Coordinated Network Development Plan 2016-2025

mGm TAG GAS CONNECT AUSTRIA

Version: 14/08/2015

Content

1 Preface

Meeting its obligation under the Gaswirtschaftsgesetz (Natural Gas Act) 2011 regarding the planning process, GCA in its capacity as the market area manager (MAM) has, pursuant to section 14 para. 1 no. 7 of the Natural Gas Act, drawn up the Coordinated Network Development Plan (CNDP) in coordination with Austria's transmission system operators (TSOs) for the planning period from 2015 to 2024.

Cooperation between the MAM, the TSOs and the distribution area manager (DAM) is necessitated by the dynamics of the gas market. It is up to the aforementioned system service providers to constantly create new possibilities in response to changing requirements in order to enhance the appeal of the virtual trading point and to improve its connectivity. This CNDP is based on the NDPs of the TSOs, TAG and GCA as well as on the facts and figures submitted by market participants, project sponsors and stakeholders.

The CNDP's purpose is to inform market participants about infrastructure projects that need to be expanded or newly established in the next ten years. The CNDP's purpose is to inform market participants about important infrastructure projects that need to be expanded or carried out in the next ten years. It provides an overview of all investments already agreed upon which must be implemented in the next ten years as well as an overview of all investment projects of the TSOs and project sponsors, including dates and schedules.

In the CNDP, the Austrian TSOs TAG and GCA make the results of the non-binding capacity demand survey launched by them available to their market participants. These demand surveys provide the basis for intended national and cross-border network expansion; the technological necessity, adequacy and profitability are examined by the TSOs in the respective NDPs. In its coordinating role, the MAM merges the network development plans provided by the TSOs. Within the scope of the CNDP, the TSOs submit the planned projects to the authority for approval.

This is the fourth edition of the CNDP and constitutes the basis for subsequent CNDPs. Its format and content are constantly developed and improved in the process.

In this respect, the MAM appreciates all comments, suggestions and feedback. Please send an email to marktgebietsmanager@gasconnect.at . Certainly the structured consultation document can be used, which is published on the website of the MAM.

2 Process description – time schedule

As soon as the 2015-2024 CNDP had been approved on 2 December 2014, the planning process for the 2016-2025 CNDP started. In coordination with the DAM, the MAM drew up a schedule to harmonise the milestones for creating the long-term plan (LTP) for the distribution area and the 2016-2025 CNDP.

In the period from 9 March 2015 to 30 March 2015, the TSOs of the Market Area East, TAG and GCA, carried out a voluntary capacity demand survey. The survey was sent to all active users via PRISMA newsletter and published on the relevant websites, in this way enabling all market participants to participate in the capacity demand survey. They were asked to specify their capacity demand per calendar year for the planning period from 2016 to 2025. Additionally, the MAM carried out a project data collection for the same period. Project sponsors had the opportunity to submit their projects to the MAM. The questionnaire was published on the MAM's website during the survey period. Furthermore, the MAM authorised the subsequent submission of projects as ENTSOG had allowed European project sponsors to submit projects in the southern area for inclusion in the TYNDP 2015. Subsequent inclusion of projects in the plans aims to ensure coherent planning tools.

For this year's planning the reference date for the capacity demand survey is 30 March 2015 and for the project data survey it is 22 April 2015.

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 in the NDPs on 14 April 2015. The results of the capacity demand surveys combined with the defined capacity scenarios constitute the basis for the TSOs' NDPs. The NDPs were submitted to the MAM by 26 May 2015. The MAM merged the NDPs received in the consultation version of the CNDP 2016-2025 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 voice their expectations regarding the CNDP, its content and the creation process.

The market participants' statements were published on the MAM's website on 6 July 2015 for consultation. The consultation process for the 2015-2024 CNDP is scheduled to take place from 6 July 2015 to 20 July 2014. Market participants will be given the opportunity to submit written statements during this period. Please note that this year the MAM established a structured consultation document for the purpose of submitting written statements in the course of the consultation. The document is published on the website of the MAM.

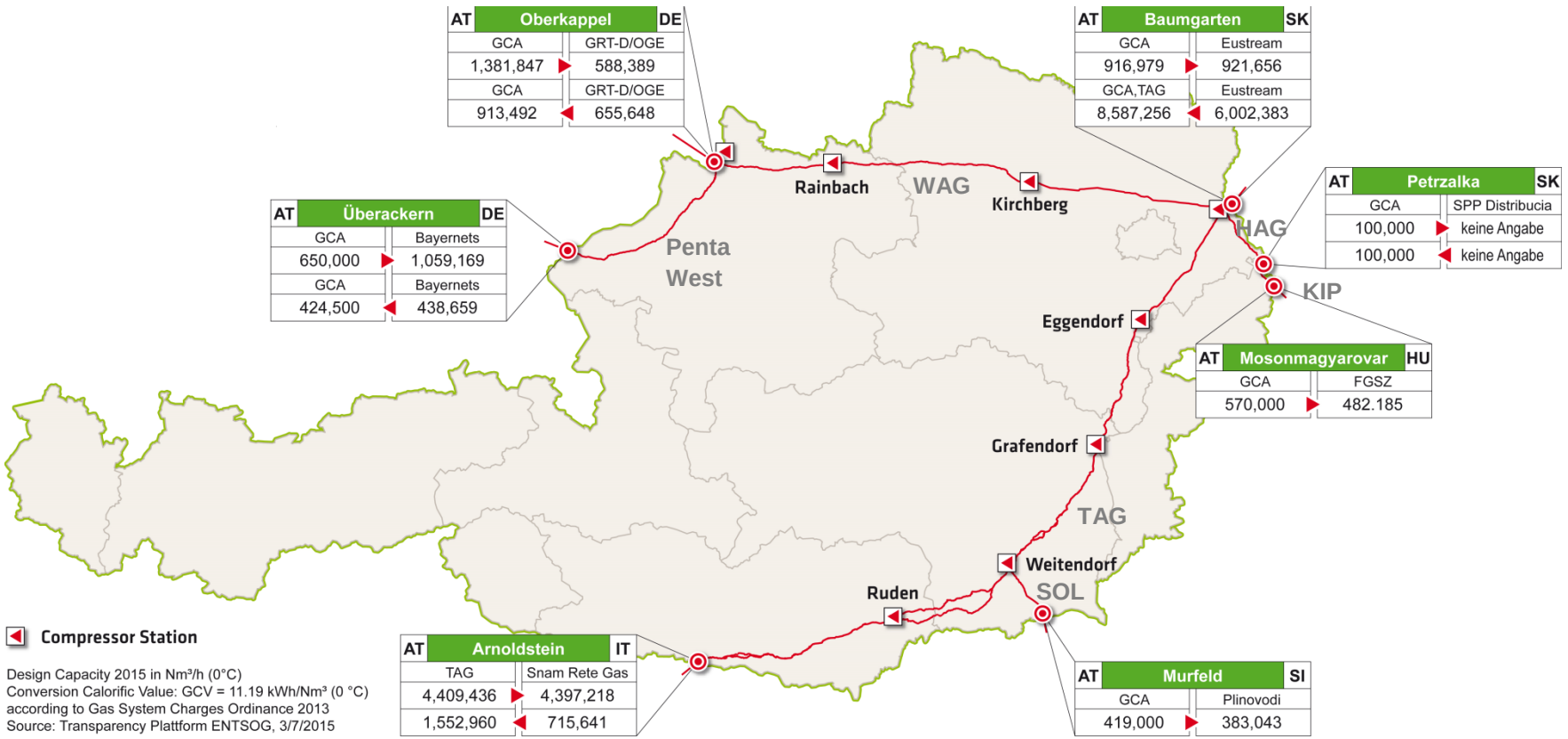
3 Introduction

The 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 and with project sponsors, making due allowance for the long-term planning (LTP). While Austria is a transit country at the European level, domestic consumption plays an important role at the national level. Therefore, the CNDP benefits from synergies in connection with long-term planning.

The CNDP is designed to give the market an informed 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 Austria's market integration and security of supply.

Austrian TSOs as well as project sponsors are working on new expansion measures to identify new routes and sources of supply, to promote market integration and to establish a high level of security of supply. The projects described in this CNDP provide evidence of the efforts made in this respect.

4 Transit market Austria



Present gas infrastructure	
Number of TSOs	2
Total length of transmission grid	approx. 1,690 km
Total compressor power	621 MW

Points and technical data of the Austrian transmission system

GAS CONNECT AUSTRIA

Website: www.gasconnect.at

Connected TSOs:

- Baumgarten GCA/WAG: eustream, a.s.
- Oberkappel: Open Grid Europe GmbH, GRTgaz Deutschland GmbH
- Überackern ABG: bayernets GmbH
- Überackern SUDAL: bayernets GmbH
- Petrzalka: eustream a.s.
- Mosonmagyaróvár: FGSZ Ltd
- Murfeld: Plinovodi d.o.o

Physical entry points:

- Baumgarten GCA (border to Slovakia)
- Baumgarten WAG (border to Slovakia)
- Überackern ABG (border to Germany)
- Überackern SUDAL (border to Germany)
- Storage Point 7Fields
- Oberkappel (border to Germany)
- MAB/WAG

Physical exit points:

- Mosonmagyaróvár (border to Hungary)
- Überackern ABG (border to Germany)
- Überackern SUDAL (border to Germany)
- Murfeld (border to Slovenia)
- Petrzalka (border to Slovakia)
- 7Fields storage point
- Baumgarten WAG (border to Slovakia)
- Oberkappel (border to Germany)
- MAB/WAG

Non-physical entry points:

- Mosonmagyaróvár (border to Hungary)
- Murfeld (border to Slovenia)
- Petrzalka (border to Slovakia)

Total length of transmission grid:
554,2 km

Total compressor power
146 MW

Total energy transported (gas)

	2014: 160,410 GWh
TAG Trans Austria Gasleitung GmbH Website: 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. Connected TSOs: Baumgarten TAG IP: Eustream a.s. Tarvisio/Arnoldstein IP: Snam Rete Gas S.p.A. Physical entry points: − Baumgarten TAG (Border Slovakia) − Arnoldstein (Border Italy) Physical exit points: − Arnoldstein (Border 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: 300,923 GWh
Physical hubs and virtual trading points	CEGH
Demand	
Historic annual demand for gas on the domestic market (end users)	2014: 82,575 GWh 2013: 90,124 GWh 2012: 91,204 GWh 2011: 95,634 GWh 2010: 102,016 GWh 2009: 91,542 GWh 2008: 93,228 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 current version of the Gas System Charges Ordinance (GSNE-VO).

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[1] calculation Market Area East

Facility Description	Design Capacity (Mio.Nm³/d)	Definition, Description, Sources
Epm	**275,1**	Design capacity at entry points
Baumgarten	205,2	∑ Entry Baumgarten (GCA, BOG, TAG; www.gasconnect.at)
Oberkappel	21,8	(www.gasconnect.at)
Überackern	10,1	www.gasconnect.at, Entry-Value for Sudal
Arnoldstein	37,1	(www.gasconnect.at)
Freilassing&Laa/ Thaya	0,9	AGGM/27.05.2015: currently design capacity not booked
Pm	**3,7**	max. technical production capacity
Production OMV	3,0	booked standard capacity (source: AGGM, 27.05.2015)
Production RAG	0,7	booked standard capacity (source: AGGM, 27.05.2015)
Sm	**49,5**	max technical exit capacity
Storage OMV	31,5	booked standard capacity (source: AGGM, 27.05.2015)
Storage RAG	13,4	booked standard capacity (source: AGGM, 27.05.2015)
7Fields FL	*	GCA
7Fields VL	4,7	booked standard capacity (source: AGGM, 27.05.2015)
Haidach VL	0	currently no connection
LNGm	0	Liquified Natural Gas, irrelevant for Austria
Im	**205,2**	Design Capacity of the largest Gas Infrastructure. For Austria: Baumgarten
Dmax	**51,9**	Total daily Gas demand in the analyzed Area at a day with high demand with a statistical occurance of each 20 years, February 2012 (source: AGGM)

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

N - 1 [%] = 237%

N - 1 ≥ 100

[1] If the Slovak storage facilities as connection to the Market Area East were included in the calculation, the calculated N-1 value would increase even further thanks to the capacities contributed by MAB.

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 2015-2024 planning period.

Regarding Security of Supply the change from Gas Compressors to Electro Compressors has a potential influence. In general, the implementation of Electro Compressors in order to reduce CO2 is achieved at the expense of redundancy. In this case redundancy can only be achieved with the additional implementation of Gas Compressors. So far, the use of Electro Compressors has not negatively affected the network stability. Currently the relation between Electro Compressors and Gas Compressors is the following:

- Gas Compressor Power: 53%
- Electro Compressor Power: 47%

5 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.

5.1 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 2015:

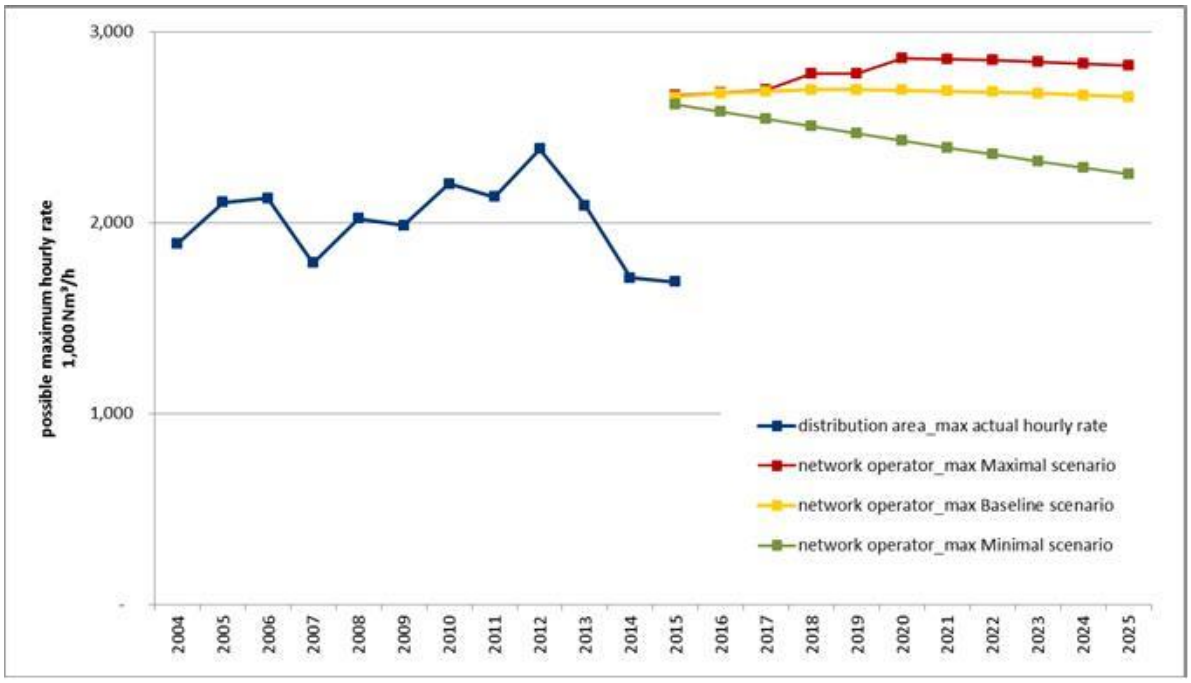
Chart 1: Demand scenarios

		Capacity development of gas-fired power plants	
		Stagnation at status quo 2015	All demand reported by system operators taken into account
Development of other consumers	Future changes specified by system operators taken into account.	**Baseline scenario**	**Maximum scenario**
	Future changes specified by system operators taken into account. Additional consumption decrease of 1.5% per year	**Minimum scenario**	

Source: LTP 2015, verison1, page 7, 26.06.2014 01.07.2015

The basis for the demand forecast, as already in the LTP 2014, is the peak demand in the Distribution Area East in February 2012 of 2,386,000 Nm³/h. Chart 2 describes the actual hourly performance and the forecast of the maximum hourly performance in the Distribution Area East between 2013 and 2024 for the defined scenarios.

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



Source: LtP 2015, version 1, page 19, 26.06.2014

The „Baseline Scenario“ is, as already in the LTP 2014, regarded the highest probability, which includes a flat annual demand. This scenario does not include the construction of further gas compressor stations. Out of the LTP 2015 (LFP 2012/03) there arises additional capacity demand that was submitted to the transmission network of GCA. In the NDP of GCA the necessary requirements are described in chapter 8.3.3.7 and 8.3.3.8. Possible effects of projects in the CNDP 2015 – 2024 were analysed in regular meetings with the DAM.

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 submitted projects by the project sponsors the results of the European Network Development Plans TYNDP, GRIPs and the German Network Development Plan Gas were included in the CNDP 2015 – 2024.

5.2 The Coordinated Network Development Plan and the German Grid Development Plan Gas 2014

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 Grid Development Plan Gas 2014. The criteria of the medium gas demand scenario are outlined in the scenario framework posted on the website of the German Grid Development Plan (http://www.netzentwicklungsplan.de). Especially the projects approved by the authority in the southern part of Germany are relevant for the 2016-2025 CNDP.

According to the Grid Development Plan Gas 2014 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.

5.3 The Coordinated Network Development Plan and the TYNDP

At a European level, TSOs have formed a European Network of Transmission System Operators (ENTSOG) with the aim to promote market integration. 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 results 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.

5.4 Selected infrastructure projects in Europe

In table 2 the MAM has listed the project groups which submitted an application for inclusion on the next Union list by 13 May 2015 for the purposes of presentation and analysis of projects that are directly linked to the Austrian market area. The analysis aims to examine the impact of projects which in part border on the Austrian market area. The purpose of this project overview is to create as comprehensive a picture as possible of the current Austrian and European project landscapes.

Table 2: Project groups on the European level

Group by region	Project name:	ENTSOG Project number:	Project sponsor	Member State	Planned capacity at the Austiran Border
Southern corridor Group 5	Városföld-Ercsi-Győr	TRA-N-018	FGSZ	HU	
	Ercsi-Szazhalombatta	TRA-N-061	FGSZ	HU	
	Városföld CS	TRA-N-123	FGSZ	HU	
	Romanian-Hungarian reverse flow Hungarian section 1st stage	TRA-N-286	FGSZ	HU	
	Development on the Romanian territory of the National Gas Transmission System on the Bulgaria – Romania – Hungary – Austria Corridor	TRA-N-358	SNTGN Transgaz SA	RO	
	Development on the Romanian territory of the Southern Transmission Corridor for taking over the Black Sea gas	TRA-N-362	SNTGN Transgaz SA	RO	
	Romanian-Hungarian reverse flow Hungarian section 2nd stage	TRA-N-377	FGSZ	HU	
	GCA Mosonmagyaróvár	**TRA-N-423**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**153 GWh/d**
Southern	Városföld-Ercsi-Győr	TRA-N-018	FGSZ	HU	

corridor Group 5b	Ercsi-Szazhalombatta	TRA-N-061	FGSZ	HU	
	Városföld CS	TRA-N-123	FGSZ	HU	
	Reverse flow on the interconnector Romania - Hungary	TRA-N-126	SNTGN Transgaz SA	RO	
	Interconnection of the national transmission system with the international gas transmission pipelines and reverse flow at Isaccea	TRA-N-139	SNTGN Transgaz SA	RO	
	Romanian-Hungarian reverse flow Hungarian section 1st stage	TRA-N-286	FGSZ	HU	
	Romanian-Hungarian reverse flow Hungarian section 2nd stage	TRA-N-377	FGSZ	HU	
	Bridging of Isaccea – Horia corridor by construction of Onesti – Bacia section	TRA-N-384	SNTGN Transgaz SA	RO	
	GCA Mosonmagyaróvár	**TRA-N-423**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**153 GWh/d**
Southern corridor Group 5d	Városföld-Ercsi-Győr	TRA-N-018	FGSZ	HU	
	Ercsi-Szazhalombatta	TRA-N-061	FGSZ	HU	
	Városföld CS	TRA-N-123	FGSZ	HU	
	Reverse flow on the interconnector Romania - Hungary	TRA-N-126	SNTGN Transgaz SA	RO	
	Interconnection of the national transmission system with the international gas transmission pipelines and reverse flow at Isaccea	TRA-N-139	SNTGN Transgaz SA	RO	
	Romanian-Hungarian reverse flow Hungarian section 1st stage	TRA-N-286	FGSZ	HU	
	Romanian-Hungarian reverse flow Hungarian section 2nd stage	TRA-N-377	FGSZ	HU	
	BG-RO-HU-AT transmission corridor	TRA-N-380	FGSZ	HU	
	Bridging of Isaccea – Horia corridor by construction of Onesti – Bacia section	TRA-N-384	SNTGN Transgaz SA	RO	
	GCA Mosonmagyaróvár	**TRA-N-423**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**153 GWh/d**
	Development on the Romanian territory of the National Gas Transmission System on the Bulgaria – Romania – Hungary – Austria Corridor	TRA-N-358	SNTGN Transgaz SA	RO	
	Development on the Romanian territory of the Southern Transmission Corridor for taking over the Black Sea gas	TRA-N-362	SNTGN Transgaz SA	RO	
Southern corridor Group 5f	Városföld-Ercsi-Győr	TRA-N-018	FGSZ	HU	
	GCA Mosonmagyaróvár	**TRA-N-423**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**153 GWh/d**

Eastern Group 6	Bidirectional Austrian Czech Interconnection (BACI)	TRA-N-133	NET4GAS s.r.o.	CZ	
	Bidirectional Austrian-Czech Interconnector (BACI, formerly LBL project)	**TRA-N-021**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**201,42 GWh/d**
Eastern Groups 19+20	Interconnection Croatia/Slovenia (Bosiljevo - Karlovac - Lučko - Zabok - Rogatec)	TRA-N-086	Plinacro Ltd	HR	
	CS Kidričevo, 2nd phase of upgrade	TRA-N-094	Plinovodi d.o.o.	SI	
	Compressor stations at the Croatian gas transmission system	TRA-N-334	Plinacro Ltd	HR	
	GCA 2014/04 Murfeld	**TRA-N-361**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**165 GWh/d**
	Upgrade of Murfeld/Ceršak interconnection	TRA-N-389	Plinovodi d.o.o.	SI	
	Upgrade of Rogatec interconnection	TRA-N-390	Plinovodi d.o.o.	SI	
Eastern Group 20	CS Kidričevo, 2nd phase of upgrade	TRA-N-094	Plinovodi d.o.o.	SI	
	GCA 2014/04 Murfeld	**TRA-N-361**	**GAS CONNECT AUSTRIA GmbH**	**AT**	**165 GWh/d**
	Upgrade of Murfeld/Ceršak interconnection	TRA-N-389	Plinovodi d.o.o.	SI	

The named projects have the potential to strengthen existing transit routes, provide new transit capacities for the market participants and explore and identify new sources of natural gas. The variety of planned projects at the Austrian borders or geared towards the Austrian Market Area underlines its attractiveness as well as the visibility of the VTP.

The projects in the Southern Corridor in Groups 5, 5b, 5d and 5f 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 potential end consumer market for gas from this new source represents 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. TSO GCA submitted the Austrian sub-project GCA Mosonmagyaróvár in the course of the MAM's project data collection for inclusion in the capacity scenario.

The project in the Region East Group 6 (BACI) is a joint project of the TSOs GCA and Net4Gas. The project aims to connect the Austrian and the Czech market areas and to strengthen and enhance 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. TSO GCA submitted

the Austrian sub-project GCA Mosonmagyaróvár already in the course of the project data collection for the MAM's 2015-2024 CNDP for inclusion in the capacity scenario. As this project was approved as a conceptual project in last year’s CNDP, it has automatically been included in this year's capacity scenario.

The projects in the Region East Groups 20 and 19+20 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. Given the new requirements triggered by the submission of the Slovenian project sponsor in the course of the MAM's project data collection, the project is being adjusted on the Austrian side.

The projects described above have all submitted an application for the next Union list for the identification of projects of major importance for the European gas industry. The selection process for the future PCI projects will be completed by the end of 2015. Aside from the evaluation in the selection procedure for inclusion on the next Union list, the above-mentioned projects can create further opportunities for the Austrian market area. Furthermore, the above-mentioned projects enhance the appeal of the Austrian market area by further strengthening the virtual trading point as a hub for transit flows and a source of supply for the national market.

6 Project data collection of the Market Area Manager

The MAM carried out a project data collection in the period from 9 March 2015 to 30 March 2015. International project sponsors had the opportunity to submit their projects to the MAM for inclusion in the CNDP and thus highlight their relevance for the Austrian market area.

The projects which were submitted to the MAM in the course of the project data collection are listed in table 3. In the current version of the CNDP the projects were included in the capacity scenario that the MAM established in coordination with the TSOs if the planned Entry/Exit Point as well as the maximum technical capacity (GWh/d) were submitted in the course of the projects data collection.

Maximum technical capacity and the planned entry/exit point were indicated for the BACI projects, Upgrade of Murfeld/Ceršak interconnection GCA Mosonmagyaróvár and GCA Mosonmagyaróvár plus. Hence, these projects were included in the capacity scenario and their impact on the Austrian market area was analysed in detail by the TSOs. No corresponding entry/exit point was indicated for the projects Connection to Oberkappel, Upgrade of Rogatec interconnection, CS Kidričevo, 2nd phase of upgrade and Baumgarten metering routes. As a result, these projects were not included in the capacity scenario.

As ENTSOG allowed European project sponsors to submit projects in the southern area for subsequent inclusion in the TYNDP 2015, the MAM additionally included the GCA Mosonmagyaróvár plus project of the TSO GCA in the 2016-2025 CNDP.

Table 3: Projects submitted to the MAM

Transmission systems							
Name	**ENTSOG project number**	**Capacity (GWh/day)**	**Prospective commissioning**	**Project sponsors**	**Entry/exit point**	**FID**	**Notes**
Bidirectional Austrian Czech Interconnector (BACI)	TRA-N-021	201.42	2019	Gas Connect Austria GmbH; Net4Gas	-	Non-FID	The technical hourly flow rate is planned to be at least 750,000 Nm³/h (0°C). 11.19 kWh/Nm³ (0°C)) Rheintal is the geographic cross-border point.
Connection to Oberkappel	-	55-111	2022	Net4Gas	-	Non-FID	The technical specifications of the pipeline depend on the final route. The exact cross-border points have not yet been defined.
Upgrade of Murfeld/Ceršak interconnection	TRA-N-389	165	2020	Plinovodi d.o.o.	Murfeld (AT) / Ceršak (SI)	Non-FID	Network section between the Slovenian border gas station of Ceršak and the national border (Slovenia/Austria), in the Mur river. The Slovenian TSO Plinovodi d.o.o. considers this project to be part of the PCI project "Weitendorf-Murfeld-Ceršak-CS Kidričevo-Rogatec" and related to the OCI Interconnector 6.6 "Croatia – Slovenia (Bosiljevo – Karlovac – Lučko – Zabok – Rogatec (SI))".
Upgrade of Rogatec interconnection	TRA-N-390	165	2020	Plinovodi d.o.o.	-	Non-FID	
CS Kidričevo, 2nd phase of upgrade	TRA-N-094	165	2020	Plinovodi d.o.o.	-	Non-FID	
GCA Mosonmagyaróvár	TRA-N-423	153	-	Gas Connect Austria GmbH	Mosonmagyaróvár	Non-FID	This project would enable the reversal of the original flow direction of the HAG. The current planning is based on market indicators.
GCA Mosonmagyaróvár plus	TRA-N-583	618	2019	Gas Connect Austria GmbH	Mosonmagyaróvár	Non-FID	
Baumgarten metering routes	-	-	2016	Gas Connect Austria GmbH	-	FID	The individual projects are implemented in the Baumgarten facility in a number of systems concerned.

7 From projected to actual demand

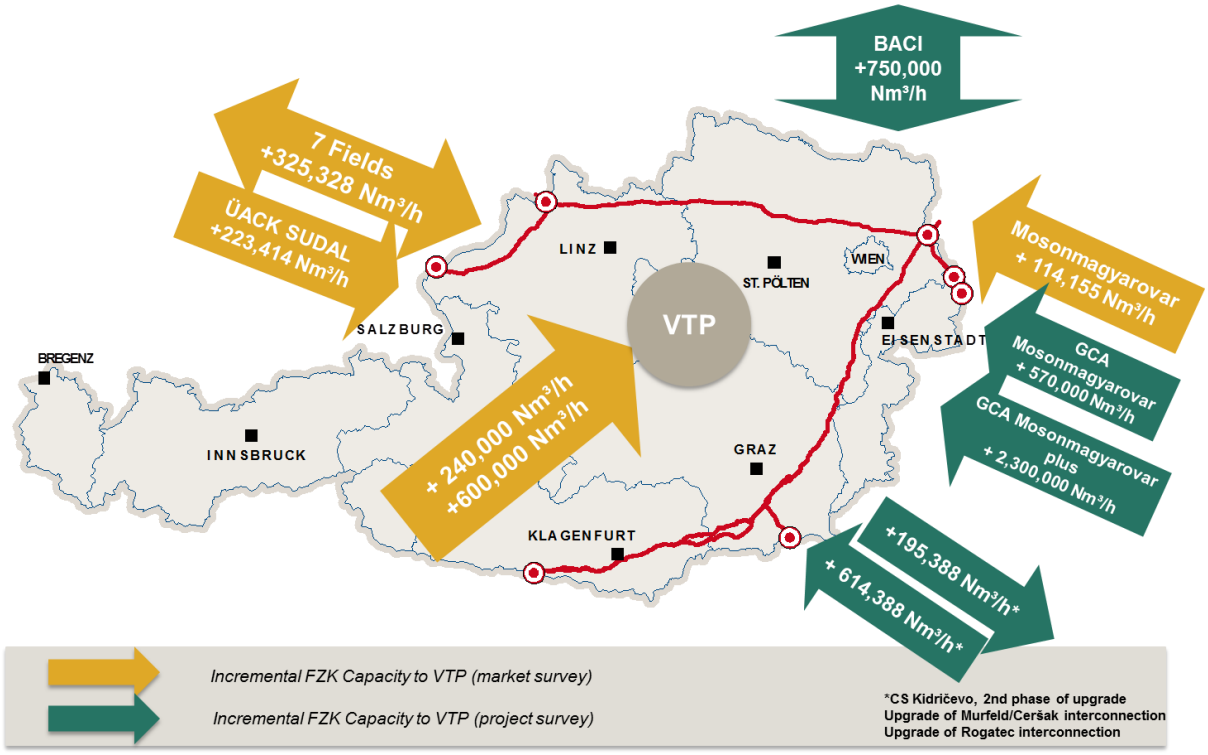
After completion of the demand survey, the non-binding capacity demand submitted was aggregated per entry and exit point and submitted to the MAM. In a next step, the MAM analysed the projected capacity demand and the projects submitted (see chapter 6 “Project data collection of the MAM”) jointly with the TSOs. The result of this analysis is either no shortage, a short-term shortage or a long-term shortage.

In cooperation with the TSOs, the MAM generated the capacity scenario based on the assumption of projected long-term shortages.

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

On the basis of the projected non-binding capacity demand and the projects submitted, which fulfil the requirements for inclusion in the capacity scenario (see chapter 6, project data collection by the MAM), the 2016-2025 CNDP features the following capacity scenario, duly coordinated by the MAM and the TSOs:

Chart 3: Capacity scenario

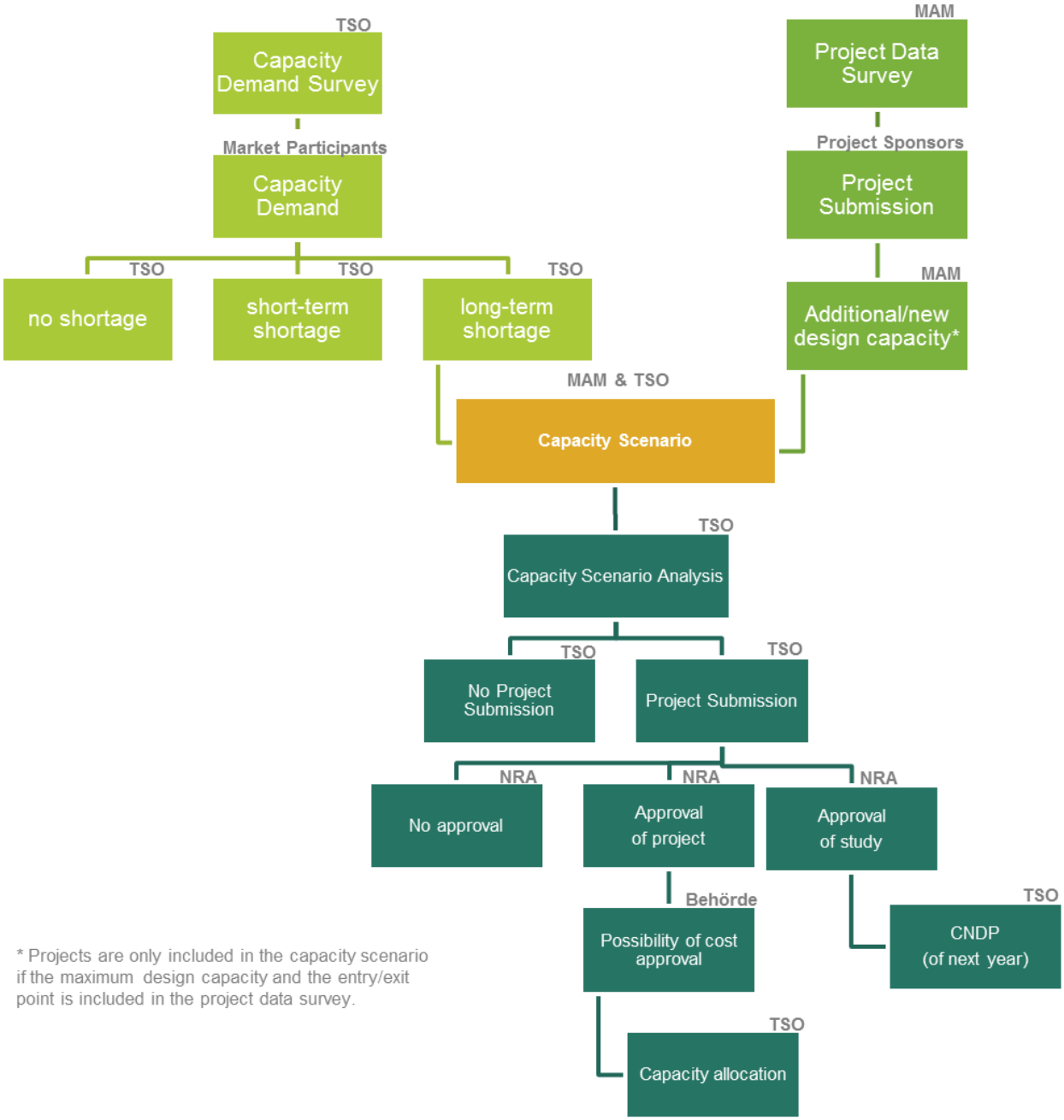


All additional demand indicated in chart 3, based on the information provided in the non-binding capacity demand surveys and the project data collection was examined for its impact on the respective infrastructure in the NDPs of GCA and TAG.

If any projects are derived from the analysis of the capacity scenario in the individual network development plan, they will be defined in chapter 10 “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).

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. Chart 4 shows the entire process described, from the capacity demand survey to the identification of actual demand on the basis of approved projects.

Chart 4: Process: from projected to actual demand



8 Network Development Plan Gas Connect Austria GmbH (GCA)

The following chapters of the GCA Network Development Plan contain a short review and outlook as well as a description and analysis of the capacity and project submissions for the transmission system operator GCA. It concludes with a look at the requirements imposed by the administrative decision concerning the 2015-2024 (C)NDP.

8.1 Review and outlook

Since the introduction of the new market model, a continued significant change in capacity booking behaviour can be seen. Since 1 April 2013, GCA has carried out 19,066* auctions on PRISMA, with mostly short-term products in demand. Daily, monthly and quarterly products account for more than 99 %* of the hourly flow rates sold. The clear trend towards short-term products is still ongoing.

We have learned from auctions of long-term capacity products that the opening bid mostly turns out to be the market clearing price; consequently, no congestion is derived from these auction results. Only 1.37%* of offered auctions cleared with an auction surcharge so far, therefore it can be said that the capacity offer until now is sufficient.

The implementation of short-term congestion management measures pursuant to section 11 of the Austrian Gas Market Model Ordinance (Gas-Marktmodell-Verordnung) 2012 on 1 October 2013 has created an almost daily oversupply of guaranteed freely allocable capacities at all relevant points of GCA. The resulting capacities offered are well received by the market. A detailed overview of the capacity relevant data is published on the ENTSOG transparency platform (https://transparency.entsog.eu).

Additionally, the capacity surrender, as defined in section 2.2.4 of Annex I to Regulation (EC) No 715/2009, can be used by our customers in a fully automated manner in the GCA back-end system OCB® and was implemented even before the transposition deadline. In the course of last year's auctions on PRISMA, GCA recorded a total of 300 capacity surrenders. These capacities were offered to the market as incremental capacities in the yearly auctions. Across all Entry and Exit points this means an additional capacity offer of approximately 300 years product runtime.

On 2 March 2015, GCA for the second time offered incremental capacity within the scope of the yearly auction on the European capacity platform PRISMA. The incremental capacities resulted from the projects (GCA 2014/01 and GCA 2014/02) at the entry point Überackern SUDAL and from the project covering short distance transportation among the IPs Überackern SUDAL and ABG, which had been approved by administrative decision. Only a fraction of the capacities offered was sold in the course of these auctions. Accordingly, the extension threshold for implementing the projects (GCA 2014/01 and GCA 2014/02) was not reached, as the project costs could not be assigned to the relevant points on the basis of long-term bookings by the storage system operator.

As of 19 May 2015 GCA again extended its offering of services bookable through PRISMA. In addition to the existing portfolio, the short-distance capacities between the relevant entry and exit points Überackern ABG and Überackern SUDAL points are sold by auction on PRISMA.

* Data as of: 24 June 2015

Approximately 51 %* of the FZK auctions for daily products have been successful, meaning that the FZK Quality is very well received by the customers. GCA's ultimate goal is to optimally meet customers' needs and constantly enhance service quality and customer satisfaction. The results of the customer satisfaction survey carried out in 2013 are taken into account for existing processes and also constitute an important basis for future developments. Since the start of capacity auctioning via PRISMA, the customer base of GCA has increased by 84%*.

GCA extended an invitation on 14 November of the previous year to the Gas Convention 2014, another measure to improve customer satisfaction. The Convention was well attended and the feedback from our customers was very positive. Based on the customer feedback received, there also are plans to repeat this event at regular intervals.

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 will come into force in October 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. Furthermore, the provisions of the Balancing Network Code and the Interoperability Network Code have already been fully implemented.

The cross-border aspect of network development planning is of great significance for GCA, with developments at the entry/exit points of neighbouring network operators with a direct impact on transport capacities in the Austrian market area being monitored and taken into account.

Also, GCA faced major organisational challenges last year. For instance, BOG GmbH was integrated into GCA in September 2014. This means that on that date the marketing rights of WAG capacities and all other rights and obligations were transferred to Gas Connect Austria. This resulted in many advantages for our customers. From then on they were able to contract the best quality, i.e. freely allocable capacities (FZK), at the entry and exit points Überackern SUDAL and ABG, too. This market-based allocation of competing capacities is very popular among our customers.

From October 2015 GCA plans to introduce intraday marketing and in this way will have implemented the relevant European directive in a timely manner in this area.

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 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.

In addition to the projects in the NDP, GCA submits to E-Control Austria a confidential document as Annex to the NDP of GCA including a list of replacement investments. Please note that the confidential Annex is not subject to approval by E-Control Austria.

* Data as of: 24 June 2015

8.2 Capacity demand survey

While drawing up the network development plan for 2015, GCA carried out a non-binding capacity data survey from 9 March 2015 to 30 March 2015 regarding the entire planning horizon from 2016 to 2025. The data survey was sent to the GCA customers currently registered on OCB® and on PRISMA in order to ensure the highest possible level of transparency. In addition, it was published on the GCA website. Within the scope of the survey, participants had the possibility to fill in a form that had been coordinated with the MAM and TAG GmbH, indicating the demand in GWh/a for each point and direction. Alongside the additional demand for capacity with access to the virtual trading point (VTP), the additional demand for short-distance capacities without access to the VTP in GCA's system was identified. Customers were able to specify their additional capacity demand for bundled capacities.

Only capacity demand that had been submitted during the survey period could be included in the network development planning. Non-binding capacity demand can be submitted again in the next survey period.

At the exit points to the domestic system, no restrictions are currently identifiable for the planning period 2016-2025. The development of demand in the distribution area is carefully monitored in order to be able to proactively plan potentially necessary measures. In addition, the distribution area manager, i.e. AGGM, announced additional capacity demand from the distribution area to the transmission system level. Please see the analysis in sections 8.3.3.7 and 8.3.3.8 for more detail.

Furthermore, ENTSOG offered the option of late project submission for the TYNDP, which could again become potential PCI candidates mitigating the withdrawal of South Stream. This late submission option was taken into account in this year's CNDP process by the MAM and applied in section 8.3.3.6 for Project 6. Regarding the capacity demand survey no submissions were received after the deadline of 30/03 /2015.

For the purpose of further analysis, the capacity demand submitted by customers and the projects submitted to the MAM which affect GCA will be analysed on a yearly basis on the assumption of being non-structured. For the purpose of project definition the maximum value was used. An investment analysis based on structured demand cannot be presented for technical and economic reasons.

8.2.1 Demand - with access to VTP

Table 4 shows GCA's entry and exit points for capacity with access to the VTP which were included in the capacity data survey.

Table 4: Entry and exit points indicated in the capacity data survey
with access to the VTP

Capacity with access to the VTP		
Physical entry points	**Physical exit points**	**Non-physical** entry points
Baumgarten (border to Slovakia)	Mosonmagyaróvár (border to Hungary)	Mosonmagyaròvàr (border to Hungary)

Oberkappel (border to Germany)	Baumgarten (border to Slovakia)	Murfeld (border to Slovenia)
Überackern ABG (border to Germany)	Oberkappel (border to Germany)	Petrzalka (border to Slovakia)
Überackern SUDAL (border to Germany)	Überackern ABG (border to Germany)	
WAG/MAB[3] storage point	Überackern SUDAL (border to Germany)	
7Fields storage point[2]	Murfeld (border to Slovenia)	
	Petrzalka (border to Slovakia)	
	Storage Point WAG/MAB[4]	
	Storage Point 7 Fields[3]	

The submitted non-binding capacity requests potentially picture the flow situation in the winter months 2014/2015.

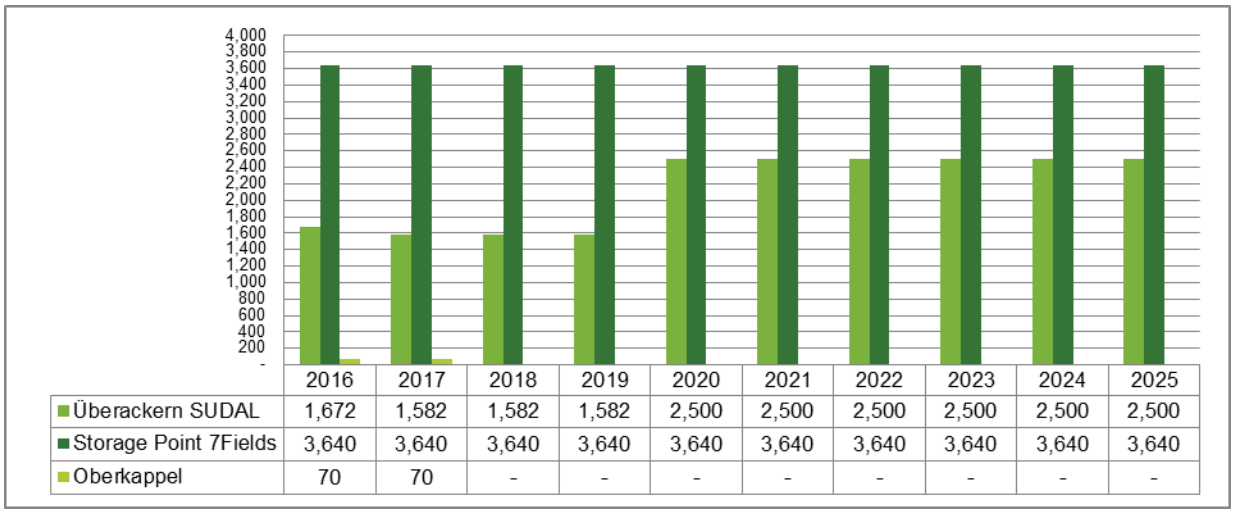
Chart 5 shows the capacity demand by physical entry points.

For the Überackern SUDAL, Storage Point 7Fields and Oberkappel entry points, capacity demand was announced in the course of the capacity demand survey. The continuously highest capacity demand over the planning period from 2016 to 2025 was submitted for the Storage Point 7Fields entry point, amounting to 3,640 MWh/h or 325,328 Nm³/h (0°C). At the Überackern SUDAL entry point there is a capacity demand for 2016 of 1,672 MWh/h or 149,402 Nm³/h (0°C), for the years 2017 to 2019 of 1,582 MWh/h or 141,363 Nm³/h (0°C) and for the rest of the planning period of 2,500 MWh/h or 223,414 Nm³/h (0°C). This demand was submitted in the form of bundled capacities. At the Oberkappel entry point a capacity demand of 70 MWh/h or 6,254 Nm³/h (0°C) was submitted for the period from 2016 to 2017.

[2] Physical entry point to GCA's transmission system from the 7Fields storage facility or the MAB storage connection line, can only be booked by the storage facility operator pursuant to section 74 para. 2 GWG 2011

[3] Physical exit point from GCA's transmission system to the Storage Point 7 Fields storage facility or the MAB storage connection line, can only be booked by the storage facility operator pursuant to section 74 para. 2 GWG 2011

Chart 5: Capacity demand - **Physical entry points** (in MWh/h)

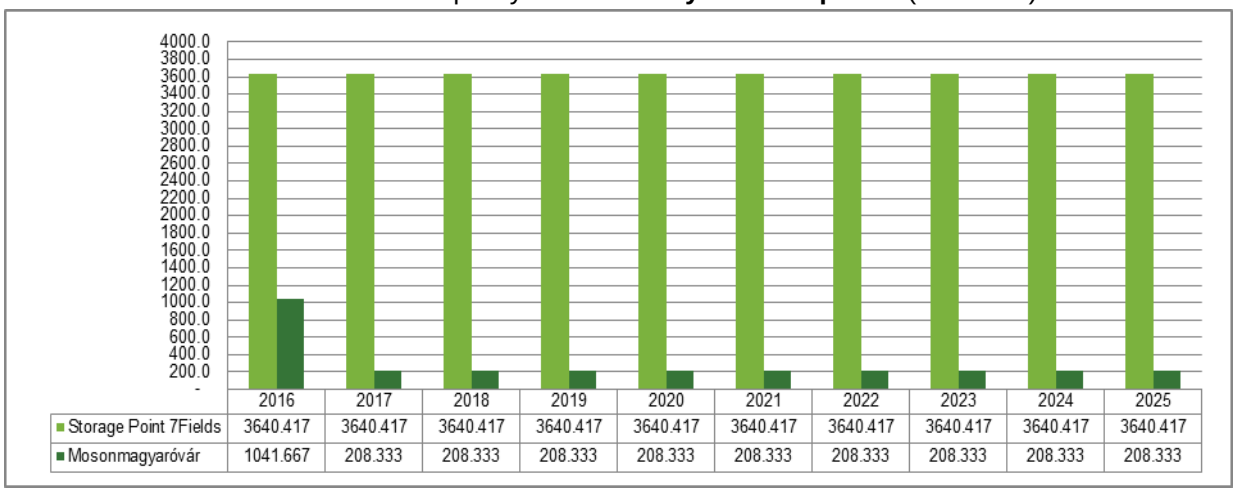


	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Überackern SUDAL	1,672	1,582	1,582	1,582	2,500	2,500	2,500	2,500	2,500	2,500
Storage Point 7Fields	3,640	3,640	3,640	3,640	3,640	3,640	3,640	3,640	3,640	3,640
Oberkappel	70	70	-	-	-	-	-	-	-	-

Chart 6 illustrates the capacity demand by physical exit points.

In line with the results at the physical entry point, the highest capacity demand of 3,640 MWh/h or 325,328 Nm³/h (0°C) was submitted for the corresponding Storage Point 7Fields exit point at a consistent level over the planning period from 2016 to 2025. At the Mosonmagyaróvár exit point, a capacity demand of 1.042 MWh/h or 93,089 Nm³/h (0°C) was submitted for 2016, and a consistent capacity demand of 208 MWh/h or 18,618 Nm³/h (0°C) for the period from 2017 to 2025.

Chart 6: Submitted capacity demand - **Physical exit points** (in MWh/h)



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Storage Point 7Fields	3640.417	3640.417	3640.417	3640.417	3640.417	3640.417	3640.417	3640.417	3640.417	3640.417
Mosonmagyaróvár	1041.667	208.333	208.333	208.333	208.333	208.333	208.333	208.333	208.333	208.333

8.2.2 Demand - without access to the VTP

No demand for capacities without access to the VTP was reported in this year's capacity demand survey.

Table 5: Entry points for short-distance capacity indicated in the capacity demand survey **without access to the VTP**

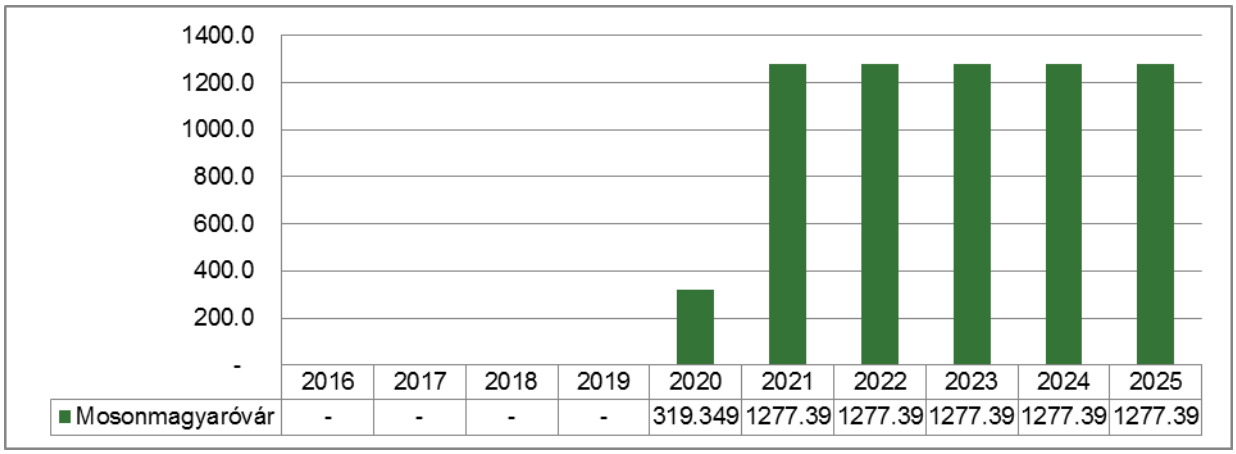
Capacity without access to the VTP	
Physical entry points	**Physical exit points**
Überackern ABG (border to Germany)	Überackern SUDAL (border to Germany)
Überackern SUDAL (border to Germany)	Überackern ABG (border to Germany)

8.2.3 Demand - at non-physical entry points

Chart 7 shows the capacity demand by non-physical entry points.

At the Mosonmagyaróvár entry point, a capacity demand of 319 MWh/h or 28,539 Nm³/h (0°C) was submitted for 2020, and a consistent capacity demand of 1.277 MWh/h or 114,155 Nm³/h (0°C) for the period from 2021 to 2025.

Chart 7: Submitted capacity demand - **Non**-p**hysical exit points** (in MWh/h)



8.3 Capacity demand analysis

Table 6 shows all entry and exit points for which demand for capacity with access to the VTP was reported to GCA in the capacity demand survey.

At the entry and exit points printed in green font, the additional capacity demand can be met with the available capacities. At the entry and exit points in red font, the additional capacity demand cannot currently be met with the available and/or technical capacities. If the entry and exit points are printed in black font, this means that no additional capacity demand was notified to GCA.

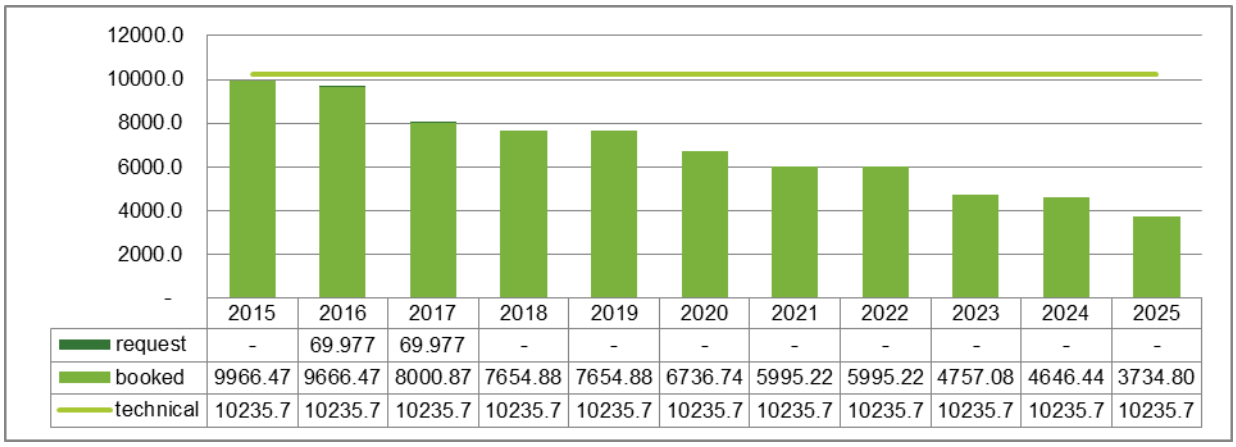
Table 6: Entry and exit points where demand for capacity **with access to the VTP** was notified

Demand for capacity with access to the VTP		
Physical entry points	**Physical exit points**	**Non-physical** entry points
Baumgarten (border to Slovakia)	Mosonmagyaróvár (border to Hungary)	Mosonmagyaròvàr (border to Hungary)
Oberkappel (border to Germany)	Baumgarten (border to Slovakia)	Murfeld (border to Slovenia)
Überackern ABG (border to Germany)	Oberkappel (border to Germany)	Petrzalka (border to Slovakia)
Überackern SUDAL (border to Germany)	Überackern ABG (border to Germany)	
Storage Point WAG/MAB[5]	Überackern SUDAL (border to Germany)	
Storage Point 7Fields[4]	Murfeld (border to Slovenia)	
	Petrzalka (border to Slovakia)	
	WAG/MAB[6] storage point	
	Storage Point 7Fields[5]	

8.3.1 Capacity demand analysis - no shortage

The demand for incremental capacity submitted for the Oberkappel entry point (border to Germany) of 70 MWh/h or 6,254 Nm³/h (0°C) can be fully met by the capacities available (reference date 24 June 2015, after the quarterly and yearly auction), as shown in chart 8.

Chart 8: Capacity demand / booked capacity / technical capacity at the **Oberkappel entry point** (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
request	-	69.977	69.977	-	-	-	-	-	-	-	-
booked	9966.47	9666.47	8000.87	7654.88	7654.88	6736.74	5995.22	5995.22	4757.08	4646.44	3734.80
technical	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7	10235.7

[4] Physical entry point to GCA's transmission system from the Storage Point 7 Fields storage facility or the MAB storage connection line, can only be booked by the storage facility operator pursuant to section 74 para. 2 GWG 2011

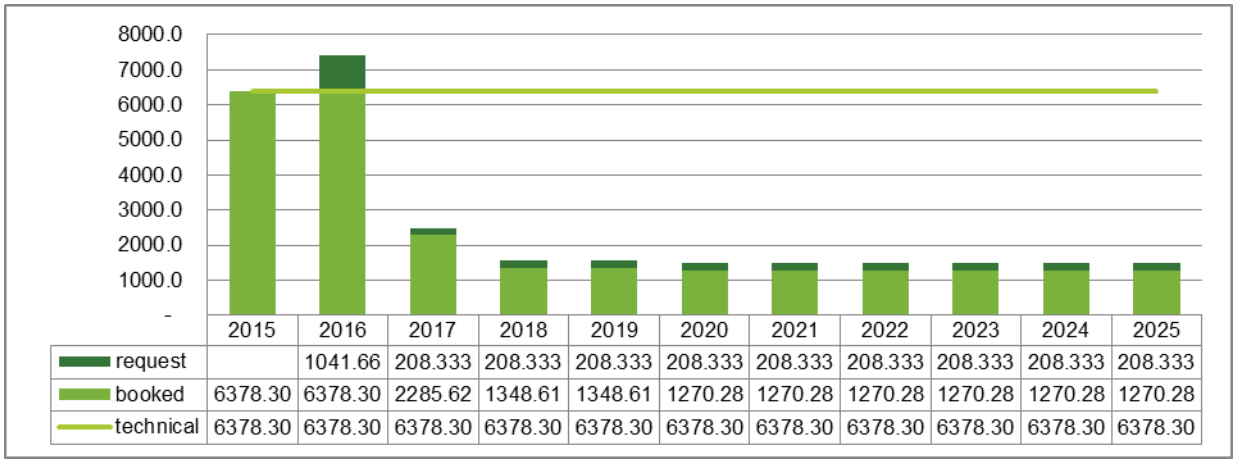
[5] Physical exit point from GCA's transmission system to the Storage Point 7 Fields storage facility or the MAB storage connection line, can only be booked by the storage facility operator pursuant to section 74 para. 2 GWG 2011

8.3.2 Capacity demand analysis - short-term shortage

The additional capacity demand submitted for the Mosonmagyaróvár (border to Hungary) exit point of 1,042 MWh/h or 93,089 Nm³/h (0°C) in 2016 and 208 MWh/h or 18,618 Nm³/h (0°C) in the period from 2017 to 2025 cannot be met by the capacities available (reference date 24 June 2015, after yearly and quarterly auction in 2015) in 2016, as shown in chart 9.

Since May 2007, capacity on a firm basis and/or freely allocable capacity has been fully booked and the demand for incremental capacity was successfully covered by entering into contracts on an interruptible basis with a constant degree of fulfilment in the past of 100%. Since 1 October 2013, GCA has also offered daily guaranteed capacities made available from short-term congestion management measures at the Mosonmagyaróvár IP pursuant to section 11 Gas Market Model Ordinance 2012. However, no need for capacity expansion can be derived from the short-term congestion at Mosonmagyaróvár, as an expansion would not be justified from an economical point of view given the short-term aspect of the demand and the lead time for investments; additionally, the contractual congestion can be covered by the supply of interruptible capacities and guaranteed capacities resulting from congestion management measures. Furthermore, the technical capacity of GCA's pipeline system connecting Austria with Hungary at the Mosonmagyaróvár IP is 20% higher than the pipeline system of the neighbouring Hungarian TSO. If technical capacities were increased, it could not be guaranteed at present that the Hungarian transit pipeline system could transport these capacities.

Chart 9: Capacity demand / booked capacity / technical capacity
at the **Mosonmagyaróvár exit point** (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
request		1041.66	208.333	208.333	208.333	208.333	208.333	208.333	208.333	208.333	208.333
booked	6378.30	6378.30	2285.62	1348.61	1348.61	1270.28	1270.28	1270.28	1270.28	1270.28	1270.28
technical	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30	6378.30

8.3.3 Capacity demand analysis - long-term shortage

8.3.3.1 Project 1a: BACI DN800

Project 1a contains the new capacities submitted in last year's project data collection for the new Reintal entry and exit point on the Czech border; this IP is the first to connect these two markets. In the project submission, the new bi-directional capacities are given as at least 8,392 MWh/h or 750,000 Nm³/h (0°C); therefore, exactly these capacity data are used for the BACI project.

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 grant-

ed financial aid from the TEN-E programme. Additionally, the BACI project with the technical parameters as included in Project 1a 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.

Based on the preparatory analyses of the two TSOs, two potential concepts were identified for connecting the two markets and offering customers additional entry/exit 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 the neighbouring countries could be reached by combining this new entry capacity with any guaranteed exit capacity in one of the two market areas.

During the conception of the project the additional demand for a break out point to the distribution system was analysed in collaboration with the Distribution Area Manager.

The planned pipeline route crosses the route of the pipeline “Ebene 2 Ladendorf – Hohenau” at kilometer 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.

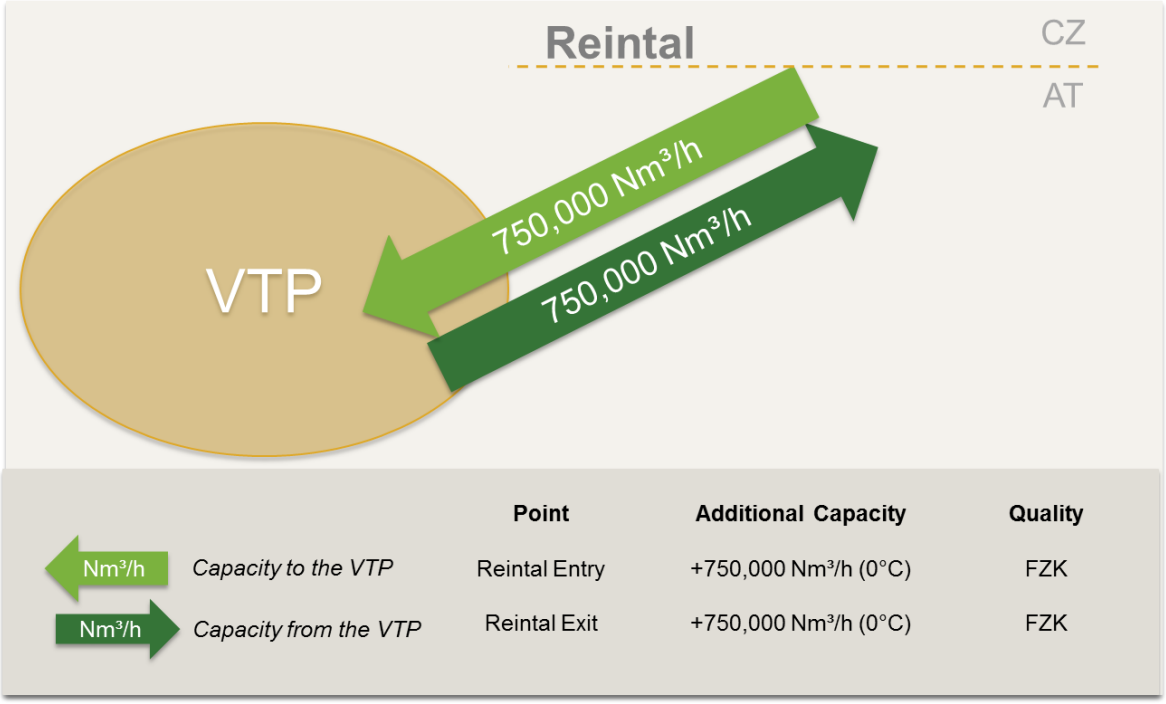
Table 7 shows the relevant data, technical capacities and new capacities of Project 1 in Nm³/h (0° C).

Table 7: Capacity data for Project 1a **BACI DN 800**

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h (0°C)	New capacity in Nm³/h (0°C)
Reintal	BACI	FZK	Entry	0	+750,000
Reintal	BACI	FZK	Exit	0	+750,000

The flow diagram in chart 10 illustrates the new capacities at the new Reintal entry and exit point, which results in Project 1a. In accordance with Project 1a, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application”GCA 2015/01a”.

Chart 10: Project 1a: **BACI DN 800**



8.3.3.1.1 Technical feasibility

For the implementation of capacity from the new entry point Reintal with access to the VTP and from the VTP to the new exit point Reintal at the Austrian/Czech border each in the amount of 750,000 Nm³/h (0°C) on FZK basis a new pipeline project is necessary.

The following investments are necessary for Project 1a:

- New metering station at the handover station – Baumgarten
- New Baumgarten CS
- Transmission system connection between Baumgarten and Reintal
- New Metering Station Reintal

Implementation period: 4.25 years, completion: Q4 2019

Investment costs 2015 are estimated at xxx. xx million €, with a possible deviation of +/- 25%. Project 1a will be submitted under the terms specified in the project sheet"GCA 2015/01a" in chapter 10.2, economic data.

The confidential enclosure to the NDP, 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.

8.3.3.1.2 Concept for capacity allocation

The final planning for BACI incremental capacity allocation resulting from Project 1 is not yet completed due to the potential of the project for market integration and depending on the final concept a point-specific capacity allocation at the newly created entry and exit point could not be imperative. In May 2015 a market survey was conducted jointly with the Czech TSO NET4GAS, s.r.o. Demand for bidirectional capacities - as far as regards the quantity - was not of particular relevance. However, according to the market survey, the customers' preferred model is market integration. The final capacity allocation will be executed in coordination with the NRA. The allocation of the additionally established capacity resulting out of project 1, either through the concept of market integration or through one IP, is planned via an auction procedure. The process of a respective capacity allocation will be defined in close alignment with the NRA and the implementation is subject to technical possibilities.

8.3.3.2 Project 1b: BACI DN1200

Project 1b contains the new capacities submitted in last year's project data collection for the new Reintal entry and exit point on the Czech border; this IP is the first to connect these two markets. In the project submission, the new bi-directional capacities are given as at least 816,561 MWh/h or 1,480,000 Nm³/h (0°C); therefore, exactly these capacity data are used for the BACI project.

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 included in Project 1a 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.

Based on the preparatory analyses of the two TSOs, two potential concepts were identified for connecting the two markets and offering customers additional entry/exit 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 the neighbouring countries could be reached by combining this new entry capacity with any guaranteed exit capacity in one of the two market areas.

During the conception of the project the additional demand for a break out point to the distribution system was analysed in collaboration with the Distribution Area Manager.

The planned pipeline route crosses the route of the pipeline "Ebene 2 Ladendorf – Hohenau" at kilometer 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.

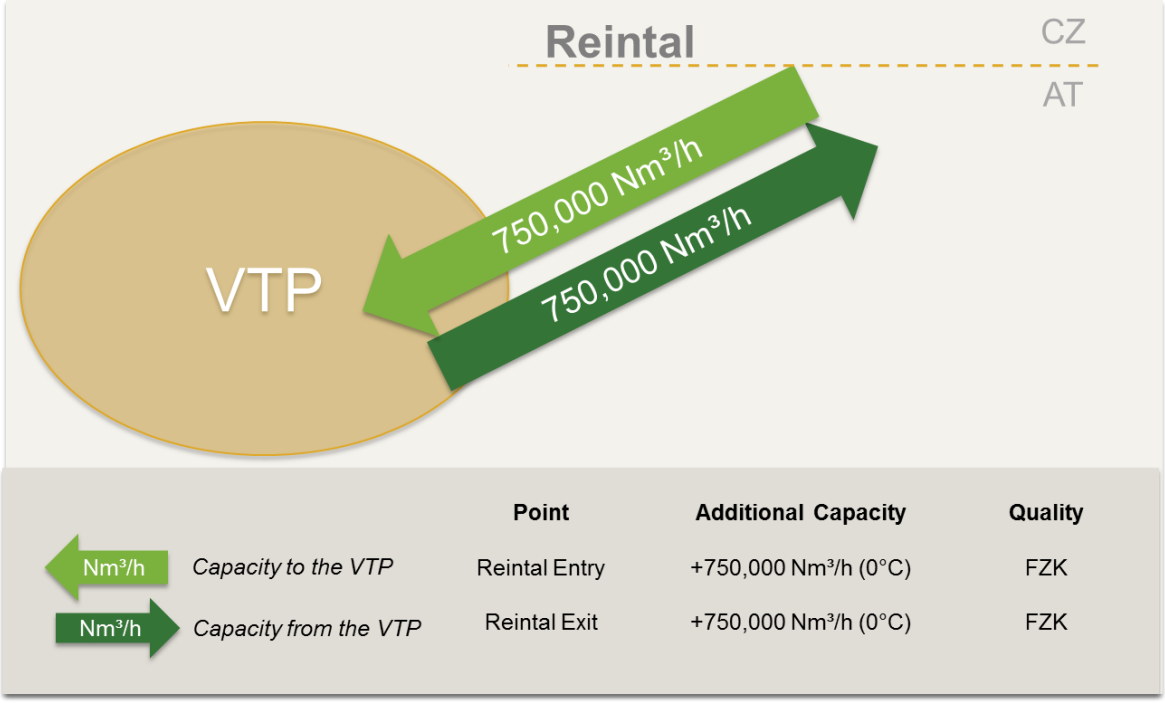
Table 8 shows the relevant data, technical capacities and new capacities of Project 1b in Nm³/h (0° C).

Table 8: Capacity data for Project 1b**BACI DN 1200**

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h (0°C)	New capacity in Nm³/h (0°C)
Reintal	BACI	FZK	Entry	0	+1,480,000
Reintal	BACI	FZK	Exit	0	+1,480,000

The flow diagram in chart 11 illustrates the new capacities at the new Reintal entry and exit point, which results in Project 1b. In accordance with Project 1b, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application as planning project ”GCA 2015/01b”.

Chart 11: Project 1b: **BACI DN 800**



8.3.3.2.1 Technical feasibility

For the implementation of capacity from the new entry point Reintal with access to the VTP and from the VTP to the new exit point Reintal at the Austrian/Czech border each in the amount of 1,480,000 Nm³/h (0°C) on FZK basis a new pipeline project is necessary.

The following investments are necessary for Project 1b:

- New metering station at the handover station – Baumgarten
- New Baumgarten CS
- Transmission system connection between Baumgarten and Reintal
- New Metering Station Reintal

Implementation period: 4.25 years, completion: Q4 2019

Investment costs 2015 are estimated at xxx. xx million €, with a possible deviation of +/- 25%. Project 1b will be submitted under the terms specified in the project sheet"GCA 2015/01b" in chapter 10.2, economic data.

The confidential enclosure to the NDP, 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.

8.3.3.2.2 Concept for capacity allocation

The final planning for BACI incremental capacity allocation resulting from Project 1 is not yet completed due to the potential of the project for market integration and depending on the final concept a point-specific capacity allocation at the newly created entry and exit point could not be imperative. In May 2015 a market survey was conducted jointly with the Czech TSO NET4GAS, s.r.o. Demand for bidirectional capacities - as far as regards the quantity - was not of particular relevance. However, according to the market survey, the customers' preferred model is market integration. The final capacity allocation will be executed in coordination with the NRA. The allocation of the additionally established capacity resulting out of project 1, either through the concept of market integration or through one IP, is planned via an auction procedure. The process of a respective capacity allocation will be defined in close alignment with the NRA and the implementation is subject to technical possibilities.

8.3.3.3 Project 2: Entry/Exit Überackern

Project 2 contains all additional demand submitted in the capacity demand survey at the Überackern SUDAL, ABG and Storage Facility 7Fields entry points and at the Überackern SUDAL, ABG and Storage Facility 7Fields exit points; demand is shown in aggregate form.

The capacity demand was submitted with a value of 3,640 MWh/h or 325,328 Nm³/h (0°C); at the Storage Point 7Fields entry point a demand of 2,500 MWh/h or 223,414 Nm³/h (0°C) was notified, and at the Überackern SUDAL entry point a maximum capacity demand of 2,500 MWh/h or 223,414 Nm³/h (0°C) was submitted. A corresponding capacity demand of 3,640 MWh/h or 325,328 Nm³/h (0°C) was submitted for the Storage Facility 7Fields exit point.

The additional capacity demand at the Überackern SUDAL entry point was submitted as bundled capacity.

At the Überackern entry point, the available technical capacity is limited and amounts to 4,750 MWh/h or 424,500 Nm³/h (0°C)[6]. At the exit point, the applicable technical capacity amounts to 7,274 MWh/h or 650,000 Nm³/h (0°C)[7]. In the long run, both the additional demand for entry capacities and the demand for exit capacities cannot be met by the capacities available.

Table 9 shows the relevant data, technical capacities and additional demand of Project 2 in Nm³/h (0° C).

Table 9: Capacity data for Project 2 Entry/Exit Überackern

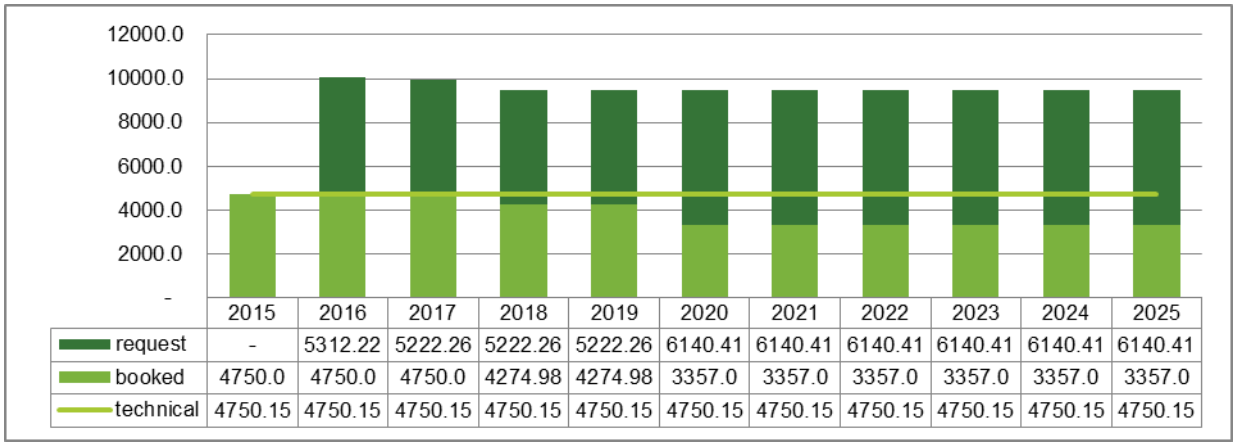
IP	System	Quality	Direction	Applicable technical capacity in Nm³/h (0°C)	Additional demand in Nm³/h (0°C)
Überackern SUDAL	PW reverse flow	FZK	Entry	424,500	+223,414
Storage Point 7Fields	PW reverse flow	FZK	Entry	424,500	+325,328
Storage Point 7Fields	PW flow	FZK	Exit	675,500	+325,328

Chart 12 shows the relationship between booked capacity, technical capacity and the aggregate capacity demand at the Überackern entry point, while chart 13 shows the capacity situation at the Überackern exit point.

At the entry point, the aggregate additional demand results in a shortage of 5,312 MWh(h) or 474,710 Nm³/h (0°C) in the year 2016 and a shortage of 5,222 MWh(h) or 466,667 Nm³/h (0°C) in the year 2017. For the remaining planning period, a shortage of 4,747 MWh(h) bzw. 424,218 Nm³/h (0°C) at the entry point is expected. At the Überackern exit point, the additional demand results in a shortage of 2,916 MWh/h or 260.590 Nm³/h (0°C) in the period from 2016 to 2018, and of 2,797 MWh/h or 249,955 Nm³/h (0°C) for the remainder of the planning period.

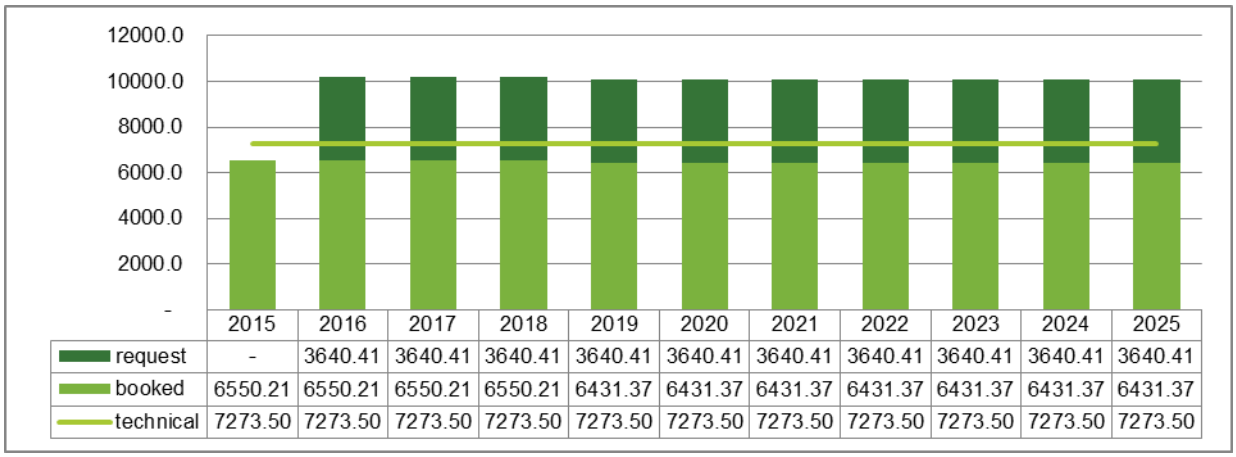
[6] The applicable capacity for the Überackern SUDAL, ABG and Storage Point 7 Fields entry points is identical, as these points compete with each other.
[7] The applicable capacity for the Überackern SUDAL, ABG and Storage Point 7 Fields exit points is identical, as these points compete with each other.

Chart 12: Capacity demand / booked capacity / technical capacity
at the **Überackern entry point** (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
request	-	5312.22	5222.26	5222.26	5222.26	6140.41	6140.41	6140.41	6140.41	6140.41	6140.41
booked	4750.0	4750.0	4750.0	4274.98	4274.98	3357.0	3357.0	3357.0	3357.0	3357.0	3357.0
technical	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15	4750.15

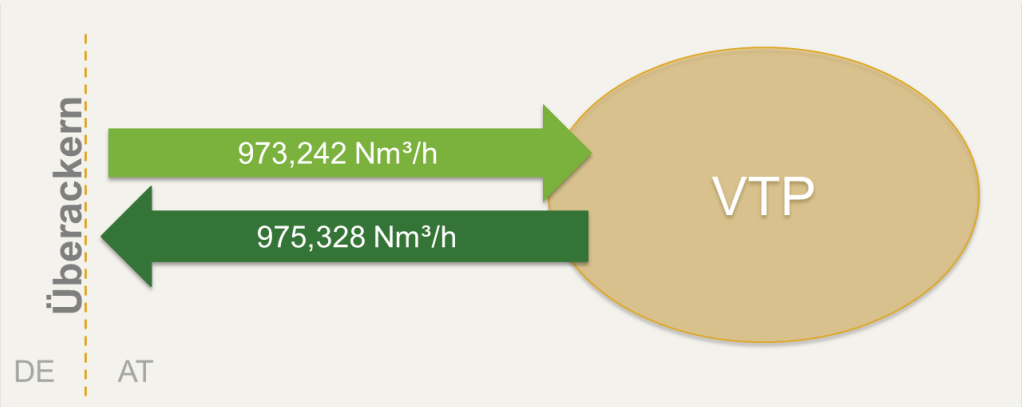
Chart 13: Capacity demand / booked capacity / technical capacity
at the **Überackern exit point** (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
request	-	3640.41	3640.41	3640.41	3640.41	3640.41	3640.41	3640.41	3640.41	3640.41	3640.41
booked	6550.21	6550.21	6550.21	6550.21	6431.37	6431.37	6431.37	6431.37	6431.37	6431.37	6431.37
technical	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50	7273.50

The flow diagram in chart 14 illustrates the overall incremental demand notified for the Überackern entry and exit point, which results in Project 2. In accordance with Project 2, the costs of the additional capacity offer on an FZK basis are analysed in line with the described aggregate capacity demand over the 2016-2025 planning period and reflected in the project application ”GCA 2015/02”.

Chart 14: Projekt 2 Entry/Exit **Überackern**



	Point	Additional Capacity	Quality
Nm³/h *Capacity to the VTP*	Überackern SUDAL Entry	+ 223,414 Nm³/h	FZK
Nm³/h *Capacity from the VTP*	7Fields Entry	+ 325,328 Nm³/h	FZK
	7Fields Exit	+ 325,328 Nm³/h	FZK

8.3.3.3.1 Technical feasibility

The analysis of Project 2 shows, that for the implementation of capacity from the entry point Überackern to the VTP on FZK basis of the total amount of 973,242 Nm³/h (0°C) and capacity from the VTP to the Überackern exit point on FZK basis of the total amount of 975,328 Nm³/h (0°C) an increase of the injection pressure from for the reverse flow is necessary. The new pressure conditions and the new flow rate additionally require a new filter separator in order to guarantee a non-interrupted operation.

The following investments are necessary for Project 2:

- New CS-Überackern
- Adaption of the metering station at the handover 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.
- Partial loop of Penta West
- Modification of MS Neustift
- Partial loop of WAG

Implementation time frame: 4,5 years, completion: Q2 2020

Investment costs 2015 are estimated at XX.XX million €, with a possible deviation of +/- 25%. Project 2 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/02” in chapter 10.2, economic data.

The conclusion of the pressure support agreement with the bordering TSO until the time of approval is not realistic. Therefore, the necessary measures for the pressure and capacity increase on Austrian side are examined. GCA endeavours to find effective and efficient technical solutions in cooperation with the adjacent TSO at the entry and exit points Überackern SUDAL and Überackern ABG. The development of capacity demand at the entry and exit points Überackern SUDAL and Überackern ABG is

closely monitored and is analysed regarding the possible offer of pressure support – in case of economic efficiency of the project- in close cooperation with the adjacent TSO.

The confidential enclosure to the NDP, 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.

8.3.3.3.2 Concept for capacity allocation

The allocation of the incremental capacity resulting from the Project 2 regarding the point Überackern is planned by GCA in the form of an auction. In any case, for the allocation of incremental capacity at the Überackern point the competition between the Überackern and Oberkappel points 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 implementation is subject to technical possibilities.

8.3.3.4 Project 3: Entry/Exit Überackern – Maximum

Project 3 includes a complete extension of Penta West. The project is not based on the submitted capacity demands of the market participants. It was established by GCA, in order to analyse a potential maximum variant of the project for the purpose of depicting alternative routes for potential storage connections.

8.3.3.4.1 Technical Feasiblity

The maximum version of the project in Überackern includes an additional compressor station for the gas transport towards Oberkappel. The metering and filter capacity of SUDAL has to be increased.

The Penta West pipeline has to be doubled from Überackern to Neustift. In order to transport the maximum amount of 1,930,000 Nm³/h via WAG to Baumgarten, the WAG pipeline has to be looped (complete loop of WAG). Furthermore, a modification of two compressor stations on the WAG pipeline as well as modifications in Baumgarten is necessary in order to transport the capacity.

The metering station Neustift, and the compressor station in Neustift have to be adapted to fit the new capacity requirements. Additionally a new compressor unit has to be establishes in order to achieve a 3+1 operation.

The following investments are necessary for project 3:

- New CS -Überackern
- Modification of MS Überackern
- Loop Penta West
- Modification of MS and CS Neustift
- Loop WAG
- Modification of the CS Rainbach and Kirchberg
- Piping in Baumgarten

Implementation time frame: 6 years, completion: Q2 2021

Investment costs 2015 are estimated at XX.XX million €, with a possible deviation of +/- 25%. This project relating to Project 3 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/03” in chapter 10.2, economic data.

The confidential enclosure to the NDP, 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.

8.3.3.4.2 Concept for capacity allocation

The allocation of the incremental capacity resulting from the Project 3 regarding the point Überackern is planned by GCA in the form of an auction. In any case, for the allocation of incremental capacity at the Überackern point the competition between the Überackern and Oberkappel points 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 implementation is subject to technical possibilities.

8.3.3.5 Project 4: Entry Mosonmagyaróvár - Minimum

Project 4 contains the new capacities submitted in the capacity demand survey for the Mosonmagyaróvár entry point on the Hungarian border. The corresponding submission indicates new technical capacity of at least 1,277 MWh/h or 114,155 Nm³/h (0°C). The capacity demand at the Mosonmagyaróvár entry point was submitted as bundled capacity. The upstream TSO is not connected to PRISMA at the moment; therefore, in order to facilitate bundled marketing at this point in future, possible solutions for connection to marketing platforms are being developed at the present time under the aegis of the European Agency for the Cooperation of Energy Regulators (ACER).

There is currently no applicable technical capacity at the Mosonmagyaróvár entry point, and as a result transports are performed only on an interruptible virtual basis.

Table 10 shows the relevant data, technical capacities and new capacities of Project 4 in Nm³/h (0° C).

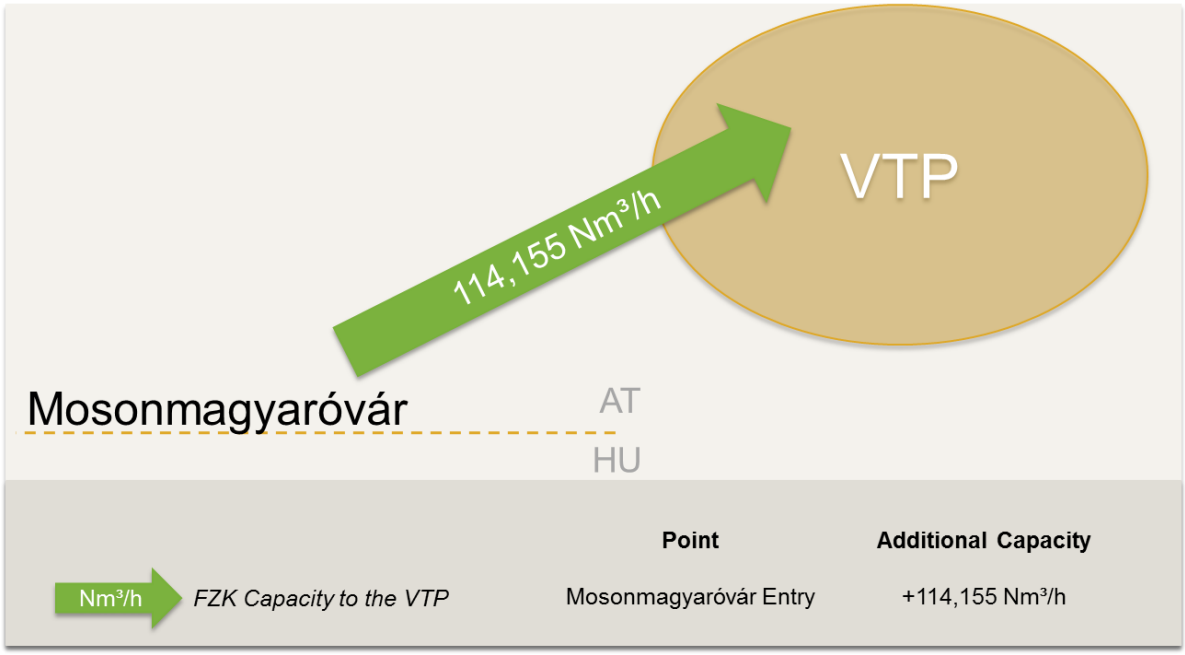
Table 10: Capacity data for the Project 4 Entry Mosonmagyaróvár - Minimum

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Mosonmagyaróvár	HAG	FZK	Entry	0	+114,155

The flow diagram in chart 15 illustrates the new capacities at the Mosonmagyaróvár entry point, which results in Project 4. In accordance with Project 4, the costs of the additional capacity offer on an FZK

basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application “GCA 2015/4“.

Chart 15: Project 4 Entry Mosonmagyaróvár - Minimum



8.3.3.5.1 Technical feasibility

An increase of the gas withdrawal pressure at the HAG metering station in Baumgarten in reverse flow direction is necessary for the implementation of capacities from the Mosonmagyaróvár entry point to the VTP on FZK basis in an amount of 114,155 Nm³/h (0°C). In order to create the new pressure conditions the existing HAG metering station has to be modified in order to guarantee the transport to the VTP.

The following investments are necessary for project 4:

- Modification HAG MS: Filter separator, metering routes, regulation, piping
- Extension of the Baumgarten node

Implementation period: 1.25 years, completion: Q3 2017

Investment costs 2015 are estimated at xx.xx million €, with a possible deviation of +/- 25%. This project relating to Project 4 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/4” in chapter 10.2, economic data.

The conclusion of the pressure support agreement with the bordering TSO until the time of approval is not realistic. Therefore, the necessary measures for the pressure and capacity increase on Austrian side are examined. GCA endeavours to find effective and efficient technical solutions in cooperation with the adjacent TSO at the Mosonmagyaróvár entry point. The development of capacity demand at

the Mosonmagyaróvár entry point is closely monitored and is analysed regarding the possible offer of pressure support in close cooperation with the adjacent TSO.

The confidential enclosure to the NDP, 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.

8.3.3.5.2 Concept for capacity allocation

The plans for capacity allocation for the project with regard to Project 4 have not yet been finalised as the process for connecting different marketing platforms has yet to be agreed. Capacity allocation will eventually be coordinated with the NRA and will be implemented subject to technical and organisational possibilities.

8.3.3.6 Project 5: Entry Mosonmagyaróvár - Base

Project 5 contains the new capacities submitted in the capacity demand survey for the Mosonmagyaróvár entry point on the Hungarian border. According to the data submitted, new technical capacity of 6,378 MWh/h or 570,000 Nm³/h (0°C) will be required.

There is currently no applicable technical capacity at the Mosonmagyaróvár entry point, and as a result transports are performed only on an interruptible virtual basis.

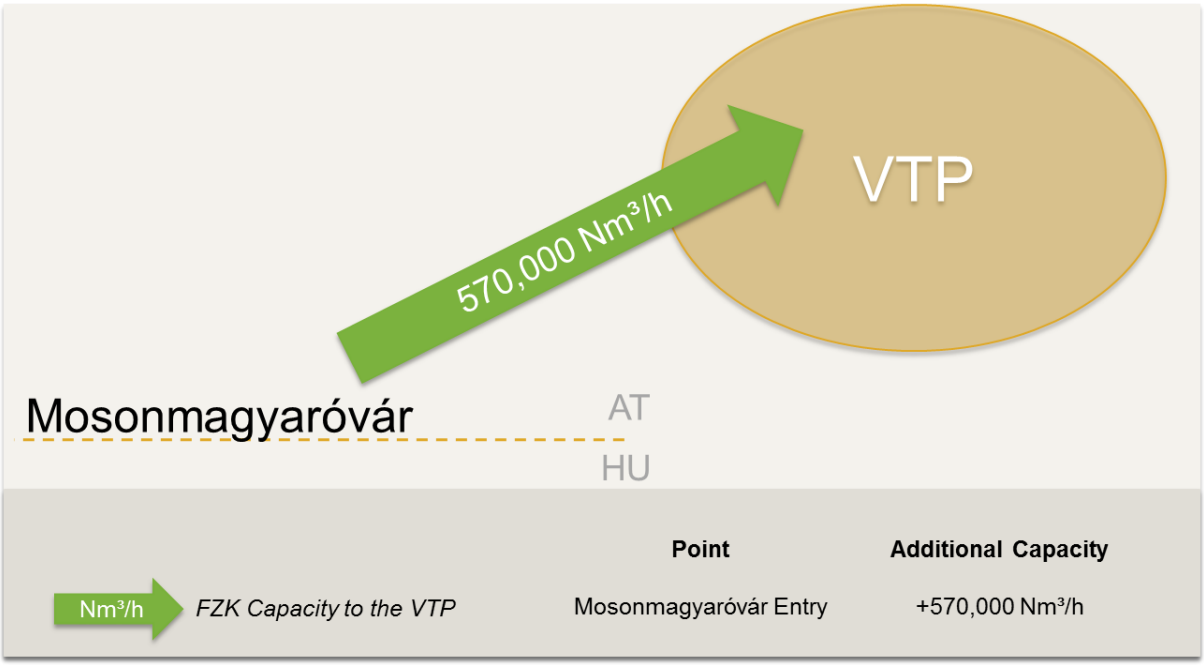
Table 11 shows the relevant data, technical capacities and new capacities of project 5 in Nm³/h (0° C).

Table 11: Project 5: Entry Mosonmagyaróvár - Base

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Mosonmagyaróvár	HAG	FZK	Entry	0	+570,000

The flow diagram in chart 16 illustrates the new capacities at the Mosonmagyaróvár entry point, which results in Project 5. In accordance with Project 5, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application “GCA 2015/5“.

Chart 16: Project 5: Entry Mosonmagyaróvár - Base



8.3.3.6.1 Technical feasibility

An increase of the gas withdrawal pressure at the HAG metering station in Baumgarten in reverse flow direction is necessary for the implementation of capacities from the Mosonmagyaróvár entry point to the VTP on FZK basis in an amount of 570,000 Nm³/h (0°C). In order to create the new pressure conditions an additional HAG CS compressor station has to be built for transport to the VTP, and the existing HAG metering station has to be modified.

The following investments are necessary for Project 5:

- Modification HAG MS: Filter separator, metering routes, regulation, piping
- New HAG CS
- Extension of the Baumgarten node

Implementation period: 3.5 years, completion: Q1 2020

Investment costs 2015 are estimated at XXX million €, with a possible deviation of +/- 25%. This project relating to Project 5 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/05” in chapter 10.2, economic data.

The conclusion of the pressure support agreement with the bordering TSO until the time of approval is not realistic. Therefore, the necessary measures for the pressure and capacity increase on Austrian side are examined. GCA endeavors to find effective and efficient technical solutions in cooperation with the adjacent TSO at the Mosonmagyaróvár entry point. The development of capacity demand at the Mosonmagyaróvár entry point is closely monitored and is analysed regarding the possible offer of pressure support in close cooperation with the adjacent TSO.

The confidential enclosure to the NDP, 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.

8.3.3.6.2 Concept for capacity allocation

The plans for capacity allocation for the project with regard to Project 5 have not yet been finalised as the process for connecting different marketing platforms has yet to be agreed. There are plans to conduct a non-binding open season procedure in the autumn of 2015 together with the Hungarian TSO FGSZ ZRT and the Romanian TSO S.N.T.G.N. TRANSGAZ S.A. Capacity allocation will eventually be coordinated with the NRA and will be implemented subject to technical and organisational possibilities.

8.3.3.7 Project 6: Mosonmagyaróvár plus

Project 6 covers the new capacities submitted in the capacity demand survey for the Mosonmagyaróvár entry point on the Hungarian border. According to the data submitted, new technical capacity of 25,737 MWh/h or 2,300,000 Nm³/h (0°C) will be required. Initially, projected capacity data of 18 bcma Nm³/h (15°C) (= 1,951,147 Nm³/h (0°C)) were submitted by FGSZ to GCA. With a view to increasing project efficiency and as no significant additional costs are to be expected, GCA did, however, increase this value to 25,737 MWh/h or 2,300,000Nm³/h (0°C).

There is currently no applicable technical capacity at the Mosonmagyaróvár entry point, and as a result transports are performed only on an interruptible virtual basis.

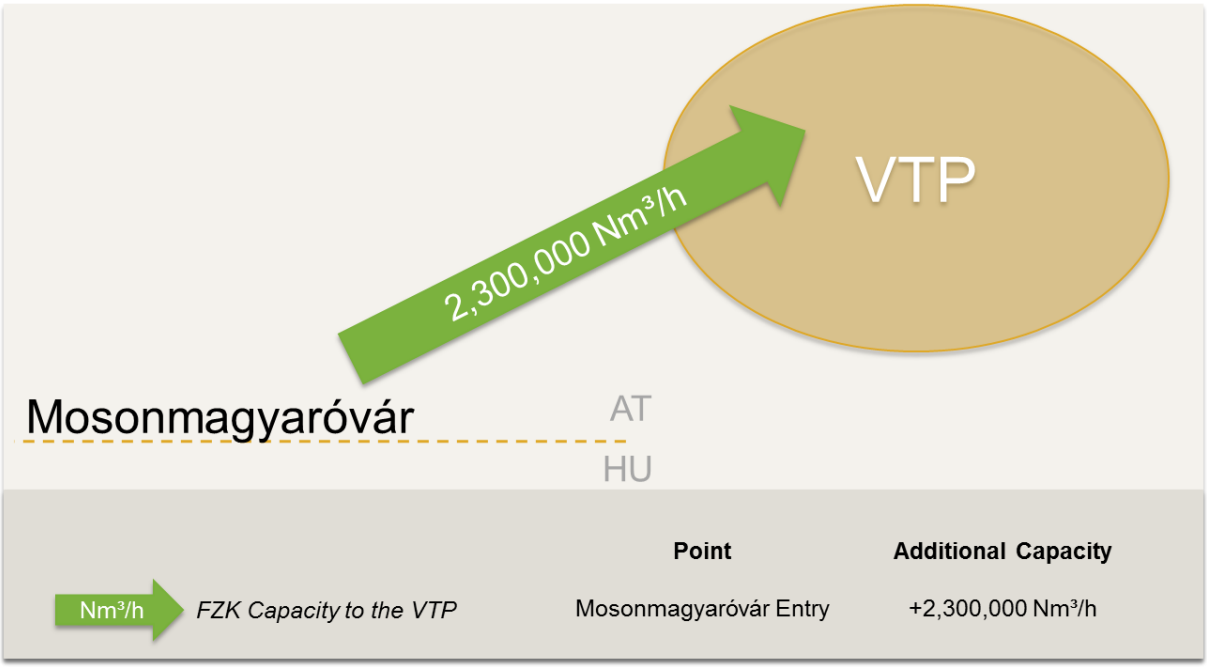
Table 12 shows the relevant data, technical capacities and new capacities of Project 6 in Nm³/h (0° C).

Table 12: Capacity data for Project 6 Mosonmagyaróvár plus

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Mosonmagyaróvár	HAG	FZK	Entry	0	+2,300,000

The flow diagram in chart 17 illustrates the new capacities at the Mosonmagyaróvár entry point, which results in Project 6. In accordance with Project 6, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application”GCA 2015/06”.

Chart 17: Project 6 **Mosonmagyaróvár plus**



8.3.3.7.1 Technical feasibility

An increase of the gas withdrawal pressure at the HAG metering station in Baumgarten to 52 bar(g) in reverse flow direction is necessary for the implementation of capacities from the Mosonmagyaróvár entry point to the VTP on FZK basis in an amount of 2,300,000 Nm³/h (0°C). In order to create the new pressure conditions an additional HAG CS compressor station has to be built for transport to the VTP, and the existing HAG metering station has to be modified and the HAG has to be looped.

The following investments are necessary for Project 6:

- HAG Loop
- New HAG CS
- Extension of the Baumgarten node as well as the establishment of a metering station

Implementation period: 4 years, completion: Q3 2019

Investment costs 2015 are estimated at xx.xx million €, with a possible deviation of +/- 25%. This project relating to Project 6 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/06” in chapter 10.2, economic data.

The conclusion of the pressure support agreement with the bordering TSO until the time of approval is not realistic. Therefore, the necessary measures for the pressure and capacity increase on Austrian side are examined. GCA endeavours to find effective and efficient technical solutions in cooperation with the adjacent TSO at the Mosonmagyaróvár entry point. The development of capacity demand at the Mosonmagyaróvár entry point is closely monitored and is analysed regarding the possible offer of pressure support in close cooperation with the adjacent TSO.

The confidential enclosure to the NDP, 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.

8.3.3.7.2 Concept for capacity allocation

The plans for capacity allocation for the project with regard to Project 6 have not yet been finalised as the process for connecting different marketing platforms has yet to be agreed. Capacity allocation will eventually be coordinated with the NRA and will be implemented subject to technical and organisational possibilities.

8.3.3.8 Project 7a: Additional demand in the distribution area

Project 7a covers the new capacities indicated in the capacity demand survey by the distribution area manager from the distribution area into the GCA transmission system level. Additional technical capacity of 2,686 MWh/h or 240,000 Nm³/h (0°C) will be required according to the data submitted and corresponds to the project 2012/03 Option 1 in the LTP.

The applicable technical capacity at the virtual point from the distribution area to the transmission area amounts to 360,000 Nm³/h (0°C) at present.

Table 13 shows the relevant data, technical capacities and new capacities of Project 7a in Nm³/h (0° C).

Table 13: Capacity data for Project 7a “Additional demand in the distribution area”

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Distribution area -> transmission system	-	FZK	Entry	360,000	+240,000

8.3.3.8.1 Technical feasibility

The assumptions regarding this project are based on input pressure at Baumgarten of 55 barg.
The following action (including compression in the WAG pipeline) has to be taken in order to actually offer the capacities as freely available capacities (FZK):

Necessary activities:
(1) Outcross filter battery BOP11/12 in order to filter gas suction-side from collectors 1+2 towards the WAG system.
(2) Exchange of WAG suction pipe (24" to 32") in order to compress the entire quantity (600,000 PVS + 515,000 MAB) with CS WAG BMGT.

Implementation time frame: 1.2 years, completion: Q1 2017

Investment costs 2015 are estimated at X.X million €, with a possible deviation of +/- 25%. This Project 7a will be submitted for approval under the terms specified in the project sheet ”GCA 2015/07a” in chapter 10.2, economic data and under the condition that either the project ”GCA 2015/07a” or the project “GCA 2015/07b” is realized but not both together, If the project GCA 2015/07a“ is approved, it is possible to extend the capacity in order to realize project “GCA 2015/07b” .

The confidential enclosure to the NDP, 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.

8.3.3.8.2 Concept for capacity allocation

As this additional capacity that has to be made available is solely bookable by the distribution area manager, no capacity allocation will be effected via auction for Project 7a.

8.3.3.9 Project 7b: Additional demand distribution area +

Project 7b covers the new capacities indicated in the capacity demand survey by the distribution area manager from the distribution area into the GCA transmission system level. Additional technical capacity of 6,714 MWh/h or 600,000 Nm³/h (0°C) will be required according to the data submitted and corresponds to the project 2012/03 Option 1 in the LTP.

The applicable technical capacity at the virtual point from the distribution area to the transmission area amounts to 360,000 Nm³/h (0°C) at present.

Table 14 shows the relevant data, technical capacities and new capacities of Project 7b in Nm³/h (0° C).

Table 14: Capacity data for Project 7b “Additional demand in the distribution area”

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Distribution area -> transmission system	-	FZK	Entry	360,000	+600,000

8.3.3.9.1 Technical feasibility

The limitation to 960,000 m³/h is mainly due to the maximum flow velocities in individual pipeline sections. The following assumptions are based on input pressure at Baumgarten of 55 barg.

In order to further increase FZK capacities, the metering stations have to be extended and the pipeline sections involved need to be looped.

Necessary activities:

(1) Outcross filter battery BOP11/12 in order to filter gas suction-side from collectors 1+2 towards the WAG system.

(2) Exchange WAG suction pipe (24" to 32") in order to divert the entire quantity (600,000 PVS + 515,000 MAB) in a compressed manner to the WAG system.

(3) Reconnect HAG metering station and establish direct connection of collector via BOP11 in the WAG.

(4) TAG outlet point - extension of the second line (filter, control valves, new 20" metering route, enable high-pressure injection on medium-pressure lines)

Implementation time frame: 1.5 years, completion: Q2 2017

Investment costs 2015 are estimated at X.X million €, with a possible deviation of +/- 25%. This Project 7b will be submitted for approval under the terms specified in the project sheet ”GCA 2015/07b” in chapter 10.2, economic data and under the condition that either the project ”GCA 2015/07a” or the project “GCA 2015/07b” is realized but not both together,
The confidential enclosure to the NDP, 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.

8.3.3.9.2 Concept for capacity allocation

As this additional capacity that has to be made available is solely bookable by the distribution area manager, no capacity allocation will be effected via auction for Project 7b.

8.3.3.10 Project 8: Entry/Exit Murfeld

Project 8 contains the new capacities submitted in the project data collection for the Murfeld entry and exit point on the Slovenian border. In the related project submission, new and additional technical, bi-directional capacities of at least 6,875 MWh/h or 614,388 Nm³/h (0°C) were specified for the project Entry/Exit Murfeld.

At the Murfeld exit point, available technical capacity is limited and amounts to 4,688 MWh/h or 419,000 Nm³/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.

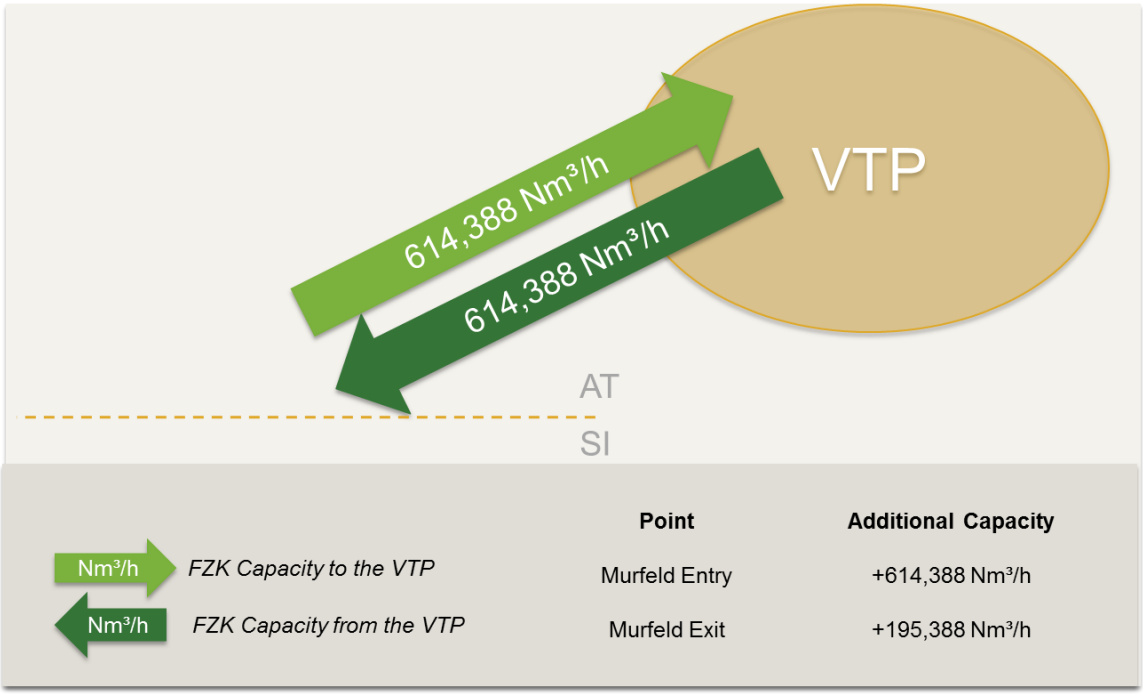
Table 15 shows the relevant data, technical capacities and new capacities of Project 8 in Nm³/h (0° C).

Table 15: Capacity data for Project Entry/Exit Murfeld

Point	System	Quality	Direction	Applicable technical capacity in Nm³/h	New and/or incremental capacity in Nm³/h
Murfeld	SOL	FZK	Entry	0	+614,388
Murfeld	SOL	FZK	Exit	419,000	+195,388

The flow diagram in chart 18 illustrates the new capacities at the Murfeld entry and exit point, which results in Project 8. In accordance with Project 5, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2016-2025 planning period and reflected in the project application”GCA 2015/08”.

Chart 18: Entry/Exit Murfeld



8.3.3.10.1 Technical feasibility

For the implementation of bidirectional capacities from the entry point Murfeld to the VTP and from the VTP to the exit point Murfeld on FZK basis, each in the total amount of 614,388 Nm³/h (0°C), an increase of the gas entry pressure at the metering station SOL-TAG Weitendorf to 70 bar(g) in flow direction is necessary and in reverse flow direction a withdrawal pressure at the metering station SOL-TAG Weitendorf of 50 bar(g) is necessary. In order to create the new pressure conditions an additional compressor station has to be built in Murfeld and the SOL pipeline has to be looped partially.

The following investments are necessary for Project 8:

- Extension metering stations Weitendorf and Murfeld: Filter separator, metering routes, regulation, piping
- New CS Murfeld
- Loop of SOL between Leibnitz and Murfeld
- Loop of the border crossing pipeline Murfeld – Cersak
- Extension of the TAG AZ Baumgarten

Implementation period: 4,25 years, completion: Q4 2019

Investment costs 2015 are estimated at xx.xx million €, with a possible deviation of +/- 25%. Investment costs 2015 are estimated at xxx.xx million €, with a possible deviation of +/- 25%. This project relating to Project 8 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/08” in chapter 10.2, economic data.

The conclusion of the pressure support agreement with the bordering TSO until the time of approval is not realistic. Therefore, the necessary measures for the pressure and capacity increase on Austrian side are examined. GCA endeavours to find effective and efficient technical solutions in cooperation with the adjacent TSO at the entry and exit point Murfeld. The development of capacity demand at the entry and exit point Murfeld is closely monitored and is analysed regarding the possible offer of pressure support in close cooperation with the adjacent TSO.

The confidential enclosure to the NDP, 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.

8.3.3.10.2 Concept for capacity allocation

The allocation of incremental capacities resulting from Project 8 regarding the Murfeld point is planned by GCA in the form of a bundled auction. In the event of competition with the Arnoldstein entry point, a contractual agreement, including a description of the competition situation has to be entered into with TSO TAG GmbH. 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.

8.3.3.11 Project 9: Baumgarten metering routes programme

To reflect the changing market requirements in the winter period 2014/2015, the Baumgarten metering routes programme was initiated.

Project 9 encompasses the individual projects for strengthening the Baumgarten node within the framework of the Baumgarten metering routes programme. The first steps have already been taken.

It was agreed with the TSO TAG in advance that the GCA programme would encompass only individual projects involving plants owned by GCA.

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:

- Response to changing market requirements
- Optimised flexibility of the Baumgarten node
- Setting up new and improved routes
- Reduced dependency on non-Austrian TSOs
- Improved control mechanisms
- Lower probability of interruption of interruptible services

8.3.3.11.1 Technical feasibility

Increased capacity of metering routes, filter separators and pipeline adaptation in the Baumgarten node area are required to implement the Baumgarten metering routes programme.

The following investments are necessary for Project 6:

- Increased capacity of metering routes (MS 4, MS 5, HAG MS, TAG AZ, BOP 11, BOP 12)
- Increased capacity of filter separators (MS 4, TAG AZ, BOP 11, BOP 12)
- Pipeline construction work in Baumgarten

Implementation time frame: 1 year, completion: Q2 2016

Investment costs 2015 are estimated at xxx.xx million €, with a possible deviation of +/- 25%. This Project 9 will be submitted for approval under the terms specified in the project sheet ”GCA 2015/09” in chapter 10.2, economic data.

The confidential enclosure to the NDP, 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.

8.3.3.11.2 Concept for capacity allocation

As these incremental capacities are not linked to cross-border points, no capacity allocation for Project 9 is made.

8.3.4 Compliance with administrative decision (2015-2024 (C)NDP)

The following section describes the technical measures that need to be taken by the TSO GCA to comply with the requirements imposed by the administrative decision concerning the 2015-2024 (C)NDP.

8.3.4.1 Project 10 Fulfilment of administrative decision

In conjunction with taking the required action to comply with the administrative decision of the (C)NDP 2015-2024 regarding the Maximum FZK capacity at the Arnoldstein entry point, it was agreed with the TSO TAG in advance that the GCA programme would encompass only technical measures that are required to transport FZK capacities of 11,190 MWh/h or 1,000,000 Nm³/h (0°C) to the VTP and distribute them to the other systems.

8.3.4.1.1 Technical feasibility

The following investment is needed to provide the capacities for Project 10:

- Increased capacity at the TAG outlet point in Baumgarten

Implementation time frame: 2,5 years, completion: Q2 2018

Investment costs 2015 are estimated at xxx.xx million €, with a possible deviation of +/- 25%. This Project 10 will be submitted for approval as concept study under the terms specified in the project sheet ”GCA 2015/10” in chapter 10.2, economic data.

The confidential enclosure to the NDP, 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.

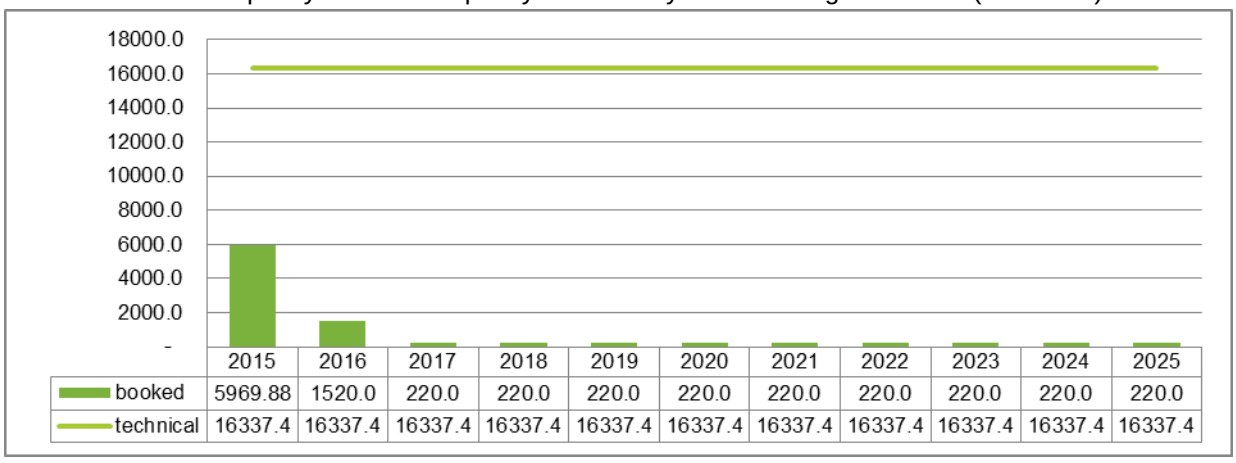
8.3.4.1.2 Concept for capacity allocation

As these incremental capacities relate to the Arnoldstein cross-border point, GCA will not make any capacity allocation for Project 10.

8.4 Booking behaviour at Interconnection Points without capacity request

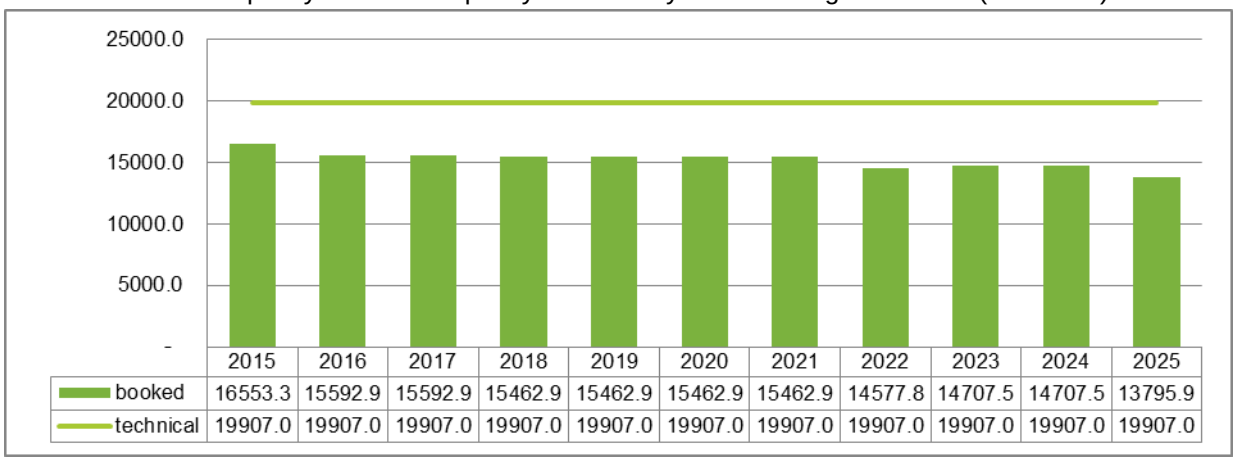
In addition to the publication of the booking behavior at the Interconnection Points Oberkappel and Überackern as well as the Exit Points Mosonmagyaróvár and Überackern the booking behavior at the remaining IPs of GCA is mentioned below:

Chart 19: Booked capacity/technical capacity at the Entry Point Baumgarten GCA (in MWh/h)



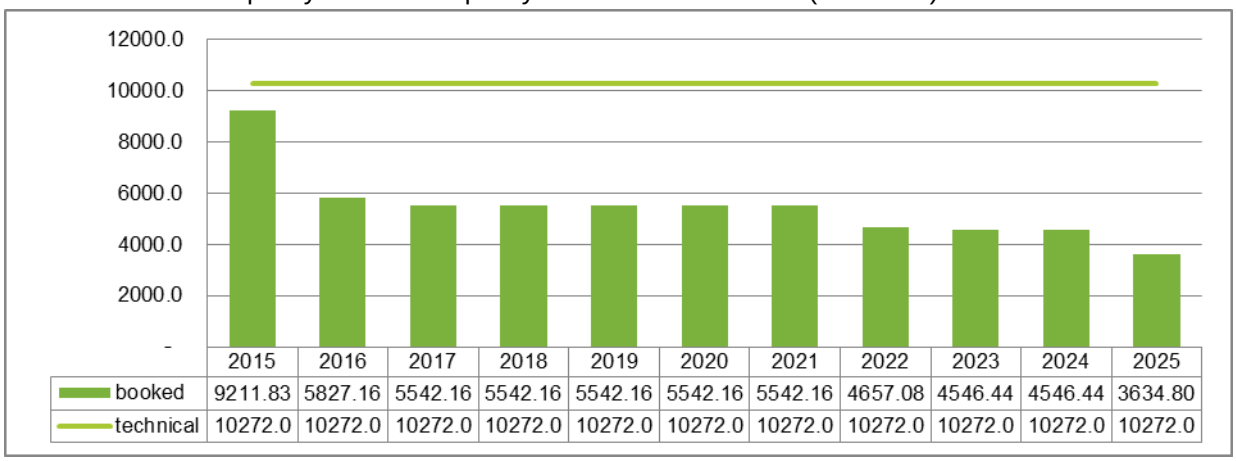
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
booked	5969.88	1520.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0
technical	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4	16337.4

Chart 20: Booked capacity/technical capacity at the Entry Point Baumgarten WAG (in MWh/h)



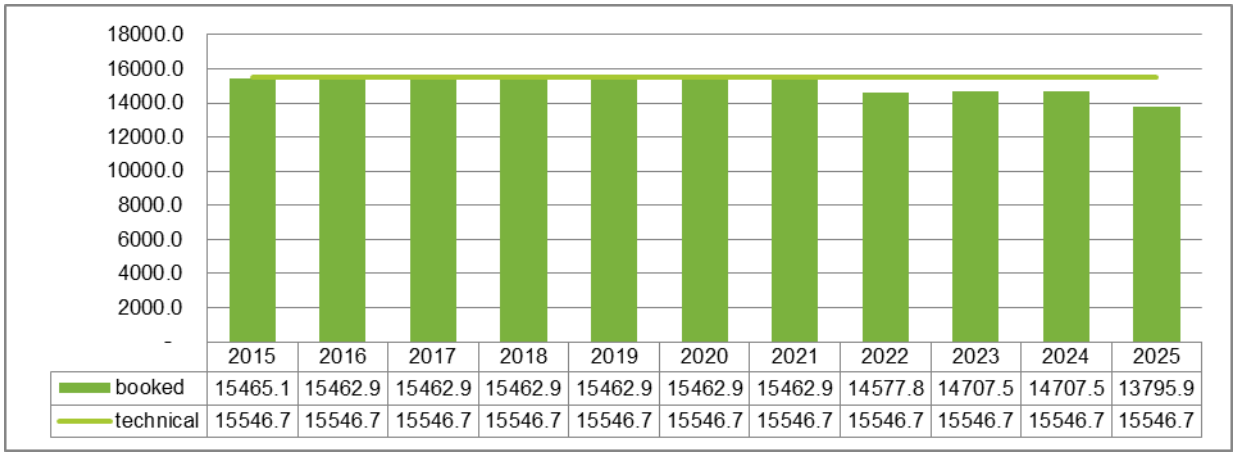
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
booked	16553.3	15592.9	15592.9	15462.9	15462.9	15462.9	15462.9	14577.8	14707.5	14707.5	13795.9
technical	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0	19907.0

Chart 21: Booked capacity/technical capacity at the Exit Point WAG (in MWh/h)



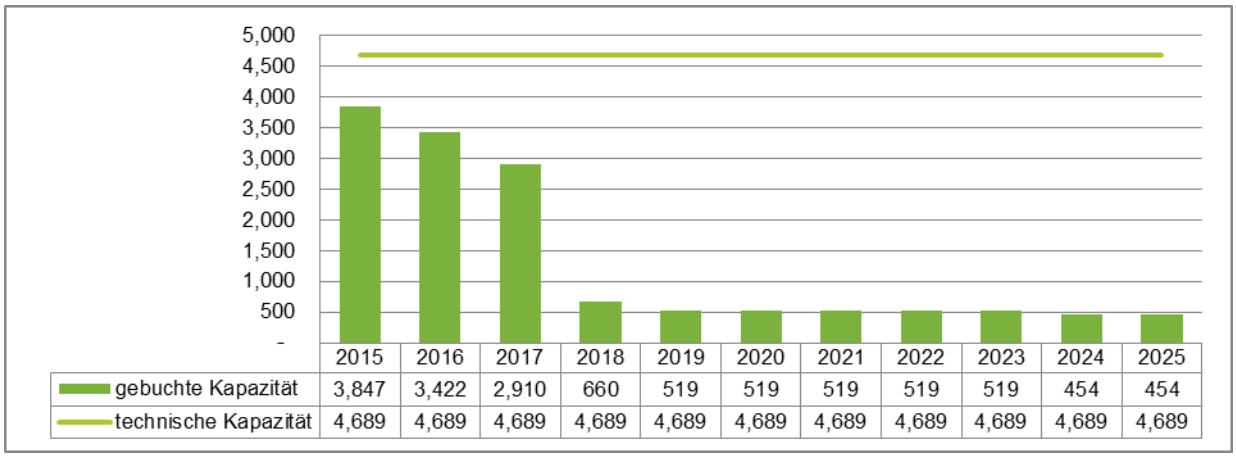
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
booked	9211.83	5827.16	5542.16	5542.16	5542.16	5542.16	5542.16	4657.08	4546.44	4546.44	3634.80
technical	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0	10272.0

Chart 22: Booked capacity/technical capacity at the Exit Point Oberkappel (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
booked	15465.1	15462.9	15462.9	15462.9	15462.9	15462.9	15462.9	14577.8	14707.5	14707.5	13795.9
technical	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7	15546.7

Chart 23: Booked capacity/technical capacity at the Exit Point Murfeld (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
gebuchte Kapazität	3,847	3,422	2,910	660	519	519	519	519	519	454	454
technische Kapazität	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689	4,689

For the virtual entry points Mosonmagyaróvár and Murfeld as well as for interruptible capacity at the exit point Petrzalka no bookings are registered as of 12.8.2015.

9 Network development plan Trans Austria Gasleitung GmbH

In 2013 we saw that all market participants welcomed the introduction of the new market model.

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

All capacities offered by TAG GmbH at the Baumgarten and Arnoldstein entry points (reverse flow) and at the Arnoldstein exit point are auctioned off 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 together with TAG capacities in the corresponding auctions.

9.1 Capacity demand survey

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 2016-2025 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 Gasconnect Austria (GCA), published the three-week, non-binding capacity demand survey from 9 to 30 March 2015 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 2016-2025 period at the respective physical Baumgarten or Arnoldstein (reverse flow) entry points and the Arnoldstein exit point 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.

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 will be introduced to transfer gas on interruptible, virtual basis via the new Exit TAG Baumgarten to the Slovak transmission

system from October 2015 on (virtual backhaul on interruptible basis). Furthermore, TAG GmbH is planning to review and accordingly update an already existing feasibility study on the implementation of a set-up allowing for physical reverse flow towards the Slovak transmission system.

9.1.1 Entry and exit points

Table 16: Entry/exit points with VTP access

Demand for capacity with access to the VTP		
Physical entry points	**Physical exit points**	**Non-physical entry points**
Baumgarten TAG (border to Slovakia)	Arnoldstein (border to Italy)	Baumgarten TAG (border to Slovakia as of 10/2015)
Arnoldstein (border to Italy, interruptible)		

Demand for capacity without access to the VTP	
Physical entry points	**Physical exit points**
Arnoldstein (border to Italy, DZK)	---

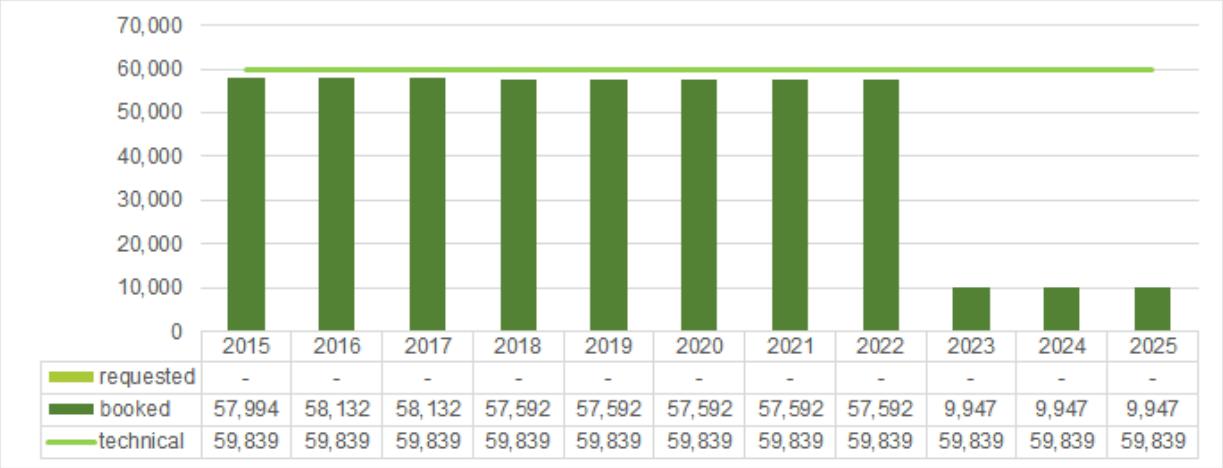
9.1.2 Projected demand for capacities with access to VTP

Based on the results of the capacity demand survey, TAG GmbH drew up a capacity analysis for the period 2016-2025 which takes into account the following parameters:

1) Technical capacity at the Baumgarten and Arnoldstein entry and exit points
2) Booked capacity at the Baumgarten and Arnoldstein entry and exit points

9.1.2.1 Baumgarten entry point

Chart 24: Capacity demand/booked capacity/technical capacity at the Baumgarten entry point (in MWh/h)

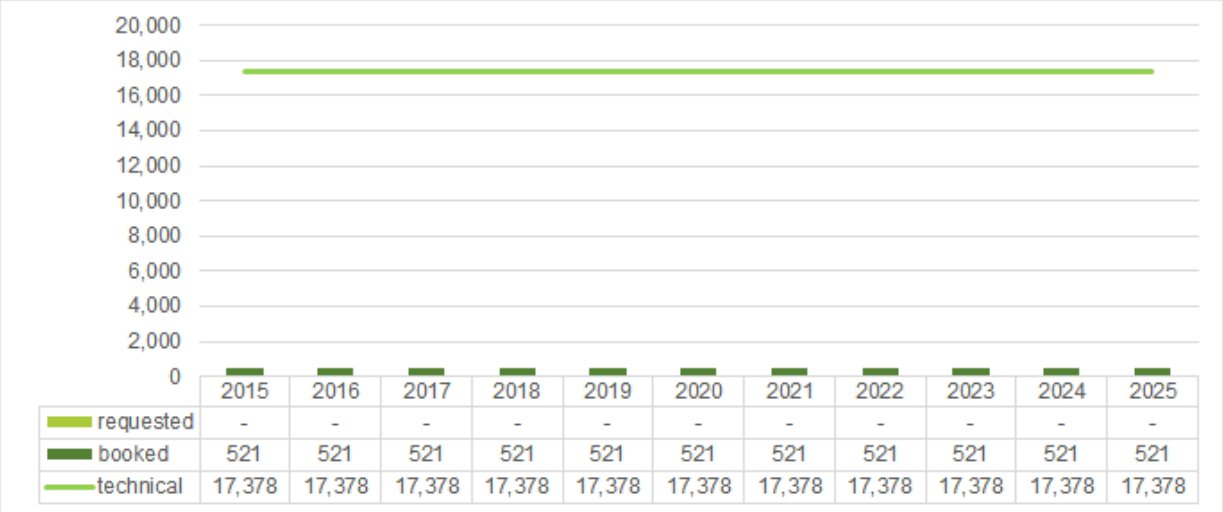


	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
requested	-	-	-	-	-	-	-	-	-	-	-
booked	57,994	58,132	58,132	57,592	57,592	57,592	57,592	57,592	9,947	9,947	9,947
technical	59,839	59,839	59,839	59,839	59,839	59,839	59,839	59,839	59,839	59,839	59,839

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.

9.1.2.2 Arnoldstein entry point

Chart 25: Capacity demand / booked capacity / technical capacity at the Arnoldstein entry point (in MWh/h)

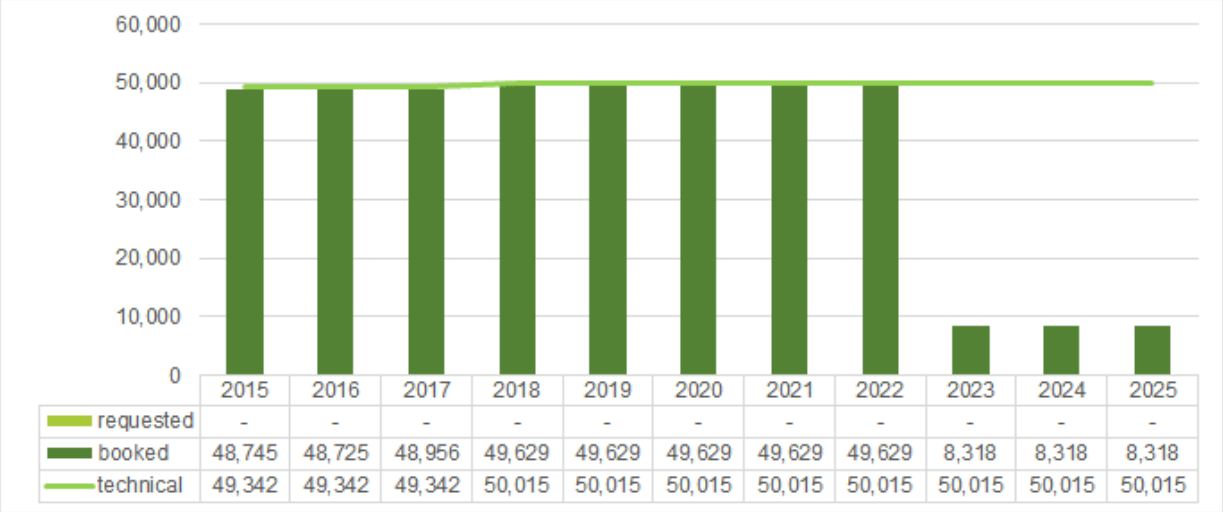


	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
requested	-	-	-	-	-	-	-	-	-	-	-
booked	521	521	521	521	521	521	521	521	521	521	521
technical	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378	17,378

The chart shows that both the technical as well as the booked capacity at the Arnoldstein entry point will remain constant from 2016 up to 2025.

9.1.2.3 Arnoldstein exit point

Chart 26: Capacity demand / booked capacity / technical capacity at the Arnoldstein exit point (in MWh/h)



	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
requested	-	-	-	-	-	-	-	-	-	-	-
booked	48,745	48,725	48,956	49,629	49,629	49,629	49,629	49,629	8,318	8,318	8,318
technical	49,342	49,342	49,342	50,015	50,015	50,015	50,015	50,015	50,015	50,015	50,015

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 markedly from 2023 as a result of the expiry of long-term contracts spanning several years.

9.2 Analysis of capacity demand with access to VTP

An increase of capacities at the relevant points is – based on the results of the market survey – neither necessary nor economically justified.

9.3 Further development of TAG pipeline system

Due to changing gas flow patterns, the necessity arises to increase the interconnection between the TSO networks at the node Baumgarten. Furthermore, the condition of the decree PA 3774/14 issued by e-Control on the KNEP 2015-24 shall be mentioned, according to which an upgrade of DZK to FZK-capacities at the relevant point Entry Arnoldstein have been requested. In order to fulfil the requests by the regulator as well as to accommodate the changing needs of the market, two projects are submitted for approval.

9.3.1 Project TAG 2015/01: Messstrecken Baumgarten TAG Einbindung

The project Messstrecken Baumgarten TAG Einbindung has been initiated due to a change in gas flows in the gas half-year 2014/15 and the resulting requirements to the interconnection of the transmission systems within the Baumgarten Station. 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.

- The reason for the project inter alia comprise:
- Answer to changing market requirements
- Optimisation of interconnections within the node Baumgarten
- Creation of new, improved routings
- Reduction of dependence from foreign TSOs
- Improvement of Security of Supply in the Austrian and Italian markets
- Reduction of interruption probability for interruptible products

9.3.1.1 Technical Feasibility

With the implementation of the project “Messstrecken Baumgarten TAG Einbindung“ a new interconnection between the GCA subsystem WAG-MS4 is created, which increases the internal interconnection capacity within the Baumgarten Station

The following investments are necessary for the realization of the project:

- installation of an ultrasonic meter for check-measurement
- installation of isolation valves
- integration into the station control system
- connection pipe between MS4 and TAG Pipeline

The period of implementation is estimated to be one year, the finalization of the implementation is envisaged for Q2/2016.

The Investment cost base for 2015 amounts to XXXX € . The project is submitted for approval (See also project description „TAG 2015/01“ in chapter 10.2).

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

9.3.1.2 Concept for capacity allocation

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

9.3.2 Project TAG 2015/02

The implementation of the project “AZ1 Baumgarten“ allows for the physical withdrawal of gas from the TAG system and injection into the GCA subsystem PVS-AZ1. As a consequence, the physical transport of gas from the entry point Arnoldstein to the VTP is realized and the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-24 to upgrade respective DZK- to FZK capacity is fulfilled.

The reason for the project inter alia comprise

- fulfilment of the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-24
- Improvement of the product portfolio offered by TAG GmbH (FZK at entry Arnoldstein)

9.3.2.1 Technical Feasibility

With the project “AZ1 Baumgarten“, a physical interconnection capacity between the TAG Transmission system and the GCA subsystem PVS-AZ1 is created. As a consequence, the volumes injected at the entry Arnoldstein can be transported to the VTP and the respective DZK-capacities can be upgraded to FZK.

The following investments are necessary for the realization of the project:

- installation of an isolation valve
- integration into the station control system

The period of implementation is estimated to be one year, the finalization of the implementation is envisaged for Q2/2016.

The Investment cost base for 2015 is estimated to XXXX € with an accuracy of +/- 25%. The project is submitted for approval (See also project description „TAG 2015/02“ in chapter 10).

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

9.3.2.2 Concept for capacity allocation

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

10 National projects

10.1 Monitoring of projects closed

GCA 2014/01 Incremental capacities at Überackern – Penta West extension

<table>
<tr><td>Project name:</td><td colspan="3">Incremental capacities at Überackern – Penta West extension</td></tr>
<tr><td rowspan="2">Project sponsor:</td><td rowspan="2">Gas Connect Austria GmbH</td><td>Planned completion:</td><td>Q4 2018</td></tr>
<tr><td>As of:</td><td>30 June 2015</td></tr>
<tr><td colspan="4">Project objective: The project aims to increase the technical capacity at the Überackern entry and exit point in order to cover the additional entry capacity demand submitted for the Überackern SUDAL und Storage Point 7 Fields IPs and to meet the additional exit capacity demand submitted for the Storage Point 7 Fields IP on a firm basis.</td></tr>
<tr><td colspan="4">Please note:
The investment is restricted to providing capacities with guaranteed access to and from the VTP at Überackern entry and exit point.</td></tr>
<tr><td colspan="2">Project description:
The following investments are necessary for capacity scenario 1:
• New CS-Überackern
• Adaption of the metering station at the handover 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.</td><td colspan="2"> 
</td></tr>
<tr><td colspan="4">Technical data:
After completion of the project, the following additionally freely allocable entry/exit capacities at the Überackern IP are planned to be available to the system users:
Überackern SUDAL entry point 214,477 Nm³/h (0°C)
Storage Point 7 Fields entry point 250,000 Nm³/h (0°C)
Storage Point 7 Fields exit point 250,000 Nm³/h (0°C)</td></tr>
<tr><td colspan="4">Economic data:
Investment cost basis 2014: EUR xx.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.</td></tr>
<tr><td colspan="4">Project rationale:
This project is necessary to be able to cover the additional capacity demand submitted for the Überackern SUDAL entry point and at the Storage Point 7 Fields entry and exit points. It also increases security of supply in Austria and in Europe.</td></tr>
<tr><td colspan="4">Project phase:</td></tr>
</table>

Identify and Assess		
TYNDP: **TRA-N-359**	**PCI status:** Not available	**CBCA decision:** No
Project status: The costs assigned to the Überackern IP could not be covered by binding long-term bookings, as there was no demand in the respective incremental auction. According to respective information for the storage facility operator from a financial viewpoint it is not reasonable to bear the costs all by itself. The project has been closed.		

GCA 2014/02 Additional short-distance capacity demand – Überackern extension

Project name:	**Incremental capacities at Überackern – Penta West extension**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q1 2017
		As of:	30 June 2015
Project objective: The project aims to increase the technical capacity between the Überackern SUDAL entry point and the Überackern ABG exit point and to meet the additional short-distance capacity demand on a firm basis, but without access to the VTP.			
Please note: The investment is restricted to the Überackern SUDAL entry point and Überackern ABG exit point, as it is only concerned with the short-distance transport between the two points; access to the VTP is excluded.			
Project description: The following investments are necessary for capacity scenario 2: • Adaption of the metering station at the handover 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.			
Technical data: 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 entry point 193,299 Nm³/h (0°C) Überackern ABG exit point 193,299 Nm³/h (0°C)			
Economic data: Investment cost basis 2014: EUR xx.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.			
Project rationale: This project is necessary to be able to cover the projected additional short-distance capacity demand at the Überackern SUDAL entry point and the Überackern ABG exit point.			
Project phase: Identify and select			

TYNDP: TRA-N-360	PCI status: Not available	CBCA decision: No
Project status: The costs assigned to the Überackern IP could not be covered by binding long-term bookings, as there was no sufficient demand in the respective incremental auction. The project has been closed.		

BOG-2014/01 Pressure Service Agreement

Project name:	**Renewal of the Pressure Service Agreement (PSA) entered into between BOG GmbH and the operators of MEGAL Süd to ensure the supply of the Greater Linz area in case of technical defects in the Upper Austrian distribution network.**		
Project sponsor:	BOG GmbH	**Planned completion:**	Q4/2014
		As of:	13 August 2015

Project objective:

This project aims to renew and amend the existing PSA with Open Grid Europe (OGE) and GRTGaz Deutschland (GRTGaz D) to ensure the supply of the Greater Linz area in case of technical defects in the Upper Austrian distribution network. To this end, the analogous agreements with the operator of Penta West (GCA) and AGGM need to be reviewed and adjusted. The agreement will be renewed for another year (1 January 2015 - 31 December 2015). Before expiry, a renewal for another year will be evaluated.

Please note:

This measure aims to ensure security of supply in Austria in case of emergencies.

Project description:

Upon request by AGGM, the operators of MEGAL provide delivery pressure via BOG in the west-east direction which is higher than agreed in the design parameters for the Oberkappel transfer point. This requires a corresponding agreement with Gas Connect Austria as the operator of Penta West (PW) governing compliance with a compatible delivery pressure at the PW / WAG (BOP 14) interface. **Subsequently, gas can be delivered with sufficient pressure to the Bad Leonfelden exit point as well as to Rainbach exit point.**

Technical data:

Economic data:

The costs charged by OGE/GRTGAz D to BOG GmbH are, pursuant to section 82 Natural Gas Act 2011, approved by the regulatory authority in the tariff without any reduction and taken into account after four years with the actual values. The costs are consequently not charged to AGGM or the consumers in the market area.

Based on past values the planned costs are estimated with EUR xx.xx million.

Project phase:

Identify and assess

TYNDP:	PCI status:	CBCA decision:
-	Not available	No

Project status:

Based on the newly identified optimized flows at the point Oberkappel a pressure support by OGE/GRTGaz D is not necessary anymore. Hence, the project has been closed

BOG-2014/02 Extension measure to increase FZK capacities at the Oberkappel IP

Project number:	**BOG-2014/02**		
Project name:	**Extension measure to increase FZK capacities at the Oberkappel IP**		
Project sponsor:	BOG GmbH	**Planned completion:**	Q4/2018
		As of:	13 August 2015

Project objective:

The project's objective is to increase capacities at the Oberkappel IP in line with scenario 1 (see 8.2.1.1.)

Please note:

The project primarily concerns the Oberkappel entry/exit point. It is made necessary by the expansion of freely allocable capacities that was requested from a downstream TSO. One of the key issues is access to the CEGH virtual trading point, which in turn requires increased capacities in the entire WAG system. This technical measure has no impact on the distribution system. The delivery pressure of min. 38 bar at the delivery point Bad Leonfelden will be provided at least. The project was developed based on capacity scenario 1 corresponding to the project GCA 2014/01. No additional operational costs are incurred at the compressor station Rainbach by switching from serial to parallel use of the compressor units.

Project description:

The incremental capacity is generated by installing an additional compressor (12.5 MW) at the Rainbach compressor station in combination with parallel operation of the Rapottenstein-Liebenau section and the Bad Leonfelden-Arnreith section with a total length of 38 km and a pipeline dimension of DN1200. The related investments amount to approximately EUR xx million (EUR x.x per MW of compressor power) for the Rainbach CS, and approximately EUR xx million for enabling parallel operation of the sections mentioned above, i.e. a total of EUR xx million. On top of that, the minimum delivery pressure at the Oberkappel entry point has to be increased from 50 bar(a) to 56 bar(a).

Technical data:

This results in the following expansion of freely allocable capacities at the Oberkappel IP:

- Oberkappel entry point: 250,000 m³(n)/h (2.798 MWh/h), in total 1,175,000 m³(n)/h (13,148.25 MWh/h)
- Oberkappel exit point: 150,000 m³(n)/h) (1,679 MWh/h), in total 1,530,000 m³(n)/h (17,121

MWh/h)
Economic data: • +12.5 MW compressor power at the Rainbach compressor station ~EUR xx million • Parallel 38 km line with a pipeline dimension of DN1200 ~EUR xx million • Increasing the minimum delivery pressure to 56 bar(a) at the Oberkappel entry point: This will require neighbouring TSOs to make investments (e.g. adaption of the Neustift compressor station) • **BOG investment costs in total: ~EUR xx million** The cost estimates are based on BOG's experience in the past. The extension threshold for implementing the project is reached as soon as the costs allocated to the Oberkappel IP are covered by binding long-term bookings or binding long-term bookings by the storage system operator.
Project phase: Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
TRA-N-363	Not available	No

Project status: Based on the connection between the project „GCA 2014/01" and the fact that the allocated costs oute of the afore mentioned project were not covered by long term bookings, the project has been closed.

G00.040 Reverse Flow Baumgarten Part

Project name:	**G00.040 Reverse Flow Baumgarten Part**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q1/2017
		As of:	30 June 2015

Project objective: The project aims to increase the capacity of the physical gas flow from the distribution network to the transmission system in order to reach a standard capacity that is as high as possible at the production and storage entry points of the distribution system.
Please note: The project has to be looked at in connection with the remodelling of the Auersthal station (2013 long-term planning, 2012/2 project) and the capacity booking exit PVS2 --> PVS1 (2013 long-term planning, 2012/3 project). It competes directly with the Penta West extension.
Project description: At Baumgarten, the MS5 terminal is planned to be operable in both directions. Therefore, the flanges have to be switched at the terminal. It must be possible to implement all modes of operation that allow the inflow and outflow of gas to and from the transmission system. The station will probably have to be expanded. The implementation duration is 24 months.
Technical data: The delivery station is to be set up for bi-directional operations. The other technical specifications of the metering station will not be changed. After completion of the project, the following entry capacities to the transmission system are planned to be available to the distribution area:

Entry capacity FZK 570,000 Nm³/h (0°C) at 52 bar(g) Entry capacity UK 1,230,000 Nm³/h (0°C) at 52 bar(g)		
Economic data: Estimated investment costs: EUR xx.xx million. The cost estimate may deviate by +/- 30% due to uncertainties in the first planning phase. It includes uncertainties resulting from a lack of technical planning parameters and uncertainties in the execution. Any substitution measures which might become necessary due to potential transport restrictions during operation of the G00.040 RF system were not considered.		
Project rationale: This project is necessary to raise the capacity of the storage facilities in the distribution system connected to the VTP. As a consequence, the security of supply in Europe will increase.		
Project phase: Identify and Assess		
TYNDP: -	**PCI Status:** Not available	**CBCA decision:** No
Project status: The Project is directly linked to the projects “2013 long-term planning, 2012/2 project” and “2013 long-term planning, 2012/3 project”. Due to the fact, that the respective extension threshold defined therein were not reached, the project has been closed		

10.2 Project applications

GCA 2015/01a Project 1a: BACI DN 800

<table>
<tr><td colspan="2">Project name:</td><td colspan="2">BACI DN 800</td></tr>
<tr><td rowspan="2">Project sponsor:</td><td rowspan="2">Gas Connect Austria GmbH</td><td>Planned completion:</td><td>Q4 2019</td></tr>
<tr><td>As of:</td><td>13 August 2015</td></tr>
<tr><td colspan="4">Project objective: 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.</td></tr>
<tr><td colspan="4">Please note:
Two potential concepts were identified for connecting the two markets:
1. Connection of the two markets via the Reintal cross-border point
2. Booking of entry capacities at existing and/or at potential new cross-border points in both countries.
The projects in this document of GCA are analysed separately and not in connection with each other.</td></tr>
<tr><td colspan="2">Project description:
The following investments are necessary for project 1:
• New metering station at the handover station – Baumgarten
• New Baumgarten CS
• Transmission system connection between Baumgarten and Reintal
• New Metering Station Reintal</td><td colspan="2"> 
</td></tr>
<tr><td colspan="4">Technical data:
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 750,000 Nm³/h (0°C)
Reintal exit point 750,000 Nm³/h (0°C)</td></tr>
<tr><td colspan="4">Economic data:
Investment cost basis 2015: EUR xx.xx million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</td></tr>
<tr><td colspan="4">Project rationale:
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.</td></tr>
<tr><td colspan="4">Project phase:
Identify and assess</td></tr>
</table>

TYNDP:	PCI status:	CBCA decision:
TRA-N-021	Yes	No

Project status:
The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/01b Project 1b: BACI DN 1200

Project name:	BACI DN 1200		
Project sponsor:	Gas Connect Austria GmbH	Planned completion:	Q4 2019
		As of:	13 August 2015

Project objective: 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.

Please note:

Two potential concepts were identified for connecting the two markets:

1. Connection of the two markets via the Reintal cross-border point
2. Booking of entry capacities at existing and/or at potential new cross-border points in both countries.

The projects in this document of GCA are analysed separately and not in connection with each other.

Project description:

The following investments are necessary for project 1:

- New metering station at the handover station – Baumgarten
- New Baumgarten CS
- Transmission system connection between Baumgarten and Reintal
- New Metering Station Reintal

Technical data:

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 1.480.000Nm³/h (0°C)

Reintal exit point 1.480.000Nm³/h (0°C)

Economic data:

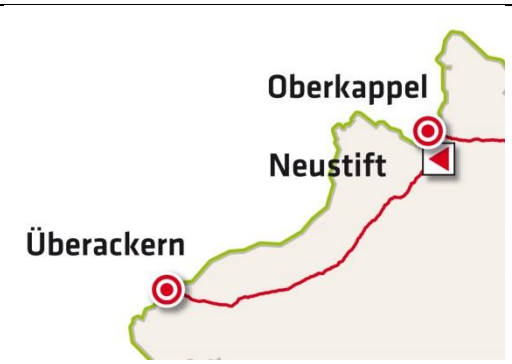
Investment cost basis 2015: EUR xx.xx million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.

Project rationale:

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.

Project phase: Identify and assess		
TYNDP: **TRA-N-021**	**PCI status:** Yes	**CBCA decision:** No
Project status: The project will be submitted for approval under the terms specified in the economic data section.		

GCA 2015/02 Project 2: Entry/Exit Überackern

Project name:	**Entry/Exit Überackern**		
Project sponsor:	Gas Connect Austria GmbH	**Planned comple-tion:**	Q2 2020
		As of:	13 August 2015
Project objective: The project aims to increase the technical capacity at the Überackern entry and exit point in order to cover the additional entry capacity demand submitted for the Überackern SUDAL und Storage Point 7 Fields IPs on a firm basis.			
Please note: The investment is restricted to providing capacities with guaranteed access to and from the VTP at Überackern entry and exit point. The projects in this document of GCA are analysed separately and not in connection with each other.			
Project description: The following investments are necessary for project 2: • New CS-Überackern • Adaption of the metering station Überackern • Partial loop of Penta West • Modification of MS Neustift • Partial loop of WAG			
Technical data: After completion of the project, the following additionally freely allocable entry/exit capacities at the Überackern IP are planned to be available to the system users: Überackern SUDAL entry point 223,414 Nm³/h (0°C) Storage Point 7 Fields entry point 325,328 Nm³/h (0°C) Storage Point 7 Fields exit point 325,328 Nm³/h (0°C)			
Economic data: Investment cost basis 2015: EUR xx.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.			
Project rationale: This project is necessary to be able to cover the additional capacity demand submitted for the			

Überackern SUDAL entry point and at the Storage Point 7 Fields entry and exit points. It also increases security of supply in Austria and in Europe.
Project phase: Identify and Assess

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status: The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/03 Project 3: Entry/Exit Überackern - Maximum

Project name:	**Entry/Exit Überackern - Maximum**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q2 2021
		As of:	30 June 2015

Project objective: The project was established by GCA, in order to analyse a potential maximum variant of the project for the purpose of depicting alternative routes for potential storage connections.
Please note: The investment is restricted to providing capacities with guaranteed access to and from the VTP at Überackern entry and exit point. The projects in this document of GCA are analysed separately and not in connection with each other.

Project description:

The following investments are necessary for project 3:

- New CS -Überackern
- Modification of MS Überackern
- Loop Penta West
- Modification of MS and CS Neustift
- Loop WAG
- Modification of the CS Rainbach and Kirchberg
- Piping in Baumgarten

Technical data:

After completion of the project, the following additionally freely allocable entry/exit capacities at the Überackern IP are planned to be available to the system users:

Überackern SUDAL/ABG/7Fields entry point 1,427,389 Nm³/h (0°C)

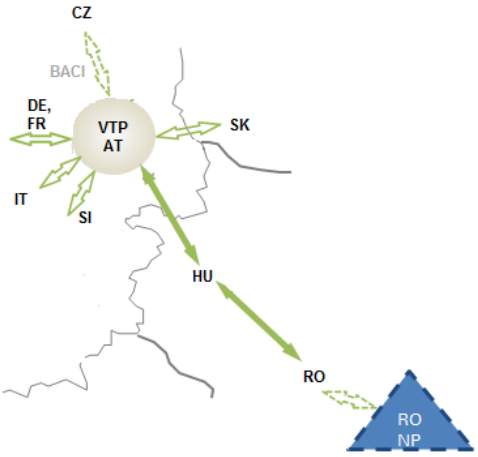
Überackern SUDAL/ABG/7Fields entry point 1,580,440 Nm³/h (0°C)

Economic data:

Investment cost basis 2015: EUR xx.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.

Project rationale: This project is necessary in order to analyse a potential maximum variant of the project for the purpose of depicting alternative routes for potential storage connections. It also increases security of supply in Austria and in Europe.		
Project phase: Identify and Assess		
TYNDP: -	**PCI status:** Not available	**CBCA decision:** No
Project status: The project will be submitted for approval under the terms specified in the economic data section.		

GCA 2015/04 Project 4: Entry Mosonmagyaróvár - Minimum

Project name:	**Entry Mosonmagyaróvár - Minimum**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q3 2017
		As of:	13 August 2015
Project objective: The project aims to create technical capacities on a FZK basis at the Mosonmagyaróvár entry point for the first time.			
Please note: The investment is restricted to the Mosonmagyaróvár entry/exit point and the connected Austrian transmission grid. The projects in this document of GCA are analysed separately and not in connection with each other.			
Project description: The following investments are necessary for project 4: • Modification HAG MS: Filter separator, metering routes, regulation, piping • Extension of the Baumgarten node			
Technical data: After completion of the project, the following new freely allocable entry capacities at the Mosonmagyaróvár IP are planned to be available to the system users: Mosonmagyaróvár entry point 114,155 Nm³/h (0° C)			
Economic data: Investment cost basis 2015: EUR xx.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.
Project rationale: This project is necessary to be able to cover the additional capacity demand submitted for the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and creates diversification of supply sources and -routes.
Project phase: Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
TRA-N-361	Not available	No

Project status: The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/05 Project 5:Entry Mosonmagyaróvár - Base

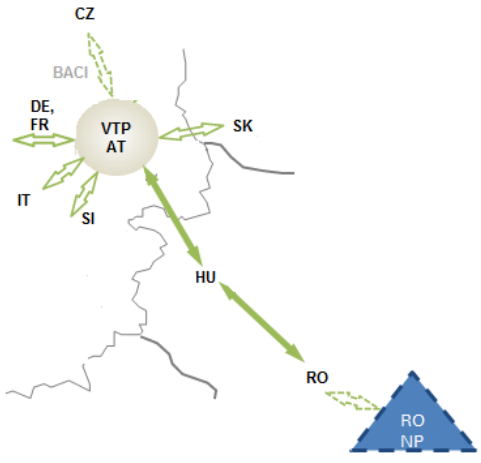
Project name:	**Entry Mosonmagyaróvár - Base**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q1 2020
		As of:	13 August 2015

Project objective: The project aims to create technical capacities on a FZK basis at the Mosonmagyaróvár entry point for the first time.

Please note:
The investment is restricted to the Mosonmagyaróvár entry/exit point and the connected Austrian transmission grid. The projects in this document of GCA are analysed separately and not in connection with each other.

Project description:
The following investments are necessary for project 5:

- Modification HAG MS: Filter separator, metering routes, regulation, piping
- New HAG CS
- Extension of the Baumgarten node



Technical data:
After completion of the project, the following new freely allocable entry capacities at the Mosonmagyaróvár IP are planned to be available to the system users:
Mosonmagyaróvár entry point 570,000 Nm³/h (0° C)

Economic data:
Investment cost basis 2015: EUR xx.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.

Project rationale:

This project is necessary to be able to cover the additional capacity demand submitted for the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and creates diversification of supply sources and -routes.

Project phase:

Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
TRA-N-583	Not available	No

Project status:

The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/06 Project 6: Mosonmagyaróvár plus

Project name:	**Mosonmagyaróvár plus**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q3 2019
		As of:	13 August 2015

Project objective: The project aims to create technical capacities on a FZK basis at the Mosonmagyaróvár entry point for the first time.

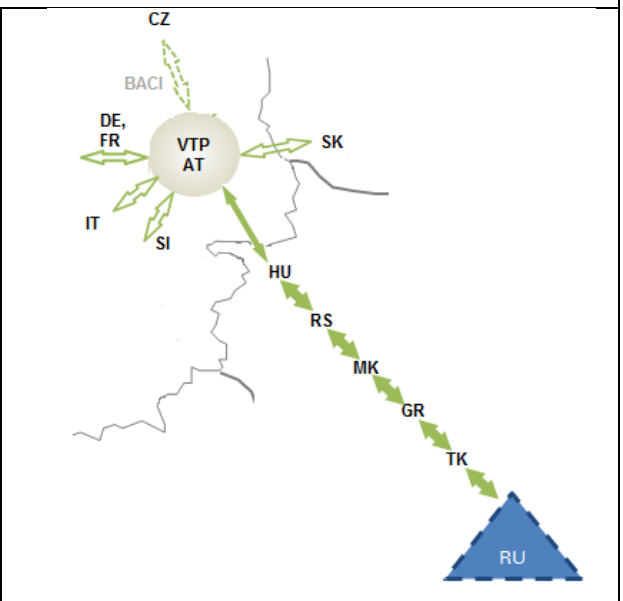
Please note:

The investment is restricted to the Mosonmagyaróvár entry/exit point and the connected Austrian transmission grid. The projects in this document of GCA are analysed separately and not in connection with each other.

Project description:

The following investments are necessary for project 6:

- HAG Loop
- New HAG CS
- Extension of the Baumgarten node



Technical data:

After completion of the project, the following new freely allocable entry capacities at the Mo-

sonmagyaróvár IP are planned to be available to the system users: Mosonmagyaróvár entry point 2,300,000 Nm³/h (0° C)
Economic data: Investment cost basis 2015: EUR xx.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.
Project rationale: This project is necessary to be able to cover the additional capacity demand submitted for the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and creates diversification of supply sources and -routes.
Project phase: Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
TRA-N-583	Not available	No

Project status: The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/07a Project 7a: Additional demand in the distribution area

Project name:	**Additional demand in the distribution area**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q1 2017
		As of:	13 August 2015

Project objective: The project aims to increase technical capacities on a FZK basis at the virtual entry point from the distribution area into the GCA transmission system level.
Please note: The applicable technical capacity at the virtual point from the distribution area to the transmission area amounts to 360,000 Nm³/h (0°C) at present. The assumptions regarding this project are based on input pressure at Baumgarten of 55 barg. The projects in this document of GCA are analysed separately and not in connection with each other.
Project description: The following investments are necessary for project 7a: • Outcross filter battery BOP11/12 in order to filter gas suction-side from collectors 1+2 towards the WAG system. • Exchange of WAG suction pipe (24" to 32") in order to compress the entire quantity (600,000 PVS + 515,000 MAB) with CS WAG BMGT.
Technical data: After completion of the project, the following new freely allocable entry capacities at the virtual entry point from the distribution area into the GCA transmission system level are planned to be available to the system users: Virtual entry point 240,000 Nm³/h (0° C)
Economic data:

Investment cost basis 2015: EUR xx.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 entry point from the distribution area into the GCA transmission system level are covered by binding long-term bookings.
Project rationale: This project is necessary to be able to cover the additional capacity demand submitted for the virtual entry point.
Project phase: Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status: This Project 7a will be submitted for approval under the terms specified in the project sheet ”GCA 2015/07a” in chapter 10.2, economic data and under the condition that either the project ”GCA 2015/07a” or the project “GCA 2015/07b” is realized but not both together, If the project GCA 2015/07a“ is approved, it is possible to extend the capacity in order to realize project “GCA 2015/07b” . .

GCA 2015/07b Project 7b: Additional demand in the distribution area +

Project name:	**Additional demand in the distribution area**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q2 2017
		As of:	13 August 2015

Project objective: The project aims to increase technical capacities on a FZK basis at the virtual entry point from the distribution area into the GCA transmission system level.
Please note: The applicable technical capacity at the virtual point from the distribution area to the transmission area amounts to 360,000 Nm³/h (0°C) at present. The assumptions regarding this project are based on input pressure at Baumgarten of 55 barg. The projects in this document of GCA are analysed separately and not in connection with each other.
Project description: The following investments are necessary for project 7b: • Outcross filter battery BOP11/12 in order to filter gas suction-side from collectors 1+2 towards the WAG system. • Exchange WAG suction pipe (24" to 32") in order to divert the entire quantity (600,000 PVS + 515,000 MAB) in a compressed manner to the WAG system. • Reconnect HAG metering station and establish direct connection of collector via BOP11 in the WAG. • TAG outlet point - extension of the second line (filter, control valves, new 20" metering route, enable high-pressure injection on medium-pressure lines)
Technical data:

After completion of the project, the following new freely allocable entry capacities at the virtual entry point from the distribution area into the GCA transmission system level are planned to be available to the system users: Virtual entry point 600,000 Nm³/h (0° C)
Economic data: Investment cost basis 2015: EUR xx.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 virtual entry point from the distribution area into the GCA transmission system level are covered by binding long-term bookings.
Project rationale: This project is necessary to be able to cover the additional capacity demand submitted for the virtual entry point.
Project phase: Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status: This Project 7b will be submitted for approval under the terms specified in the project sheet ”GCA 2015/07b” in chapter 10.2, economic data and under the condition that either the project ”GCA 2015/07a” or the project “GCA 2015/07b” is realized but not both together,

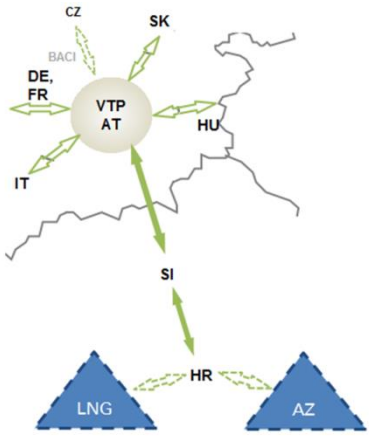
GCA 2015/08 Project 8: Entry/Exit Murfeld

Project name:	**Entry/Exit Murfeld**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q4 2019
		As of:	13 August 2015
Project objective: The project aims to increase technical capacities on a FZK basis at the Murfeld exit point and to create technical capacities on a FZK basis at the Murfeld entry point for the first time.			
Please note: The investment is restricted to the Murfeld entry/exit point and the connected GCA transmission grid. The projects in this document of GCA are analysed separately and not in connection with each other.			

Project description:

The following investments are necessary for project 8:

- Extension metering stations Weitendorf and Murfeld: Filter separator, metering routes, regulation, piping
- New CS Murfeld
- Loop of SOL between Leibnitz and Murfeld
- Loop of the border crossing pipeline Murfeld – Cersak
- Extension of the TAG AZ Baumgarten



Technical data:

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 Nm³/h (0° C)

Murfeld exit point 195,388 Nm³/h (0° C)

Economic data:

Investment cost basis 2015: EUR xx.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 Murfeld IP are covered by binding long-term bookings.

Project rationale:

This project is necessary to be able to cover the additional capacity demand submitted for the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and creates diversification of supply sources and -routes.

Project phase:

Identify and assess

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status:

The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/09 Project 9: Baumgarten metering routes programme

Project name:	**Baumgarten metering routes programme**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q2 2016
		As of:	13 August 2015

Project objective: The project aims to strengthen the Baumgarten node

Please note:

It was agreed with the TSO TAG in advance that the GCA programme would encompass only indi-

vidual projects involving plants owned by GCA. The projects in this document of GCA are analysed separately and not in connection with each other.
Project description: The following investments are necessary for project 9: • Increased capacity of metering routes (MS 4, MS 5, HAG MS, TAG AZ, BOP 11, BOP 12) • Increased capacity of filter separators (MS 4, TAG AZ, BOP 11, BOP 12) • Pipeline construction work in Baumgarten
Technical data: For the realisation of the Baumgarten metering routes programme an increase of the capacities of the metering routes and filter separators as well as Pipeline construction work in Baumgarten is necessary.
Economic data: Investment cost basis 2015: EUR xx.xx million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.
Project rationale: 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: • Response to changing market requirements • Optimised flexibility of the Baumgarten node • Setting up new and improved routes • Reduced dependency on non-Austrian TSOs • Improved control mechanisms • Lower probability of interruption of interruptible services
Project phase: Execute

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status: The project will be submitted for approval under the terms specified in the economic data section.

GCA 2015/10 Project 10: Baumgarten metering routes programme

Project name:	**Baumgarten metering routes programme**		
Project sponsor:	Gas Connect Austria GmbH	**Planned completion:**	Q2 2018
		As of:	13 August 2015
Project objective: The project aims to fulfil the administrative decision concerning the 2015-2024 (C)NDP regarding the Maximum FZK capacity at the Arnoldstein entry point.			
Please note: It was agreed with the TSO TAG in advance that the GCA programme would encompass only individual projects involving plants owned by GCA. The projects in this document of GCA are analysed separately and not in connection with each other.			

Project description: The following investments are necessary for project 10: • Increased capacity at the TAG outlet point in Baumgarten to the VTP to the other systems
Technical data: For the realisation of the project 10, it was agreed with the TSO TAG in advance that the GCA programme would encompass only technical measures that are required to transport FZK capacities of 11,190 MWh/h or 1,000,000 Nm³/h (0°C).
Economic data: Investment cost basis 2015: EUR xx.xx million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.
Project rationale: • Fulfilment of administrative decision concerning the 2015-2024 (C)NDP
Project phase: Identify and Assess

TYNDP:	**PCI status:**	**CBCA decision:**
-	Not available	No

Project status: The project will be submitted for approval as concept study under the terms specified in the economic data section.

TAG 2015/01 Messstrecken Baumgarten TAG Einbindung

Project Name:	**Messstrecken Baumgarten TAG Einbindung**		
Project owner:	TAG GmbH	**Planned Finalisation:**	Q2 2016
		Status as of:	15.06.2015

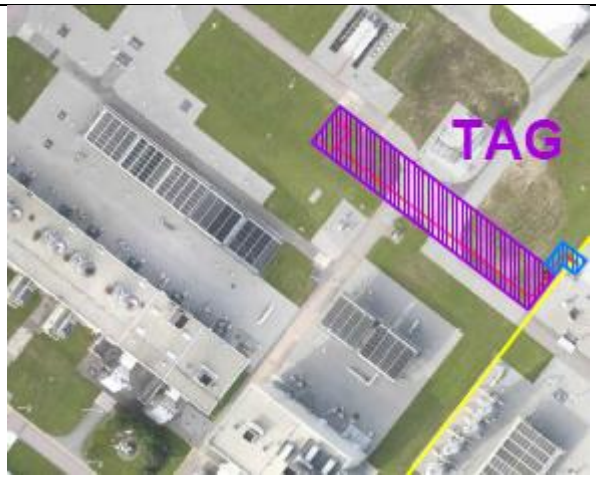
Project objectives: With the implementation of the project “Messstrecken Baumgarten TAG Einbindung“ a new interconnection between the GCA subsystem WAG-MS4 is created, which increases the internal interconnection capacity in the Baumgarten Station.
To be considered: The project aims to increase the interconnection capacities between the single transit systems within the physical hub Baumgarten. An increase of capacities at the relevant points (massgebliche Punkte) is not forseen, 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.

Project description:

The following investments are necessary for the realization of the project:

- installation of an ultrasonic meter for check-measurement
- installation of isolation valves
- integration into the station control system
- connection pipe between MS4 and TAG

Pipeline



Technical data:

Increase of the interconnection capacity between MS4 - TAG Baumgarten: XXXX Nm³/h (0° C)

Economic data:

Investment cost base 2015: XXXX €.

Justification for the project:

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.

Project phase:

Planning phase

TYNDP:	**PCI Status:**	**CBCA Decision:**
no	no	no

Project status:

The project is submitted for approval.

TAG 2015/02 AZ1 Baumgarten

Project name:	**AZ1 Baumgarten**		
Project Owner:	TAG GmbH	**Planned Finalisation:**	Q2/2016
		Status as of:	15.06.2015

Project objectives:

The objective of the project "AZ1 Baumgarten" is to create a physical interconnection capacity between the TAG Transmission system and the GCA subsystem PVS-AZ1. This measure allows a transport of gas from the relevant point Arnoldstein to the VTP and ensures 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

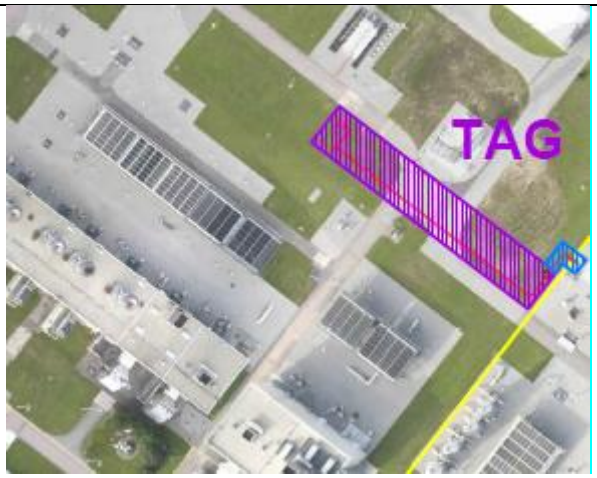
To be considered:

An increase of capacities of the overall system is not forseen, but an increase of interconnection capacities between the single subsystems and a physical withdrawal point for the TAG reverse flow via Arnoldstein Entry. The project is a complementary measure to the "GCA Project 2015/10 – Erfüllung der Bescheidauflage" submitted by GCA in the course of the 2016-25 KNEP

Project description:

The following investments are necessary for the realization of the project:

- installation of an isolation valve
- integration into the station control system



Technical data:

Increase of the technical withdrawal capacity - AZ1 Baumgarten: XXXX Nm³/h (0° C)

Economic Data:

Investment cost base 2015: XXXX €. The cost estimate underlies an accuracy of +/- 25%.

Justification for the project:

The project ensures 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.

Project phase:

Planning phase

TYNDP:	**PCI Status:**	**CBCA Decision:**
no	no	no

Project status:

The project is submitted for approval.

11 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. The market survey of TAG does not suggest any potential congestion. During the same time span, the MAM conducted a project demand survey. As a next step, the results of the market surveys at the entry and exit points and the results of the project demand survey were included in the capacity scenario (chapter 7), which was elaborated by the MAM together with the TSOs. Based on the capacity scenario potential congestion were identified and potentially mitigating measures are included in the respective NDPs.

The analysis of GCA's NDP revealed that the demand for incremental capacity at the Überackern entry/exit point and at the entry point Mosonmagyarovar will require additional investments in GCA's transmission network. In response to the submission of the BACI, GCA Mosonmagyarovar, GCA Mosonmagyarovar Plus, Upgrade Messstrecken Baumgarten, Upgrade of Rogatec interconnection, CS Kidričevo 2nd phase of upgrade, Upgrade of Murfeld/Ceršak interconnection, as well as the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-2024,led to additional analysis in GCA 's NDP. 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 and/or by long-term bookings by the storage facility operator.
The capacity development at the aforementioned IPs with projected congestion will be constantly monitored, analysed and evaluated in order to initiate appropriate measures accordingly.

From the analysis of TAG's NDP we saw, that there is no need for an increase of capacities at the relevant points due to the additional capacity demand submitted at the relevant points of GCA. The project Upgrade Messstrecken Baumgarten as well as the condition of the decree PA 3774/14 issued by ECA on the KNEP 2015-2024, have caused further analysis in the TAG's NDP. The corresponding projects to cover the related capacity requirements will be submitted for approval.

Stakeholders are invited to provide their feedback on the 2016-2025 CNDP to the MAM (marktgebietsmanager@gasconnect.at) and in this way contribute to further developing and optimising future issues of the CNDP.

12 Disclaimer

The Coordinated Network Development Plan 2016-2025 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.

13 List of abbreviations

AGGM	Austrian Gas Grid Management AG
AT	Austria
OP	outlet point
bar(a)	bar (absolute)
BOG	Baumgarten-Oberkappel Gasleitungs GmbH
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 station	Megawatt
MWh	megawatt hours
NCG	Net Connect Germany
GDP	Grid Development Plan
Nm³/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

14 List of charts

15 List of tables