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# Coordinated Network Development Plan 2017 – 2026



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## 1 Introduction

The Coordinated Network Development Plan (CNDP) provides information on specific national and cross-border investment projects in the Austrian gas market with respect to the transmission system of the Austrian Market Area East. As the Market Areas Tyrol and Vorarlberg are not connected to the transmission system, they are not included in the CNDP. It was drawn up in cooperation with all of the Austrian TSOs, making due allowance for the long-term planning (LTP). While Austria is a transit country at the European level, domestic consumption also plays an important role at the national level. Therefore, the CNDP benefits from synergies and additional information in connection with long-term planning.

The CNDP is designed to give the market an outlook on future network expansion. In its structure, the CNDP is modelled on European plans such as the Gas Regional Investment Plan (GRIP) and the TYNDP. Market participants are designed to be among the primary beneficiaries of the CNDP, as they are not only able to gauge future infrastructure projects thanks to the CNDP but also get an idea of the development of Austria's transport market and security of supply.

Austrian TSOs as well as project sponsors are working on new expansion measures to create new routes and additional sources of supply. The projects described in this CNDP provide evidence of the efforts made in this respect.

The MAM drew up a schedule in coordination with the DAM to harmonise the milestones for creating the long-term plan (LTP) for the distribution area and the 2017-2026 CNDP.

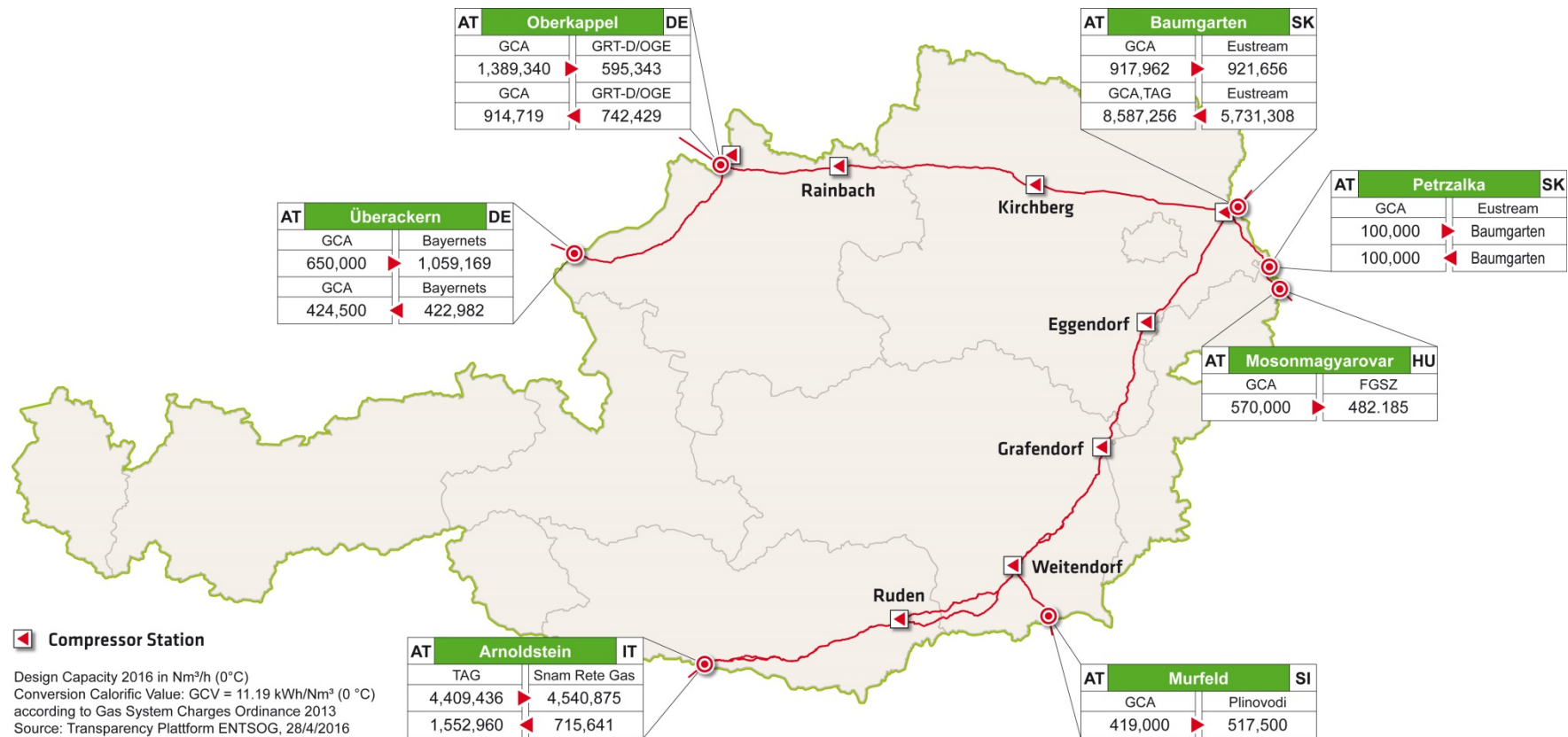
The TSOs of the Market Area East, TAG and GCA carry out a voluntary capacity demand survey throughout the year. The market participants are given an opportunity to report their capacity demands to the TSOs. In parallel a project data collection was carried out. Project sponsors are given the opportunity to report their projects to the TSOs or the MAM.


The capacity demand and project data information submitted by a specific deadline (This year the 1<sup>st</sup> April) form a basis to prepare a coordinated capacity scenario and for project planning by the TSOs in the form of the network development plans.

The market area manager plays a coordinating role at the definition of the capacity scenario between the transmission system operators and the distribution area manager.



## 2 Transit market Austria



<b>Present gas infrastructure</b>	
Number of TSOs	2
Total length of transmission grid	approx. 1,690 km
Total compressor power	621 MW
 <p><b>GAS CONNECT AUSTRIA</b></p> <p>Website: <a href="http://www.gasconnect.at">www.gasconnect.at</a></p>	<p><u>Neighbouring TSOs:</u></p> <ul style="list-style-type: none"> <li>- Baumgarten GCA/WAG: eustream, a.s.</li> <li>- Oberkappel: Open Grid Europe GmbH, GRTgaz Deutschland GmbH</li> <li>- <u>Überackern ABG: bayernets GmbH</u></li> <li>- <u>Überackern SUDAL: bayernets GmbH</u></li> <li>- Petrzalka: eustream a.s.</li> <li>- Mosonmagyaróvár: FGSZ Ltd</li> <li>- Murfeld: Plinovodi d.o.o</li> </ul> <p><u>Physical entry points:</u></p> <ul style="list-style-type: none"> <li>- Baumgarten GCA (border to Slovakia)</li> <li>- Baumgarten WAG (border to Slovakia)</li> <li>- Überackern ABG (border to Germany)</li> <li>- Überackern SUDAL (border to Germany)</li> <li>- Storage Point 7Fields</li> <li>- Oberkappel (border to Germany)</li> <li>- MAB/WAG</li> </ul> <p><u>Physical exit points:</u></p> <ul style="list-style-type: none"> <li>- Mosonmagyaróvár (border to Hungary)</li> <li>- Überackern ABG (border to Germany)</li> <li>- Überackern SUDAL (border to Germany)</li> <li>- Murfeld (border to Slovenia)</li> <li>- Petrzalka (border to Slovakia)</li> <li>- Storage Point 7Fields</li> <li>- Baumgarten WAG (border to Slovakia)</li> <li>- Oberkappel (border to Germany)</li> <li>- MAB/WAG</li> </ul> <p><u>Non-physical entry points:</u></p> <ul style="list-style-type: none"> <li>- Mosonmagyaróvár (border to Hungary)</li> <li>- Murfeld (border to Slovenia)</li> <li>- Petrzalka (border to Slovakia)</li> </ul> <p><u>Total length of transmission grid:</u> 554.2 km</p> <p><u>Total compressor power</u> 146 MW</p> <p><u>Total energy transported (gas)</u> 2014: 165,291 GWh</p>



Trans Austria Gasleitung

Website: [www.taggmbh.at](http://www.taggmbh.at)

TAG GmbH is a company governed by Austrian law. In its capacity as a TSO it is responsible both for transit and for supply of the Austrian market and network development. Snam S.p.A. (84.47%) and Gas Connect Austria GmbH (15.53%) are the owners of TAG GmbH.

The TAG pipeline system extending from the Austrian-Slovak to the Austrian-Italian border is described below. The TAG system is connected to the SOL system at Weitendorf, this way enabling the transport of gas in the direction of Slovenia and on to Croatia. The Austrian market is supplied by ten physical exit points.

The system can be operated physically in both direct and reverse flow.

Neighbouring TSOs:

Baumgarten TAG: eustream a.s.

Tarvisio/Arnoldstein: Snam Rete Gas S.p.A.

Physical entry points:

- Baumgarten TAG (border to Slovakia)
- Arnoldstein (border to Italy)

Physical exit points:

- Arnoldstein (border to Italy)

Total length of transmission grid:

3 pipelines with 380 km each, approximately 1,140 km in total

Total compressor power

5 compressor stations, approximately 475 MW ISO

Total energy transported (gas)

2014: 347,092 GWh

Physical hubs and virtual trading points

CEGH

**Demand**

Historic annual demand for gas on the domestic market (end users)

2015: 88,630 GWh

2014: 83,543 GWh

2013: 91,031 GWh

**System overview**

Austria is a gas transit country in Europe. Gas is primarily transported to Germany and Western Europe (connected via the Oberkappel, Überackern ABG and SUDAL IPs), Italy, Slovenia and Croatia (supplied via the Arnoldstein and Murfeld IPs) and Hungary (connected via the Mosonmagyaróvár exit IP). In line with the CAM Network Code, the capacities of Austria's TSOs are auctioned off on the European capacity platform PRISMA. Freely allocable capacity (FZK), dynamically available capacity (DZK) and interruptible capacity (UK) are the product qualities on Austria's transit market. More detailed information about the applicable rates can be found in the Gas System Charges Ordinance (GSNE-VO) as amended.

**Infrastructure standard - security of supply**

According to the infrastructure standard, the capacity in the observation area (Market Area East in Austria) must be able to meet a very high demand even in case of an outage of the largest infrastructure facility (Baumgarten).

The SoS Regulation requires the result of the calculation in table 1 to exceed 100%. In line with the statutory mandate, the MAM (section 63 para. 4 no. 4 Natural Gas Act 2011) and the DAM (section 22 para. 1 no. 3 Natural Gas Act 2011) updated the data for calculating the N-1 infrastructure standard as follows:

Table 1 N-1 calculation Market Area East

Facility Description	Design Capacity (Mio.Nm <sup>3</sup> /d)	Definition, Description, Sources
<b>Epm</b>	<b>273,7</b>	Technical capacity of entry points
Baumgarten	203,9	∑ entry Baumgarten (GCA, BOG, TAG; www.gasconnect.at )
Oberkappel	22,0	(www.gasconnect.at )
Überackern	10,1	www.gasconnect.at, entry capacity for Sudal
Arnoldstein	36,9	(www.gasconnect.at )
Freilassing&Laa/Thaya	0,9	techn. available capacity, currently not booked (source: AGGM, 7 April 2016)
<b>Pm</b>	<b>3,3</b>	Max. technical production capacity
Production OMV	2,7	Standard capacity booked (source: AGGM, 7 April 2016)
Production RAG	0,6	Standard capacity booked (source: AGGM, 7 April 2016)
<b>Sm</b>	<b>47,6</b>	Maximum technical exit capacity
Storage OMV	29,6	Standard capacity booked (source: AGGM, 7 April 2016)
Storage RAG ES	13,3	Standard capacity booked (source: AGGM, 7 April 2016)
7Fields FL	*	GCA
7Fields VL	4,68	Standard capacity booked (source: AGGM, 7 April 2016)
Haidach VL	0	Currently not connected
LNGm	0	Liquified natural gas, irrelevant for Austria
<b>Im</b>	<b>203,9</b>	Technical capacity of largest individual gas infrastructure facility, in case of Austria: Baumgarten
<b>Dmax</b>	<b>51,9</b>	Total daily gas demand in the area analysed for a day with high demand, statistical probability: every 20 years, February 2012 (source: AGGM)

$$N - 1 [\%] = \frac{EPm + Pm + Sm + LNGm - Im}{Dmax}$$

$$N - 1 [\%] = 233 \% \quad N - 1 \geq 100$$

The infrastructure standard in the Market Area East is 237%. Among the reasons for the high N-1 value are Austria's historic role as an import and gas transit country for gas from Russia to the EU and the above-mentioned high storage capacity. In addition, the above-average result provides evidence both of the high security of supply in Austria and of Austria's major contribution to its neighbouring countries' security of supply. Any additional investments would enhance Austria's security of supply even more, which is why the N-1 standard is not likely to deteriorate in the 2017-2026 planning period.

As regards security of supply, migration from gas to electrical compressors may have an influence. CO<sub>2</sub> reductions resulting from use of electrical compressors are achieved at the expense of redundancy, unless such redundancy is created using gas compressors. To date, use of electrical compressors in Austria has not resulted in any restrictions as regards system stability.

At present, the ratio of electrical to gas compressor power in Austria is as follows:

- Electrical compressor power: 47%
- Gas compressor power: 53%



### **3 Coordinated network development planning in context**

The CNDP claims to provide a holistic picture about the European and national planning documents. There is undoubtedly a need for optimum coordination of national and European planning tools. However, it is only possible to compare the planning documents to a limited degree because of their publication in national languages, deviating schedules and planning assumptions.




Not only European planning tools but also requirements and findings from the Austrian distribution area are incorporated into the CNDP. The links and interrelations between the individual planning documents are analysed in the following chapters.

### 3.1 The Coordinated Network Development Plan and long-term planning

The LTP represents the Network Development Plan in the Austrian distribution area. The data basis for the LTP results from the current steering of the distribution area, as well as information that is submitted to the DAM.

The scenarios listed in chart 1 are analysed in the LTP 2016:

Chart 1 Demand scenarios

		Entwicklung der Gaskraftwerksleistung	
		Stagnation auf Status Quo 5/2016	Berücksichtigung aller von den Netzbetreibern bekanntgegebenen Bedarfe
Entwicklung der sonstigen Endkunden	Berücksichtigung der von den Netzbetreibern genannten künftigen Veränderungen.	 Baseline Szenario	 Maximal Szenario
	Berücksichtigung der von den Netzbetreibern genannten künftigen Veränderungen. Zusätzliche Reduktion des Absatzes von 1,5% pa.	 Minimal Szenario	

Source: LTP 2016, version 1, 01.07.2016

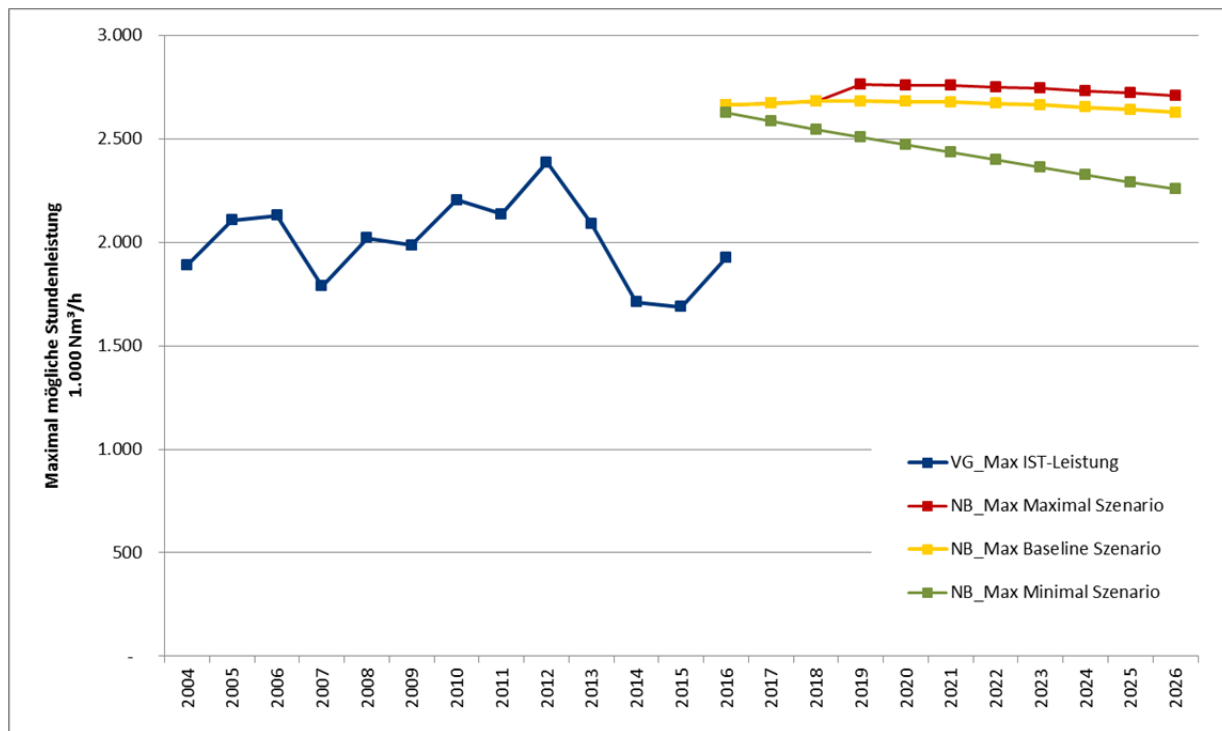
Each of the three demand scenarios is described in terms of the maximum possible hourly flow rate on the one hand and expected annual demand (with a winter with approx. 3000 heating degree days) on the other. The maximum possible hourly flow rate is used as the design basis for distribution network infrastructure. This means that infrastructure must be designed in such way that it can transport the maximum possible hourly flow rate safely.

Peak demand in the eastern distribution area was measured at 2,386 kNm<sup>3</sup>/h in February 2012. This high demand was due both to a prolonged cold spell and high levels of electricity generation. Demand on this level has not been encountered in the years since then. The demand scenarios considered in the LTP 2016 are based on this historical peak demand value recorded in February 2012.

**Fehler! Verweisquelle konnte nicht gefunden werden.** shows actual hourly flow rates and development of the maximum hourly flow rate in the eastern distribution area over the period from 2003 to 2026. The chart shows future maximum hourly flow rates for the three scenarios defined.

The actual flow rates and future maximum possible hourly flow rates shown in **Fehler! Verweisquelle konnte nicht gefunden werden.** were determined using different approaches. The actual flow rates shown reflect the historical simultaneous gas demand measured in the distribution area (VG\_MAX). The future maximum possible hourly flow rates reflect the maximum expected simultaneous demand, comprising the total maximum expected flow rates for each distribution area (NB\_MAX).

Chart 2 Demand forecast for the Market Area East, maximum hourly flow rate



Source: LTP 2016, version1, 01.07.2016

There is a difference of approximately 7% between actual VG\_MAX and NB\_MAX, although it should be noted that demand peaks in the individual grid areas occur only a few hours after one another. The NB\_MAX value for maximum possible hourly flow rate is used in hydraulic calculations for grid design across the entire distribution network.

The maximum possible hourly flow rate in the maximum scenario is closer to the baseline scenario in the LTP 2016. This is because only one additional gas-fired power station is included in the maximum scenario in the LTP 2016.

Overall, the network operators assume that the maximum possible hourly flow rate will fall slightly over the next ten years.

### 3.2 The Coordinated Network Development Plan and the German Development Plan Gas 2015

The basis for the German Grid Development Plan Gas is a coordinated scenario framework based on supply and demand scenarios, which is established and approved on an annual basis. In contrast to this, the development of infrastructure projects in the CNDP is based on the actual needs of market participants. As for last year's plan, a medium gas demand scenario was defined for the current German Grid Development Plan Gas 2015. The criteria of the medium gas demand scenario are outlined in the scenario framework posted on the website of the German Grid Development Plan ([www.fnb-gas.de/](http://www.fnb-gas.de/)). The projects approved by the authority in the southern part of Germany are relevant in particular for the 2017-2026 CNDP.

According to the Grid Development Plan Gas 2015 the SEL project connecting Burghausen at the German-Austrian border with the Mannheim area (Lampertheim) establishes access to the Austrian market area. The SEL plan consists of two sections. The MONACO 1 project covers the first section; it ends near Finsing (Munich). Compared with the Grid Development Plan Gas 2013, the line length was adjusted from 85 km to 86.5 km. The implementation of the second section MONACO II depends on the implementation of international transit projects. Besides strengthening security of supply in the southern part of Germany SEL has the potential to strengthen the transit capacity towards Austria. Moreover, through the commissioning of the first section of MONACO 1 the diversification of transit routes is strengthened and the market participants will have further possibilities for gas transport among the VTPs NCG and CEGH. In addition, the access to potent storages in the Austrian/German Area at the interconnection point Überackern may further strengthen the security of supply.

### 3.3 The Coordinated Network Development Plan and the TYNDP

At a European level, TSOs have formed a European Network of Transmission System Operators (ENTSOG). One of ENTSOG's key tasks is to prepare a Ten-Year Network Development Plan (TYNDP). A new TYNDP describing the top-down planning approach at a European level is published every two years (current version: TYNDP 2015). This requires coordination of the TSOs on the European level with special consideration of transit countries.

The target of the CNDP is the network extension in line with capacity demand in the Austrian Market Area East. In addition to the demand at the entry/exit points of the Austrian Market Area East and the projects submitted by the project sponsors, the relevant content of the TYNDP were taken into account.

Up to the 2013 edition, the European Network Development Plans covered particularly the cross-border points, the related capacity requirements, an overview of the planned gas infrastructure, various consumption and sales scenarios and flexibility assessments of the European Member States in various congestion scenarios. With the preparation of the TYNDP 2015, the European network development planning includes for the first time projects that are candidates for inclusion on the Union list of PCIs. Pursuant to Regulation (EU) No 347/2013, the TYNDP 2015 was enlarged to include an energy system-wide cost-benefit analysis. It aims to divide potential candidates for inclusion on the next Union list into three categories:

- Projects with a final investment decision
- Projects without a final investment decision
- Projects that are already PCIs

In the TYNDP 2015 the project categories are analysed in terms of their direct and indirect benefit in the different sales, consumption and congestion scenarios. The analysed scenarios and assumptions are based on the energy system-wide cost-benefit analysis undertaken by ENTSOG. In order to conclude application for the next Union list, the projects contained in the TYNDP 2015 were merged into project groups at the request of the European Commission. In conjunction with the project-specific cost-benefit analysis, the direct and indirect benefit of the individual project groups for European Member States was presented and rated in the various demand, consumption and congestion scenarios.

### 3.4 PCI projects - focus Austria

For the purposes of presentation and analysis of projects that are directly linked to the Austrian market area, the MAM has listed the project groups in table 2 ("PCI project - focus Austria") which submitted an application for inclusion on the next Union list by 13 May 2015 and which were included by the European Commission in the "The Union list of projects of common interest" as of 18 November 2015.



Table 2 PCI projects - focus Austria

<b>Priority Corridor North-South Gas Interconnections in Central Eastern and South Eastern Europe („NSI East Gas“)</b>	
<b>Project number</b>	<b>Project name</b>
<b>6.4</b>	<b>Bidirectional Austrian — Czech interconnection (BACI) between Baumgarten (AT) — Reinthal (CZ/ AT) — Brečlav (CZ)</b>
<b>6.24</b>	<b>Cluster phased capacity increase on the Bulgaria — Romania — Hungary — Austria bidirectional transmission corridor (currently known as “ROHUAT/BRUA”) to enable 1.75 bcm/a in the first phase and 4.4 bcm/a in the second phase, including new resources from the Black Sea</b>
6.24.1	Romanian-Hungarian reverse flow: Hungarian section 1st stage CS at Csanádpalota (1st phase)
6.24.2	Development on the Romanian territory of the National Gas Transmission System on the Bulgaria — Romania — Hungary — Austria Corridor — transmission pipeline Podișor — Horia GMS and 3 new compressor stations (Jupa, Bibești and Podișor) (1st phase)
<b>6.24.3</b>	<b>GCA Mosonmagyaróvár CS (development on the Austrian side) (1st phase)</b>
6.24.4	Városhöld – Ercsi – Győr pipeline (capacity 4.4 bcm/a) (HU)
6.24.5	Ercsi – Százhalombatta pipeline (capacity 4.4 bcm/a) (HU)
6.24.6	Városhöld compressor station (capacity 4.4 bcm/a) (HU)
6.24.7	Expansion of the transmission capacity in Romania towards Hungary up to 4.4 bcm/year (2nd phase)
6.24.8	Black Sea shore — Podișor (RO) pipeline for taking over the Black sea gas
6.24.9	Romanian-Hungarian reverse flow: Hungarian section 2nd stage CS at Csanádpalota or Algyő (HU) (capacity 4.4 bcm/a) (2nd phase)
<b>6.25</b>	<b>Cluster infrastructure to bring new gas to the Central and South-Eastern European region with the aim of diversification, including one or more of the following PCIs</b>
6.25.1	Pipeline system from Bulgaria to Slovakia [currently known as “Eastring”]
<b>6.25.2</b>	<b>Pipeline system from Greece to Austria [currently known as “Tesla”]</b>
6.25.3	Further enlargement of the Bulgaria — Romania — Hungary — Austria bidirectional transmission corridor [currently known as “ROHUAT/BRUA”, phase 3]
<b>6.26</b>	<b>Cluster Croatia — Slovenia — Austria at Rogatec, including the following PCIs</b>
6.26.1	Interconnection Croatia — Slovenia (Lučko — Zabok — Rogatec)
6.26.2	CS Kidričevo, 2nd phase of upgrade (SI)
6.26.3	Compressor stations at the Croatian gas transmission system
<b>6.26.4</b>	<b>GCA 2014/04 Murfeld (AT)</b>
6.26.5	Upgrade of Murfeld/Ceršak interconnection (AT-SI)
6.26.6	Upgrade of Rogatec interconnection

The PCI project 6.4 “Bidirectional Austrian — Czech interconnection (BACI)” is jointly handled by the two TSOs GCA and Net4Gas. The project aims to connect the Austrian and the Czech market areas and to strengthen and enhance even more the appeal of the markets of the two countries, Austria and the Czech Republic, to system users. Implementing the project would facilitate access to the virtual trading points in Austria and the Czech Republic. The planned new cross-border capacity creates additional opportunities for transport between the Austrian and Czech market areas as well as opportunities for the transport of natural gas from and to neighbouring countries. BACI makes a major contribution to implementing the north-south corridor and enhances market integration and security of supply for neighbouring countries, too. BACI contributes to the diversification of gas supply, improves transport opportunities to and from the above-mentioned countries and facilitates access to new and existing trading markets. BACI would support market integration, competition and price convergence within Central and Eastern Europe.

The projects 6.24 “Cluster phased capacity increase on the Bulgaria — Romania — Hungary — Austria bidirectional transmission corridor (currently known as “ROHUAT/BRUA”) “ are located in Austria, Hungary and Romania. The goal is to identify a new source for natural gas in the Black Sea and to increase the capacity at the relevant cross-border points. A new source for natural gas is connected to the European Union. With a potential connection to the Austrian/Hungarian border the infrastructure project has the potential to bring gas from new supply sources to the VTP and to further strengthen the security of supply. The TSO GCA submitted the above-mentioned Austrian sub-project 6.24.3 “GCA Mo-sonmagyaróvár CS (development on the Austrian side) (1st phase)” for inclusion in the Union list, resulting in it being classified as a PCI.

The projects 6.26 “Cluster Croatia – Slovenia – Austria” are located in Austria, Slovenia and Croatia. The objective is to bring new sources for natural gas to the Austrian market and to increase capacity at the relevant cross-border points. The LNG terminal in Krk or natural gas volumes from Azerbaijan could be potential new sources. The projects increase security of supply in the above-mentioned countries as a consequence of the elevated transport capacity and lead to a further diversification of transport routes for natural gas in Europe. Sub-project 6.26.4 “GCA 2014/04 Murfeld (AT)” prepared by the TSO GCA was submitted for inclusion in May 2015 and accorded PCI status in November 2015.

The projects described were submitted for the next Union list in May 2015 for the identification of projects of major importance for the European gas industry. The selection process for the future PCI projects was completed in 2015.

The projects „Cluster infrastructure to bring new gas to the Central and South-Eastern European region with the aim of diversification” are located in South-Eastern Europe and aim at promoting diversification of the sources. Project 6.25.2 “Tesla” is intended to bring gas from Turkey via Greece, Macedonia, Serbia and Hungary to Baumgarten and thus Austria. The TYNDP was retrospectively reopened on request by the European Commission to enable the Tesla project to replace the cancelled “South Stream” project. The “Tesla” project is planning the pipeline, according to the “Union list of projects of common interest”, to the Austrian-Hungarian border. Therefore no corresponding project is planned by GCA for the Austrian market area.

## 4 From demand to project approval

After the deadline (1<sup>st</sup> April 2016 this year) the non-binding capacity demand projected was aggregated per entry and exit point and submitted to the MAM. In a next step, the MAM analysed the projected capacity demand and the projects submitted jointly with the TSOs. The result of this analysis is either no shortage, a short-term shortage or a long-term shortage.

In the event that the projected capacity demand does not cause a shortage or only a short-term shortage, this will be mentioned by the TSOs in the individual NDPs but is not accounted for in the scenario.

Based on the results of the capacity demand surveys and selected projects, the MAM drew up a capacity scenario in cooperation with the TSOs and with the help of the DAM and sent it to the TSOs for further analysis on 18 April 2016.

On the basis of the projected non-binding capacity demand and the projects submitted, which fulfil the requirements for inclusion in the capacity scenario, the 2017-2026 CNDP features the following capacity scenario, duly coordinated by the MAM, the DAM and the TSOs:

Chart 3 Capacity scenario



All additional demand indicated in chart 3 was examined in the NDPs of GCA and TAG.

The NDPs were submitted to the MAM by 03 June 2016. The MAM merged the NDPs received in the consultation version of the 2017-2026 CNDP and coordinated the translation of the first consultation version. The market participants were invited to attend a Stakeholder Joint Working Session on 1 July 2015 to comment on the CNDP, especially its content and the creation process.

The consultation version of the CNDP was published on the MAM's website on 1 July 2016 for consultation. The consultation process for the 2017-2026 CNDP was scheduled to take place from 01 July 2016 to 15 July 2016. Market participants were given the opportunity to submit written statements during this period. This year, they had the opportunity to respond to the CNDP by using a structured consultation document. This consultation document was published on the MAM's website.

The MAM received four consultation documents, from AGGM Austrian Gas Grid Management AG, eustream a.s. Uniper Global Commodities SE and Uniper Energy Storage Austria, which have been forwarded to the TSOs. Three documents concerned solely the network development plans of the TSOs. The consultation document from Uniper Energy Storage Austria included the indication that the statutory cooperation-requirements between MAM and DAM according to § 19 section 1 GWG have not been met.

The ongoing coordination between MAM and DAM has duly taken place in this year's coordination meetings which has been recorded in written protocols. In the context of the coordination meetings the DAM has been informed by MAM and the TSOs about the delay of the project GCA 2015/07b.

The analysis of the capacity scenario leads to the projects which are described in chapter 7 "national projects" and forwarded to the authority for approval as part of the network development plans in the course of submission of the Coordinated Network Development Plan. Where the authority approves the projects submitted and agrees to the related costs, the binding demand for the additional capacities generated by the projects will be verified, for example, by means of an auction (incremental capacity auction) on the European auction platform PRISMA ([www.prisma-capacity.org](http://www.prisma-capacity.org)).

If projects are approved as studies or conceptual projects, they are automatically included in the CNDP of the following year. The projects may then be further developed in the NDPs in the following years.

Table 3 Projects in the network development plans of the TSOs

Project name	Capacity (GWh/d)	Planned completion	Project sponsor	Entry/exit point	Related-projects	Project objective
<b>GCA 2015/01b : BACI DN 1200</b>	398	-	Gas Connect Austria GmbH	Reintal	-	Create technical bi-directional capacities on a freely allocable basis for the first time and set up the Reintal entry and exit point between the Austrian market area and the Czech market
<b>GCA 2015/03: Entry/Exit Überackern - maximum</b>	424	-	Gas Connect Austria GmbH	Überackern	-	Maximum variant under examination for increasing technical capacity at the Überackern entry/exit point. Analyse alternative routes for potential storage connections
<b>GCA 2015/04: Entry Mosonmagyaróvár minimum</b>	32	-	Gas Connect Austria GmbH	Mosonmagyaróvár	-	Create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional capacities on a freely allocable basis
<b>GCA 2015/06: Mosonmagyaróvár plus</b>	618	-	Gas Connect Austria GmbH	Mosonmagyaróvár	-	Create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional capacities on a freely allocable basis
<b>GCA 2015/01a: Bidirectional Austria Czech Interconnector</b>	201	Q4/2021	Gas Connect Austria GmbH	Reintal	TAG 2016/05	Create technical bi-directional capacities on a freely allocable basis for the first time and set up the Reintal entry and exit point between the Austrian market area and the Czech market
<b>GCA 2015/02: Entry Überackern*</b>	181	Q1/2022	Gas Connect Austria GmbH	Überackern SUDAL	TAG 2016/02	Increase technical capacity at the Überackern SUDAL entry point.



Project name	Capacity (GWh/d)	Planned completion	Project sponsor	Entry/exit point	Related-projects	Project objective
<b>GCA 2015/02a: Entry Überackern</b>	181	Q1/2022	Gas Connect Austria GmbH	Überackern SUDAL	TAG 2016/02	Increase technical capacity at the Überackern SUDAL entry point including capacity adjustment of 313 GWh/day at the Oberkappel entry point
<b>GCA2015/05: Entry Mosonmagyaróvár</b>	153	Q4/2021	Gas Connect Austria GmbH	Mosonmagyaróvár	TAG 2016/04	Create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional capacities on a freely allocable basis
<b>GCA 2015/07b: Additional demand in the distribution area +</b>	161	Q3/2018	Gas Connect Austria GmbH	Virtual entry point	TAG 2016/02	Increase technical capacity at the virtual entry point from the distribution area to GCA's transmission system to cover projected demand for additional capacities on a freely allocable basis
<b>GCA2016/08: Entry/Exit Murfeld*</b>	Entry: 165 Exit: 105	Q4/2021	Gas Connect Austria GmbH	Murfeld	TAG 2016/02 TAG 2016/01	Create technical capacities on FZK basis at the Murfeld entry and exit point and create for the first time technical capacities on FZK basis at the Murfeld entry point
<b>GCA 2015/09: Baumgarten metering routes programme</b>	-	Q3/2016	Gas Connect Austria GmbH	-	TAG 2015/01	Strengthen the Baumgarten node with the objective of increasing flexibility, creating new routes and improving control mechanisms, and reduce the probability of interruption to interruptible services
<b>GCA2016/05: Entry Arnoldstein</b>	-	Q3	Gas Connect Austria GmbH	-	TAG 2015/02	Permit the maximum possible freely allocable capacity (FZK) for the project TAG ..... at the Arnoldstein entry point by adapting the GCA facilities.
<b>GCA 2016/01: Baumgarten Brezlav Interconnector</b>	1.316	Q4/2020	Gas Connect Austria GmbH	Reintal	TAG 2016/06	Create technical bi-directional capacities on a freely allocable basis for the first time and set up the Reintal entry and exit point between the Austrian market area and the Czech market

\* The Project was withdrawn (Chapter 7)

Project name	Capacity (GWh/d)	Planned completion	Project sponsor	Entry/exit point	Related-projects	Project objective
<b>GCA 2016/03: Oberkappel N4G Inter-konnektor</b>	111	Q1/2022	Gas Connect Austria GmbH	Dierndorf	TAG 2016/02	Create for the first time technical bi-directional capacities on a freely allocable basis at the Dierndorf entry and exit point between the Austrian market area and the Czech market
<b>GCA2016/02: Entry/Exit Murfeld &amp; Entry Arnoldstein</b>	Entry: 166 Exit: 53	Q4/2021	Gas Connect Austria GmbH	Arnoldstein Murfeld	TAG 2016/02 TAG 2016/01	Increase technical capacities on FZK basis at the Murfeld exit point and create for the first time technical capacities on FZK basis at the Murfeld entry point
<b>TAG 2015/01: Messstrecken Baumgarten TAG Einbindung</b>	-	Q3/2016	Trans Austria Gasleitung GmbH	-	GCA 2015/09	Increase the interconnection capacities between the single transit systems within the physical hub Baumgarten.
<b>TAG 2015/02: AZ1 Baumgarten Reverse Flow*</b>	-	Q3/2018	Trans Austria Gasleitung GmbH	-	GCA 2015/10 TAG 2016/01	Creation of a physical interconnection reverse flow capacity between the TAG transmission system and the GCA subsystem PVS-AZ1 in Baumgarten.
<b>TAG 2016/01: TAG Reverse Weiten-dorf/Eggendorf</b>	430	Q4/2018	Trans Austria Gasleitung GmbH	Arnoldstein Murfeld	TAG 2016/02 GCA 2015/08 GCA 2015/10 GCA 2016/03	Allow the transportation of at least 1,6 million Ncm/h (at least 1.000.000 Ncm/h in Arnoldstein entry points and 600.000 Ncm/h in Murfeld entry point) to Baumgarten
<b>TAG 2016/02: AZ1 additional entry and connection to BOP13</b>	-	Q3/2018	Trans Austria Gasleitung GmbH	-	GCA 2015/02 GCA 2015/02a GCA 2015/07b GCA 2016/02	Increase of volumes into the TAG system from AZ1 entry point, as foreseen by the project GCA 2015/7b, bringing up to a maximum of 1.200.000 Ncm/h from AZ1 entirely into TAG CS Baumgarten MD (low pressure side).
<b>TAG 2016/03: Reverse Flow Baumgarten MT Station (MS2)</b>	-	Q4/2019	Trans Austria Gasleitung GmbH	Baumgarten TAG	TAG 2016/01	Reverse of the physical flow of TAG system towards the Slovakian network, increasing the security of supply of the whole

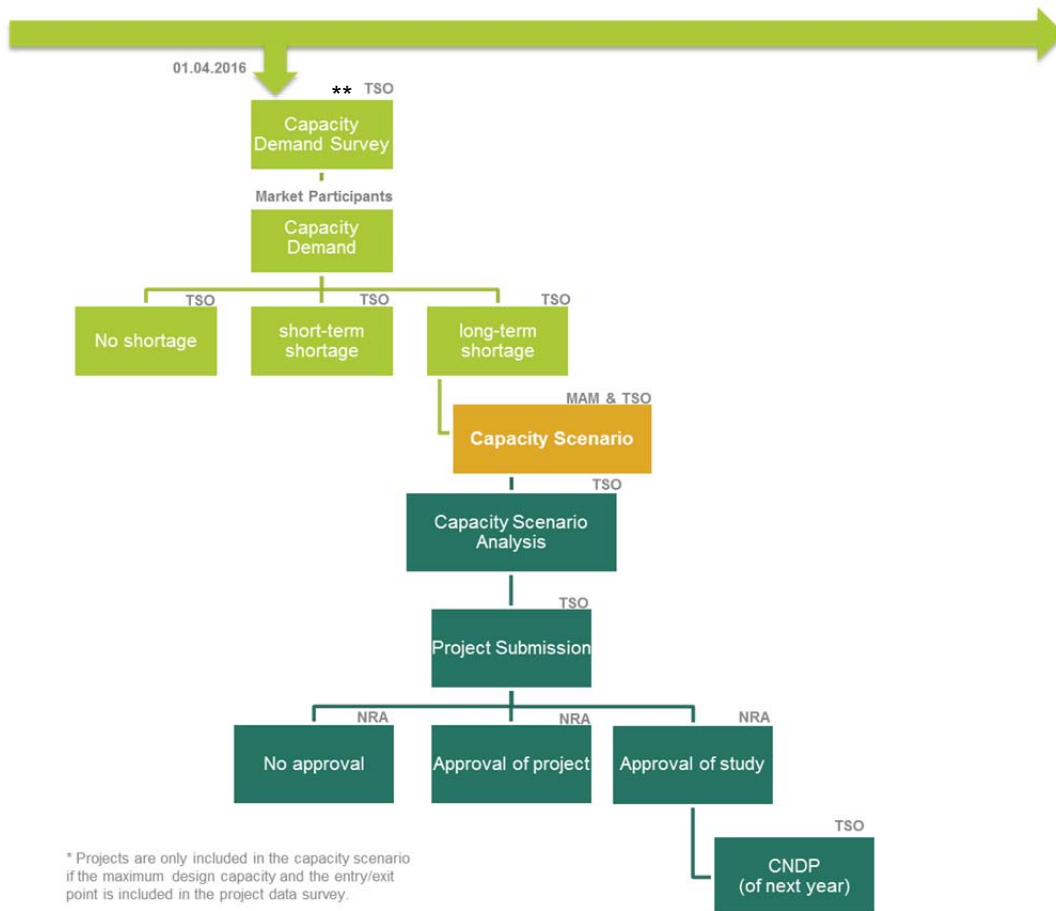
\* The Project was withdrawn (Chapter 7)

Project name	Capacity (GWh/d)	Planned completion	Project sponsor	Entry/exit point	Related-projects	Project objective
<b>TAG 2016/04: TAG Baumgarten inter-connection capacity (Mosonmagyaróvár)</b>	-	Q4/2021	Trans Austria Gasleitung GmbH	-	GCA 2015/05	Creation an additional interconnection capacity on freely allocable basis (FZK) in Baumgarten with guaranteed access to the VTP, based on additional FZK capacities at the GCA entry point Mosonmagyaróvár
<b>TAG 2016/05: TAG Baumgarten inter-connection capacity (BACI)</b>	-	Q4/2020	Trans Austria Gasleitung GmbH	-	GCA 2015/01a	Creation of an additional interconnection capacity on freely allocable basis (FZK) from/into the TAG system going to/coming from the Czech market.
<b>TAG 2016/06: TAG Baumgarten inter-connection capacity (BBI)</b>	-	Q4/2020	Trans Austria Gasleitung GmbH	-	GCA 2016/01	Creation of an additional interconnection capacity on freely allocable basis (FZK) from/into the TAG system going to/coming from the Czech market.

## 5 Network Development Plan Gas Connect Austria GmbH

The network development plan (NDP) of Gas Connect Austria GmbH (GCA) presents GCA's current planning activities based on demand and adjacent infrastructure projects submitted. GCA's NDP also describes the latest developments in capacity marketing and presents the current capacity marketing environment. On this basis, non-binding capacity demand and projects submitted at GCA interconnection points are described and the impact on GCA's transmission system is analysed. As GCA's NDP is an integral part of the Coordinated Network Development Plan, the measures adopted were defined in consultation with the Austria transmission system operator (TSO) TAG GmbH and the adjacent TSOs. The cross-border aspect of network development planning is crucially important for GCA. Therefore, as well as examining submitted demand, GCA also analyses planned developments at entry and exit points to and from neighbouring countries in terms of their direct effect on transport capacities within the Austrian market area. As well as describing planning activities in the form of infrastructure projects, the NDP also outlines further steps for allocation of additional capacity created. The NDP planning process as an integral component of the CNDP is shown in chart 4.

Chart 4 NDP planning process



\*\* Reporting of demand and neighbouring projects is possible year-round. Once a year, the demand submitted as of a specific reference date is taken as the basis for the network development plan. The network development plan is submitted and published once per year as part of the CNDP.

In addition to the projects presented in this NDP, GCA also provides a description of its replacement/optimisation/safety investments for information purposes. Detailed technical parameters for these investments are submitted to the authority in a confidential attachment.

## 5.1 Focus on the customer

Since 1 April 2013, GCA has carried out 185,484\* auctions on PRISMA. The number of auctions offered is eight times higher than the figure given in the 2015 NDP. This is due to the commencement of marketing of capacity on an hourly basis with effect from 13 October 2015. Demand continues to be predominantly for short-term services. This trend is at the expense of long-term capacity bookings (services on an annual basis). Services on an hourly, daily, monthly or quarterly basis account for over 99%\* of hourly capacity sold. Up to 700 auctions on an hourly basis are offered every day. Daily capacity, with a booking frequency of approximately 45 minutes, continues to be the most frequently booked capacity product. Around 39%\* of freely allocable capacity auctions for services on a daily basis are successful, i.e. the freely allocable capacity quality offered is well received by customers. Since it began auctioning capacities on PRISMA, GCA has registered 98%\* growth in new customers.

**Current booking behaviour does not indicate any congestion.** We have learned from auctions of long-term capacity services that the opening bid mostly turns out to be the market clearing price; consequently, no congestion is derived from these auction results. Only 0.71%\* of 185,484 auctions offered to date have cleared with an auction surcharge. It can therefore be concluded that the capacity offered is sufficient.

**Incremental freely allocable capacity through capacity surrender.** Additionally, the capacity surrender, as defined in section 2.2.4 of Annex I to Regulation (EC) No 715/2009, was implemented before the transposition deadline and can be used in a fully automated manner in the GCA back-end system by the customers. In the course of last year's auctions on PRISMA, GCA recorded a total of 73 capacity surrenders. These capacities were offered to the market as incremental capacities in the yearly auctions. This means a total incremental offering across all entry and exit points of 73 years of runtime.

**Further services on PRISMA.** As of 19 May 2015 GCA again extended its offering of services bookable on PRISMA. In addition to the previous portfolio, short distance capacities between the Überackern ABG and Überackern SUDAL entry and exit points are now also auctioned via PRISMA.

**Bundled capacity offering expanded.** GCA, together with the German TSOs Bayernets, GRTgaz Deutschland and Open Grid Europe, successfully began marketing bundled and competing capacities at the Oberkappel, Überackern ABG and Überackern SUDAL points on 2 May 2016. By way of asynchronous competition, a way of reconciling domestic regulatory requirements (competition in accordance with the Austrian capacity calculation model) with international regulatory requirements (bundling and competition in accordance with the CAM NC) has been found for these points.

**A platform at the Mosonmagyaróvár point.** GCA is working with FGSZ and the regulators E-Control Austria and HEA (Hungarian energy and public utility regulatory authority) to define a suitable auction platform for transport services. The aim is to enable the bundled allocation of transport services to permit long-term (yearly) services to be offered in accordance with Article 19 of the CAM NC. At the time of the yearly auction on 7 March 2016, services for the Mosonmagyaróvár point were offered on two platforms and thus for a maximum duration of one year only.



**Building success through customer relationships.** One of GCA's goals is to optimally meet customers' needs and constantly enhance service quality and customer satisfaction. The results of the customer satisfaction survey are taken into account for existing processes and constitute an important basis for future developments. The 2015 results confirm the high quality of service provided by GCA in its dealings with customers. In contrast with 2011 and 2013, this time GCA achieved the top rating for overall satisfaction. Alongside the high rating for service quality, the fact that GCA actively pursues key account management activities was also viewed positively. Customers view this relationship as priceless. GCA currently has 90 registered system users. In recent years its customer base has grown steadily by approximately 16% per year.

**Further increasing customer satisfaction at Gas Convention 2015.** GCA extended an invitation to the Gas Convention 2015 on 23 October 2015, another measure to improve customer satisfaction. The event, which was held in Vienna for a second time, was the setting for constructive discussions between customers and GCA staff on the topic of "The Need for Speed". Potential actions identified in the workshops are currently being implemented.

**Early implementation of the CAM NC.** GCA is constantly working on the implementation of the European framework conditions and actively contributes towards harmonising the European gas market. Since 2013, the majority of the provisions laid down in the CAM Network Code, which came into force in November 2015, have been implemented. The measures implemented include allocating capacities, creating a booking platform for primary and secondary market capacities, awarding transport capacities by means of an auction algorithm and introducing congestion management measures.

**Maximising possibilities.** GCA believes it is the mission of a logistic services provider to maximise the options on offer to customers whilst bearing in mind the valid statutory framework. Customers should have the right to choose services in line with their reasonable expectations. In this context, mention should be made of the fact that the appeal of long-term services to customers must also be increased. Accordingly, contract holders should enjoy long-term benefits while contractual stability and the security of supply are retained.

## 5.2 Innovative marketing concepts

Together with N4G, GCA has developed a concept for integrating the AT and CZ gas markets by offering additional connections (see chart 5).

Chart 5 TRU option



### Key

*FZK: Freely allocable capacity*

*DZK: Dynamically allocable capacity - not available in the Czech entry/exit system*

*UK: Interruptible capacity*

*TRU: Trading region upgrade*

*TR: Trading region*

A "trading region upgrade" (TRU) is intended to enable customers to transport nominated entry capacities not just to the virtual trading point of the gas market in which the capacity was purchased, but also to the virtual trading point of the adjacent gas market.

By combining TRU (green chip) with standard FZK, DZK and UK entry capacities (red chip), system users can upgrade entry capacities purchased to TR\_FZK, TR\_DZK and TR\_UK (yellow chip). Upgrading capacity in this way will enable system users to access the adjacent market area (AT or CZ).

The TRU upgrade was presented to market participants in a written consultation process in April 2016. Responses received show that there is interest in this service. GCA and N4G, together with the regulatory authorities, are planning to present further information on the TRU option at a workshop in autumn 2016.

### 5.3 Capacity marketing – 2015 status report

Charts 6 - 14 show technically marketable capacity, available capacity, booked capacity and used capacity<sup>1</sup> for each point and direction determined in accordance with the approved capacity calculation model from 1 January 2015 to 31 December 2015.

Fluctuations in technically marketable capacity are attributable to maintenance work that restricts capacity. An updated maintenance plan is available on GCA's website at [LINK](#). Short-term congestion management measures have released firm freely allocable capacities (FZK) as a result of the restriction on renomination. In some cases, this has resulted in booked capacity exceeding technically marketed capacity. The capacity used is the renominated capacity.

Chart 6 ÜBERACKERN ABG & SUDAL ENTRY POINT

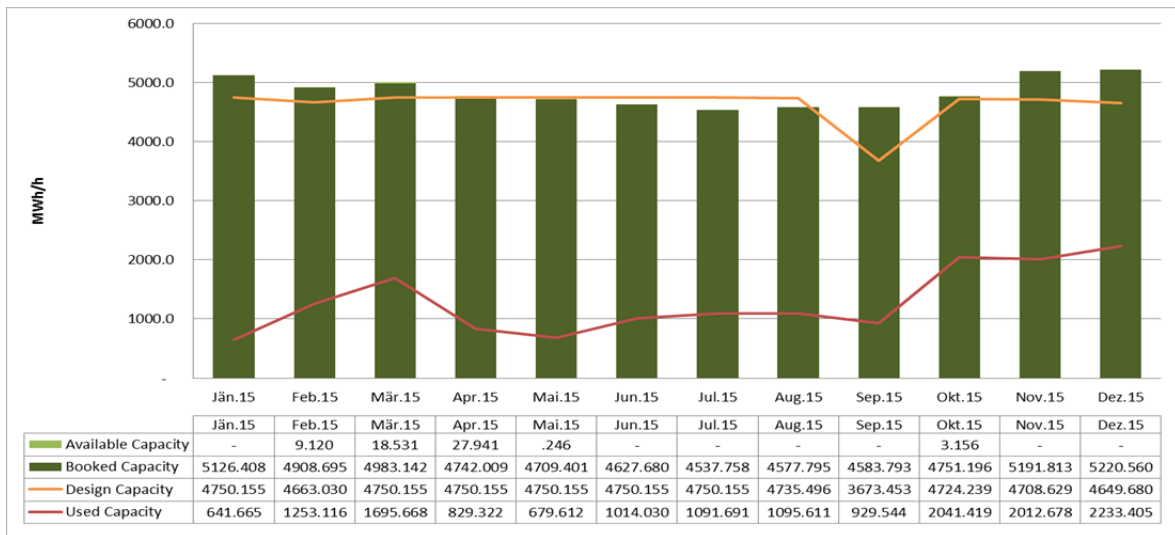
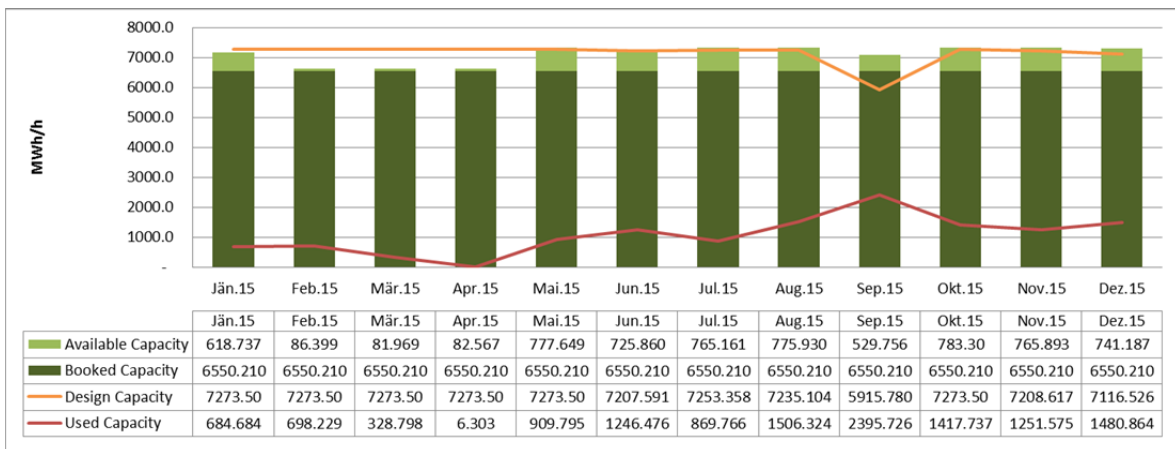


Chart 7 ÜBERACKERN ABG&SUDAL EXIT POINT



<sup>1</sup> Renominated capacity (UK, FZK, DZK)

Chart 8 OBERKAPPEL ENTRY POINT

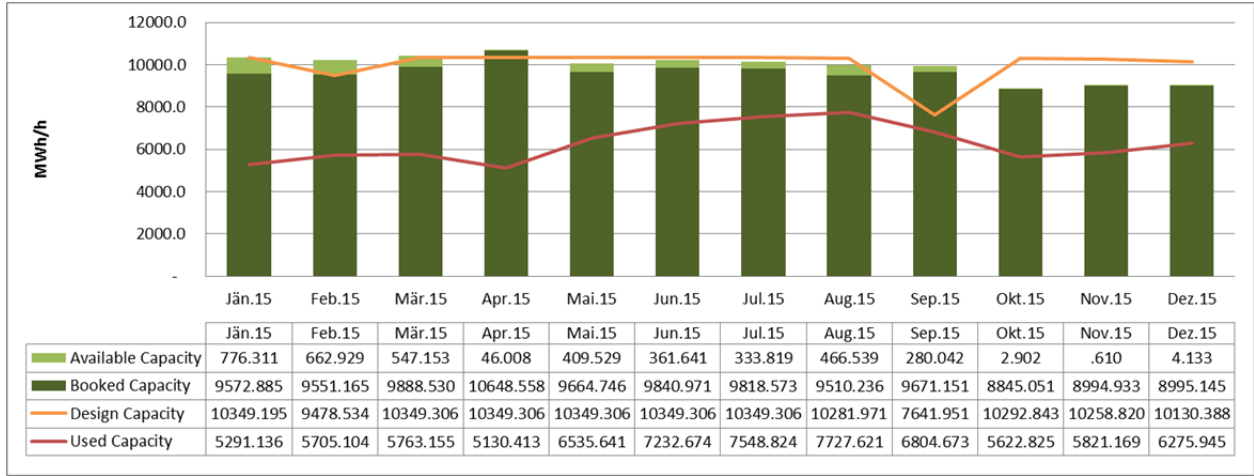


Chart 9 OBERKAPPEL EXIT POINT

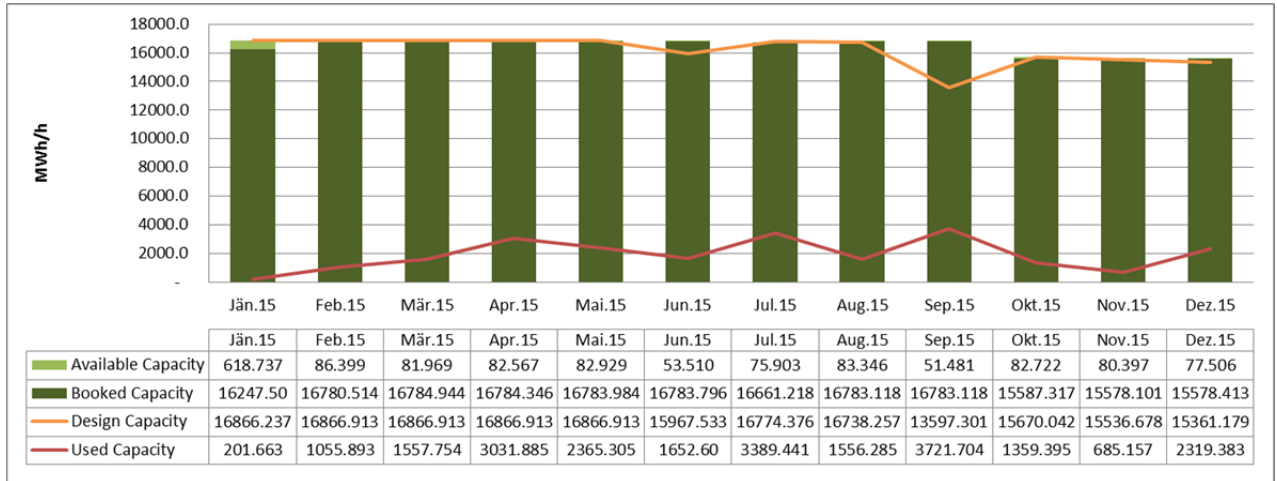


Chart 10 BAUMGARTEN GCA ENTRY POINT

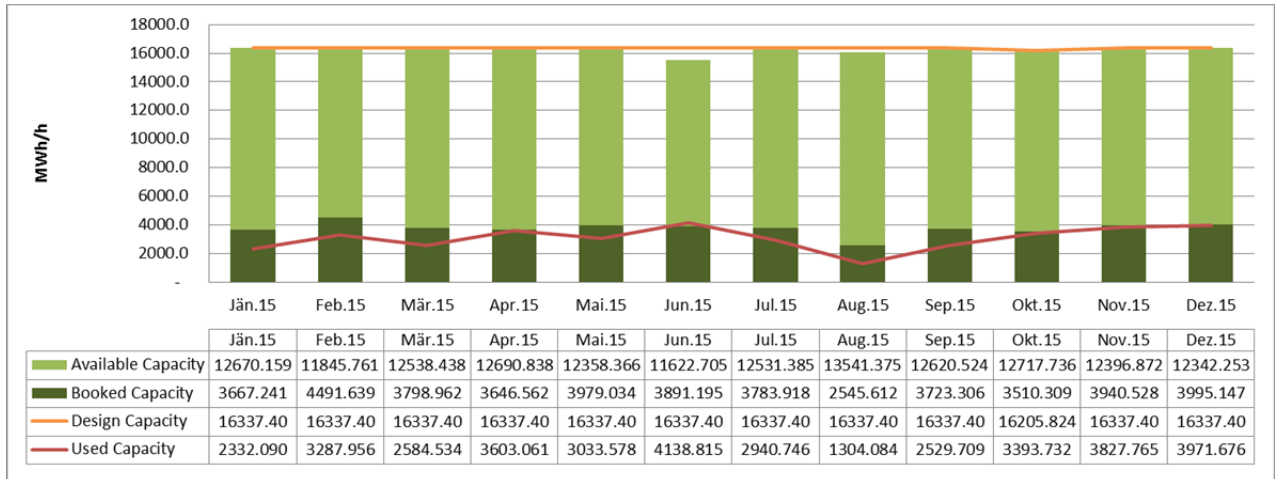


Chart 11 BAUMGARTEN WAG ENTRY POINT

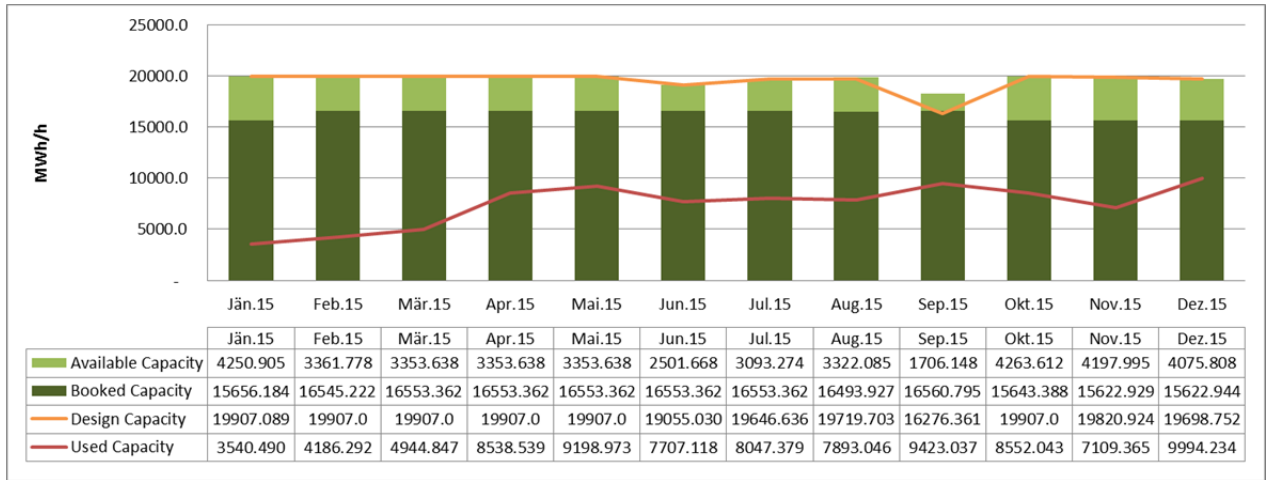


Chart 12 BAUMGARTEN WAG EXIT POINT

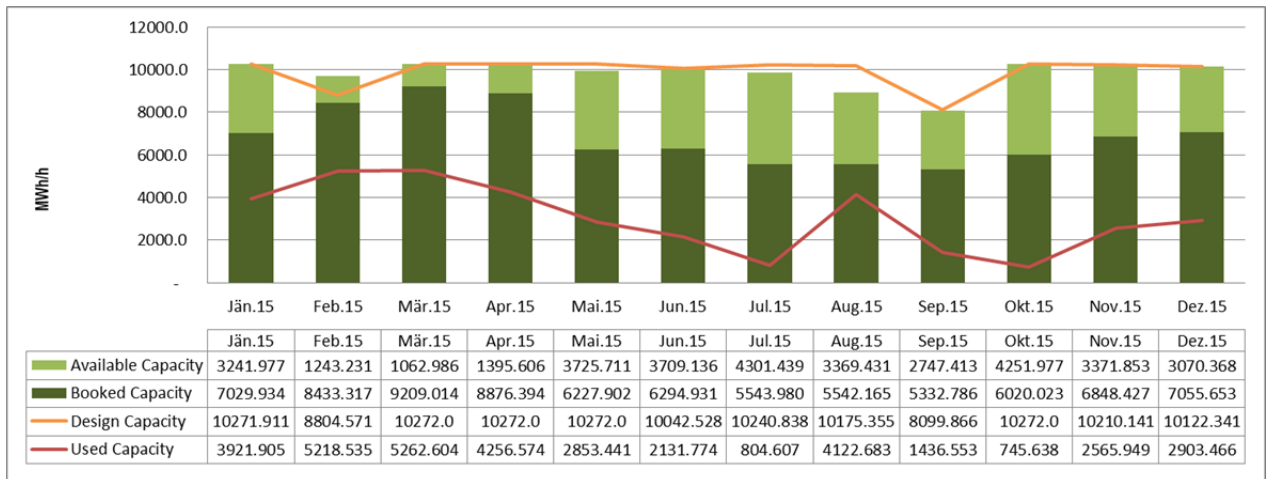


Chart 13 MOSONMAGYAROVAR EXIT POINT

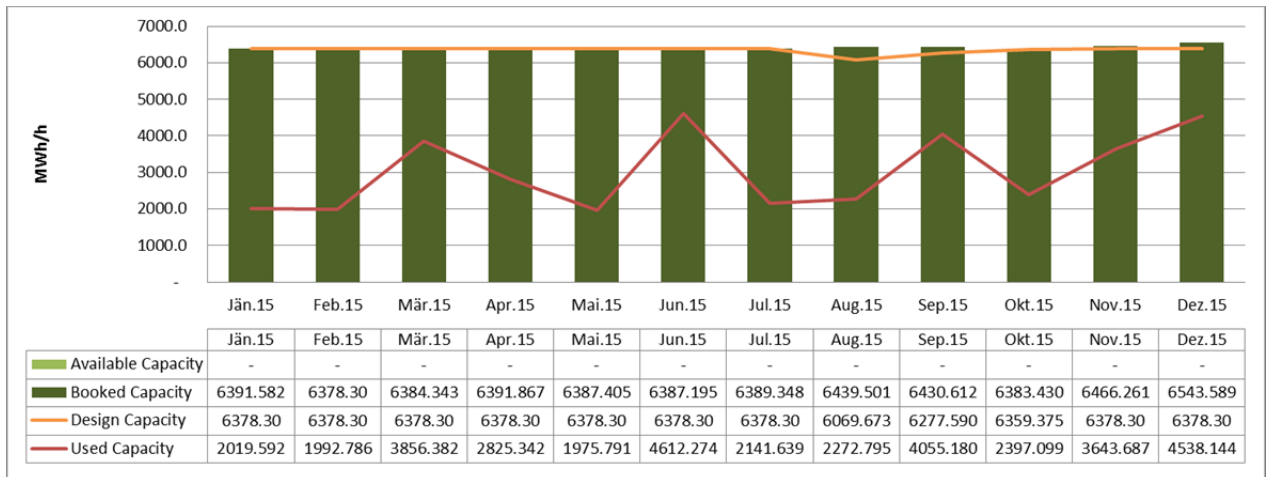
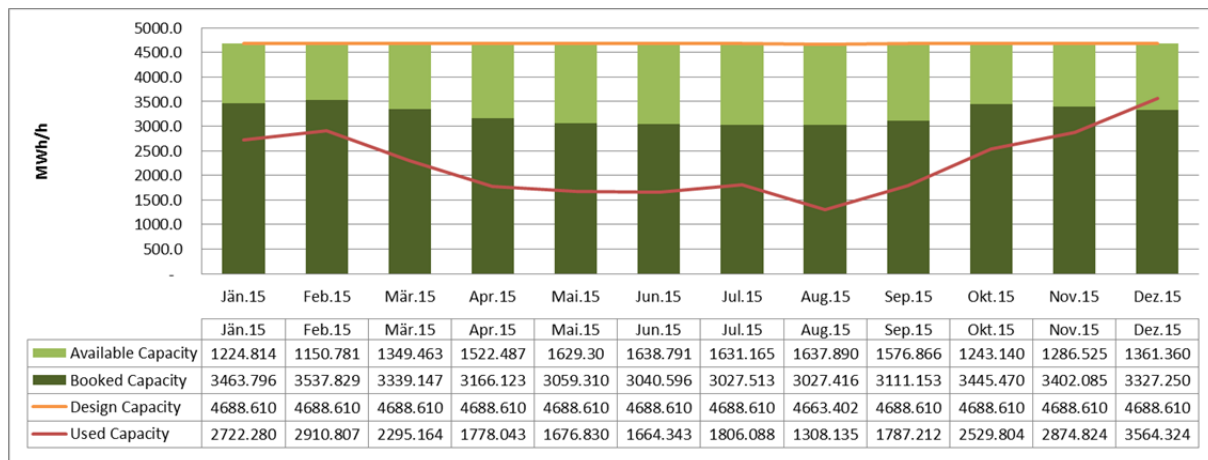




Chart 14 MURFELD EXIT POINT



## 5.4 Demand as the basis for the plan

The objective of GCA's network development plan is to align available capacities at the entry and exit points as closely as possible with the future requirements of system users. To make the process of submitting additional demand even more transparent, GCA and TAG have together decided to enable demand and adjacent projects to be submitted year-round. Each year, a reference date is specified and information submitted as of that date is used for the next network development plan.

On 15 February 2016, GCA informed registered users of PRISMA in the newsletter that the reference date for inclusion of additional demand would be 1 April 2016. GCA also contacted adjacent transmission system operators to ask them to provide information on projects adjacent to GCA's entry and exit points by the same date. This was done to ensure that any corresponding projects in the Austrian market area are developed by GCA and TAG GmbH jointly and so ensure cross-border planning at national level too. GCA has provided forms on its website as an aid to submitting of projects and additional demand. There are no formal requirements for submission of project and capacity information.

Project information and additional demand submitted to GCA after 1 April 2016 will automatically be included in next year's NDP.

At the exit points to the domestic system, no restrictions are currently identifiable for the planning period 2017-2026. The development of demand in the distribution area is carefully monitored in order to be able to proactively plan potentially necessary measures. No additional demand in GCA's transmission system was submitted from the distribution area for the planning period specified. In the 2016-2025 NDP, one project was developed and approved on the basis of additional and demand from the distribution area. Further information on the status of this project is contained in chapter 7.

For the purpose of further analysis, projected demand by market participants and adjacent projects at GCA's entry and exit points submitted are presented on an annual basis in MWh/h and Nm<sup>3</sup>/h (0°)<sup>2</sup> and based on the assumption of being non-structured. For project planning purposes, therefore, in each case the value used is the highest of the values submitted. An investment analysis based on structured demand cannot be presented for technical and economic reasons. To enable long-term bookings for the non-binding capacity demanded to be made in a potential incremental capacity auction in accordance with Article 11 of the CAM NC, at least 10% more technical capacity will be created. The capacity introduced by projects submitted by adjacent transmission system operators is shown at the Austrian border points.

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<sup>2</sup> GCV: 11.19 kWh/Nm<sup>3</sup> (0°C)

The demand and projects at the physical and non-physical entry and exit points shown in table 4 were submitted to GCA by the reference date of 1 April 2016.

Table 4 Incremental capacities (FZK) arising from non-binding demand submitted and adjacent projects submitted to GCA, in MWh/h

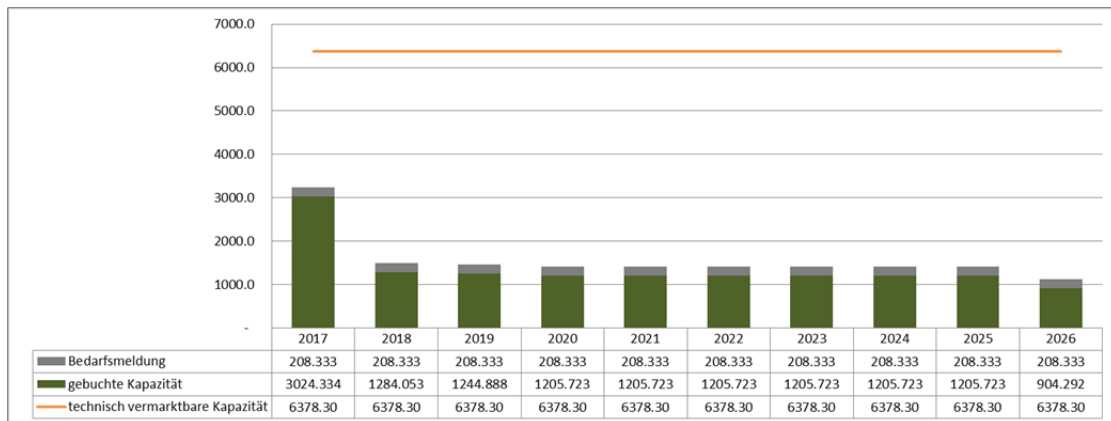
	GCA Ein-/Ausspeseipunkte	2016	2017	2018	2019	2020	2012	2022	2023	2024	2025	2026	2027	2028	2029	2030	Projekte
Physische Einspeisepunkte	Oberkappel (NEU)	-	-	-	-	-	-	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	GCA 2016/02
	Überackern SUDAL	-	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	-	-	-	-	GCA 2015/02 GCA 2015/02a
	Reintal (NEU)	-	-	-	-	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	GCA 2015/01a
	Reintal (NEU)	-	-	-	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	GCA 2016/01
Physische Ausspeseipunkte	Oberkappel (NEU)	-	-	-	-	-	-	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	4,625	GCA 2016/02
	Reintal (NEU)	-	-	-	-	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	8,393	GCA 2015/01a
	Reintal (NEU)	-	-	-	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	53,106	GCA 2016/01
	Mosonmagyaróvár	208	208	208	208	208	208	208	208	208	208	208	208	208	208	104	keine Untedeckung
	Murfeld	-	-	-	-	9,071	9,071	9,071	9,071	9,071	9,071	9,071	9,071	9,071	9,071	9,071	9,071
Virtuelle Einspeisepunkte	Mosonmagyaróvár	-	-	-	-	-	5,113	5,113	5,113	5,113	5,113	4,850	4,211	2,432	1,975	1,598	GCA 2015/05
	Murfeld	-	-	-	-	6,875	6,875	6,875	6,875	6,875	6,875	6,875	6,875	6,875	6,875	6,875	GCA 2015/08

■ Non-binding capacity demand      ■ Project submission

The non-binding capacity demand submitted, with some exceptions at the Mosonmagyaróvár exit point, was for bundled capacity.

From the demand information submitted by 1 April 2016, it appears that in a few cases, future demand can be met by existing capacities. As shown in chart 15, the additional demand of 208 MWh/h and 18,618 Nm<sup>3</sup>/h (0°C) submitted for the Mosonmagyaróvár exit point (Hungarian border) can be covered in full by existing available capacities.

Chart 15 Non-binding demand at the Mosonmagyaróvár exit point (in MWh/h)



## 5.5 From demand to planning

The non-binding demand and projects submitted for GCA's entry and exit points are presented and analysed for the 2017–2026 planning period.

GCA has analysed the projected non-binding demand and adjacent projects which cannot be covered by capacities existing in GCA's systems in terms of the measures necessary. The non-binding demand and additional capacities submitted are shown as FZK capacities. FZK transport services offer connectivity to the VTP on a firm basis and thus represent the best quality available in the Austrian market area.

The individual projects were developed in close cooperation with the Austrian TSO TAG and the relevant adjacent TSOs. The following chapters describe the individual projects, analyse possibilities for integration into the European plan, present marketing concepts and describe national and international coordination activities as regards project planning. A summary of the projects, including technical measures, is contained in chapter 7.

The confidential analysis for all projects referred to in chapter 7, which is provided to the authority only in the course of submitting the final CNDP, contains a detailed analysis of the necessary technical measures, their costs and their profitability.

Besides the projects in chapter 5.5 the projects GCA 2015/7b additional demand in distribution area + and GCA 2015/09 Baumgarten metering routes programme are under development. These projects were approved in the official approval of the CNDP 2015 (V KNEP G 01/15) on 27.10.2015.

**GCA 2015/7b additional demand in distribution area +.** The project with the aim to strengthen the Baumgarten node will be commissioned in Q3 2016. For commissioning the project the increase of the metering station capacity and filter separators and pipeline based reconstructions at the Baumgarten node are necessary.

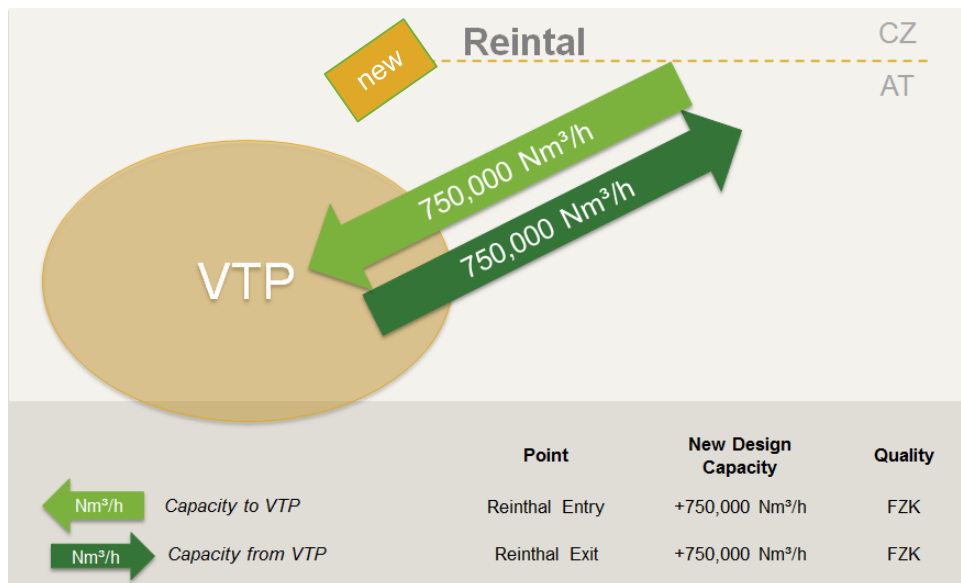
**GCA 2015/07b additional demand in distribution area +.** The project was triggered by the submission of the additional capacity demand of 600,000 Nm<sup>3</sup>/h of the DAM at the TSO GCA in the process of the NEP 2016 – 2025. With the commissioning of the project in total 960,000 Nm<sup>3</sup>/h FZK capacity at the virtual entry capacity from the distribution system to the transmission system are available. The new capacity scenario for the NDP 2017 – 2026, also triggered among others by the project at the Entry Arnoldstein, the establishment of the project and the coordination at the level of the TSOs an update of the commissioning date with Q3 2018 is necessary. The update of the commissioning date is necessary in order to guarantee the cost efficient commissioning of the projects in the NDP 2016. The updated project contributes to a reduction of maintenance windows and to secure a high level of short- and long term availability of capacities. An earlier commissioning date would increase the risk of interruptions and would lead to higher costs. Additionally the transport situation for Winter 2016/2017 from PVS 2 -> PVS 1 will be strengthened through the commissioning of the project GCA 2015/09 Metering Stations Baumgarten in Q3 2016. In May 2016 and June 2016 the coordination among the TSOs and the DAM took place in dedicated meetings. The general public and the potential customers were informed about the change in the commissioning date at the consultation workshop on 29/06/2016. In future the potential customers will be informed as soon as possible in case the time schedule of a project changes in order to render the communication process in connection with the NDP more transparent.

### 5.5.1 Bidirectional Austria Czech Interconnector [\[GCA 2015/01a\]](#)

**Basis: project submission by N4G.** N4G submitted the Czech part of project Bidirectional Austria Czech Interconnector (BACI) for inclusion in GCA's NDP during GCA's project data collection phase. In this project submission, new bidirectional capacities of at least 8,393 MWh/h or 750,000 Nm<sup>3</sup>/h (0°C) are specified. This figure is exactly the capacity assumed for the BACI project in the Austrian market area. The capacity introduced also has the same features as PCI project BACI 6.4.

**Additional capacities at the new Reintal point.** The flow diagram in chart 16 illustrates the new capacities at the potential new Reintal entry and exit point.

Chart 16 GCA 2015/01a



During the conception of the project the demand for a break out point to the distribution system was additionally analysed in collaboration with the Distribution Area Manager. The planned pipeline route crosses the route of the pipeline “Ebene 2 Ladendorf – Hohenau” at kilometre 37. The pipeline Ladendorf – Hohenau is operated with 12 bar(g). Therefore, a transportation via Ladendorf towards Laa is not possible due to pressure conditions. Additionally, the injection in this pipeline could only serve local demand, which is low. A crosslink further north from Reintal to Laa would require a pipeline with a length of approximately 35km. Therefore, a simple redundant withdrawal for Laa from BACI is not possible. Currently, there is no demand by the distribution system for an exit point to the distribution system along the planned BACI pipeline route.

Previously approved in the 2016-2025 NDP. Project GCA 2015/01a was previously approved as a planning project in the 2016-2025 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/01a](#)" (see chapter 7). The project is directly linked to the project TAG 2016/05.

Concepts for capacity allocation in cooperation with NG4. Based on the preparatory analyses of the two TSOs, two potential concepts were identified for connecting the two markets and offering customers additional transport services.

One concept involves connecting the two markets via the Reintal cross-border point on the Austrian/Czech border. In this case, entry/exit capacity would be offered at this new cross-border point.

The second concept envisages booking entry capacities at existing and/or at potential new cross-border points in both countries. To this end, customers would be given the option of parallel access to the neighbouring virtual trading point (VTP) in addition to the respective national VTP on a guaranteed basis. Furthermore, this increased flexibility would constitute a hub for both market areas, as combining this new entry capacity with any guaranteed exit capacity in one of the two market areas would enable neighbouring countries to be reached on a firm basis.



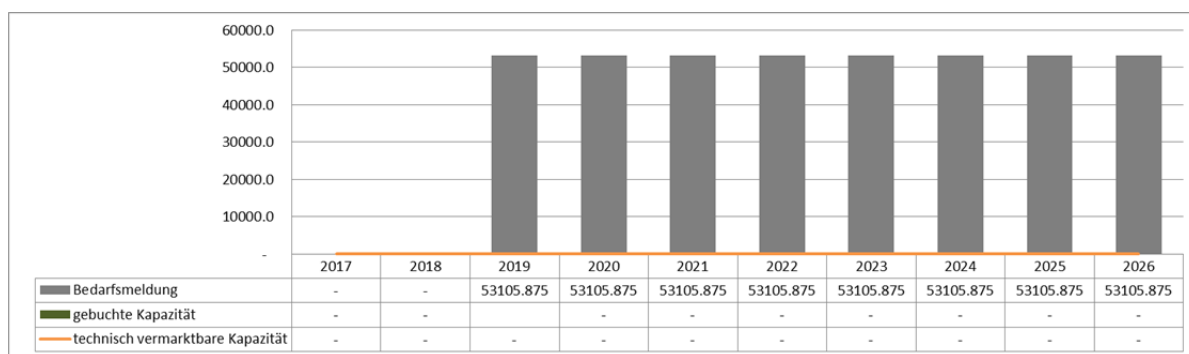
**Included in European plan.** The BACI project is pursued by GCA and the Czech TSO NET4GAS, s.r.o. In 2014 feasibility studies for the project BACI were completed on Austrian and on Czech side. The feasibility studies were granted financial aid from the TEN-E programme. Additionally, the BACI project with the technical parameters as described in chapter 7 was included as “project of common interest” (PCI) number 6.4 in the Regulation (EU) No. 1391/2013. The funding agreement for partial funding from the EU CEF programme was signed in April 2015. In 2015, preparatory work for an application for investment was completed on time by project sponsors GCA and N4G.

By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As the project is currently a PCI, GCA submitted the project for inclusion in the European network development plan (TYNDP) during the project data collection phase and fulfilled the first condition for inclusion of the project in the next Union list of PCIs.

### 5.5.2 Entry Mosonmagyaróvár [GCA2015/05]

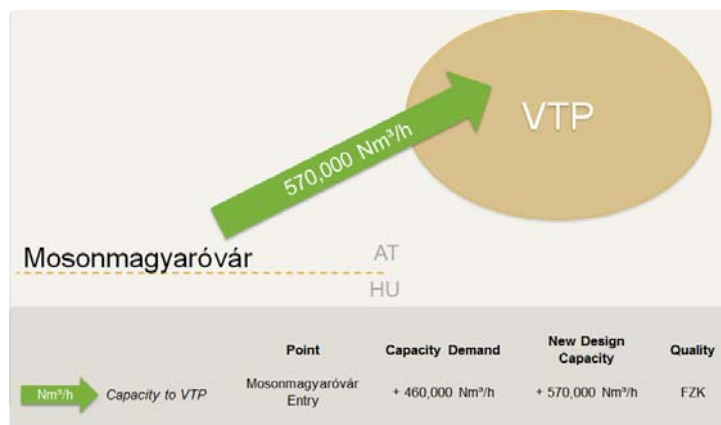
**Basis: non-binding demand.** Non-binding additional demand for the Mosonmagyaróvár entry points was submitted for inclusion in GCA's NDP. Non-binding demand for a maximum of 5,113 MWh/h or 453,927 Nm<sup>3</sup>/h (0°C) at the Mosonmagyaróvár entry point was submitted by the reference date of 1 April 2016. The additional demand at the Mosonmagyaróvár entry point was submitted as bundled capacity. Chart 17 shows the relationship between booked capacity, technical capacity and aggregate capacity demand at the Mosonmagyaróvár entry point. There is currently no applicable technical capacity at the Mosonmagyaróvár entry point, and as a result transports are currently performed only on an interruptible virtual basis.

Chart 17 Non-binding demand at the Mosonmagyaróvár entry point(in MWh/h)



**Additional capacity at the Mosonmagyaróvár entry point.** The flow diagram in chart 18 illustrates the capacity situation at the potential Mosonmagyaróvár physical entry point. As project GCA 2015/05 is based on demand submitted, GCA has presented additional capacity of 6,378 MWh/h or 570,000 Nm<sup>3</sup>/h (0°C) so as to enable long-term bookings for the demand submitted in a potential auction of additional capacity in accordance with Article 11 of the CAM NC.

Chart 18 GCA 2015/05



**Coordination with adjacent TSOs.** Regarding demand at the Mosonmagyaróvár entry point, GCA is in constant consultation with the TSOs FGSZ and Transgaz and the affected authorities, to analyse the time frame for implementation and capacity allocation for the projects. GCA and FGSZ exchanged information regarding demand submitted for the Mosonmagyaróvár point. The same non-binding capacity

demand over the same time frame was also submitted on the Hungarian side. Between 3 February 2016 and 22 February 2016, a market survey was carried out to gather information on preferences for various capacity allocation methods during a binding open season. The development of capacity demand at the Mosonmagyaróvár entry point is closely monitored and is analysed in close cooperation with the adjacent TSO.

**Previously approved in the 2016-2025 NDP.** Project GCA 2015/05 was previously approved as a project in the 2016-2025 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/05](#)" (see chapter 7). The project is directly linked to the project TAG 2016/04.

**Concepts for capacity allocation** The capacity allocation plan for project GCA2015/05 has not yet been finalised. Capacity cannot currently be allocated via an auction platform, as a common platform for marketing of transportation services at the Mosonmagyaróvár point has not yet been defined. Regarding the potential allocation of the additional capacity and marketing of long-term transportation services at the Mosonmagyaróvár point, GCA is working intensively with FGSZ and the regulatory authorities E-Control Austria HEA to resolve the platform issue.

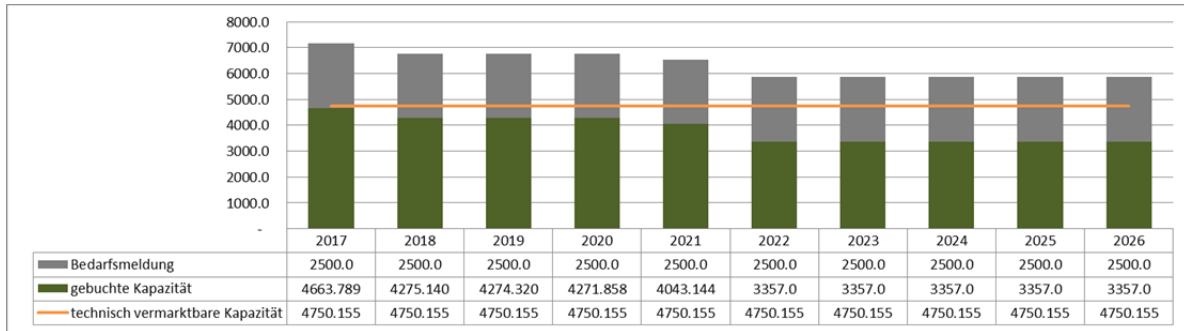
In parallel, it is also working with FGSZ and Transgaz on a binding open season, provisionally scheduled for Q2 2017. Capacity allocation will eventually be coordinated with the NRAs and will be implemented subject to technical and organisational possibilities.

**Included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. The project is currently included in the second Union list of projects of common interest. GCA therefore submitted the project for inclusion in the European network development plan (TYNDP) 2016 during the project data collection phase and fulfilled the first condition for inclusion in the next Union list of PCIs.

### 5.5.3 Entry Überackern [GCA 2015/02]

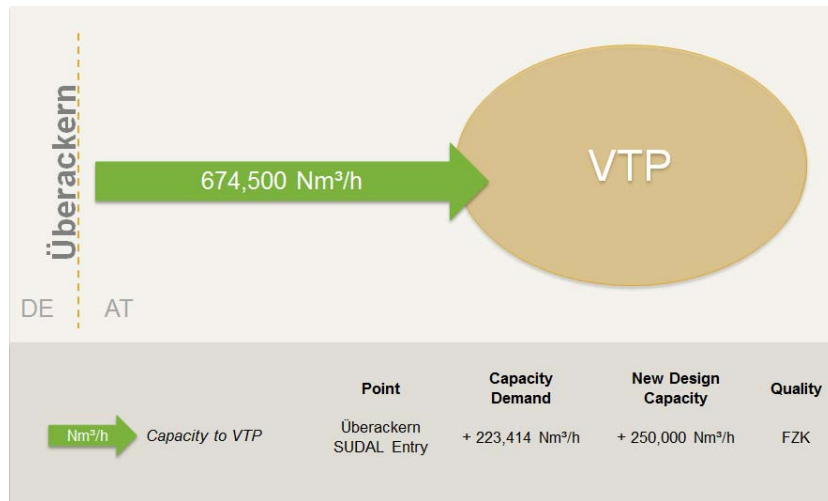
**Basis: non-binding demand.** Non-binding additional demand for the Überackern SUDAL entry point was submitted for inclusion in GCA's NDP. Non-binding demand for a maximum of 2,500 MWh/h or 223,414 Nm<sup>3</sup>/h (0°C) at the Überackern SUDAL entry point was submitted by the reference date of 1 April 2016. The additional capacity demand at the Überackern SUDAL entry point was submitted as bundled capacity. Chart 19 shows the relationship between booked capacity, technical capacity and the aggregate capacity demand at the Überackern SUDAL entry point. At the Überackern entry point, the available technical capacity is limited and amounts to 4,750 MWh/h or 424,500 Nm<sup>3</sup>/h (0°C). In the long run, the additional demand for entry capacities cannot be met by the capacities available.

Chart 19 Non-binding demand at the Überackern SUDAL entry point (in MWh/h)



**Additional capacity at the Überackern SUDAL entry point.** The flow diagram in chart 20 illustrates the new capacities at the Überackern SUDAL entry point. As project GCA 2015/02 is based on demand submitted, GCA has presented additional capacity of 2,798 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C) so as to enable long-term bookings for the demand submitted in a potential auction of additional capacity in accordance with Article 11 of the CAM NC.

Chart 20 GCA 2015/02



**Coordination with adjacent TSOs.** In view of the prevailing competitive situation, on 12 May 2016, GCA informed the German transmission system operators bayernets, OGE and GRTgaz of the demand submitted and the resulting project on the Austrian side and invited them to a coordination meeting. A conference call was held on 3 June 2016, during which GCA presented the demand-driven projects on the Austrian side. These TSOs acknowledged the information provided, and stated that the German Grid Development Plan does not currently contain any corresponding projects. In addition GCA asked the bordering TSOs to inform GCA if they accept the bundled marketing of the additional capacities at the Austrian border, partly with existing capacity at the German border and taking into account the competition of the additional capacities at the Austrian border, at the auction for yearly capacity in 2017. The current bundled marketing of existing capacity at both sides of the border, including the current competition principle is not affected. The responses of bayernets, GRTgaz und OGE indicate that fur-

ther information on the planned marketing process is necessary and the legal basis on national and European level still remains to be analyzed.

**Previously approved in the 2016-2025 NDP.** Project GCA 2015/02 was previously approved as a planning project in the 2016-2025 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/02](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02. The project is withdrawn and will be substituted with the project GCA 2015/02a.

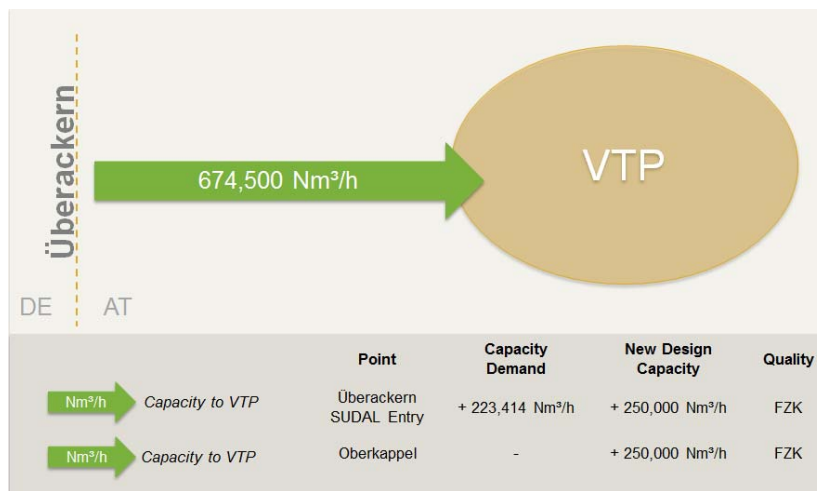
**Concepts for capacity allocation** The capacity allocation plan for this project has not yet been finalised. To permit bundled allocation of the additional capacities created with due regard for competition at the Überackern SUDAL, Überackern ABG and Oberkappel points and using current technical capabilities, approval for the bundling of additional capacity and existing capacity on the German side is required. GCA will closely monitor the advancement of project planning work in the NDP to enable a capacity allocation plan complying with current regulatory requirements to be set out as soon as possible in consultation with the German TSOs.

**Not yet included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As this project was submitted for approval in an amended form, it has not yet been included in the European plan.

### 5.5.4 Entry Überackern [GCA 2015/02a]

Additional capacity at the Überackern SUDAL and Oberkappel entry points as a basis. As a variant of project GCA 2015/02, the non-binding capacity submitted for the Überackern SUDAL entry point is also reflected at the Oberkappel entry point. The flow diagram in chart 21 illustrates the new capacities at the Überackern SUDAL and Oberkappel entry points. As project GCA 2015/02a is based on demand submitted, GCA has presented additional capacity of 2,798 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C) so as to enable long-term booking for the demand submitted in a potential auction of additional capacity in accordance with Article 11 of the CAM NC.

Chart 21 GCA 2016/02a



**Coordination with adjacent TSOs.** In view of the prevailing competitive situation, on 12 May 2016, GCA informed the German transmission system operators bayernets, OGE and GRTgaz of the demand submitted and the resulting project on the Austrian side and invited them to a coordination meeting. A conference call was held on 3 June 2016, during which GCA presented the demand-driven projects on the Austrian side. These TSOs acknowledged the information provided, and stated that the German Gas NDP does not currently contain any corresponding projects. In addition GCA asked the bordering TSOs to inform GCA if they accept the bundled marketing of the additional capacities at the Austrian border, partly with existing capacity at the German border and taking into account the competition of the additional capacities at the Austrian border, at the auction for yearly capacity in 2017. The current bundled marketing of existing capacity at both sides of the border, including the current competition principle is not affected. The responses of bayernets, GRTgaz und OGE indicate that further information on the planned marketing process is necessary and the legal basis on national and European level still remains to be analyzed.

**Previously approved in the 2016-2025 NDP.** Project GCA 2015/02 was previously approved as a planning project in the 2016-2025 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/02a](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02.

**Concepts for capacity allocation** The capacity allocation plan for this project has not yet been finalised. To permit bundled allocation of the additional capacities created with due regard for competition at the



Überackern SUDAL, Überackern ABG and Oberkappel points and using current technical capabilities, approval for the bundling of additional capacity and existing capacity on the German side is required. GCA will closely monitor the advancement of project planning work in the NDP to enable a capacity allocation plan complying with current regulatory requirements to be set out as soon as possible in consultation with the German TSOs.

**Not yet included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As the project was approved in the 2016-2025 NDP as a planning project, it has not yet been included in the European planning process.

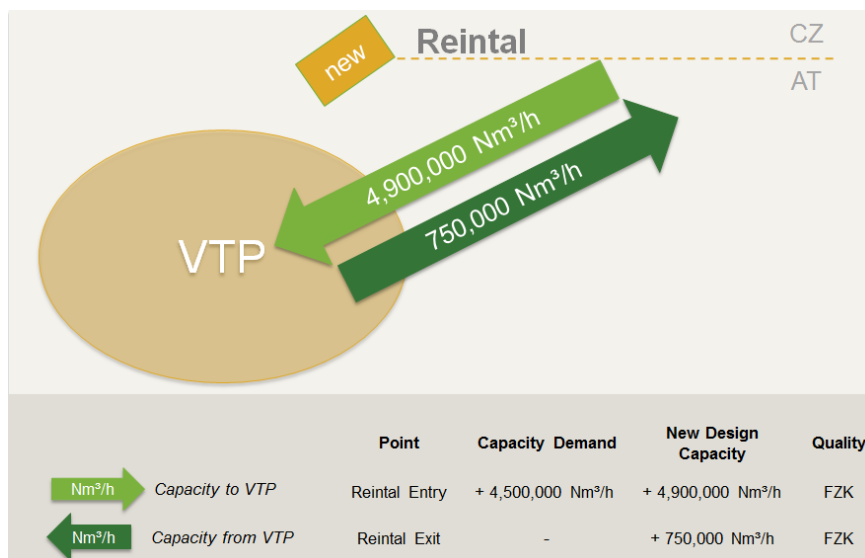
### 5.5.5 Baumgarten Brezlav Interconnector [GCA 2016/01]

**Basis: non-binding demand.** Non-binding additional demand for the new Reintal entry point was submitted for inclusion in GCA's NDP. Non-binding demand for a maximum of 53,106 MWh/h or 4,745,833 Nm<sup>3</sup>/h (0°C) at the new Reintal entry point was submitted by the reference date of 1 April 2006. In the demand submissions, a clear wish to have existing Baumgarten entry capacities relocated to the new Reintal point was expressed.

**Additional capacities at the new Reintal point.** As project GCA 2016/02 is based on demand submitted, GCA has presented additional capacity of 64,831 MWh/h or 4,900,000 Nm<sup>3</sup>/h (0°C) so as to enable long-term booking for the demand submitted in a potential auction of additional capacity in accordance with Article 11 of the CAM NC. Although no non-binding capacity demand was submitted for the Reintal exit point, GCA is planning, for reasons of security of supply, to provide a guaranteed RF of 8,392 MWh/h or 750,000 Nm<sup>3</sup>/h (0°C) in order to ensure that pipeline can operate bidirectionally.

The flow diagram in chart 22 illustrates the new capacities at the potential new Reintal entry and exit point.

Chart 22 GCA 2016/01



**Coordination with adjacent TSOs.** The Czech TSO N4G also carried out a market survey as part of its network development planning work. The non-binding capacity demand submitted for the Reintal entry point is consistent with that submitted to N4G. To date, a number of meetings have been held with GASCADE, N4G and GCA, the potentially affected transmission system operators along the Germany - Czech Republic - Austria route. Items covered in these discussions included alignment of project schedules so as to ensure coordinated planning.

**Submission for approval as a project.** Project GCA 2016/02 was submitted as a project during the submission phase for the 2017-2026 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described are analysed over the 2017–2026 planning period and presented in project application "[GCA 2016/01](#)" (see chapter 7). The project is directly linked to the project TAG 2016/06.

**Concepts for capacity allocation** The allocation of incremental capacities resulting from the project is planned by GCA in the form of a bundled auction. In any case, for the allocation of incremental capacity at the new Reintal point the competition with the Baumgarten point will have to be taken into consideration. The process of a respective capacity allocation will be defined in close alignment with the NRA and the TSOs along the route.

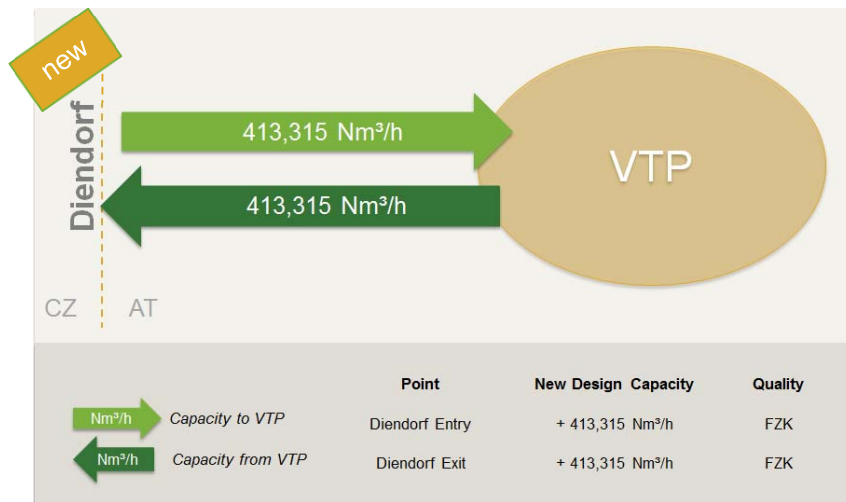
**Included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. In view of the schedule submitted, in conjunction with the non-binding capacity demand submission, an application for recognition of costs was filed on 22 March 2016. GCA therefore submitted the project for inclusion in the European network development plan (TYNDP) 2016 during the project data collection phase and fulfilled the first condition for inclusion in the next Union list of PCIs.

### **5.5.6 Oberkappel-N4G Interconnector [GCA 2016/02]**

**Basis: project submission by N4G.** N4G submitted the "Connection to Oberkappel" project for inclusion in GCA's NDP during GCA's project data collection phase. This project submission specifies new bidirectional capacity of at least 4,625 MWh/h or 413,315 Nm<sup>3</sup>/h (0°C). This figure is the capacity assumed for this project in the Austrian market area.

**Additional capacity at the new Diendorf point.** The flow diagram in chart 23 illustrates the new capacities at the potential new Diendorf entry and exit point.

Chart 23 GCA2016/02



**Coordination with adjacent TSOs.** To ensure coordinated planning, details of the project were agreed with N4G during the planning process for the 2017-2026 NDP.

**Submission for approval as a planning project.** Project GCA 2016/03 is submitted as a planning project during the submission phase for the 2017-2026 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and presented in project data sheet "[GCA 2016/02](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02.

**Concepts for capacity allocation** According to the capacity calculation model, the incremental capacities created by the project compete with capacities at the Oberkappel and Überackern points. They must also be offered as bundled capacities. Potential capacity allocation concepts are developed in close cooperation with the adjacent TSOs.

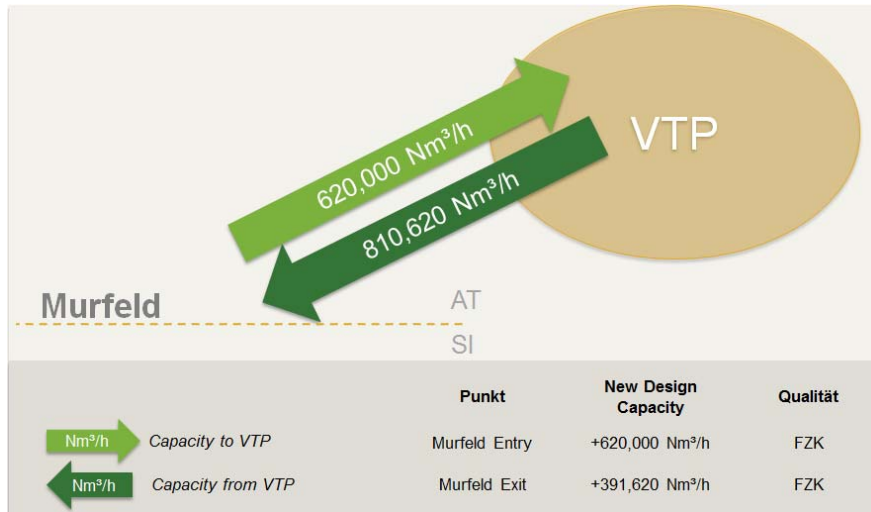
**Not yet included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As the project has been re-submitted for approval, it has not yet been included in the European plan.

### 5.5.7 Entry/Exit Murfeld [GCA2015/08]

**Basis: project submission by Plinovodi.** Slovenian TSO Plinovodi submitted the projects "Upgrade of Murfeld-Czersak interconnection", "Upgrade of Rogatec interconnection" and "CS Kidricevo" for inclusion in GCA's NDP during GCA's data collection phase. This project submission specifies new and/or additional technical bidirectional capacities of 6,875 MWh/h or 614,388 Nm³/h (0°C) at the Murfeld entry point and 4,393 MWh/h or 391,620 Nm³/h (0°C) at the Murfeld exit point. This figure is exactly the capacity assumed for the "Entry/Exit Murfeld" project in the Austrian market area. The submitted capacity has some of the same features as PCI project GCA Murfeld 2014/04, but specifies a higher capacity at the Murfeld exit point.

**Additional capacity at the Murfeld entry/exit point.** The flow diagram in chart 24 illustrates the new capacities at the Murfeld entry and exit point. At this time, available technical capacity at the Murfeld exit point is limited and amounts to 4,688 MWh/h or 419,000 Nm<sup>3</sup>/h (0°C). There is currently no applicable technical capacity at the entry point, and as a result transports are performed only on an interruptible virtual basis.

Chart 24 GCA2015/08



**Coordination with adjacent TSOs.** Since the project was first submitted by the Slovenian TSO Plinovodi for the 2016-2025 NDP, GCA and Plinovodi have been jointly developing the details of the project, the time frame for implementation and project positioning at European level. In particular, GCA and Plinovodi are working closely together to put in place the organisational framework for bundled allocation of the additional capacities by auction on the common auction platform PRISMA. A meeting with Plinovodi took place on 5 April 2016. Preparatory coordination on possible auctions for the additional capacity at the Murfeld point was carried out and incorporation of the projects along the route into the European network development planning process was discussed. The target is to establish the organizational possibilities to offer the additional capacity in the yearly auction in 2017.

**Previously approved in the 2016-2025 NDP.** Project GCA 2015/08 was previously approved as a project in the 2016-2025 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/08](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02&TAG 2016/01. The project is withdrawn and will be substituted with the project GCA 2016/03.

**Concepts for capacity allocation** The allocation of incremental capacities resulting from the project is planned by GCA in the form of a bundled and/or competing auction. A competition situation is being represented with TAG GmbH's network point Arnoldstein. If the capacities are sold in a bundled auction, the process of a respective bundled capacity allocation is defined in cooperation with the adjacent TSO and the involved NRAs and will be implemented subject to technical and organisational possibilities.

**Included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. The project is currently included in the second Union list of projects of common interest. GCA therefore submitted the project for inclusion in the European network development plan (TYNDP) 2016 during the project data collection phase and fulfilled the first condition for inclusion in the next Union list of PCIs.

### 5.5.8 Entry Arnoldstein [GCA2015/10]

**Basis: cooperation.** To create the maximum freely allocable capacities at the Arnoldstein entry point, a corresponding project to strengthen GCA's systems was developed in cooperation with TAG GmbH. The GCA Project 2015/10 encompasses only technical measures that are required to transport FZK capacities of 11,190 MWh/h or 1,000,000 Nm<sup>3</sup>/h (0°C) agreed with TAG GmbH to the VTP and to allow capacities to be diverted into downstream systems.

**Coordination between the TSOs.** There was coordination at operational level during project planning to enable project parameters to be aligned and coordinated planning to be ensured. The project was discussed in a joint meeting with the regulatory authority, the MAM and TAG on 14 April 2016. On 20 May 2016, GCA gave TAG GmbH final notification of the necessary measures and the time frame for implementation of the project.

**Previously approved in the 2016-2025 NDP.** Project GCA 2015/08 was previously approved subject to conditions in the CDNP 2016–2025. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017–2026 planning period and updated in project data sheet "[GCA 2015/10](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02.

**Concepts for capacity allocation** The allocation of incremental capacities resulting from the project is planned by GCA in the form of a bundled and/or competing auction. A competition situation is being represented with TAG GmbH's network point Arnoldstein. If the capacities are sold in a bundled auction, the process of a respective bundled capacity allocation is defined in cooperation with the adjacent TSO and the involved NRAs and will be implemented subject to technical and organisational possibilities.

**Not yet included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As the project was approved in the 2016-2025 NDP subject to fulfilment of conditions, it has not yet been included in the European plan.

### 5.5.9 Entry/Exit Murfeld & Entry Arnoldstein [GCA2016/03]

**Basis: cooperation.** To create the maximum freely allocable capacities at the Arnoldstein entry point, a corresponding project to strengthen GCA's systems was developed in cooperation with TAG GmbH. It was agreed with the TSO TAG GmbH and the authority that the measures intended to create additional freely allocable capacity at the Murfeld point (GCA 2015/08) and those under project GCA 2015/10 would be considered together. This means that GCA project GCA2016/03 encompasses technical

measures that are required to transport FZK capacities of 18,072 MWh/h or 1,615,000 Nm<sup>3</sup>/h (0°C) agreed with TAG GmbH to the VTP and to allow capacities to be diverted into downstream systems.

**Coordination between the TSOs.** There was coordination at operational level during project planning to enable project parameters to be aligned and coordinated planning to be ensured. The project was discussed in a joint meeting with the regulatory authority, the MAM and TAG on 14 April 2016. On 20 May 2016, GCA again communicated the necessary measures and the time frame for project implementation to TAG GmbH. There was further coordination regarding the time frame for implementation on 14 June 2016.

**Submission for approval as a project.** Project GCA 2016/03 was submitted as a project during the submission phase for the 2017-2026 CNDP. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2017-2026 planning period and presented in project data sheet "[GCA 2016/03](#)" (see chapter 7). The project is directly linked to the project TAG 2016/02&TAG2016/01.

**Concepts for capacity allocation** The allocation of incremental capacities resulting from the project is planned by TAG GmbH.

**Not yet included in European plan.** By 8 May 2016, GCA submitted for inclusion in the ENTSOG TYNDP 2017 projects which were previously approved as projects in a 2016-2025 NDP, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. As the project has been re-submitted for approval, it has not yet been included in the European plan.



## 6 Network development plan Trans Austria Gasleitung GmbH

The transmission system of Trans Austria Gasleitung GmbH (“TAG GmbH”) contributes to a safe, environmentally friendly and economical supply of energy for the Austrian as well as the international market.

TAG GmbH is aware of its responsibility to adjust its system to the continually changing frame conditions, to develop corresponding infrastructure projects, support market integration and herewith open up new possibilities for its customers as well as to create a high level of security of supply. According to regulation 715/2009 and regulation 984/2013, TAG is hereby in constant exchange with the interconnected transmission system operators in order to promote network integration.

The scope of this network development plan is to provide an overview of the progress of projects which are currently already in the implementation phase as well as to present new potential projects, which will be filed for approval.

### 6.1 Innovative marketing

As a shareholder of the PRISMA platform, TAG GmbH contributed to the further development of the primary capacity platform for capacity booking, aimed at the early implementation of the CAM Network Code through mechanisms for allocating capacities in gas transmission systems, as well as a secondary-market platform on PRISMA.

All capacities offered by TAG GmbH at the relevant Baumgarten and Arnoldstein (reverse flow) entry points and at the Baumgarten and Arnoldstein exit points are auctioned on the PRISMA platform, with TAG GmbH aiming to offer capacities in the best possible quality and in bundled form.

Pursuant to item 2.2.4 of the congestion management procedures published in the Official Journal of the European Union on 28 August 2012, TAG GmbH also offers TAG system users the option to return bindingly booked, guaranteed capacities which were contracted by the system user at an entry or exit point, except for capacity products with a term of one day or less. TAG GmbH offers the returned capacities as well as the capacities freed up by applying the short-term Day-Ahead UIOLI measurement (Use-It-or-Lose-It) together with TAG capacities in the corresponding auctions.

Furthermore, since October 2015 TAG GmbH offers the possibility to book Within-Day products and herewith allows the customer highest degree of flexibility.

### 6.2 Marketing of capacities – Report 2015

As already in the year before, in the TAG system especially short-term products, particularly Day-Ahead products, were requested by the market participants in 2015. The fact that in most of the auctions the start price of the auction equals the clearing price, can be seen as clear indication, that in the TAG system no congestion can be derived and therefore the capacity offer covers the market demand sufficiently. Furthermore, the introduction of short-term congestion management procedures in 2013 according to §11 of the gas market model ordinance 2012 as well as the possibility of capacity surrender has contributed to increasing the availability of freely allocable capacity at relevant points. With the introduction of Within-Day auctions TAG GmbH has fully implemented the CAM Network Code.

### 6.3 The demand as basis

As in previous years, a non-binding survey of existing and potential system users was conducted to determine additional capacity demand for the current ten-year planning period for the Network Development Plan of TAG GmbH in conjunction with the 2017-2026 CNDP. The market survey was carried out as specified in section 62 et seq. of the Natural Gas Act and coordinated by the Market Area Manager. The survey results and the resulting load-flow scenarios are presented further on in the report.

In line with its statutory obligations TAG GmbH, in coordination with Gas Connect Austria ("GCA"), published a non-binding capacity demand survey on its website. For the purposes of transparency and the largest possible reach, the market survey was also announced on PRISMA and all users of the auction platform were invited to participate via the PRISMA newsletter.

In the capacity demand survey, existing and potential system users of the TAG pipeline system were asked to report non-binding additional capacity demand for the 2017-2026 period at the respective physical (relevant) Baumgarten or Arnoldstein (reverse flow) entry points and the Arnoldstein exit point as well as the virtual exit point Baumgarten in the TAG system. No additional demand was reported to TAG GmbH within the scope of the capacity demand survey. In conclusion, it is currently not necessary from TAG's point of view to plan any network expansion measures in the period up to 2026 for lack of demand, which is in line with the results of the GRIP-SSE and the TYNDP. Furthermore TAG has executed a project survey, in which project sponsors had the possibility to notify their projects to TAG GmbH. TAG GmbH has not received any projects until the due date 01.04.2016. The possibility to notify capacity requests or projects remains also open after this due date. Respective notifications will be taken into consideration in the next year's NEP.

In order to further develop the product portfolio of TAG GmbH in the interest of its transport customers in a forward-looking way in addition to already existing products the possibility was introduced to transfer gas on interruptible, virtual basis via the new Exit TAG Baumgarten to the Slovak transmission system from October 2015 on (Reverse Flow on interruptible basis).

Therefore, the entry and exit points in the TAG system are the following:

**Capacity demand with access to the VTP**

Physical entry point	Physical exit points	Non-physical exit points
Baumgarten TAG (border to Slovakia)	Arnoldstein (border to Italy)	Baumgarten TAG (border to Slovakia, interruptible)
Arnoldstein (border to Italy, interruptible)		

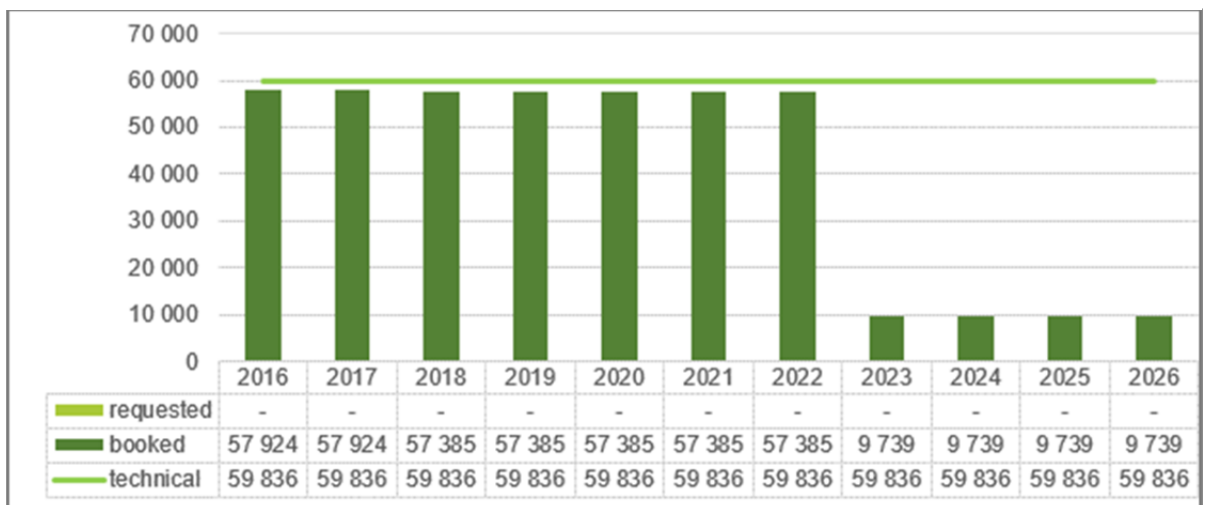
**Capacity demand without access to the VTP**

Physical entry point	Physical exit points	Non-physical exit points
Arnoldstein (border to Italy, DZK)	-	-

Based on the results of the capacity demand survey, TAG GmbH drew up a capacity analysis for the period 2017-2026 which takes into account the following parameters:

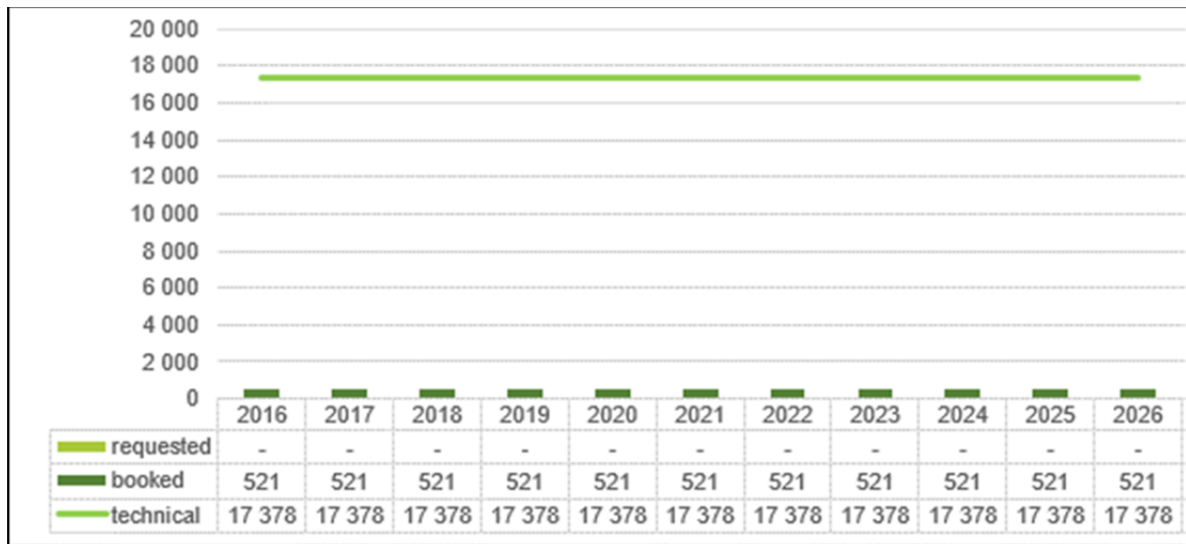
- Technical capacity at the Baumgarten and Arnoldstein entry and exit points
- Booked capacity at the Baumgarten and Arnoldstein entry and exit points
- 

Chart 25 ENTRY POINT BAUMGARTEN in MWh/h



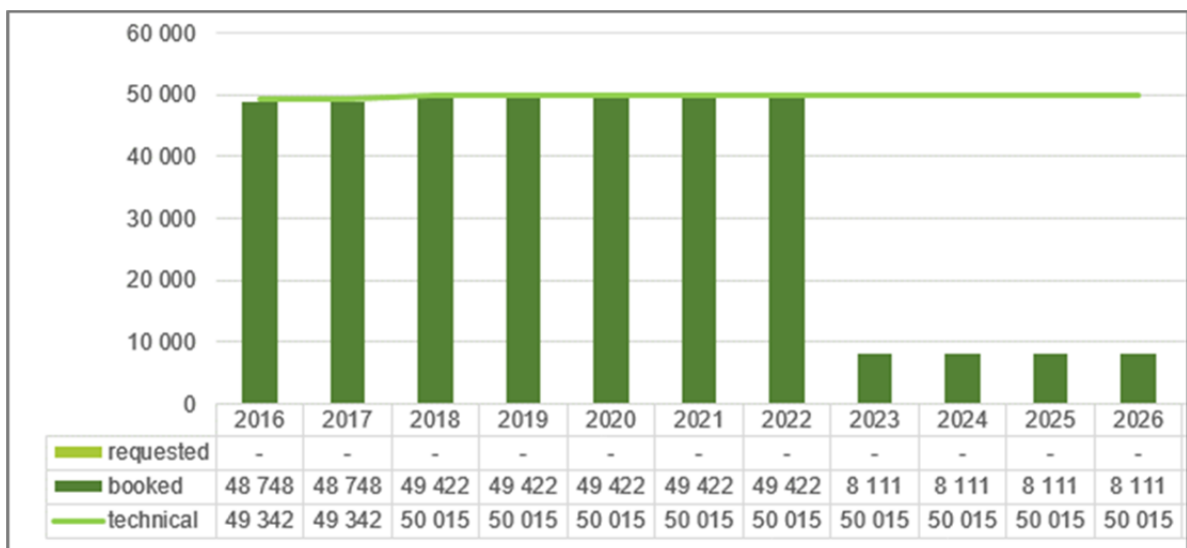
The diagram shows that both the technical as well as the booked capacity at the Baumgarten entry point will remain steady up to 2017. The freely allocable capacity will increase as of 2018 due to changes in the contract terms with one system user. As several long-term contracts will expire, the available free capacity will increase significantly from 2023.

Chart 26 ENTRY POINT ARNOLDSTEIN in MWh/h



The chart 27 shows that both the technical as well as the booked capacity at the Arnoldstein entry point will remain constant from 2017 up to 2026.

Chart 27 EXIT POINT ARNOLDSTEIN in MWh/h



The slight increase in technical exit capacity as of 2018 results from a change in contract terms with one system user. Similar to the Baumgarten entry point, free capacity will increase significantly from 2023 as a result of the expiry of long-term contracts spanning several years.

## 6.4 Development of the TAG Pipeline System

As already outlined in the CNDP 2015-24, due to the variability in the gas flow patterns, a need of higher interconnection capacity between the transmission system operators' ("TSO") networks arose, especially at the Baumgarten node.

Furthermore, with regard to ensuring security of supply, in the decree V KNEP G 1/14 of 2 December 2014 it was required from the TSOs to develop a project which, taking into account the economic feasibility, would permit the maximum possible freely allocable capacity (FZK) at the entry point Arnoldstein. Such new project, which should have examined the possibility of extending the TAG AZ Baumgarten into the GCA system, was an additional demand of higher interconnection between the two TSO's networks in Baumgarten.

The projects submitted in the NDP 2016-25 were finalized to implement such increase of interconnection, being coordinated in their achievements and technical goals, even though presented separately by each TSO.

In particular, TAG GmbH presented the project TAG 2015/01 "Messstrecken Baumgarten TAG Einbindung", which was coordinated with the project GCA 2015/09 and the project TAG 2015/02 "AZ1 Baumgarten Reverse Flow", coordinated with the projects GCA 2015/08 and GCA 2015/10.

In the decree PA 16870/15 issued by ECA on the CNDP 2016-25, an increase of the effort to be spent by the two TSOs in order to better coordinate their projects and, furthermore, specific obligations to be fulfilled prior authorization of the projects GCA 2015/08, GCA 2015/10 and TAG 2015/02 were requested.

The projects TAG 2015/02 AZ1 Baumgarten Reverse Flow and GCA 2015/10 essentially fulfilled the obligation by connecting TAG with AZ1 in reverse flow, but did not consider the possibility to transport in reverse flow the whole available capacity at Entry Point Arnoldstein. For this reason, ECA asked to submit additional solutions to be evaluated, in order to eliminate possible competition between Entry Points Arnoldstein and Murfeld.

It is to be underlined that in any case the project TAG 2015/02 AZ1 Baumgarten Reverse Flow needed the realization of the project GCA 2015/10, in order to enable the reverse flow from the TAG system into the GCA system in Baumgarten.

## 6.5 Submission of new or updated projects (CNDP 2017–26)

In order to fulfil the obligation of the CNDP 2016-25 and to allow the maximum possible freely allocable capacity (FZK), in any case not less than 1,000,000 Nm<sup>3</sup>/h, at the entry point Arnoldstein, not competing with other entry capacities in the market area, the new project TAG 2016/01 has been submitted. The project has also been submitted in the TYNDP 2017 (TRA-N-954).

In order to coordinate with and to fulfil the need of GCA, related to the increase of interconnection capacity between the two TSOs' networks in Baumgarten, the new project TAG 2016/02 has been submitted, coordinated with the project GCA 2015/07b. The project also foresees important achievements in the interoperability of the two systems in Baumgarten, in particular by interconnecting BOP13 with TAG AZ1.

The new project TAG 2016/03 will allow the physical reverse flow of TAG system towards the Slovakian network, increasing the security of supply of the whole area and has also been submitted in the TYNDP 2017 (TRA-N-954).

The new projects TAG 2016/04 and TAG 2016/05 are submitted as planning projects and TAG 2016/06 as project in order to coordinate with projects submitted by GCA in the CNDP 2017-26 triggering required activities in Baumgarten. The approach for these projects also considers the important modifications which are affecting the Baumgarten TAG area due to the projects Noxer II, US metering station and TAG 2015/01, which are currently in the execution phase.

The project TAG 2015/02 will be withdrawn due to the integration of the activities foreseen in this project in TAG 2016/02.

The other two reinvestment projects TAG 2015/03 and TAG 2015/04 are in the execution phase and on schedule.

### 6.5.1 TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf

The implementation of the project "TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf" will allow the transportation of at least 1,6 million Ncm/h (at least 1.000.000 Ncm/h in Arnoldstein entry points and 600.000 Ncm/h in Murfeld entry point) to Baumgarten, allowing the operation of the Weitendorf CS and all the necessary modifications of the station control system.

The project fulfils the obligation of the Decree PA 16870/15, issued by ECA on the CNDP 2016-25 and, together with projects TAG 2016/02, GCA 2015/08 and GCA 2015/10, will create new and not competing freely allocable capacity in the entry points of Arnoldstein and Murfeld.

The project has also been submitted in the TYNDP 2017 (TRA-N-954).

#### 6.5.1.1 Technical feasibility

The project foresees the possibility to reverse the flow in the Weitendorf CS, allowing the transportation towards Baumgarten of the existing entry capacity in Arnoldstein plus the planned new capacity in Murfeld, by also satisfying all the contractual obligation at the domestic exit points. The project also foresees a few minor implementation into the TAG CSs, allowing reverse flow to be operated in normal operating conditions with no need of intervention on site.

The period of implementation is estimated to be 24 months to be considered after approval, the completion of all the activities is therefore estimated within Q4/2018.

The Investment cost base for 2016 is estimated to XXXX € with an accuracy of +/- 25%. The project is submitted for approval (See also project description „TAG 2016/01“, in chapter 7).

*Details concerning costs and technical details will be separately conveyed to the Regulatory Authority.*

### **6.5.1.2 Capacity allocation**

The project itself does not allow the creation of new capacity nor the upgrade of existing DZK in Arnoldstein entry point, but it creates the conditions for a complete reverse flow of the TAG system.

## **6.5.2 TAG 2016/02 AZ1 additional entry and connection with BOP13**

The project goal is to enable the TAG system to receive the increase of volumes from AZ1 entry point, as foreseen by the project GCA 2015/7b, bringing all the 1.200.000 Ncm/h from AZ1 entirely into TAG CS Baumgarten suction side.

Considering that the works will affect the same areas and that a later intervention would have a substantially higher cost, the project also includes the direct connection between BOP13 and AZ1 upstream of the TAG compressor station Baumgarten. This will also solve the problem of BOP13 entering in normal operation mode into downstream of TAG CS Baumgarten, which created several issues and constraints on the operating mode of the CS during winter 2014/15. Therefore, in September 2015 it was agreed that a better solution has to be developed. In order to avoid such issues in future, TAG and GCA are finalizing an operational procedure to be applied until the better solution will be realized.

Please refer also to the remarks in chapter 5.5 (Network Development Plan GCA)

### **6.5.2.1 Technical feasibility**

The project TAG 2016/02 will allow the flow of 1.200.000 Ncm/h from AZ1 to enter into TAG system upstream of TAG CS Baumgarten, in normal operation mode. In the same project, TAG GmbH will provide the direct connection between BOP13 and AZ1. This will solve the historical problem of BOP13 entering TAG downstream CS Baumgarten, that created several issues in winter 2014/15

The following activities are needed for the execution of the project:

- replacement of old 24" AZ1 low pressure line with a new 36" line till to the property border between the pipelines GCA/TAG;
- interconnection between AZ1 low and high pressure lines; 2\*24" valves
- interconnection of BOP 13 with new AZ1 low pressure line.

The Investment cost base for 2016 is estimated to XXXX € with an accuracy of +/- 25%. The project is submitted for approval as project.

The period of implementation is estimated to be 18 months to be considered after approval, the completion of all the activities is therefore estimated within Q3/2018.



*Details concerning costs and technical details will be separately conveyed to the regulatory authority.*

### **6.5.2.2 Capacity allocation**

The project allows, together with the project GCA 2015/7b, the increase up to 1.200.000 Ncm/h in the GCA AZ1 entry point.

## **6.5.3 TAG 2016/03 Reverse Flow Baumgarten MT station (MS2)**

The new project TAG 2016/03 will allow the physical reverse flow of TAG system towards the Slovakian network, increasing the security of supply of the whole area. The project has also been submitted in the TYNDP 2017 (TRA-N-954).

### **6.5.3.1 Technical feasibility**

The project foresees the possibility to reverse the flow in the TAG Baumgarten metering station, allowing a physical reverse flow towards Slovakia.

The project includes all the activities needed in order to reverse the flow in Baumgarten CS, including filtering, compressing and metering of the gas towards Slovakia, including the modification of the station control system.

The period of implementation is estimated to be 36 months to be considered after approval, the completion of all the activities is therefore estimated within Q4/2019.

The Investment cost base for 2016 is estimated to XXXX € with an accuracy of +/- 25%. The project is submitted for approval (see also project description „TAG 2016/03“, in chapter 7).

*Details concerning costs and technical details will be separately conveyed to the Regulatory Authority.*

### **6.5.3.2 Capacity allocation**

The project allows the creation of a new TAG exit point at the Austrian/Slovak border.

## **6.5.4 TAG 2016/04 TAG Baumgarten interconnection capacity (Mosonmagyaróvár)**

The project TAG 2016/04 will create additional interconnection capacity in Baumgarten on freely allocable basis (FZK), triggered by additional capacity demand at the GCA entry point Mosonmagyaróvár. The project ensures the modification of the TAG Baumgarten station in order to allow an increased gas flow into the TAG system and to guarantee the access to the VTP.

The project is required in order to increase the technical interconnection capacity between the transit systems of TAG and GCA within the Baumgarten station and to further improve the Security of Supply of Austrian and Hungarian markets. The project itself does not allow the creation of new capacity at the relevant points, but it facilitates the conditions for a guaranteed access to the VTP, hence allowing additional FZK capacity at the entry/exit points of the Austrian Market Area East. The increase of interconnection capacity entails improved liquidity of the European markets as well as an increase of the Austri-

an and European security of supply by enabling alternative transport routes for alternative gas supply sources.

#### **6.5.4.1 Technical feasibility**

The project will realize the following activities in order to guarantee the increase of flow into the TAG system, as foreseen by the project GCA 2015/05 Entry Mosonmagyaróvár (see NDP GCA).

- Extend Baumgarten interconnection facilities.

The completion of all the activities is therefore estimated within Q4/2021.

*Details concerning costs and technical details will be separately conveyed to the regulatory authority.*

#### **6.5.4.2 Capacity allocation**

As additional interconnection capacities do not impact the amount of capacities at TAG relevant points, an allocation of capacities is not applied.

### **6.5.5 TAG 2016/05 TAG Baumgarten interconnection capacity (BACI)**

The project TAG 2016/05 will create additional interconnection capacity in Baumgarten on freely allocable basis (FZK), triggered by a project submission at the new GCA entry/exit point Reintal. The project ensures the modification of the TAG Baumgarten station in order to allow an increased gas flow from/into the TAG system and to guarantee the access to the VTP.

The project is required in order to increase the technical interconnection capacity between the transit systems of TAG and GCA within the Baumgarten station and to further improve the Security of Supply of Austrian and Czech markets. The project itself does not allow the creation of new capacity at the relevant points, but it facilitates the conditions for a guaranteed access to the VTP, hence allowing additional FZK capacity at the entry/exit points of the Austrian Market Area East. The increase of interconnection capacity entails improved liquidity of the European markets as well as an increase of the Austrian and European security of supply by enabling alternative transport routes for alternative gas supply sources.

#### **6.5.5.1 Technical feasibility**

The project will realize the following activities in order to guarantee the increase of flow from/into the TAG system, as foreseen by the project GCA 2015/01a: Bidirectional Austria Czech Interconnector (see NDP GCA).

- Extension of Baumgarten interconnection facilities.

The completion of all the activities is therefore estimated within Q4/2020.

*Details concerning costs and technical details will be separately conveyed to the regulatory authority.*

#### **6.5.5.2 Capacity allocation**

As additional capacities do not impact the amount of capacities at TAG relevant points, an allocation of capacities is not applied.

### **6.5.6 TAG 2016/06 TAG Baumgarten interconnection capacity (BBI)**

The project TAG 2016/06 will create additional interconnection capacity in Baumgarten on freely allocable basis (FZK), triggered by a non-binding additional capacity demand at the new GCA entry/exit point Reintal. The project ensures the modification of the TAG Baumgarten station in order to allow an increased gas flow into the TAG system and to guarantee the access to the VTP.

The project is required in order to increase the technical interconnection capacity between the transit systems of TAG and GCA within the Baumgarten station and to further improve the Security of Supply of the Austrian and Czech markets. The project itself does not allow the creation of new capacity at the relevant points, but it facilitates the conditions for a guaranteed access to the VTP, hence allowing additional FZK capacity at the entry/exit points of the Austrian Market Area East. The increase of interconnection capacity entails improved liquidity of the European markets as well as an increase of the Austrian and European security of supply by enabling alternative transport routes for alternative gas supply sources.

#### **6.5.6.1 Technical feasibility**

The project will realize the following activities in order to guarantee the increase of flow from/into the TAG system, as foreseen by the project GCA 2016/01 Baumgarten Brezlav Interconnector (see NDP GCA).

- Extension of Baumgarten interconnection facilities

The completion of all the activities is therefore estimated within Q4/2020.


*Details concerning costs and technical details will be separately conveyed to the regulatory authority.*


#### **6.5.6.2 Capacity allocation**


As additional capacities do not impact the amount of capacities at TAG relevant points, an allocation of capacities is not applied.


## 7 National projects

### 7.1 Monitoring of projects already approved


GCA 2015/01b Project 1b: BACI DN 1200						
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Implementation time frame:</b> 4.25 years				
<p><b>Project objective:</b> The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Reintal entry and exit point between the Austrian market area and the Czech market.</p>						
<p><b>Please note:</b> This project proposes two concepts for connecting the markets:</p> <ol style="list-style-type: none"> <li>1. Connecting the two markets via the Reintal cross-border point</li> <li>2. Booking entry capacities at existing and/or at potential new cross-border points in both countries.</li> </ol> <p>The GCA projects contained in this document are considered individually and not together.</p>						
<p><b>Project description:</b> The following investments are necessary for Project 1b:</p> <ul style="list-style-type: none"> <li>- New metering station at the handover station – Baumgarten</li> <li>- New Baumgarten CS</li> <li>-</li> <li>- Transmission system connection between Baumgarten and Reintal</li> <li>- New metering station at the handover station - Reintal</li> </ul>						
<p><b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users:</p> <table> <tr> <td>Reintal entry point</td> <td>1,480,000 Nm<sup>3</sup>/h (0°C)</td> </tr> <tr> <td>Reintal exit point</td> <td>1,480,000 Nm<sup>3</sup>/h (0°C)</td> </tr> </table>			Reintal entry point	1,480,000 Nm <sup>3</sup> /h (0°C)	Reintal exit point	1,480,000 Nm <sup>3</sup> /h (0°C)
Reintal entry point	1,480,000 Nm <sup>3</sup> /h (0°C)					
Reintal exit point	1,480,000 Nm <sup>3</sup> /h (0°C)					
<p><b>Economic data:</b> Investment cost basis 2015: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>						
<p><b>Project rationale:</b> This project is necessary to foster the north-south corridor, reduce market isolation, increase the security of supply in the Czech Republic and in Austria and provide transport routes for alternative gas sources.</p>						
<p><b>Project phase:</b> Identify and assess</p>						
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision:-</b>				
<p><b>Project status:</b> The project was approved as a <b>planning project</b> in the official decision approving the 2015 CNDP (V KNEP G 01/15) on 27 October 2015.</p>						


<b>GCA 2015/03 Entry/Exit Überackern – Maximum</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Implementation time frame:</b> 6 years
<b>Project objective:</b> The project aims at increasing technical capacity at the Überackern entry/exit point to present a possible maximum variant and analyse alternative routes for potential storage connections.		
<b>Please note:</b> The investment is restricted to providing capacities with guaranteed access to and from the VTP at Überackern entry and exit point. The GCA projects contained in this document are considered individually and not together.		
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>– New Überackern CS</li> <li>– Modification of the Überackern metering station at the hand-over station: Switch of the connection points of the border crossing pipelines of the SUDAL and ABG rails and installation of an additional filter separator on the future ABG rail.</li> <li>– Penta West pipeline loop</li> <li>– Modification of the Neustift metering and compressor stations</li> <li>– WAG loop</li> <li>– Modification of the Rainbach and Kirchberg compressor stations</li> <li>– Piping at Baumgarten</li> </ul>		
<b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Überackern IP are planned to be available to the system users: Überackern SUDAL/ABG/7 Fields entry point 1,427,389 Nm <sup>3</sup> /h (0°C) Überackern SUDAL/ABG/7 Fields exit point 1,580,440 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b> Investment cost basis 2015: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Überackern IP are covered by binding long-term bookings or binding long-term bookings by the storage system operator.		
<b>Project rationale:</b> This project is being examined in order to present a possible maximum variant and to examine alternative routes for potential storage connections. It also increases security of supply in Austria and in Europe.		
<b>Project phase:</b> Identify and assess		
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision:-</b>
<b>Project status:</b> The project was approved as a <b>planning project</b> in the official decision approving the 2015 CNDP (V KNEP G 01/15) on 27 October 2015.		


<b>GCA 2015/04 Entry Mosonmagyaróvár - Minimum</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Implementation time frame:</b> 1.5 years
<b>Project objective:</b> The project aims to create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional entry capacities at the Mosonmagyaróvár point on a freely allocable basis.		
<b>Please note:</b> The investment is restricted to providing capacities with guaranteed access to and from the VTP at Mosonmagyaróvár entry and exit point. The GCA projects contained in this document are considered individually and not together.		
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>- Modification HAG MS: Filter separator, metering routes, regulation, piping</li> <li>- Extension of the Baumgarten node</li> </ul>		
<b>Technical data:</b> Project-related analyses were carried out on the basis of the following additional capacities: Mosonmagyaróvár entry point                      120,000 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Mosonmagyaróvár IP are planned to be available to the system users in accordance with the demand submitted: Mosonmagyaróvár entry point                      114,155 Nm <sup>3</sup> /h (0°C) Investment cost basis 2015: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Mosonmagyaróvár IP are covered by binding long-term bookings.		
<b>Project rationale:</b> This project is being examined in order to cover the additional demand for capacity submitted at the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and diversifies sources of natural gas and supply routes.		
<b>Project phase:</b> Identify and assess		
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision:-</b>
<b>Project status:</b> The project was approved as a <b>planning project</b> in the official decision approving the 2015 CNDP (V KNEP G 01/15) on 27 October 2015.		

<b>GCA 2015/06 Mosonmagyaróvár plus</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Implementation frame:</b>	4 years
<b>Project objective:</b> The project aims to create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional entry capacities at the Mosonmagyaróvár point on a freely allocable basis.			
<b>Please note:</b> The investment is restricted to providing capacities with guaranteed access to and from the VTP at Mosonmagyaróvár entry and exit point. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>- Loop of the HAG pipeline</li> <li>- New HAG CS</li> <li>- Extension of the Baumgarten node including construction of new metering routes</li> </ul>			
<b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Mosonmagyaróvár IP are planned to be available to the system users: Mosonmagyaróvár entry point                      2,300,000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b> Investment cost basis 2015: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Mosonmagyaróvár IP are covered by binding long-term bookings.			
<b>Project rationale:</b> This project is being examined in order to cover the projected additional demand for capacity at the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and diversifies sources of natural gas and supply routes.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:</b> TRA-N-583		<b>PCI status:-</b>	<b>CBCA decision:-</b>
<b>Project status:</b> NDP 2015: The project was approved as a <b>planning project</b> in the official decision approving the 2015 CNDP (V KNEP G 01/15) on 27 October 2015.			



<b>GCA 2015/02: Entry Überackern</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q1/2022
<b>Project</b>		<b>objective:</b>
The project aims to increase technical capacity at the Überackern SUDAL entry point to cover projected demand for additional entry capacities at the Überackern SUDAL point.		
<b>Please note:</b>		
The project is directly linked to the project TAG 2016/04. The investment concerns capacity-increasing measures at the Überackern SUDAL entry point in order to create capacities with guaranteed access to the VTP. The GCA projects contained in this document are considered individually and not together.		
<b>Project description:</b>		
The following investments are necessary for the project:		
<ul style="list-style-type: none"> <li>- Modification of the Überackern metering station at the handover station:</li> <li>- Überackern CS "New"</li> <li>- WAG partial loop</li> <li>- Modification Baumgarten station</li> </ul>		
<b>Technical data:</b>		
Project-related analyses were carried out on the basis of the following additional capacities: technically marketable capacity, Überackern SUDAL entry point: 674,500 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b>		
After completion of the project, the following additional freely available entry capacity to the transmission system will be available to system users at the Überackern entry point: Überackern SUDAL entry point: + 223,414 Nm <sup>3</sup> /h (0°C)		
Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- XX% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Überackern IP are covered by binding long-term bookings.		
<b>Project rationale:</b>		
This project is necessary to cover the additional demand for capacity submitted for the Überackern SUDAL entry point.		
<b>Project phase:</b> Identify and assess		
<b>TYNDP:</b> -	<b>PCI status:-</b>	<b>CBCA decision:-</b>
<b>Changes:</b>		
The project is withdrawn.		
<b>Project status:</b>		
The project is withdrawn and substituted by the project GCA 2016/02a.		


<b>GCA2015/08 Entry/Exit Murfeld</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2021
<b>Project objective:</b> The project aims to increase technical capacities on FZK basis at the Murfeld entry/exit point and to create technical capacities on FZK basis at the Murfeld entry point for the first time.			
<b>Please note in particular:</b> The project is directly linked to the project TAG 2016/02&TAG 2016/01. The investment is restricted to the Murfeld entry/exit point and the connected Austrian GCA transmission grid. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b> The following investments are necessary for the project:			
<ul style="list-style-type: none"> <li>- Extension of Weitendorf and Murfeld metering stations: Filter separator, metering routes, regulation, piping</li> <li>- New Murfeld CS</li> <li>- Loop of the SOL between Leibnitz and Murfeld</li> <li>- Loop of the Murfeld – Cersak border crossing pipeline</li> <li>- Modification Baumgarten (TAG AZ, MS 4, BOP 13)</li> </ul>			
<b>Technical data:</b> Project-related analyses were carried out on the basis of the following additional capacities:			
technical marketable capacity, Murfeld entry point		620,000 Nm <sup>3</sup> /h (0°C)	
technically marketable capacity, Murfeld exit point		810,620 Nm <sup>3</sup> /h (0°C)	
<b>Economic data:</b> After completion of the project, the following new freely allocable entry/exit capacities at the Murfeld IP are planned to be available to the system users:			
Murfeld entry point		+ 614,388 Nm <sup>3</sup> /h (0°C)	
Murfeld exit point		+ 391,620 Nm <sup>3</sup> /h (0°C)	
Investment cost basis 2016: EUR XXX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the virtual point are covered by binding long-term bookings.			
<b>Project rationale:</b> In particular, this project is reviewed to cover the projected additional capacity demand at the Murfeld entry/exit point.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:</b> TRA-N-361	<b>PCI status:</b> yes, 6.26.4	<b>CBCA decision:</b> -	
<b>Changes:</b> The project is withdrawn.			
<b>Project status:</b> The project is withdrawn and substituted by the project GCA 2016/03.			





<b>TAG 2015/02 AZ1 Baumgarten Reverse Flow</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalization:</b>	Q3/2018
		<b>Status as of:</b>	02.06.2016
<b>Project objectives:</b>			
<p>The objective of the project "AZ1 Baumgarten Reverse Flow" is to create in Baumgarten a physical interconnection reverse flow capacity between the TAG transmission system and the GCA subsystem PVS-AZ1.</p>			
<b>To be considered:</b>			
<p>The project will allow together with TAG project 2016/01 and GCA project 2015/10, the fulfilment of the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-24 to upgrade DZK capacity at Entry point Arnoldstein to FZK capacity, without any competition with entry capacity in Murfeld. Furthermore, the project is in direct connection with the GCA projects 2015/08 and 2016/03.</p> <p>The project:</p> <ul style="list-style-type: none"> <li>• allows the creation of FZK entry capacity Murfeld</li> <li>• upgrades DZK to FZK entry capacity Arnoldstein</li> <li>• needs the completion of GCA 2015/10 to be effective</li> </ul>			
<b>Project description:</b>			
<p>The following activities are necessary for the realization of the project:</p> <ul style="list-style-type: none"> <li>- Realize the connections of the three TAG pipelines with the suction collector of the station.</li> <li>- Update the station control system.</li> <li>- Filtering units before entering the GCA system are considered in GCA 2015/10 project.</li> </ul>			
<b>Technical data:</b>			
Increase of the technical interconnection capacity – TAG AZ1 Baumgarten - GCA system: >1.6 Mio Nm <sup>3</sup> /h (0° C)			
<b>Economic data:</b>			
Investment cost base 2016: XXX M€. The cost estimate underlies an accuracy of +/- 25%.			
<b>Project justification:</b>			
<p>The project will allow together with TAG project 2016/01 and GCA project 2015/10 the fulfilment of the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-24 to upgrade DZK capacity at Entry Arnoldstein to FZK capacity and consequently an improvement to the product portfolio of TAG GmbH.</p>			
<b>Project phase:</b> Planning phase.			
<b>TYNDP:</b> No	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Changes:</b>			
Withdrawal of project			
<b>Project status:</b>			
Due to the integration of the activities foreseen in TAG 2016/02 the project TAG 2015/02 will be withdrawn.			

<b>TAG 2015/03 US Flow Meters ARN-BMGT</b>		
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b> Q4 2016
		<b>Status as of:</b> 30.05.2016
<b>Project objectives:</b> In the project „US Flow Meters ARN-BMGT“ the filter separators in the MS Arnoldstein are replaced and instead of the existing orifice metering devices the USZ metering in the MS Arnoldstein and MS Baumgarten is installed in order to guarantee a better and high-tech gas metering.		
<b>To be considered:</b> In the framework of the investment also the eight (8) existing filter separators in the MS Arnoldstein are replaced by new filters with a nominal capacity flow rate of 720.000 Nm <sup>3</sup> /h.		
<b>Project description:</b> The following investments are necessary for the project execution. <ul style="list-style-type: none"> <li>• Exchange of the filter separators</li> <li>• Installation of a USZ metering</li> </ul>		
<b>Technical data:</b> There is no change in existing capacities.		
<b>Economic data:</b> Investment cost base 2015: XXX €. The cost estimate underlies in this project phase an accuracy of +/- 25%.		
<b>Project justification:</b> The project serves for the replacement of existing metering lines orifice device meterings in the two (2) cross-border MS Arnoldstein and Baumgarten by ultrasonic metering, whereby there are eight (8) metering lines in the MS Arnoldstein and six (6) metering lines in the MS Baumgarten. The new metering system will be set up according to ISO 17089 - 1:2010 on basis of a volume converter calculation based on Z-calculation. Both the ultrasonic and the PTZ converter for the calculation of the flow rates are provided with a MID certification based on a MID guideline.		
<b>Project phase:</b> Execution phase.		
<b>TYNDP:</b> No	<b>PCI Status:</b> no	<b>CBCA Entscheidung:</b> No
<b>Project status:</b> The works are currently without significant delays in the execution phase in Arnoldstein and Baumgarten. Project completion is foreseen on schedule by the end of Q4 2016.		


<b>TAG 2015/04 NOxER II</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q4/2018
		<b>Status as of:</b>	30.05.2016
<b>Project objectives:</b>			
By the project „NOxER II“ the replacement of equipment within the compressor stations Baumgarten, Eggendorf, Grafendorf and Ruden is carried out based on public-law decrees.			
<b>To be considered:</b>			
TAG GmbH analyses the possibility of the exchange/extension of the FR 3 gas turbines installed in the compressor stations Baumgarten, Grafendorf and Ruden of the TAG system by a new type, more modern compressors powered by gas turbines (TUCO) or by compressors powered by electric motors (Integrally Geared, ELCO). The required power (MW) to be installed instead of the existing FR 3 gas turbines is defined in a hydraulic study of the TAG system. The project is in direct connection with GCA 110 kV Freileitung.			
<b>Project description:</b>			
The following investments are required for the project execution:			
<ul style="list-style-type: none"> <li>• Removing of 10 FR-3 machines at three sites</li> <li>• Installation of 4 new ELCO-machines at 3 sites</li> <li>• Installation of 3 new E-supply cable systems</li> </ul>			
<b>Technical data:</b>			
There is no change in existing capacities.			
<b>Economic data:</b>			
Investment cost base 2015: XXX €. The cost estimate underlies an accuracy of +/- 25%.			
<b>Project justification:</b>			
Due to a new emission protection law for boiler plants (EGK) as well as due to the age and the reached operation hours (about 100.000) of the installed Frame 3 gas turbines, TAG will take the existing Frame 3 units out of operation step by step in order to reduce the burden with NOx emissions on the TAG system.			
<b>Project phase:</b>			
Execution phase.			
<b>TYNDP:</b>	<b>PCI Status:</b>	<b>CBCA Entscheidung:</b>	
No	no	no	
<b>Projektstatus:</b>			
The activities are currently in schedule with the project plan. Main permissions have been obtained and the detailed design is almost completed. Works in Baumgarten, Grafendorf and Eggendorf CS are foreseen to start in Q4 2016 and the completion of all the activities is foreseen by the end of Q4 2018.			





## 7.2 Projects – new


<b>GCA 2015/01a: Bidirectional Austria Czech Interconnector</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q4/2020
<p><b>Project objective:</b> The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Reintal entry and exit point between the Austrian market area and the Czech market.</p>		
<p><b>Please note:</b>            The project is directly linked to the project TAG 2016/05            This project proposes two concepts for connecting the markets:            1. Connecting the two markets via the Reintal cross-border point            2. Booking entry capacities at existing and/or at potential new cross-border points in both countries            The GCA projects contained in this document are considered individually and not together.</p>		
<p><b>Project description:</b>            The following investments are necessary for the project:</p> <ul style="list-style-type: none"> <li>– New metering station at the handover station – Baumgarten (3x)</li> <li>– New Baumgarten CS</li> <li>– Transmission system connection between Baumgarten and Reintal</li> <li>– New metering station at the handover station - Reintal</li> </ul>		
<p><b>Technical data:</b>            After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users:</p> <p>Reintal entry point      750,000 Nm<sup>3</sup>/h (0°C)            Reintal exit point      750,000 Nm<sup>3</sup>/h (0°C)</p>		
<p><b>Economic data:</b>            Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>		
<p><b>Project rationale:</b>            This project is necessary to foster the north-south corridor, reduce market isolation, increase the security of supply in the Czech Republic and in Austria and provide transport routes for alternative gas sources.</p>		
<p><b>Project phase:</b> Identify and assess</p>		
<b>TYNDP:</b> TRA-N-021	<b>PCI status:</b> yes, 6.4	<b>CBCA decision:</b> no
<p><b>Changes:</b>            GCA 2015/01a Version 1: planned completion, project description, economic data</p>		
<p><b>Project status:</b>            The project is submitted for approval as a <b>planning project</b> under the terms specified in the economic data section with the amendments indicated.</p>		





Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		







<b>GCA 2015/02a: Entry Überackern</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q1/2022
<p><b>Project objective:</b> The project aims to increase technical capacity at the Überackern SUDAL entry point to cover projected demand for additional entry capacities at the Überackern SUDAL point. As the Überackern SUDAL, Überackern ABG and Oberkappel points are in competition, capacity at the Oberkappel entry point will also be adjusted.</p>		
<p><b>Please note:</b> The project is directly linked to the project TAG 2016/02. The investment concerns capacity-increasing measures at the Überackern SUDAL and Oberkappel entry points in order to create capacities with guaranteed access to the VTP. The GCA projects contained in this document are considered individually and not together.</p>		
<p><b>Project description:</b></p> <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> <li>– Modification of the Überackern metering station at the handover station:</li> <li>– Überackern CS "New"</li> <li>– WAG partial loop</li> <li>– Modification of Oberkappel metering station</li> <li>– Modification Baumgarten station</li> </ul>		
<p><b>Technical data:</b></p> <p>Project-related analyses were carried out on the basis of the following additional capacities:</p> <p>technically marketable capacity, Überackern SUDAL entry point: 674,500 Nm<sup>3</sup>/h (0°C)</p> <p>technically marketable capacity, Oberkappel entry point: 1,175,000 Nm<sup>3</sup>/h (0°C)</p>		
<p><b>Economic data:</b></p> <p>After completion of the project, the following additional freely available entry capacity to the transmission system will be available to system users at the Überackern entry point:</p> <p>Überackern SUDAL entry point: + 223,414 Nm<sup>3</sup>/h (0°C)</p> <p>Oberkappel entry point: + 223,414 Nm<sup>3</sup>/h (0°C)</p> <p>Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- XX% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Überackern IP are covered by binding long-term bookings.</p>		
<p><b>Project rationale:</b></p> <p>In particular, this project becomes necessary to be able to cover the projected additional capacity demand at the Überackern SUDAL entry point.</p>		
<p><b>Project phase:</b> Identify and assess</p>		
<b>TYNDP:</b> -	<b>PCI status:</b> Not available	<b>CBCA decision:</b> no
<p><b>Changes:</b> GCA 2015/02a Version 1: planned completion, project objective, project description, project rationale, technical data, economic data</p>		
<p><b>Project status:</b></p> <p>The project is submitted for approval as a <b>project</b> under the terms specified in the economic data section with the amendments indicated.</p>		

Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		

<b>GCA2015/05: Entry Mosonmagyaróvár</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2021
<b>Project objective:</b> The project aims to create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional entry capacities at the Mosonmagyaróvár point on a freely allocable basis.			
<b>Please note in particular:</b> The project is directly linked to the project TAG 2016/04. The investment is restricted to providing capacities with guaranteed access to and from the VTP at Mosonmagyaróvár entry and exit point. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>- Modification HAG MS: Filter separator, metering routes, regulation, piping</li> <li>- New HAG CS</li> <li>- Extension of the Baumgarten node</li> </ul>			
<b>Technical data:</b> Project-related analyses were carried out on the basis of the following additional capacities: technically marketable capacity, Mosonmagyaróvár entry point: 570,000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Mosonmagyaróvár IP are planned to be available to the system users in accordance with the demand submitted: Mosonmagyaróvár entry point + 460,000 Nm <sup>3</sup> /h (0°C) Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Mosonmagyaróvár IP are covered by binding long-term bookings.			
<b>Project rationale:</b> This project is being examined in order to cover the projected additional demand for capacity at the Mosonmagyaróvár entry point.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:</b> TRA-N-423	<b>PCI status:</b> yes, 6.24.3	<b>CBCA decision:</b> -	
<b>Changes:</b> GCA 2015/05 Version 1: planned completion, project description, project rationale, economic data			
<b>Project status:</b> The project is submitted for approval as a <b>project</b> under the terms specified in the economic data section with the amendments indicated.			


Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		





<b>GCA 2015/07b additional demand in distribution area +</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q3/2018*
<b>Project objective:</b> The project aims to increase technical capacity at the virtual point from the distribution area to the GCA transmission system level to cover the submitted demand for additional entry capacities at the virtual point on a freely allocable basis.			
<b>Please note in particular:</b> The project is directly linked to the project TAG 2016/02. The applicable technical capacity at the virtual point from the distribution area to the transmission area amounts to 360,000 Nm <sup>3</sup> /h (0°C) at present. The GCA projects contained in this document are considered individually and not together. The pressure requirements of AGGM PVS2->PVS1 are reflected in the project. * The commissioning date was adapted to guarantee an optimized and coordinated project development in the transmission system and to increase the availability of the capacities.			
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>- Extension of the WAG suction pipe in order to divert the entire quantity (600,000 PVS + 515,000 MAB) in a compressed manner to the WAG system.</li> <li>- Reconnect HAG metering station and establish direct connection of collector via BOP11 in the WAG.</li> <li>- TAG outlet point - extension of the second line (filter, control valves, new 20" metering route, enable high-pressure injection on medium-pressure lines)</li> </ul>			
<b>Technical data:</b> After completion of the project, the following freely available entry capacity at the virtual point from the distribution area to the GCA transmission system level are planned to be available to system users: Virtual entry point 960,000 Nm <sup>3</sup> /h			
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 10% due to uncertainties in the first planning phase. The project is deemed realised through the commissioning of the LTP Project 2013/03.			
<b>Project rationale:</b> In particular, this project is reviewed to cover the projected additional capacity demand at the virtual point from the distribution area to the GCA transmission system level.			
<b>Project phase:</b> Select			
<b>TYNDP:-</b>	<b>PCI status:</b> Not available	<b>CBCA decision:</b> no	
<b>Changes:</b> GCA 2015/07b Version 1: planned completion, project description, economic data			
<b>Project status:</b> The project is submitted for approval as a <b>project</b> under the terms specified in the economic data section with the amendments indicated.			

Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		





<b>GCA 2015/09 Baumgarten metering routes programme</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q3/2016
<b>Project objective:</b> The aim of the project is to strengthen the Baumgarten node.		
<b>Please note in particular:</b> The project is directly linked to the project TAG 2015/01. It was agreed with the TSO TAG in advance that the GCA programme would encompass only individual projects involving plants owned by GCA. The GCA projects contained in this document are considered separately and not cumulatively.		
<b>Project description:</b> The following investments are necessary for the project: <ul style="list-style-type: none"> <li>- Increased capacity of metering routes (MS 4, MS 5, HAG MS, TAG AZ, BOP 11, BOP 12)</li> <li>- Increased capacity of filter separators (MS 4, TAG AZ, BOP 11+ BOP 12)</li> <li>- Pipeline construction work in Baumgarten</li> </ul>		
<b>Technical data:</b> Increased capacity of metering routes, filter separators and pipeline adaptation in the Baumgarten node area are required to implement the Baumgarten metering routes programme.		
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 10% due to uncertainties in the first planning phase.		
<b>Project rationale:</b> The Baumgarten metering routes programme is a project of major significance for the Market Area East, which is to be implemented without delay for the following reasons: <ul style="list-style-type: none"> <li>- Response to changing market requirements</li> <li>- Optimised flexibility of the Baumgarten node</li> <li>- Setting up new and improved routes</li> <li>- Reduced dependency on non-Austrian TSOs</li> <li>- Improved control mechanisms</li> <li>- Lower probability of interruption of interruptible services</li> </ul>		
<b>Project phase:</b> Execute		
<b>TYNDP:-</b>	<b>PCI status:</b> Not available	<b>CBCA decision:</b> no
<b>Changes:</b> GCA 2015/09 Version 1: planned completion, economic data		
<b>Project status:</b> The project is submitted for approval as a <b>project</b> under the terms specified in the economic data section with the amendments indicated.		
<b>Risk Category</b>	<b>Qualitative assessment</b>	<b>Risk</b>
As the projects are at an advanced stage and to a large part already completed a risk assessment is not developed.		








<b>GCA2015/10: Entry Arnoldstein</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2018
<b>Project objective:</b> The project aims to facilitate the maximum possible freely allocable capacity at the Arnoldstein entry point.			
<b>Please note in particular:</b> The project is directly linked to the project TAG 2016/02. It was agreed with the TSO TAG in advance that the GCA programme would encompass only individual projects involving plants owned by GCA. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b> The following investments are necessary: <ul style="list-style-type: none"> <li>- Increase in connection capacity at Baumgarten from the TAG line to the VTP and to other systems (TAG AZ, MS 4 bidirectional)</li> </ul>			
<b>Technical data:</b> For implementation of the project, freely allocable capacity yet to be analysed at the Arnoldstein entry point of 11,190 MWh/h or 1,000,000 Nm³/h (0°C) (to be analysed) was agreed with TAG.			
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> This project is being examined in order to enable the maximum possible freely allocable capacity at the Arnoldstein entry point and to comply with the condition imposed in the official decision approving the 2016-2025 CNDP.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision: -</b>	
<b>Changes:</b> 2015/10 Version 1: project description, economic data, project rationale, planned completion			
<b>Project status:</b> The project is submitted for approval as a <b>project</b> under the terms specified in the economic data section with the amendments indicated.			


Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		

<b>GCA 2016/01: Baumgarten Brezlav Interconnector</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2020
<b>Project</b>		<b>objective:</b>	
The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Reintal entry and exit point between the Austrian market area and the Czech market.			
<b>Please note in particular:</b>			
The project is directly linked to the project TAG 2016/06. The investment concerns capacity-increasing measures at the new Reintal point in order to create capacities with guaranteed access to the VTP. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b>			
<p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> <li>- New metering station at the handover station – Baumgarten (3x)</li> <li>- New Baumgarten CS</li> <li>- Transmission system connection between Baumgarten and Reintal</li> <li>- New metering station at the handover station - Reintal</li> </ul>			
<b>Technical data:</b>			
After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users:			
Reintal entry point 4,900,000 Nm <sup>3</sup> /h (0°C)			
Reintal exit point 750,000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b>			
After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users:			
Reintal entry point 4,745,833 Nm <sup>3</sup> /h (0°C)			
Reintal exit point 750,000 Nm <sup>3</sup> /h (0°C)			
Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- XX% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Reintal IP are covered by binding long-term bookings.			
<b>Project rationale:</b>			
In particular, this project is reviewed to cover the projected additional capacity demand at the Reintal entry/exit point.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision: -</b>	
<b>Project status:</b>			
The project will be submitted as a <b>project</b> for approval for the first time under the terms specified in the economic data section.			





Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		

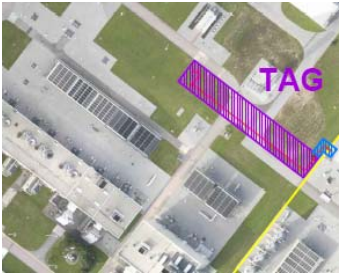
<b>GCA 2016/02: Oberkappel N4G Interkonnektor</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q1/2022
<b>Project</b>		<b>objective:</b>	
The project is directly linked to the project TAG 2016/02. The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Diendorf entry and exit point between the Austrian market area and the Czech market.			
<b>Please note in particular:</b>			
The investment concerns capacity-increasing measures at the new Diendorf point in order to create capacities with guaranteed access to the VTP. The GCA projects contained in this document are considered individually and not together.			
<b>Project description:</b>			
<p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> <li>– WAG partial loop</li> <li>– Modifications Baumgarten station (BOP 13, TAG AZ)</li> <li>– Alterations to MAB connection</li> </ul>			
<b>Technical data:</b>			
After completion of the project, the following additional freely allocable entry/exit capacities at the Diendorf IP are planned to be available to the system users:			
Diendorf entry point	413,000 Nm <sup>3</sup> /h (0°C)		
Diendorf exit point	413,000 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b>			
Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- XX% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Diendorf IP are covered by binding long-term bookings.			
<b>Project rationale:</b>			
This project is necessary to facilitate provision of FZK quality in GCA's transmission system of the additional capacities resulting from the project submitted by N4G.			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision: -</b>	
<b>Project status:</b>			
The project will be submitted as a <b>planning project</b> for approval for the first time under the terms specified in the economic data section.			


Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		

<b>GCA2016/03 Entry/Exit Murfeld &amp; Entry Arnoldstein</b>							
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2021				
<p><b>Project objective:</b> The project aims to increase technical capacities on FZK basis at the Murfeld exit point and, for the first time, to create technical FZK capacity at the Murfeld entry point and FZK capacity at the Arnoldstein entry point.</p>							
<p><b>Please note in particular:</b> The project is directly linked to the project TAG 2016/02&amp;TAG 2016/02. It was agreed with the TSO TAG in advance that the GCA programme would encompass only individual projects involving plants owned by GCA. The investment is restricted to the Murfeld entry/exit point and the connected Austrian GCA transmission grid. The GCA projects contained in this document are considered individually and not together.</p>							
<p><b>Project description:</b></p> <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> <li>- Extension of Weitendorf and Murfeld metering stations: Filter separator, metering routes, regulation, piping</li> <li>- New Murfeld CS</li> <li>- Loop of the SOL between Leibnitz and Murfeld</li> <li>- Loop of the Murfeld – Cersak border crossing pipeline</li> <li>- Modification Baumgarten (TAG AZ, MS 4, BOP 13)</li> </ul>							
<p><b>Technical data:</b></p> <p>Project-related analyses were carried out on the basis of the following additional capacities:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">technical marketable capacity, Murfeld entry point</td> <td style="text-align: right;">620,000 Nm<sup>3</sup>/h (0°C)</td> </tr> <tr> <td>technically marketable capacity, Murfeld exit point</td> <td style="text-align: right;">810,620 Nm<sup>3</sup>/h (0°C)</td> </tr> </table> <p>For implementation of the project, freely allocable capacity yet to be analysed at the Arnoldstein entry point of 11,190 MWh/h or 1,000,000 Nm<sup>3</sup>/h (0°C) (to be analysed) was agreed with TAG.</p>				technical marketable capacity, Murfeld entry point	620,000 Nm <sup>3</sup> /h (0°C)	technically marketable capacity, Murfeld exit point	810,620 Nm <sup>3</sup> /h (0°C)
technical marketable capacity, Murfeld entry point	620,000 Nm <sup>3</sup> /h (0°C)						
technically marketable capacity, Murfeld exit point	810,620 Nm <sup>3</sup> /h (0°C)						
<p><b>Economic data:</b></p> <p>After completion of the project, the following new freely allocable entry/exit capacities at the Murfeld IP are planned to be available to the system users:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 80%;">Murfeld entry point</td> <td style="text-align: right;">614,388 Nm<sup>3</sup>/h (0° C)</td> </tr> <tr> <td>Murfeld exit point</td> <td style="text-align: right;">391,620 Nm<sup>3</sup>/h (0° C)</td> </tr> </table> <p>Investment cost basis 2016: EUR XXX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the virtual point are covered by binding long-term bookings.</p>				Murfeld entry point	614,388 Nm <sup>3</sup> /h (0° C)	Murfeld exit point	391,620 Nm <sup>3</sup> /h (0° C)
Murfeld entry point	614,388 Nm <sup>3</sup> /h (0° C)						
Murfeld exit point	391,620 Nm <sup>3</sup> /h (0° C)						
<p><b>Project rationale:</b></p> <p>This project is examined in order to cover the additional demand submitted for the Murfeld entry and exit point and to comply with the condition imposed in the official decision approving the CNDP 2016-2025.</p>							
<p><b>Project phase:</b> Identify and assess</p>							
<b>TYNDP:-</b>	<b>PCI status:-</b>	<b>CBCA decision: -</b>					
<p><b>Project status:</b> The project will be submitted as a <b>project</b> for approval for the first time under the terms specified in the economic data section.</p>							





Risk Category	Qualitative assessment	Risk
<p><b>HSE Risk</b></p> <ul style="list-style-type: none"> <li>• Accident with personal - , property - , environmental damage</li> <li>• Break-in at the construction site</li> <li>• Traffic</li> <li>• Emmissions</li> <li>• Reputation</li> </ul>		
<p><b>Technical Risks</b></p> <ul style="list-style-type: none"> <li>• Surface / Subsurface</li> <li>• Infrastructure &amp; other assets</li> <li>• Quality (Material, Construction/Commissioning, Gas Quality#)</li> <li>• New Technologies</li> <li>• Commissioning (Handling, Maintenance, Availability, etc.)</li> </ul>		
<p><b>Economic Risiks</b></p> <ul style="list-style-type: none"> <li>• Suppliers, Partners</li> <li>• Contract Design</li> <li>• Markets</li> <li>• Insurances</li> <li>• Economic Assessment</li> </ul>		
<p><b>Project Surrounding</b></p> <ul style="list-style-type: none"> <li>• Legal Framework, Regulatory Authorities, Servitude</li> <li>• Stakeholder &amp; Political Surrounding</li> <li>• Property (Crossings, Armaments loft from the war, etc.)</li> <li>• Environmental incidents</li> <li>• Other Projects</li> </ul>		


<b>TAG 2015/01 Messstrecken Baumgarten TAG Einbindung</b>		
<b>Project owner:</b>	TAG GmbH	<b>Planned finalization:</b> Q3 2016
		<b>Status as of:</b> 15.06.2016
<p><b>Project objectives:</b>            With the implementation of the project “Messstrecken Baumgarten TAG Einbindung“ a new inter-connection between the GCA subsystem WAG-MS4 is created, which increases the internal inter-connection capacity in the Baumgarten Station.</p>		
<p><b>To be considered:</b>            The project aims to increase the interconnection capacities between the single transit systems within the physical hub Baumgarten. An increase of capacities at the relevant points (massgebliche Punkte) is not foreseen, but an increase of the interconnection capacity between the single transmission systems. The project is a complementary measure to the project “Messstrecken Baumgarten“ (Projekt GCA 2015/09) submitted by GCA in the course of the 2016-25 KNEP.</p>		
<p><b>Project description:</b>            The following investments are necessary for the realization of the project:</p> <ul style="list-style-type: none"> <li>– installation of an ultrasonic meter for</li> <li>– check-measurement</li> <li>– installation of isolation valves</li> <li>– integration into the station control system</li> <li>– connection pipe between MS4 and TAG</li> <li>– Pipeline</li> </ul>		
<p><b>Technical data:</b>            Increase of the interconnection capacity between MS4-TAG Baumgarten: 1.000.000 Nm<sup>3</sup>/h (0° C)</p>		
<p><b>Economic data:</b>            Investment cost base 2016: XXX €. The costs arise from the EPC Contract.</p>		
<p><b>Project justification:</b>            The project is required in order to increase the technical interconnection capacity between the transit systems of TAG and GCA within the Baumgarten station and to further improve the Security of Supply of Austrian and Italian markets.</p>		
<p><b>Project phase:</b> Execution phase</p>		
<b>TYNDP:</b> No	<b>PCI Status:</b> no	<b>CBCA Entscheidung:</b> no
<p><b>Changes:</b>            TAG 2015/01 V1: Planned finalization.</p>		
<p><b>Project status:</b>            The project will be submitted as project for approval under the terms specified in the economic data section taking into account the specified changes.</p>		

<b>TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalization:</b>	Q4/2018
		<b>Status as of:</b>	02.06.2016
<b>Project objectives:</b>			
<p>The implementation of the project “TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf” will allow the transportation of at least 1,6 million Ncm/h (at least 1.000.000 Ncm/h in Arnoldstein entry points and 600.000 Ncm/h in Murfeld entry point) to Baumgarten, allowing the operation of the Weitendorf CS and all the necessary modifications of the station control system.</p>			
<b>To be considered:</b>			
<p>Without any compressor station in operation the maximum physical reverse flow in Baumgarten – by continuing to respect contractual obligations at the Austria domestic exit points – is around 1.000.000 Nm<sup>3</sup>/h. In order to guarantee the possibility to use Weitendorf and Eggendorf compressor stations in reverse flow this project is necessary.</p> <p>The project allows to fulfill the obligation of the Decree PA 16870/15, issued by ECA on the CNDP (KNEP) 2016-25 and, together with projects TAG 2016/02, GCA 2015/08, GCA 2015/10 and GCA 2016/03, by creating new and not competing freely allocable capacity at the entry points of Arnoldstein and Murfeld.</p> <p>The project has also been submitted in the TYNDP 2017 (TRA-N-954).</p>			
<b>Project description:</b>			
<p>The following activities are foreseen:</p> <ul style="list-style-type: none"> <li>- Add a connection from the Sol system to the suction side of the compressor station (ca. 20 m with DN 24”) with related valve and bypass</li> <li>- Add a connection from the high pressure side to TAG 2 (ca. 20 m with DN 24”) with related valve and bypass in Eggendorf in order to create the possibility to reverse the flow with two lines</li> <li>- Update of the existing station control system in the CS Weitendorf and CS Eggendorf</li> </ul>			
<b>Technical data:</b>			
<p>The project foresees the possibility to reverse the flow in the Weitendorf CS, allowing the transportation towards Baumgarten of the existing entry capacity in Arnoldstein plus the planned new capacity in Murfeld, by also satisfying all the contractual obligation at the domestic exit points. The project also foresees a few minor implementation in the TAG CSs, allowing reverse flow to be operated in normal operating conditions with no need of intervention in Baumgarten.</p> <p>Increase of the technical reverse flow capacity – TAG system: &gt;1.6 Mio Nm<sup>3</sup>/h (0° C)</p>			
<b>Economic data:</b>			
<p>Investment cost base 2016: XXX M€. The cost estimation is being currently valued by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- 25%.</p>			
<b>Project justification:</b>			
<p>The project fulfils the obligation of the Decree PA 16870/15, issued by ECA on the CNDP 2016-25 and, together with projects TAG 2016/02, GCA 2015/08, GCA 2015/10 and GCA 2016/03, will create new and not competing freely allocable capacity in the entry points of Arnoldstein and Murfeld.</p>			


<b>Project phase:</b> Planning phase.		
<b>TYNDP:</b> Yes	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no
<b>Project status:</b> The project will be submitted for approval as project under the terms specified in the economic data section.		


<b>TAG 2016/02 AZ1 additional entry and connection to BOP13</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned completion:</b>	Q3 2018
		<b>Status as of:</b>	24.05.2016
<b>Project goal:</b>			
<p>The project goal is to allow the increase of volumes into the TAG system from AZ1 entry point, as foreseen by the project GCA 2015/7b, bringing up to a maximum of 1.200.000 Ncm/h from AZ1 entirely into TAG CS Baumgarten MD (low pressure side). The project also includes the connection of BOP 13 to AZ1 low pressure line.</p>			
<b>To be considered:</b>			
<p>Considering that the works will affect the same areas, the project also includes the direct connection between BOP 13 and AZ1 downstream the TAG compressor station. This will also solve the problem of BOP13 entering TAG downstream CS Baumgarten, that created several issues in winter 2014/15. Therefore, in September 2015 it was agreed that a better solution has to be developed.</p> <p>The project is in direct connection with the projects GCA 2015/02/GCA 2015/02a (Entry Überacker) and GCA 2015/07b (Mehrbedarf Verteilergelände) as well as GCA 2016/02 (Oberkappel N4G Interkonnektor).</p>			
<b>Project description:</b>			
<p>The following activities are needed for the execution of the project:</p> <ul style="list-style-type: none"> <li>– replacement of old 24" AZ1 low pressure line with a new 36" line till to the property border between the pipelines GCA/TAG;</li> <li>– interconnection between AZ1 low and high pressure lines; 2*24" valves</li> <li>– Interconnection of BOP 13 with new AZ1 low pressure line.</li> </ul>			
<b>Technical data:</b> Allowing increase of AZ1 entry foreseen by GCA, eliminating any constraints on the TAG CS Baumgarten operation mode in normal operation, allowing direct connection between TAG pipeline and AZ1 and BOP13.			
<b>Economic data:</b>			
Investment costs: XXX €			
The cost estimation is be understood with an accuracy of +/- 25%.			
<b>Project justification:</b>			
<p>The project TAG 2016/02 will allow the overall entry flow of 1.200.000 Ncm/h from AZ1 to the TAG system in normal operation mode, only upstream of TAG CS Baumgarten. In the same project, TAG will provide the direct connection between BOP 13 and AZ1. This will solve the historical problem of BOP13 entering TAG downstream CS Baumgarten, that created several issues in winter 2014/15 (in order to avoid such issues in future, TAG and GCA are finalizing an operational procedure to be applied until this new project will be realized). In order to allow in future the maximum capacity of flow from/to TAG from BOP 13 and/or AZ1, TAG will construct a 36" line till to the property boundary between GCA AZ1 and TAG system.</p>			
<b>Project phase:</b> Planning phase.			
<b>TYNDP:</b> No	<b>PCI Status:</b> no	<b>CBCA decision:</b> no	
<b>Project status:</b> The project will be submitted for approval as project as described in the conditions under the economic data.			

<b>Project name:</b> TAG 2016/03 Reverse Flow Baumgarten MT Station (MS2)			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q4/2019
		<b>Status as of:</b>	02.06.2016
<b>Project objectives:</b>			
<p>The new project TAG 2016/03 will allow the physical reverse flow of TAG system towards the Slovakian network, increasing the security of supply of the whole area and has also been submitted in the TYNDP 2017 (TRA-N-954).</p>			
<b>To be considered:</b>			
<p>The project foresees the possibility to reverse the flow in the TAG Baumgarten metering station, allowing a physical reverse flow towards Slovakia and other possible cross-border interconnections. The project should be seen as a SoS project increasing security of supply of Slovakia in particular. In order to achieve this goal also the project TAG 2016/01 is necessary.</p>			
<b>Project description:</b>			
<p>The following activities are foreseen:</p> <ul style="list-style-type: none"> <li>– Interconnection of the three TAG lines (using 24" pipes and valves) with the collector prior to the filters.</li> <li>– Connection downstream MS2 (using pipe DN 40") with TAG 1 and TAG2 (both SK direction).</li> <li>– Connection (using pipe DN 40") downstream the compression (on the collector) up to TAG1 and TAG 2 in reverse flow.</li> </ul>			
<b>Technical data:</b>			
<p>The project includes all the activities needed in order to reverse the flow in Baumgarten CS, including filtering, compressing and metering of the gas towards Slovakia, including the modification of the station control system.</p> <p>Exit capacity Baumgarten: 1.000.000 Nm<sup>3</sup>/h</p>			
<b>Economic data:</b>			
<p>Investment cost base 2016: XXX M€. The cost estimation is being currently valuated by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- 25%. The extension threshold for implementing the project is reached as soon as the costs allocated to the Baumgarten IP are covered by binding long-term bookings.</p>			
<b>Project justification:</b>			
<p>Increase of Security of Supply. This project allows to upgrade UK to FZK capacity at the Exit Point Baumgarten.</p>			
<b>Project phase:</b> Planning phase.			
<b>TYNDP:</b> Yes	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b>			
<p>The project will be submitted as project for approval under the terms specified in the economic data section.</p>			

<b>Project name:</b> TAG 2016/04 TAG Baumgarten interconnection capacity (Mosonmagyaróvár)		
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b> Q4/2021
		<b>Status as of:</b> 20.06.2016
<b>Project objectives:</b> The project objective is to create an additional interconnection capacity on freely allocable basis (FZK) in Baumgarten with guaranteed access to the VTP, based on additional FZK capacities at the GCA entry point Mosonmagyaróvár. The project ensures the modification of the TAG Baumgarten station in order to allow an increased gas flow into the TAG system.		
<b>To be considered:</b> The project is in direct connection with GCA 2015/05 Entry Mosonmagyaróvár.		
<b>Project description:</b> The following activities are foreseen: – • extension of Baumgarten interconnection facilities		
<b>Technical data:</b> Following additional FZK interconnection capacity in Baumgarten shall be provided: Additional entry capacity: 570.000 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b> Investment cost base 2016: XXX M€. The cost estimation is being currently valued by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- XX%, which reflects the uncertainty in the first planning phase. The realization of the project is subject to the economic feasibility to be proven by binding long-term booking at the Mosonmagyaróvár entry point.		
<b>Project justification:</b> Increase of interconnection capacity and liquidity of the market in order to increase the Austrian and European security of supply and to enable alternative transport routes for alternative gas supply sources.		
<b>Project phase:</b> Planning phase.		
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no
<b>Project status:</b> The project will be submitted as planning project for approval under the terms specified in the economic data section. The coordination process for the detailed project planning is still ongoing and depending on the implementation of the project TAG 2016/02 the project TAG 2016/04 might not be required any more.		



<b>Project name:</b> TAG 2016/05 TAG Baumgarten interconnection capacity (BACI)		<b>Planned finalisation:</b>	Q4/2020
<b>Project owner:</b>	TAG GmbH	<b>Status as of:</b>	20.06.2016
		<b>Project objectives:</b>	
<p>The project objective is to create an additional interconnection capacity on freely allocable basis (FZK) from/into the TAG system going to/coming from the Czech market (entry/exit point Reintal) with guaranteed access to the VTP, based on additional FZK capacities at the new GCA point Reintal. The project ensures the modification of the TAG Baumgarten station in order to allow an increased interconnection gas flow.</p>			
<b>To be considered:</b>			
<p>The project is in direct connection with GCA 2015/01a: Bidirectional Austria Czech Interconnector. Furthermore, guaranteed access to the VTP shall be ensured.</p>			
<b>Project description:</b>			
<p>The following activities are foreseen:</p> <ul style="list-style-type: none"> <li>– • Extension of Baumgarten interconnection facilities</li> </ul>			
<b>Technical data:</b>			
<p>Following additional FZK interconnection capacity in Baumgarten shall be provided:</p> <p>Additional entry capacity: 750.000 Nm<sup>3</sup>/h (0°C)</p> <p>Additional exit capacity: 750.000 Nm<sup>3</sup>/h (0°C)</p>			
<b>Economic data:</b>			
<p>Investment cost base 2016: XXXX M€. The cost estimation is being currently valued by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- XX%, which reflects the uncertainty in the first planning phase.</p> <p>The realization of the project is subject to the economic feasibility, to be proven by binding long-term booking at the future Reintal entry/exit point.</p>			
<b>Project justification:</b>			
<p>Increase of interconnection capacity and liquidity of the market in order to support the North-South corridor, to reduce market isolation, to increase the security of supply for Austria and Czech Republic and to enable alternative transport routes for alternative gas supply sources.</p>			
<b>Project phase:</b> Planning phase.			
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b>			
<p>The project will be submitted as planning project for approval under the terms specified in the economic data section.</p>			

<b>Project name:</b> TAG 2016/06 TAG Baumgarten interconnection capacity (BBI)		<b>Planned finalisation:</b>	Q4/2020
<b>Project owner:</b>	TAG GmbH	<b>Status as of:</b>	20.06.2016
		<b>Project objectives:</b> The project objective is to create an additional interconnection capacity on freely allocable basis (FZK) from/into the TAG system going to/coming from the Czech market (entry/exit point Reintal) with guaranteed access to the VTP, based on additional FZK capacities at the new GCA point Reintal. The project ensures the modification of the TAG Baumgarten station in order to allow an increased interconnection gas flow.	
<b>To be considered:</b> The project is in direct connection with GCA 2016/01 (Baumgarten Brezlav Interconnector). Furthermore, guaranteed access to the VTP shall be ensured.			
<b>Project description:</b> The following activities are foreseen: – • Extension of Baumgarten interconnection facilities			
<b>Technical data:</b> Following additional FZK interconnection capacity in Baumgarten shall be provided: Additional entry capacity: 4.900.000 Nm <sup>3</sup> /h (0°C) Additional exit capacity: 750.000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b> Investment cost base 2016: XXXX M€. The cost estimation is being currently valued by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- XX%, which reflects the uncertainty in the first planning phase. The realization of the project is subject to the economic feasibility to be proven by binding long-term booking at the future Reintal entry/exit point.			
<b>Project justification:</b> Increase of interconnection capacity and liquidity of the market in order to support the North-South corridor, to reduce market isolation, to increase the security of supply for Austria and Czech and to enable alternative transport routes for alternative gas supply sources.			
<b>Project phase:</b> Planning phase.			
<b>TYNDP:</b> No	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b> The project will be submitted as project for approval under the terms specified in the economic data section.			

### 7.3 Replacement investments

GCA 2016/E1 110 kV overhead power line			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4/2021
<b>Project objective:</b> Increase security of supply			
<b>Please note in particular:</b> The project is directly linked to the project TAG 2015/04. In agreement with the 110 kV network expansion by system operator Netz Niederösterreich.			
<b>Project description:</b> <ul style="list-style-type: none"> <li>- Construction of a transformer substation in the Oberweiden area</li> <li>- Construction of a 110kV overhead power line from Untersiebenbrunn to Oberweiden</li> </ul> Looping of existing underground cables into the new Oberweiden substation			
<b>Technical data:</b> No increase in marketable capacity			
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> A significant improvement in security of supply to the compressor station, as power will be supplied from the public 110kV grid at two physically separate locations. Reduction in electrical losses from the underground cables due to the reduced length In future it will be possible to utilise the entire installed capacity at the Baumgarten substations including upstream cabling systems			
<b>Project phase:</b> Identify and assess			
<b>TYNDP:-</b>	<b>PCI status:</b> Not available	<b>CBCA decision:</b> no	
<b>Project status:</b> The Project is submitted for approval.			

<b>GCA 2016/E2 Baumgarten MS3 Reverse Flow Bereinigung</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4 2018
<b>Project objective:</b> The physical reverse flow to Slovakia.			
<b>Please note in particular:</b> The costs do not include cost components such as interest, risk, etc. These cost components will be included as necessary in the aforementioned detailed information in future GCA network development plans.			
<b>Project description:</b> The new state of the art technical concept consist of the following parameters: <ul style="list-style-type: none"> <li>• The switch from normal flow to reverse flow should be fully automatised. <ul style="list-style-type: none"> <li>- The fuel gas has to be consumed in the systems of FCA</li> <li>- The Line Pack has to be clarified <ul style="list-style-type: none"> <li>○ Full bidirectionality of metering stations</li> </ul> </li> </ul> </li> </ul> Possibilities to regulate the gas quantities in the normal flow Possibilities to regulate the gas quantities in the reverse flow Compressing in Baumgarten in the reverse flow should be possible			
<b>Technical data:</b> This project will not create any freely allocable entry or exit capacities.			
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> The project becomes necessary that the reverse flow to Slovakia becomes possible.			
<b>Projektphase:</b> Setup			
<b>TYNDP:</b> -	<b>PCI status:</b> -	<b>CBCA decision:</b> -	
<b>Projektstatus:</b> The Project is submitted for approval.			

<b>GCA 2016E3 Baumgarten MS3, replacement of low-voltage installation</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q4/2016
<b>Project objective:</b> Replacement of low-voltage installation at Baumgarten MS3.		
<b>Please note in particular:</b> The costs do not include cost components such as interest, risk, etc. These cost components will be included as necessary in the aforementioned detailed information in future GCA network development plans.		
<b>Project description:</b> The current low-voltage installation is now around 30 years old. Systems of this kind have a design life of approximately 25 years. Individual components have been replaced over recent years in an effort to maintain availability of the system. Commercial availability of structurally identical replacement parts is limited. In some cases, later models require modification of the system, leading to increased cost and risk. This also means that it will in future be difficult or impossible to ensure that the system design complies with applicable standards. The low-voltage installation is designed in such way that the three transformers present cannot be operated in parallel. If they were, the permitted short-circuit current to the main bus bar would be exceeded. This means that special measures are needed to maintain operations in the event of a power outage. The switchgear system must be replaced in the interests of both safety and availability of the compressor and metering station.		
<b>Technical data:</b> This project will not create any freely allocable entry or exit capacities.		
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.		
<b>Project rationale:</b> This project is necessary because the switchgear system is no longer considered state of the art in terms of both safety and availability of the compressor and metering station and therefore needs to be replaced.		
<b>Project phase:</b> Execute		
<b>TYNDP:</b> -	<b>PCI status:</b> -	<b>CBCA decision:</b> -
<b>Project status:</b> The Project is submitted for approval.		

<b>GCA 2016E4 Baumgarten MS3 &amp; Oberkappel – Switch from orifice to ultrasound metering</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q3/2018
<b>Project objective:</b> Switch from orifice to ultrasound metering at metering station MS3 at Baumgarten and Oberkappel metering station.		
<b>Please note in particular:</b> The costs do not include cost components such as interest, risk, etc. These cost components will be included as necessary in the aforementioned detailed information in future GCA network development plans.		
<b>Project description:</b> Metering station MS3 at Baumgarten filters and meters imported gas from G00-118 and the WAG from Vysoka/SK. The Oberkappel metering station filters, meters and regulates gas from the WAG in the direction of Wildenranna/DE and in the reverse flow direction.  The metering technique currently used (orifice metering) is no longer considered state of the art and the station is being converted to use ultrasound meters.		
<b>Technical data:</b> This project will not create any freely allocable entry or exit capacities.		
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.		
<b>Project rationale:</b> This project is required because the metering technique currently used at both metering stations is no longer considered state of the art.		
<b>Project phase:</b> Select		
<b>TYNDP:</b> -	<b>PCI status:</b> -	<b>CBCA decision:</b> -
<b>Project status:</b> The Project is submitted for approval.		

<b>GCA 2016/E5 Revamp Oberkappel</b>			
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b>	Q4 2018
<b>Project objective:</b> Exchange of the old components and the necessary revamps.			
<b>Please note in particular:</b> The costs do not include cost components such as interest, risk, etc. These cost components will be included as necessary in the aforementioned detailed information in future GCA network development plans.			
<b>Project description:</b>  The new state of the art technical concept consist of the following parameters:  <ul style="list-style-type: none"> <li>- Process Engineering</li> <li>- Apparatus Engineering</li> <li>- Piping and Layout</li> <li>- EMSR</li> <li>- Construction Technology</li> <li>- Fire Protection, Explosion Protection, Safety Technology</li> </ul>			
<b>Technical data:</b> This project will not create any freely allocable entry or exit capacities.			
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> This project is required in order to secure the handling, maintainance and availability of the system.			
<b>Project phase:</b> Setup			
<b>TYNDP:</b> -	<b>PCI status:</b> -	<b>CBCA decision:</b> -	
<b>Project status:</b> The Project is submitted for approval.			



<b>GCA 2016/E6 Baumgarten BOP 13, HAG, MAB blow-off system</b>		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned completion:</b> Q3/2016
<b>Project objective:</b> Adaptation of the BOP11-13, HAG and MAB facility area at Baumgarten including central blow-off system to comply with the requirements of standard EN ISO 23251-2007 (API Recommended Practice 520/521).		
<b>Please note in particular:</b> The costs do not include cost components such as interest, risk, etc. These cost components will be included as necessary in the aforementioned detailed information in future GCA network development plans.		
<b>Project description:</b> The new concept in compliance with current safety regulations and state-of-the-art requirements provides for the following planning and implementation steps:  <ul style="list-style-type: none"> <li>- Assess and calculate the entire system</li> <li>- Review the blow-off options in the desired sections.</li> <li>- Calculate quantity of heat for the blow-off sections to be reviewed or specified.</li> <li>- Define location depending on technical design</li> <li>- Investigate pressure relief options in the various sections.</li> <li>- Install blow-off silencers to the blow-off vents to reduce noise.</li> </ul>		
<b>Technical data:</b> This project will not create any freely allocable entry or exit capacities.		
<b>Economic data:</b> Investment cost basis 2016: € XX million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.		
<b>Project rationale:</b> This project is necessary to comply with the requirements of standard EN ISO 23251-2007 (API Recommended Practice 520/521).		
<b>Project phase:</b> Execute		
<b>TYNDP:</b> -	<b>PCI status:</b> -	<b>CBCA decision:</b> -
<b>Project status:</b> The Project is submitted for approval.		

<b>TAG 2016/07 DLE 1.5 + 72 holes PT module RC500 in CS Ruden</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation</b>	Q4 2017
		<b>Status as of</b>	24.05.2016
<b>Project goal:</b>			
The project goal is to upgrade the existing gas generators of the C500 type PGT 25 DLE 1.0 at the compressor station Ruden to the new technology DLE 1.5. Furthermore the PGT 25 gas turbines with 46 holes casing flange shall be upgraded to the new 72 holes casing flange.			
<b>To be considered:</b>			
<b>Project description:</b>			
The following investments are needed for the execution of the project:			
<ul style="list-style-type: none"> <li>• Substitution of the gas-generators</li> <li>• Substitution of the gas-turbine</li> </ul>			
<b>Technical data:</b>			
There is no change in the existing transport capacity.			
<b>Economic data:</b>			
Investment costs: XXX € (2016: XXX €, 2017: XXX)			
The cost estimation is to be understood with an accuracy of +/- 25%.			
<b>Project justification:</b>			
The upgrade of the gas generator will allow the reduction of NOx- and CO-Emissions in line with the most recent state of the art technologies.			
The 46 holes casing flange for PGT25 gas turbines is obsolete and no longer in production. In order to guarantee the reliability of the compressor units, the PGT 25 gas turbines with 46 holes casing flange shall be upgraded with the new 72 holes casing flange during the next planned major overhauls.			
The timetable of the project is planned in coordination with the upcoming Major Overhaul.			
<b>Project phase:</b>			
Planning phase.			
<b>TYNDP:</b>	<b>PCI Status:</b>	<b>CBCA decision:</b>	
no	no	no	
<b>Project status:</b>			
The project will be submitted as project for approval as described in the conditions under the economic data.			

<b>TAG 2016/08 Major Overhaul Renewal Valve Stations, Orth / Kaindorf / Finkenstein</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q4/2017
		<b>Status as of:</b>	20.06.2016
<b>Project objectives:</b> The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in three valve stations along the TAG-pipeline system.			
<b>To be considered:</b> In the investment existing equipment and infrastructure will be exchanged and/or renewed.			
<b>Project description:</b>			
<ul style="list-style-type: none"> <li>• Renewing of coatings and insulation on valve and pipe installations (under/above ground)</li> <li>• Renew cathodic protection system</li> <li>• Exchange GOV (gas operated gears) to EO/EHOV (electro hydraulic gears)</li> <li>• Renewing grounding and lightning</li> <li>• Surficial attachment</li> <li>• Railing and gate repairs</li> </ul>			
<b>Technical data:</b> There is no change to existing capacities.			
<b>Economic data:</b> Investment cost base 2016:XXX € The costs result from the respective EPCM contract, accuracy +/- 25%.			
<b>Project justification:</b> The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.			
<b>Project phase:</b> Planning phase			
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b> The project will be submitted as project for approval as described in the conditions under the economic data.			

<b>TAG 2016/09 Exchange leaking valves St. Paul / Ruden / Ludmannsdorf / Arnoldstein</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q4/2017
		<b>Status as of:</b>	20.06.2016
<b>Project objectives:</b> The replacement of 5 main line valves in the pipeline stations St. Paul, Ruden, Ludmannsdorf and Arnoldstein, in order to maintain the tightness in case of closing of the section.			
<b>To be considered:</b> As part of the investment the existing valves with actuators will be exchanged and the Cathodic Protection System, earthing and lightning protection system will be renewed.			
<b>Project description:</b>			
<ul style="list-style-type: none"> <li>• Decompression of the piping section through recompression.</li> <li>• Excavation and digging works, exposing of the piping system and valves.</li> <li>• Exchange of 5 valves.</li> <li>• Renewal of coatings and CPS (Cathodic protection system)</li> <li>• Renewal of earthing and lightning protection system.</li> </ul>			
<b>Technical data:</b> SS 12 L – St. Paul: TAG Loop II (40“) – VEOR 1L (Main valve) MOS-5 Ruden: TAG 1 (36“) – KVA 10 (Reception pig trap) SS 14 AL – Ludmannsdorf: TAG Loop II (40“) – VEOR 1 L und TAG Loop II (36“) – VEOR 11 L MOS 7 Arnoldstein: TAG 1 (36“) – MVEO 10			
<b>Economic data:</b> Investment cost base 2016:XXX € The costs result from estimation, accuracy +/- 25%.			
<b>Project justification:</b> The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.			
<b>Project phase:</b> Planning phase			
<b>TYNDP:</b>	<b>PCI Status:</b>	<b>CBCA Decision:</b>	
no	no	no	
<b>Project status:</b> The project will be submitted as project for approval as described in the conditions under the economic data.			

<b>TAG 2016/10 Renewal low voltage main switch gear, CS-Grafendorf</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q4/2017
		<b>Status as of:</b>	20.06.2016
<b>Project objectives:</b> Renewal of the electrical switch gear components based on current technology. The works extend to the following plant areas: control room, low voltage room, battery room, firefighting building and supply room. This project has been already realized in two other compressor stations (Ruden and Baumgarten).			
<b>To be considered:</b>			
<b>Project description:</b> <ul style="list-style-type: none"> <li>• Exchange of switch gear components</li> <li>• Installation and renewal switchboards, switch cabinet parts and wiring</li> <li>• Renewal of self-contained power supply, new batteries</li> <li>• Cabling in low voltage room, control room, battery room, firefighting building</li> <li>• Engineering, construction, E-TÜV acceptance and documentation</li> </ul>			
<b>Technical data:</b> There is no change to existing capacities.			
<b>Economic data:</b> Investment cost base 2016: XXX € The costs result from the respective EPCM contract, accuracy +/- 25%.			
<b>Project justification:</b> The investment is necessary to ensure the reliability and safety in the electrical main switch gear of the TAG Station.			
<b>Project Phase:</b> Planning phase. EPCM contract ready for assignment			
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b> The project will be submitted as project for approval as described in the conditions under the economic data.			

<b>TAG 2016/11 Replacement of Gashydraulic Actuators, CS- BGT, GFD, RUD</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalisation:</b>	Q1/2018
		<b>Status as of:</b>	20.06.2016
<b>Project objectives:</b> Replacement of the existing gas hydraulic to electro hydraulic actuators in the compressor stations Baumgarten, Grafendorf and Ruden			
<b>To be considered:</b> The drive concept will be switched from Gas-hydraulic (GOV) to Electro-hydraulic (EHOV), also ensuring substantial reduction of natural gas emissions.			
<b>Project description:</b>			
<ul style="list-style-type: none"> <li>• Exchange Gas-hydraulic actuators (GOV) by Electro-hydraulic actuators (EHOV)</li> <li>• E/MSR connection of the (EHOV) gears to the switchboard</li> <li>• Integration to SCS (station control system)</li> </ul>			
<b>Technical data:</b> There is no change to existing capacities or the operational procedure.			
<b>Economic data:</b> Investment cost base 2016: XXX € The costs result from the respective EPCM contract, accuracy +/- 25%.			
<b>Project justification:</b> The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.			
<b>Project Phase:</b> Planning phase			
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b> The project will be submitted as project for approval as described in the conditions under the economic data.			

<b>TAG 2016/12 SCS Replacement, CS Ruden-Grafendorf-Baumgarten</b>			
<b>Project owner:</b>	TAG GmbH	<b>Planned finalization:</b>	Q4/2019
		<b>Status as of:</b>	20.06.2016
<b>Project objectives:</b> Replacement of the SCS (Station Control System) and ESD (Emergency Shut Down) in hardware and software, as well as the replacement of the marshalling cabinets and the operating workstations and servers. In the control room there is a mimic panel that should be replaced and visualized by a LED flat screen.			
<b>To be considered:</b> Possible synergies with the project NOxER2 vs. possible replacement of instruments and valves of those loops that need to be certified due to SIL (safety integrity level) assessment. The cables now in operation will remain.			
<b>Project description:</b>			
<ul style="list-style-type: none"> <li>• Engineering</li> <li>• System implementation separately for each compressor station</li> <li>• Commissioning separately for each compressor station</li> </ul>			
<b>Technical data:</b> There is no change to existing capacities.			
<b>Economic data:</b> Investment amount: € XXX (excl. possible replacement of process instruments and valves) The total amount is an internal estimation on the basis of previous similar experiences; accuracy +/- 25%.			
<b>Project justification:</b> Due to the age of the system and the low availability of spare parts, TAG GmbH needs to replace the existing SCS by a new one in the compressor stations Ruden, Grafendorf and Baumgarten.			
<b>Project phase:</b> EPCM contract assignment			
<b>TYNDP:</b> no	<b>PCI Status:</b> no	<b>CBCA Decision:</b> no	
<b>Project status:</b> The project will be submitted as project for approval as described in the conditions under the economic data.			



## 8 Summary and outlook

With the ultimate aim of fostering the security of supply in Europe, the development of the gas market both in Europe and in the individual countries requires the activities of TSOs to be carefully coordinated at the European level and, even more so, at the national level. As the market area manager, GCA sees its role as playing a coordinating function and providing a service platform geared towards linking – in a targeted and reasonable way – ENTSOG's top-down approach in the European arena with AGGM's bottom-up approach of long-term planning at the national level.

While preparing their individual NDPs, the Austrian TSOs have conducted a market survey for the entry and exit points. Alongside the market survey by the TSOs, a project data collection exercise was carried out in the Market Area East. Project sponsors were given the opportunity to report their projects to the TSOs or the MAM.

Demand submitted at the entry and exit points was then compared with available pipeline capacity and, taking the projects submitted into account, the MAM and TSOs together prepared a capacity scenario (see chapter 4). Based on this capacity scenario, potential congestion at the entry and exit points was identified and corresponding countermeasures were put forward in the individual NDPs.

The analysis of GCA's NDP revealed that the demand for incremental capacity at the Überackern entry/exit point and the Mosonmagyaróvár entry point will require additional investments in GCA's transmission network.

In response to the submission of the BACI, Connection to Oberkappel, Baumgarten Brezlav Interconnector und Entry/Exit Murfeld projects, GCA included an additional analysis in its NEP. The corresponding projects to cover the related capacity requirements will be submitted for approval. The projects will be put into practice if the costs to be allocated to the IPs are covered by binding long-term bookings. The capacity situation at the aforementioned entry and exit points is constantly monitored, analysed and evaluated in order to initiate appropriate measures in good time.

Analysis of TAG's NDP shows that there is currently no need to increase capacities available at the relevant TAG points on the basis of the demand for additional capacity submitted both at the relevant TAG and GCA points.

In response to the condition imposed in E-Control Austria's official decision approving the 2016-2025 CNDP have led to the submission of the Project "TAG Reverse Flow Weitendorf/Eggendorf".

The project "Revere Flow Baumgarten MT station" should increase the security of supply for the entire region.

The Project "AZ1 additional entry and connection with BOP13" as well as the three projects "TAG Baumgarten interconnection capacity" are a result from the coordination between TAG and GCA to ensure the creation of additional connection capacity on firm basis in the Baumgarten node.

Market participants are invited to provide their feedback on the 2017-2026 CNDP to the MAM ([marktgebietsmanager@gasconnect.at](mailto:marktgebietsmanager@gasconnect.at)) and in this way contribute to further developing and optimising future issues of the CNDP.

## 9 Disclaimer

The Coordinated Network Development Plan 2017-2064 exists in both German and English version; any conflicts between them are unintentional. The binding language version shall be the German one. The English translation shall not be binding and is provided purely for information purposes. The market area manager and the transmission system operator accept no liability for any variations in content or errors of translation.

## 10 List of abbreviations

AGGM	Austrian Gas Grid Management AG
AT	Austria
OP	outlet point
bar(a)	bar (absolute)
CAM	capacity allocation mechanism
CBCA	cross-border cost allocation
CEGH	Central European Trading Hub
DE	Germany
DZK	dynamically allocable capacity
ECA	Energie-Control Austria
entry point	entry point
ENTSOG	European Network of Transmission System Operators
exit point	exit point
TSO	transmission system operator
FZK	freely allocable capacity
GCA	Gas Connect Austria GmbH
GCV	gross calorific value
GSNE-VO 2013	Gas System Charges Ordinance 2013
GWG	Gaswirtschaftsgesetz, the Austrian Natural Gas Act
GWh	gigawatt hours
GRIP	Gas Regional Investment Plan
IP	interconnection point
CNDP	Coordinated Network Development Plan
KWh	kilowatt hours
LTP	long-term planning
MAB	March Baumgarten Gasleitung
MAM	market area manager
metering sta- tion	Megawatt
MWh	megawatt hours
NCG	Net Connect Germany
NDP	network development plan
Nm <sup>3</sup> /h	normal cubic metres per hour (0°C temperature)
PCI	Project of common interest
PSA	Pressure Service Agreement
SEL	Süddeutsche Erdgasleitung
SK	Slovakia
SOL	Süd Ost Leitung
SoS	security of supply
TAG	Trans Austria Gasleitung
TGL	Tauerngasleitung
TYNDP	Ten-Year Network Development Plan
UK	interruptible capacity
ÜACK	Überackern
DAM	distribution area manager
VTP	virtual trading point
CS	compressor station
MS	metering station

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