 33 different IP sides do not upload all available capacity to the booking platform as bundled – Bayernets, Gas Connect Austria, Plinacro, FGSZ, REN Gasodutos, Transgaz, GAZ-SYSTEM, GAZ-SYSTEM (ISO) and Swedegas AB.

**Article 19(5): Please indicate for each IP side HOW exceeding capacity is offered as unbundled capacity! Just type a, b or c [a] as in Art. 19(5)(a) or b) as in Art. 19(5) (b) or (c) not at all.]**

For 225 IP sides answers are provided. The vast majority of TSOs, at their respective IP sides (194), apply a combination of Article 19 (5) a) and b). The answer “only a)” has been given by the TSOs for 10 IP sides, while for “b)” the number of IP sides concerned is 21. No exceeding capacity is offered as unbundled (“c”) at 21 IP sides.

**Article 19(5): Please give reasons, if your answer in the previous column was "c" (no offer).**

The reasons provided by TSOs vary. Some of the respective IP sides are interruptible reverse flow IP sides, some of them are IP sides to a third country, or the NC CAM is not applied due to a derogation.

Some of the explanations are summarised below:

- Bayernets: Concerning Überackern 1 and 2 entry/exit: at the moment implementation of bundled capacities is ongoing between Gas Control Austria and bayernets under the supervision of the NRAs Bundesnetzagentur and E-Control. We expect to implement bundling in February 2016.
- TIGF: Larau IPs were developed in close cooperation with Enagas, historically, and 2 Open Season held in 2009 and 2010 led to coordinated capacity increase. Therefore, the capacities on either side are aligned.
- Eustream, Plincaro, REN Gasodutos (for a subset of their IP sides only): All capacity is offered as bundled.

## 9. Interruptible capacity products

### Question to TSOs

**Articles 21(1) & 21(3): Please indicate for each IP side, which interruptible capacity products (longer than day-ahead) you offer. [Standard products: M - monthly; Q - quarterly; Y - Yearly; Non-standard products: O - Other (Please specify)]**

At most of the IP sides (206), all standard interruptible products are offered. No TSO confirmed the offer of any non-standard interruptible product.

Only daily interruptible products are offered at VIP PIRINEOS (TIGF). Day-ahead and within-day interruptible products are offered at 11 IP sides by NET4GAS. No interruptible products are offered at 8 IP sides – VIP IBERICO (both directions by REN Gasodutos), Bacton and Zeebrugge (Interconnector).

## 10. Tariffs

### Question to TSOs & NRAs

**Article 26(2): Please specify for each IP whether the payable price is a) fixed or b) variable (floating) or c) other (e.g. "mixed"). Please specify "other" briefly!**

Most of the TSOs apply a variable price at their IP sides (288). A fixed price is applied at only 38 IP sides. The latter concern IP sides of BG, LT, SK, HR as well as IP sides associated with the interconnectors IUK & BBL (UK, NL, BE sides). Additionally, fixed tariffs are applied for the 'South North CSEP' (IE side) and the IP sides of 'Liaison Nord Sud' (FR).

## 11. Further TSO remarks

- GASCADE Gastransport: Column N: Definition, monitoring purpose unclear, referring to Art. 8 (2) NC CAM indication if competing; Column AD: GASCADE fulfils Art. 19(5) a) and b) NC CAM.
- Gasunie Deutschland Transport Services (Zone OGE (L)/Zone GUD (L)): counter flow only.
- OPAL Gastransport (Opal (DE)/Brandov Opal (CZ)): For exit direction, the IP does only allow to offer interruptible backhaul capacity, no firm.
- OPAL Gastransport: Column AD: Where applicable, OPAL Gastransport fulfils Art. 19(5) a) and b) NC CAM.
- Thyssengas: Please note that the questionnaire initially did not allow for an answer "a) and b)" in column AD. However, CAM allows for the offer of unbundled capacity according to Art. 19 a) and b) and Thyssengas implemented CAM correspondingly.
- Thyssengas: "Haanrade is not bookable by shippers since 1<sup>st</sup> January 2016".
- NET4GAS: "price is set every year by NRA".
- FGSZ: "LTC fixed, new variable".
- Gas Networks Ireland, GAZ-SYSTEM: 26(2): "reserve is variable; premium is fixed".
- REN Gasodutos: "Multiplier factors applies for the reserve prices for yearly, quarterly, monthly and DA auctions (1,0; 1,3; 1,5 and 2,0)".
- Amber Grid: "Amber Grid's system has IP with Latvia's transmission network; Latvia has derogation based on Article 49 of Directive 2009/73EC."
- GAZ-SYSTEM: 19(5): "Please indicate for each IP side HOW exceeding capacity is offered as unbundled capacity! -> Both A and B answers are right."

## 12. Additional NRA remarks

- Czech Republic (ERU): "The only remark I had was included in the very last answer in the survey. We do not fully agree with the dates provided by our TSO regarding the question 6.1 (column Q). We cannot confirm these dates, as we were informed that the in-depth analysis is under development. None has been consulted with ERU or market participants."
- Lithuania: "If the Excel file contains Lithuanian IPs with Latvian IPs even with the derogation, I prefer not to remove and leave them in the Excel file (derogation in the future will expire anyway). In that case, you may even remove part of my comment at the end regarding this question (*'There is a question about Art. 2(1). Does the current CAM IP scope list correctly list all your CAM relevant points? We marked „Yes“, but we would like to explain that the list currently does not include any Lithuanian IPs, since the only ones within the Union are with Latvia, which currently has a derogation based on Art. 49 of Directive 2009/73/EC'*)."
- Slovenia: On 6(1)(a): "The situation has changed in last weeks. The SLO and CRO TSOs agreed on offering bundled capacity for the yearly capacity 2016/2017 on 19(1)-(2)."

## Annex IV: Detailed results of CAM indicator calculations

(114) The following results of the CAM.1, CAM.5 and CAM.6 indicator calculations at border side level are based on the bulk transport data export files of the ENTSOG Transparency Platform for all NC CAM relevant IP sides for 2014 and 2015. From this data set, only the data for CMP relevant IP sides has been selected<sup>59</sup> and – after some preparatory steps<sup>60</sup> – the following indicator calculations have been performed:

### 1. CAM.1 - Evolution firm technical capacity per year:

The indicator shows the yearly variation in firm technical capacity. The results are presented as an aggregation by IPs and by entry-exit zone border, for 2014 and 2015. The value of firm technical capacity for each IP is averaged for a single year. These values are added up for each country border side (exit side and entry side). The resulting indicator is an aggregation of the total firm technical capacity by border side, which can be compared on a yearly basis. This allows for assessing possible changes in firm technical capacity at borders within the EU.

### 2. CAM.5 - Firm booked capacity / technical capacity:

The indicator shows the ratio between booked capacity and technical capacity. The ratio is calculated for each day and for each IP side. Individual IPs are aggregated by country border as a weighted average based on the capacity.<sup>61</sup> This aggregation is performed for each of the years, 2014 and 2015.

### 3. CAM.6: Physical flows / technical capacity:

The indicator shows the ratio between physical flows and technical capacity. As for the CAM.5 indicator, the ratio is calculated for each day and for each IP side. Individual IPs are aggregated by country border as a weighted average based on the capacity.<sup>62</sup> This aggregation is performed for each of the years, 2014 and 2015.

(115) A significant number of border sides had to be excluded from the analysis:

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<sup>59</sup> This selection was performed based on a CMP filter developed and integrated into the CAM IP scope list by the Agency, for the purpose of the congestion analysis (status as of May 2016). The CMP IP scope list is a subset of the NC CAM IP scope list and is mainly derived by excluding “virtual reverse flow” IP sides (i.e. IP sides without any firm technical capacity) and IP sides with 3<sup>rd</sup> countries, where the respective NRA has not decided to apply the CMP GL. The NC CAM and CMP IP scope lists are regularly being updated by the Agency and ENTSOG.

<sup>60</sup> For example, for each IP side, a unique identifier was created based on the IP name, TSO and direction. Furthermore, each IP side was attributed to a Member State and a border name (incl. direction and concerned side of the border, in the form of e.g. “SK → AT (AT)”, where the Slovak / Austrian border in the direction to Austria, at the Austrian entry side is described). This operation was necessary to allow the late aggregation of results at border side level (i.e. combining IP sides of the same side of a specific entry-exit system border).

<sup>61</sup> To calculate weighted average ratios for individual entry-exit border sides, individual IP ratios are multiplied by its technical capacity. These results are aggregated per entry-exit zone border side and divided by the total technical capacity for the respective entry-exit system border side.

<sup>62</sup> See previous footnote.

- a. Borders between market areas of the same Member State (DE, DK, FR, NL, PL and UK). Data for these cases requires further elaboration.
- b. Country borders for which data was not available or invalid. Country borders for which a single year has invalid values are not presented in the figures below.
- c. Borders of Member States with non-EU countries have been exceptionally excluded for the CAM.1 indicator.

(116) Table 24 below shows the percentage of usable border sides for the calculation of CAM.1, CAM.5 and CAM.6 on both, 2014 and 2015. Figures for CAM.1 are lower as a result of the exclusion of non-EU borders which have not been excluded for CAM.5 and CAM.6. For CAM.1 this ratio is 74% (2014) and 70% (2015), for CAM.5 this ratio is 49% (2014) and 55% (2015); for CAM.6 this ratio varies between 43% (2014) and 46% (2015).

**Table 24: Data robustness check (2015-14 calculation results for CMP.1/5/6)**

Summary statistics	2014			2015		
	CAM.1	CAM.5	CAM.6	CAM.1	CAM.5	CAM.6
<b>TOTAL IP sides</b>	128	130	130	135	136	136
<b>N° of #VALUE!</b>	0	4	12	0	0	14
<b>N° of #DIV/0!</b>	5	50	44	10	50	46
<b>Value = 0</b>	8	5	11	12	5	8
<b>IPs part of multiple zones in a zones in a single MS</b>	7	7	7	6	6	6
<b>Excluded IP borders with non-EU countries after the above checks</b>	13	0	0	12	0	0
<b>USABLE IP sides</b>	74%	49%	43%	70%	55%	46%

- (117) Figure 12 and Figure 13 list the results of the calculations for 2014 and 2015 - aggregated per entry-exit zone border side for the indicator CAM.1. The results are ordered according to the difference in firm technical capacity values for 2014 and 2015. Countries listed on the top of the figure show increases in firm technical capacity for the period. Countries listed on the bottom show decreases in firm technical capacity. Borders marked in green have a yearly variation greater than 1% from 2014 to 2015; borders marked in red show a decrease of technical capacity between 2014 and 2015.
- (118) Figure 14 represents the variation in CAM.1 between 2014 and 2015. Values are calculated as the yearly difference between the two years divided by the value of firm capacity in 2014. This shows how the total variation in firm technical capacity relates to the already existing capacity in 2014. Countries listed on the top for the figure show increases in firm technical capacity for the period. Countries listed on the bottom show decreases in firm technical capacity. Borders marked in green have a yearly variation greater than 1% between 2014 and 2015; borders marked in red show a decrease of technical capacity from 2014 to 2015.
- (119) Figure 15 represents the variation in CAM.1 between 2014 and 2015 aggregated by country.

- (120) Figure 16 and Figure 17 represent values for the CAM.5 indicator in both, 2014-15. Figure 16 shows the values ordered by the decreasing ratio of booked capacity over firm technical capacity for 2015 per entry-exit zone border sides. The value of the CAM.5 indicator increases between 2014 and 2015 for countries listed on the top of the graph. Inversely, the value of the CAM.5 indicator decreases between 2014 and 2015 for countries listed on the bottom of the graph. The difference between both years is made explicit in Figure 17. Borders marked in green have a CAM.5 yearly variation between 2014-15 greater than 1%; borders marked in red show a decrease in the value for CAM.5 between 2014-15
- (121) Figure 18 and Figure 19 represent values for the CAM.6 indicator in both, 2014-15. Figure 18 shows the values ordered by the decreasing ratio of total flows over firm technical capacity for 2015 per entry-exit zone border sides. The value of the CAM.6 indicator increases between 2014 and 2015 for countries listed on the top of the graph. Inversely, the value of the CAM.5 indicator decreases between 2014 and 2015 for countries listed on the bottom of the graph. The difference between both years is made explicit in Figure 19. Borders marked in green have a CAM.6 yearly variation between 2014-15 greater than 1%; borders marked in red show a decrease in the value for CAM.6 between 2014-15
- (122) Five values in Figure 18 for the CAM.6 indicator exceed 100%. There are several possible reasons that may explain why physical flows at times exceeded technical firm capacity. First of all, TSOs can make available additional interruptible capacity that adds to the available (technical) firm capacity. Secondly, capacity calculations by TSOs are not yet performed “dynamically” for all IPs (as observed in the IP level survey for this report). If the TSO’s assumption / determination of technical capacity is still conservative (i.e. assuming the lowest realisable capacity value occurring in a year for the full year (“flat”) at an IP side), the actual flows can exceed the firm technical capacity.



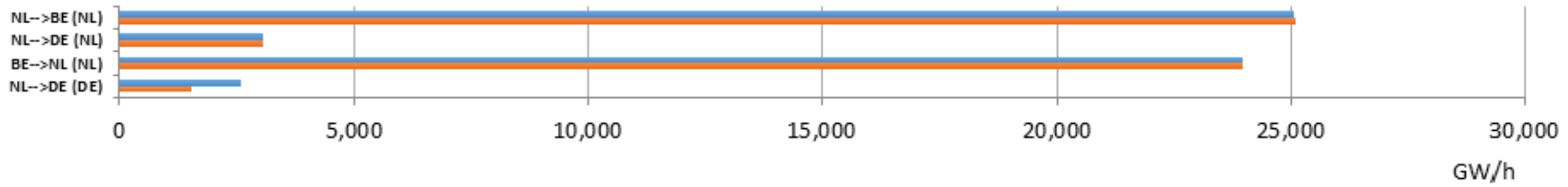


Figure 12: Results of CAM.1 indicator calculations: Aggregated Firm Technical Capacity by border side, 2014/15 (GWh/d). Four largest values (excluding borders with 3<sup>rd</sup> countries)

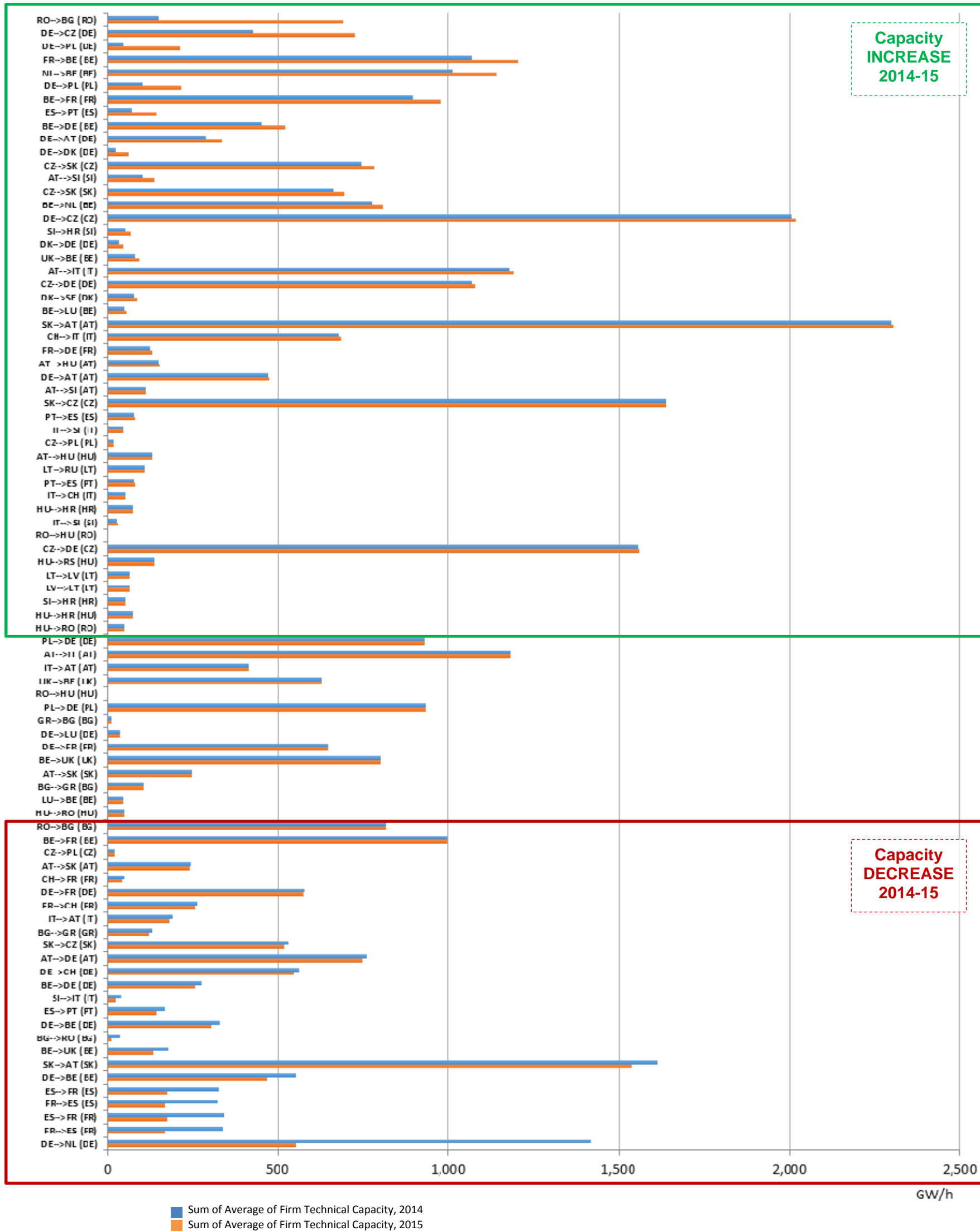


Figure 13: Results of CAM.1 indicator calculations: Aggregated Firm Technical Capacity by border side, 2014/15 (GWh/d). Figures for all borders excluding the four largest values and borders with 3<sup>rd</sup> countries.

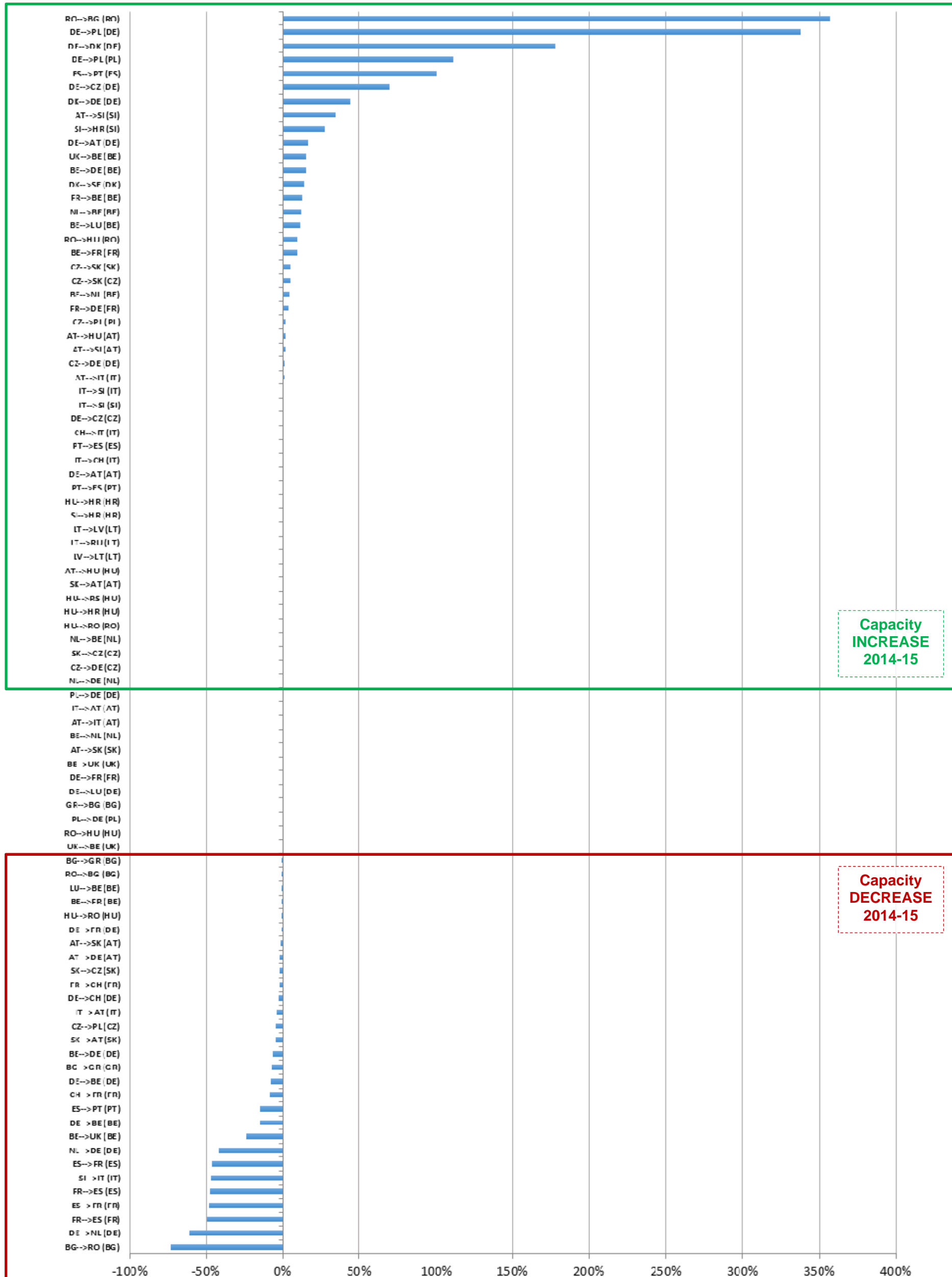
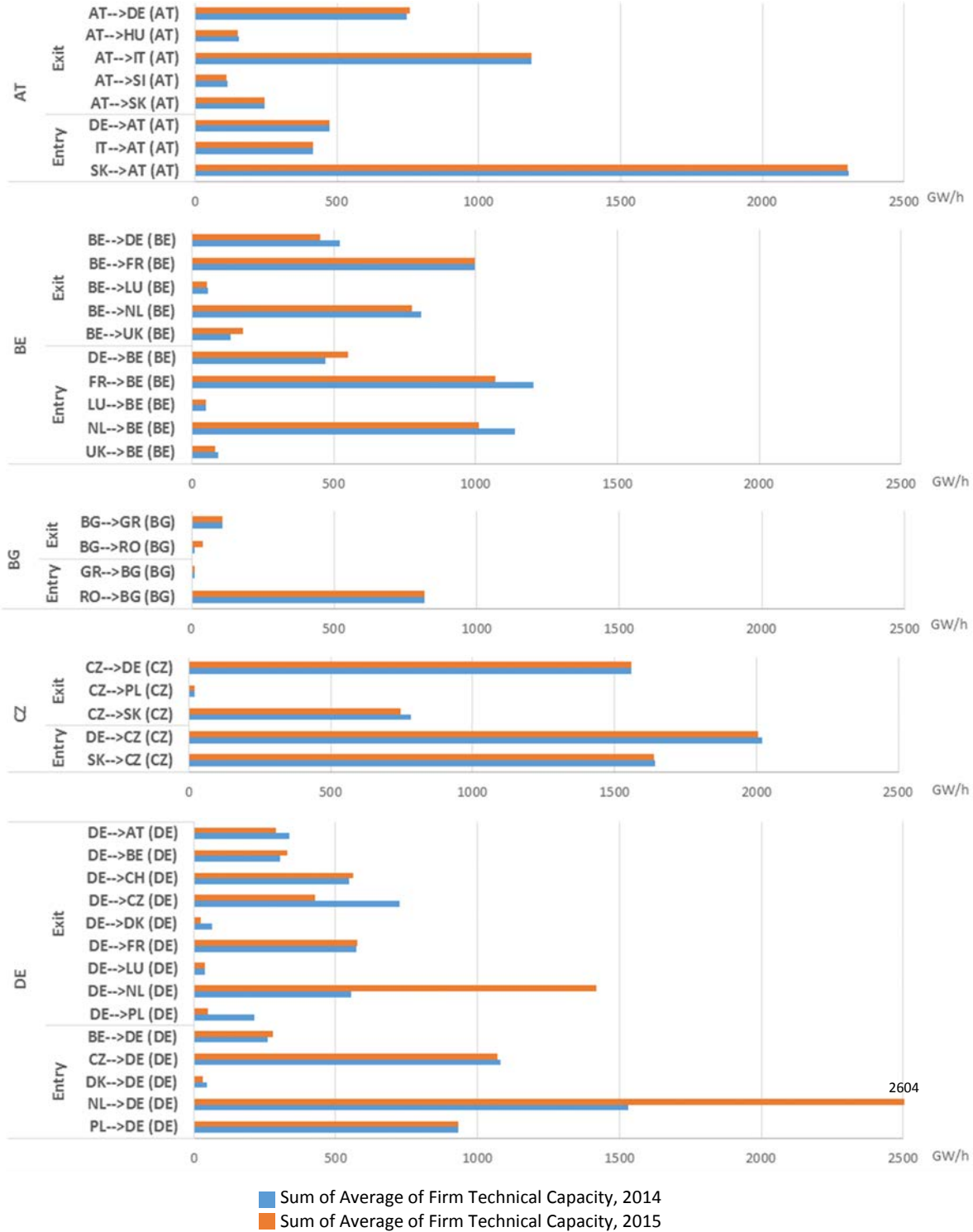
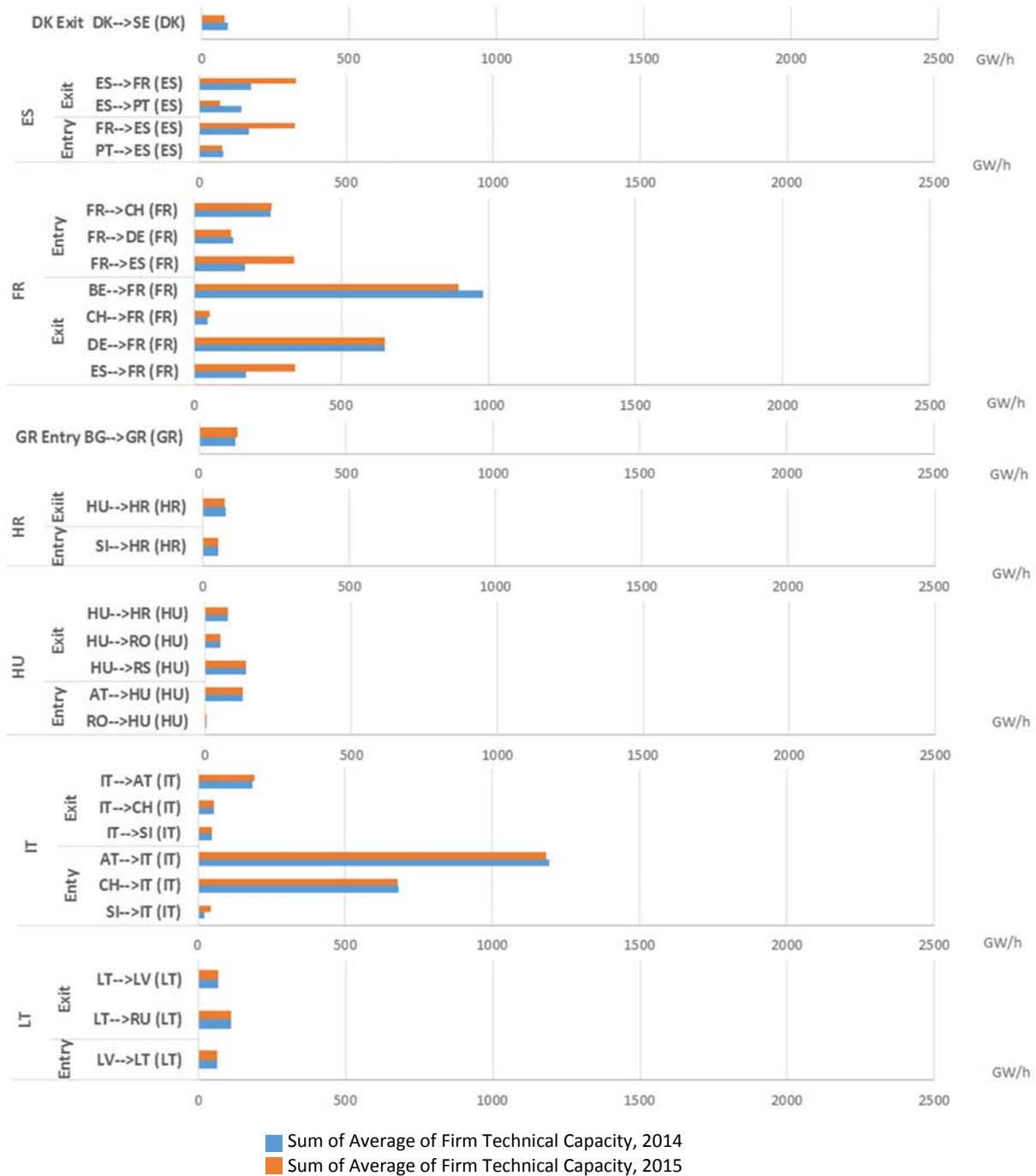
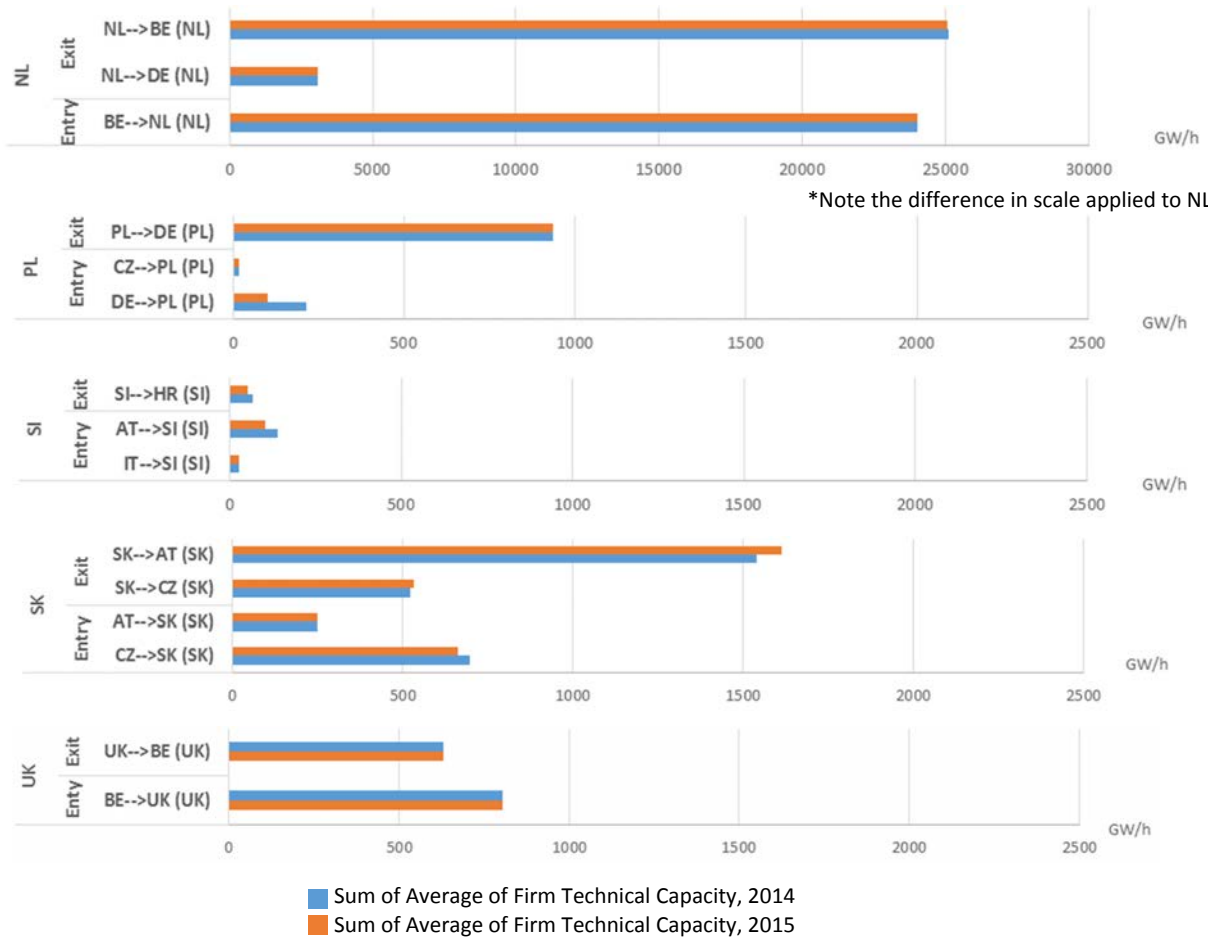


Figure 14: CAM.1 indicators: Percental variation in aggregated Firm Technical Capacity by border side, 2014/15 (GWh/d), excluding borders with 3<sup>rd</sup> countries

Figure 15: Results of CAM.1 indicator calculations: Aggregated Firm Technical Capacity by country, border side and entry-exit, 2014/15 (GW/h). Borders with 3<sup>rd</sup> countries are excluded.







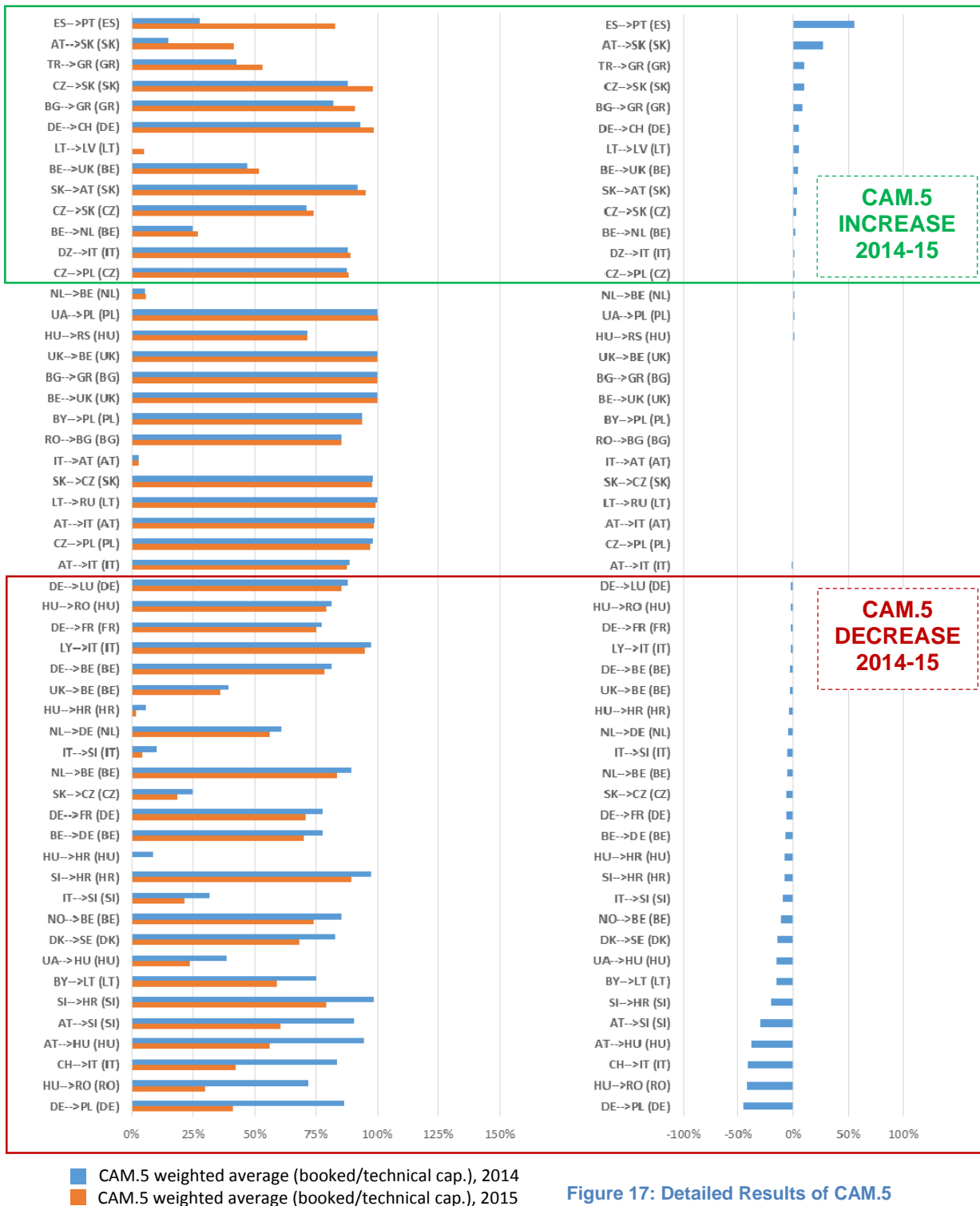


Figure 16: Detailed Results of CAM.5 indicator calculations (booked/technical cap.), 2014-15. Absolute weighted values.

Figure 17: Detailed Results of CAM.5 indicator calculations (booked/technical cap.). Difference in CAM.5 values between 2014-2015.

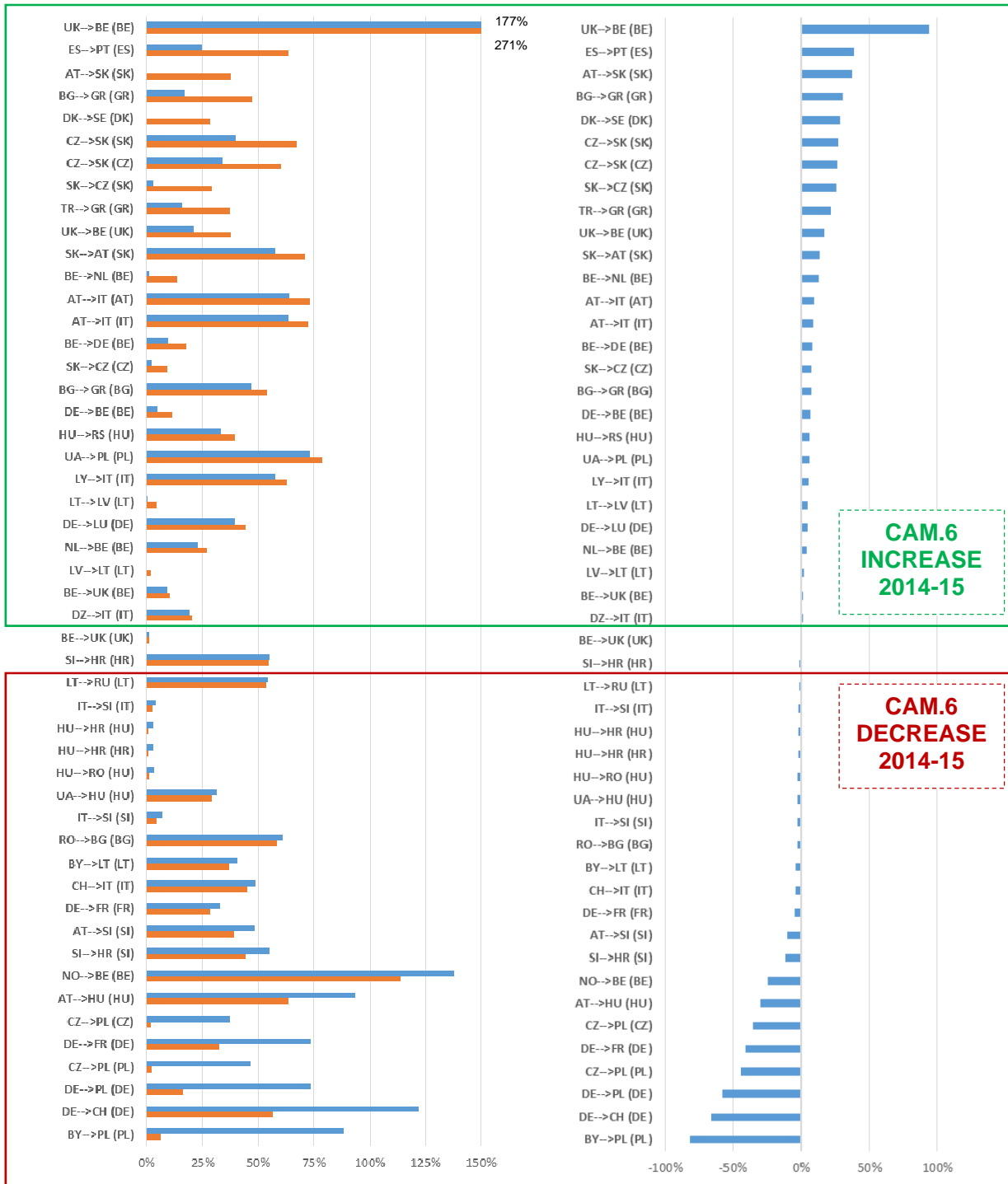


Figure 18: Detailed Results of CAM.6 indicator calculations (flows/technical cap.), 2014-15. Absolute weighted values.

Figure 19: Detailed Results of CAM.6 indicator calculations (booked/technical capacity). Difference in CAM.6 values between 2014-1015.

## Annex V: List of abbreviations & country codes

Acronym	Definition
ACER	Agency for the Cooperation of Energy Regulators
CAM	Capacity Allocation Management (Gas)
CMP	Congestion Management Procedures (Gas)
E/E	Entry/exit
EC	European Commission
ENTSOG	European Network of Transmission System Operators for Gas
EU	European Union
GL	Guidelines
GP	Gaspool (market area in Germany)
IP	Interconnection Point
NC	Network Code
NCG	Net Connect Germany (market area in Germany)
NRA	National Regulatory Authority
TP	ENTSOG's Transparency Platform
TSO	Transmission System Operator
VIP	Virtual Interconnection Point

Acronym	Country
AT	Austria
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
EL	Greece
HR	Croatia
HU	Hungary

Acronym	Country
IT	Italy
IE	Ireland
LT	Lithuania
LV	Latvia
LU	Luxembourg
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SK	Slovakia
SI	Slovenia
UK	United Kingdom





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