



# Coordinated Network Development Plan 2015 - 2024



## Content

1	Preface .....	3
2	Process description – time schedule.....	4
3	Introduction.....	5
4	Transit market Austria .....	6
5	National Network Development Planning in a European Context .....	10
5.1	Selected Infrastructure Projects in Europe .....	13
5.2	Project data collection of the Market Area Manager.....	15
5.3	From projected to actual demand .....	17
6	Network Development Plan Gas Connect Austria GmbH.....	19
6.1	Capacity demand survey .....	20
6.1.1	Entry points and exit points .....	20
6.1.2	Demand submitted for capacities with access to VTP .....	21
6.1.3	Demand submitted for capacities without access to the VTP .....	23
6.2	Capacity demand analysis .....	24
6.2.1	Capacity demand analysis - no shortage .....	25
6.2.2	Capacity demand analysis - short-term shortage.....	26
6.2.3	Capacity demand analysis - long-term shortage .....	27
6.2.3.1	Capacity scenario 1: Additional capacity demand at the Überackern interconnection point	27
6.2.3.1.1	Technical feasibility.....	30
6.2.3.1.2	Concept for capacity allocation.....	31
6.2.3.2	Capacity scenario 2: Additional short-distance capacity demand .....	31
6.2.3.2.1	Technical feasibility.....	33
6.2.3.2.2	Concept for capacity allocation.....	34
6.2.4	Capacity demand analysis - project submissions.....	34
6.2.4.1	Capacity scenario 3a: BACI project.....	34
6.2.4.1.1	Technical feasibility.....	35
6.2.4.1.2	Concept for capacity allocation.....	36
6.2.4.2	Capacity scenario 3b: BACI DN1200 project .....	36
6.2.4.2.1	Technical feasibility.....	37
6.2.4.2.2	Concept for capacity allocation.....	38
6.2.4.3	Capacity scenario 4: M1/3 Ceršak border pipeline.....	38

6.2.4.3.1	Technical feasibility .....	39
6.2.4.3.2	Concept for capacity allocation .....	40
7	Network development plan Trans Austria Gasleitung GmbH .....	41
7.1	Capacity demand survey .....	41
7.1.1	Entry and exit points .....	42
7.1.2	Projected demand for capacities with access to VTP .....	42
7.1.2.1	Baumgarten entry point .....	42
7.1.2.2	Arnoldstein entry point .....	43
7.1.2.3	Arnoldstein exit point .....	43
8	Network development plan Baumgarten-Oberkappel Gasleitungsgesellschaft m.b.H. ....	44
8.1	Capacity demand survey .....	47
8.1.1	Entry points and exit points .....	48
8.1.2	Demand submitted for capacities with access to VTP .....	48
8.2	Analysis of demand for capacity with access to VTP .....	48
8.2.1	Capacity demand analysis - long-term shortage .....	50
8.2.1.1	Capacity scenario 1: Demand for incremental capacity at the Überackern interconnection point.....	50
8.2.1.1.1	Technical feasibility.....	52
8.2.1.1.2	Concept for capacity allocation .....	52
9	National Projects .....	53
9.1	Monitoring of projects closed .....	53
9.2	Monitoring of projects already approved.....	58
9.3	Project applications .....	59
10	Summary and outlook.....	68
11	Disclaimer .....	69
12	List of abbreviations.....	70
13	Index of Figures .....	71
14	List of Tables .....	72

## 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.

National cooperation is, on the one hand, required by statutory provisions as defined in section 63 paras 3 and 4 Natural Gas Act 2011. The obligations of the MAM to prepare the CNDP (section 14 para. 1 no. 7 Natural Gas Act 2011) as well as the obligations of the TSOs to submit their annual network development plans (NDPs) (section 62 para. 1 no. 20 Natural Gas Act 2011) and to collaborate in establishing the CNDP are laid down by law and can, therefore, be considered a bottom-up approach. Cooperation between the MAM, the TSOs and the distribution area manager (DAM) is, on the other hand, also 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<sup>1</sup> BOG<sup>2</sup>, TAG and GCA as well as on the facts and figures obtained from market participants, project sponsors and stakeholders.

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 BOG, TAG and GCA make the results of their market and/or demand surveys available to their stakeholders. 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 third 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](mailto:marktgebietsmanager@gasconnect.at).

---

<sup>1</sup> Tauerngasleitung GmbH was dissolved on 11 April 2014, which is why the CNDP 2015-2024 does not contain this company's network development plan.

<sup>2</sup> On 01 September 2014 Baumgarten-Oberkappel Gasleitungsgesellschaft m.b.H. was merged into GAS CONNECT AUSTRIA GmbH as defined in section 170 paras 1 Natural Gas Act 2011.

## 2 Process description – time schedule

As soon as the 2014-2023 CNDP had been approved on 18 December 2013, the planning process for the 2015-2024 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 2015-2024 CNDP.

In the period from 10 March 2014 to 31 March 2014, the three TSOs of the Market Area East, i.e. BOG, TAG and GCA, carried out a 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 survey. They were asked to specify their capacity demand per calendar year for the planning period from 2015 to 2024. 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. Based on the results of the capacity demand survey and selected projects, the MAM created capacity scenarios in cooperation with the TSOs and in cooperation with the DAM and sent them to the TSOs for further analysis in the NDPs on 14 April 2014. The results of the capacity surveys combined with the defined capacity scenarios constitute the basis for the TSOs' NDPs. The NDPs were submitted to the MAM by 26 May 2014. The MAM merged the NDPs received in the consultation version of the CNDP 2014-2023 and coordinated the translation of the first consultation version. The market participants were invited to attend a Stakeholder Joint Working Session on 26 June 2014 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 1 July 2014 for consultation. The consultation process for the 2015-2024 CNDP is scheduled to take place from 1 July 2014 to 31 July 2014, when market participants will be given the opportunity to submit written statements. The TSOs' NDPs were updated according to the consultation responses. The MAM submitted the updated version of the CNDP 2015 – 2024 to the TSOs for submission to the NRA for the respective consultation.

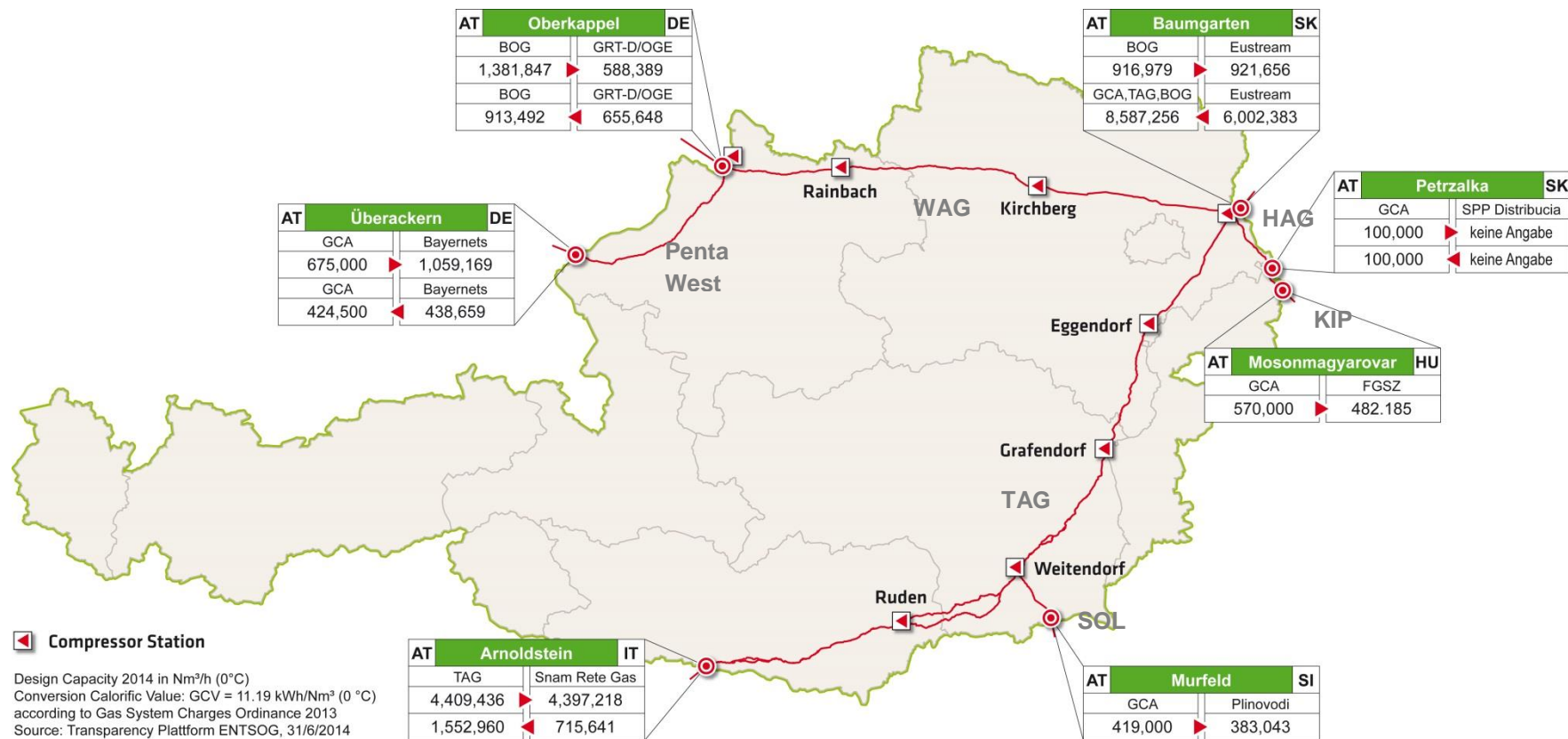
### 3 Introduction



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. Stakeholders 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



<b>Present gas infrastructure</b>	
Number of TSOs	3
Total length of transmission grid	approx. 1,600 km
Total compressor power	621 MW
<b>Points and technical data of the Austrian transmission system</b>	
 <b>GAS CONNECT AUSTRIA</b>	<p><u>Physical entry points:</u></p> <ul style="list-style-type: none"> <li>- Baumgarten GCA (border to Slovakia)</li> <li>- Überackern ABG (border to Germany)</li> <li>- Überackern SUDAL (border to Germany)</li> <li>- Storage Point 7 Fields</li> </ul> <p><u>Physical exit points:</u></p> <ul style="list-style-type: none"> <li>- Mosonmagyaróvár (border to Hungary)</li> <li>- Überackern ABG (border to Germany)</li> <li>- Überackern SUDAL (border to Germany)</li> <li>- Murfeld (border to Slovenia)</li> <li>- Petrzalka (border to Slovakia)</li> <li>- Storage Point 7 Fields</li> </ul> <p><u>Non-physical entry points:</u></p> <ul style="list-style-type: none"> <li>- Mosonmagyaróvár (border to Hungary)</li> <li>- Murfeld (border to Slovenia)</li> <li>- Petrzalka (border to Slovakia)</li> </ul> <p><u>Total length of transmission grid:</u> 170 km In operation: approx. 1,600 km</p> <p><u>Total compressor power</u> 40 MW</p> <p><u>Total energy transported (gas)</u> 2013: 91,608 GWh</p>
	<p><u>Physical entry points:</u></p> <ul style="list-style-type: none"> <li>- Baumgarten BOG</li> <li>- Oberkappel</li> <li>- MAB/WAG</li> </ul> <p><u>Physical exit points:</u></p> <ul style="list-style-type: none"> <li>- Baumgarten BOG</li> <li>- Oberkappel</li> <li>- MAB/WAG</li> </ul> <p><u>Total length of transmission grid:</u> 383.5 km</p>




	<u>Total compressor power</u> 106 MW  <u>Total energy transported (gas)</u> 2013: 80,474 GWh
	<u>Physical entry points:</u> – Baumgarten TAG – Arnoldstein  <u>Physical exit points:</u> – Arnoldstein  <u>Total length of transmission grid:</u> 1,140 km  <u>Total compressor power</u> 475 MW  <u>Total energy transported (gas)</u> 2013: 351,546 GWh/a
Physical hubs and virtual trading points	CEGH
<b>Demand</b>	
Historic annual demand for gas on the domestic market (end users)	2013: 90,124 GWh 2012: 91,204 GWh 2011: 95,634 GWh 2010: 102,016 GWh 2009: 91,542 GWh 2008: 93,228 GWh
<b>System overview</b>	
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 Mosonmagyaróvárexít 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.	
<b>Infrastructure standard - security of supply</b>	
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<sup>3</sup> calculation Market Area East

Facility Description	Design Capacity (Mio.Nm <sup>3</sup> /d)	Definition, Description, Sources
<b>Epm</b>	<b>275.1</b>	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	(www.gasconnect.at )
Freilassing&Laa/ Thaya	0.9	AGGM/28.02.2014: currently design capacity not booked
<b>Pm</b>	<b>4.1</b>	max. technical production capacity
Production OMV	3.36	booked standard capacity (source: AGGM, 15.05.2014)
Production RAG	0.74	booked standard capacity (source: AGGM, 15.05.2014)
<b>Sm</b>	<b>47.8</b>	maximale technische Ausspeisekapazität
Storage OMV	31.1	booked standard capacity (source: AGGM, 15.05.2014)
Storage RAG	13.4	booked standard capacity (source: AGGM, 15.05.2014)
7Fields FL	*	GCA
7Fields VL	3.27	booked standard capacity (source: AGGM, 15.05.2014)
Haidach VL	0	currently no connection
<b>LNGm</b>	<b>0</b>	Liquified Natural Gas, irrelevant for Austria
<b>Im</b>	<b>205.2</b>	Design Capacity of the largest Gas Infrastructure. For Austria: Baumgarten
<b>Dmax</b>	<b>51.9</b>	Total daily Gas demand in the analyzed Area at a day with high demand with a statistical occurrence of each 20 years, February 2012 (source: AGGM)

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

$$N - 1 [\%] = 235$$

$$N - 1 \geq 100$$

The infrastructure standard in the Market Area East is 235%. 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.

<sup>3</sup> 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.

## 5 National Network Development Planning in a European Context

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 2012). To this end, the TSOs need to be coordinated at a European level, including in particular transit countries, as cross-border points and the capacity demand at these points are a key issue covered by the plan.

The TYNDP provides an overview for the market participants of the planned Gas-Infrastructure in Europe. In the course of the establishment of the TYNDP different capacity scenarios are calculated in order to analyse the flexibility of the European Gas-Infrastructure in different supply and demand scenarios. All analysed scenarios result in the highest level of flexibility of 20%. Regarding the analysis of disruption scenarios the same results are achieved.

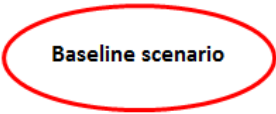
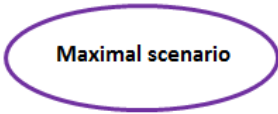
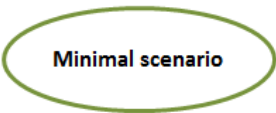
The GRIPs provide a more detailed analysis of the situation by focussing on predefined regions. The GRIP is established biannually, alternating to the planning period of the TYNDP. The Austrian transmission system is analysed in the current versions of the CEE GRIP 2014 – 2023 and the Southern Corridor GRIP 2014 – 2023. Corresponding with the analysis in the TYNDP the flexibility of the European Gas Infrastructure is analysed in the defined regions under different supply and demand scenarios. All analysed scenarios in the des CEE GRIP 2014 – 2023 and the Southern Corridor GRIP 2014 – 2023 result in the highest level of flexibility of 20% for Austria.

In addition to the current European Network Development Plans the results and projects of the Network Development Plan Gas 2013 of Germany, which are relevant for the CNDP 2015 – 2024 are included. In contrast to the CNDP 2015 – 2024 the basis for the Network Development Plan Gas 2013 of Germany is a coordinated scenario frame based on supply and demand scenarios, which is established and approved on an annual basis. For the current Network Development Plan Gas 2013 a medium gas demand scenario is defined. A further peculiarity about the Network Development Plan Gas of Germany is the obligation to build all projects that are included in the version which is approved by the NRA. For this reason especially the projects in the Southern part of Germany are relevant for the CNDP 2015 – 2024.

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. In the LTP 2014 the demand forecast is included in different scenarios for the first time.

The scenarios listed in chart 1 are analysed in the LTP 2014:

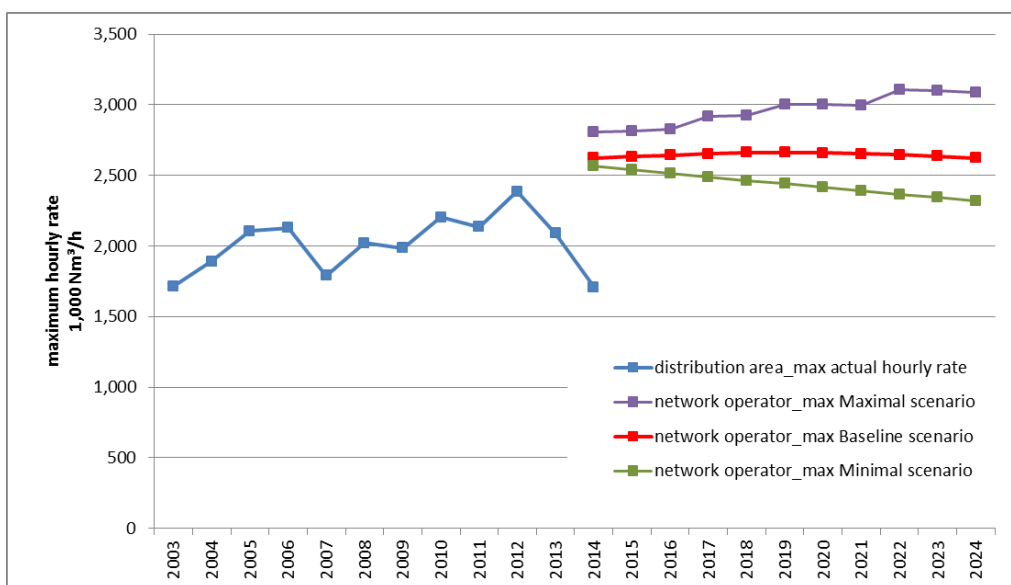
Chart1: Demand scenarios

		development of the power plants	
		stagnation at Status Quo 2014/Q1	all needs stated by the network operators are considered
development of other consumers	further changes stated by the network operators are considered		
	further changes stated by the network operators are considered additional reduction of the consumption of 1.5 % pa.		

Source: LTP 2014, version 1, page 18, 26.06.2014 (translated to English)

The basis for the demand forecast in the LTP 2014 is the peak demand in the Distribution Area East in February 2012 of 2,386,000 Nm<sup>3</sup>/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.

Chart2: Demand forecast for the Market Area East, maximum hourly flow rate



Source: LTP 2014, version 1, page 19, 26.06.2014

The „Baseline Scenario“ is regarded the highest probability, which includes a flat annual demand. This scenario does not include the construction of further gas compressor stations. In the LTP 2014 no additional capacity demand was submitted to the transmission network. 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.

## 5.1 Selected Infrastructure Projects in Europe

The CNDP claims to provide a holistic picture about the European and National Planning Documents. For this purpose the MAM provides in table 2 a selection of projects out of other public Planning Documents that potentially influence the Austrian Market Area, but were not submitted by the project sponsors in the Austrian planning process.

Tabelle 2: Relevant projects for the Austrian Market Area

Fernleitungen						
Name	Capacity (GWh/day)	Prospective commissioning	Project sponsors	FID	Notes	Data source
Monaco pipeline (1 <sup>st</sup> section)	779.00	2017/18	bayer-nets	Non-FID	The MONACO pipeline is a high-pressure gas pipeline from Burghausen to Amerdingen (border to Baden-Württemberg). Currently, the first section from Burghausen to Finsing (near Munich) is prepared. Project planning is carried out in 2 sections.	2013 Network Development Plan Gas (German NEP)
Trans Adriatic Pipeline	337.00	2019	-	FID	The Trans Adriatic Pipeline (TAP) will transport natural gas from Kipoi in Greece near the Greek/Turkish border, via Albania and across the Adriatic Sea, to Italy's southern Puglia region in Province of Lecce. In its upstream part, TAP will interconnect with TANAP which is linked further to the east with systems in Turkey, to secure access to the Shah Deniz natural gas field in Azerbaijan and tie into Italy's gas transportation grid operated by Snam Rete Gas in the province of Lecce.	GRIP Southern Corridor 2014 - 2023
Reverse flow on the interconnector Romania - Hungary	12.60	2016	Trans-gaz	Non-FID	The project will provide a supply capacity from Romania to Hungary of 1.75 bcm/y at a pressure of 40 bar. The project will comprise two compressor stations at Hateg an Horia and a pipeline section, from Bacia to Recas via Hateg and Jupa. The project is now part of a larger project named "Development on the Romanian territory of the National Transmission System along the corridor Bulgaria-Romania-Hungary-Austria".	GRIP Southern Corridor 2014 - 2023

\*\*Information not available

The variety of planned projects at the Austrian borders and with potential influence on the Austrian Market Area underlines its attractiveness as well as the visibility of the VTP. The named projects have the potential to strengthen existing transit routes as well as to provide new transit capacities for the market participants.

According to the Network Development Plan Gas 2013 the pipeline project MONACO 1 ends at Finsing (Munich). Besides strengthening security of supply in the southern part of Germany MONACO has the potential to strengthen the transit capacity towards Austria. Moreover, through the commissioning 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.

With the project „Trans Adriatic Pipeline“ a new supply source for the transport of natural gas towards the European Union is established. The „Trans Adriatic Pipeline“ has the potential to diversify the transit routes to Europa. According to the Southern Corridor GRIP 2014 – 2023 the project ends in the Italian village Lecce. For Austria, the „Trans Adriatic Pipeline“ has the potential to bring gas from new supply sources to the VTP and to further strengthen the security of supply.

The project „Reverse flow on the interconnector Romania – Hungary“ has to be seen in connection with the PCI project „7.1.5 Gas pipeline from Bulgaria to Austria via Romania and Hungary“. Through the described project a new source for natural gas is connected to the European Union, With a potential connection to the Austrian/Hungarian border the infrastructure project has the potential to bring gas from new supply sources to the VTP and to further strengthen the security of supply.

The above described projects are all labelled as “Project of Common Interest”, which reveals a significant importance to the European Gas-Infrastructure. The projects in question have the potential to create new possibilities for the Austrian Market Area as well as to strengthen the attractiveness of the Austrian Market Area through positioning the VTP as major hub for transit flows and through strengthening the supply sources of the domestic system.

## 5.2 Project data collection of the Market Area Manager

The MAM carried out a project data collection in the period 10.03.2014 – 31.03.2014. Project sponsors had the opportunity to submit their projects to the MAM in order to be included in the CNDP.

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 scenarios 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.

For the projects BACI and M1/3 Ceršak-border pipeline the maximum technical capacity as well as the planned Entry/Exit Point were indicated. Due to this fact the projects were included in the capacity scenarios and it was analysed by the TSOs how they affect the Austrian Market Area. Regarding the project submission for South Stream no dedicated Entry/Exit Point was submitted. Due to this fact the project was not included in the capacity scenario analysis. The connection of South Stream to the Austrian market Area as of 2017 the additional transit capacity would cause an increased attractiveness of the Austrian Market Area through the diversification of transport routes as well as the position of the VTP as major hub for transit flows and through strengthening the supply sources of the domestic system.



Tabelle 3: Projektübermittlungen an den MGM

Fernleitungen						
Name	Capacity (GWh/day)	Prospective commissioning	Project sponsors	Entry/exit point	FID	Notes
Bidirectional Austrian Czech Interconnector (BACI)*	201.42	2019	Gas Connect Austria GmbH; Net4Gas	Reintal	Non-FID	A new entry/exit point Reintal will be set up. The technical hourly flow rate is planned to be at least 750,000 Nm <sup>3</sup> /h (0°C). (calorific value: 11.19 kWh/Nm <sup>3</sup> (0°C))
M1/3 Ceršak-border pipeline*	181.35	2021	- *	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))".
South Stream Austria Gas Pipeline	830.00	2017	OMV Gas&Power GmbH ; OAO Gazprom	- *	Non-FID	Development, financing, construction and operation the Austrian section of the international transport pipeline coming from Bulgaria , Serbia and Hungary until its end in Baumgarten as diversification of supply routes and an new Entry Point in the Austrian market area is established.

\*Information was not submitted

### 5.3 From projected to actual demand

After completion of the demand survey on 31 March 2014, the non-binding capacity demand for each entry and exit point was submitted to the MAM, including the capacities available for each entry and exit point on the reference date of 10 March 2014. In a next step, the market area manager analysed the capacity demand and the projects submitted (see chapter 5.2) jointly with the transmission system operators to identify potential shortages. 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 scenarios 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 scenarios.

On the basis of the projected non-binding capacity demand and the projects submitted, the 2015-2024 CNDP features the following capacity scenarios, duly coordinated by the MAM and the TSOs:

Table 4: Illustration of capacity scenarios

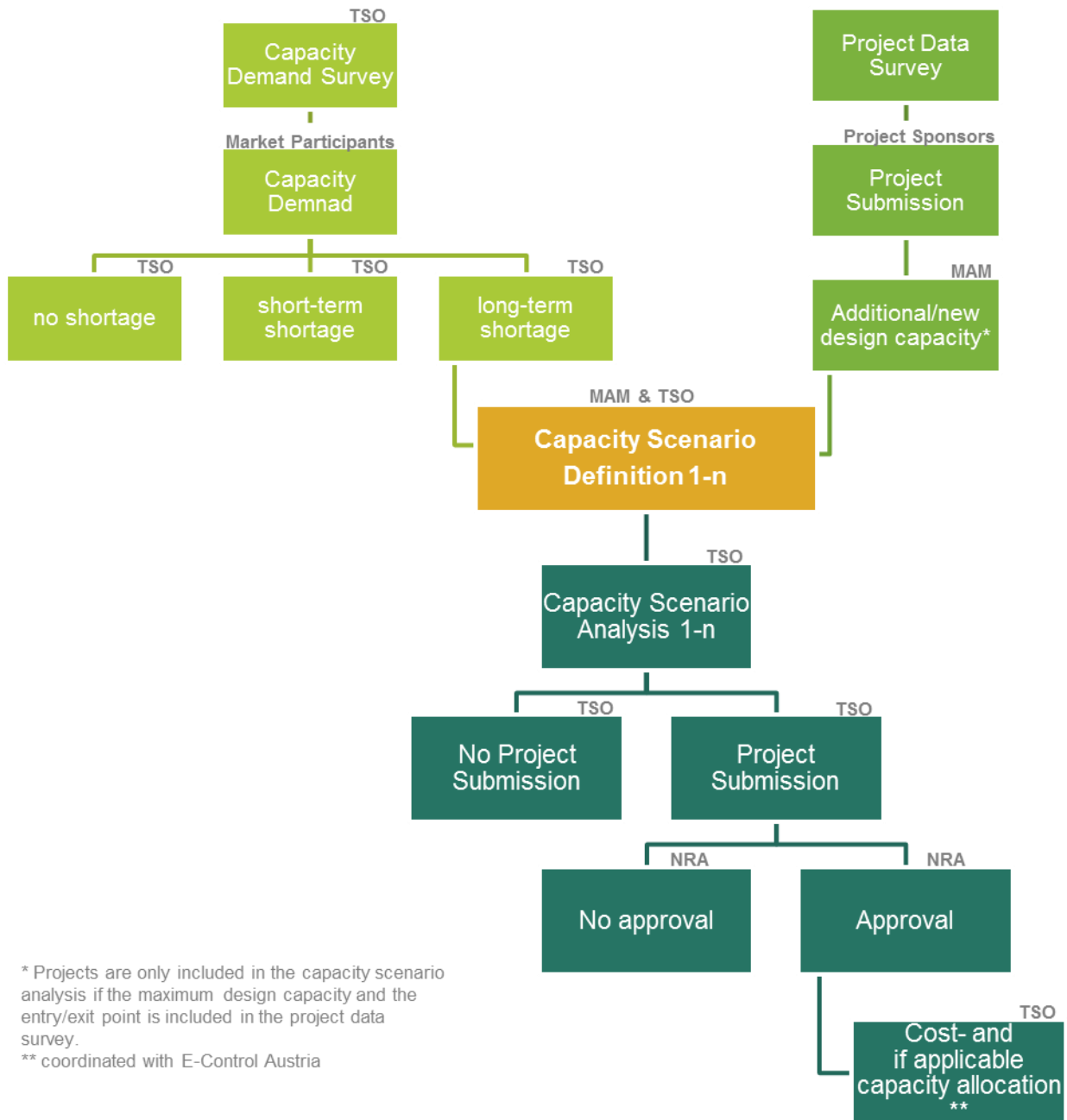
Capacity scenario	Description	Network de-velopment plan	Source
1	Additional capacity demand at the Überackern point	GCA/BOG	Capacity demand survey
2	Additional short-distance capacity demand	GCA	Capacity demand survey
3a	BACI project	GCA	Project data collection
3b	BACI DN1200 project	GCA	Project data collection
4	M1/3 Ceršak-border pipeline	GCA	Project data collection

The capacity scenarios listed in table 4 all concern the TSOs GCA and BOG. The NDP of GCA and the NDP of BOG contain analyses of the individual capacity scenarios as well as further details.

If any projects are derived from the analysis of the capacity scenarios in the network development plan, they will be defined in chapter 7 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. Upon the authority's approval of the projects submitted, the binding demand for the additional capacities generated by the projects will be verified by means of an auction (incremental capacity auction) on the European auction platform PRISMA ([www.prisma-capacity.org](http://www.prisma-capacity.org)).

Chart 1 shows the entire process described, from the capacity demand survey to the identification of actual demand on the basis of approved projects.

Chart 3: Process: from projected to actual demand



\* Projects are only included in the capacity scenario analysis if the maximum design capacity and the entry/exit point is included in the project data survey.  
 \*\* coordinated with E-Control Austria

## 6 Network Development Plan Gas Connect Austria GmbH

Since the introduction of the new market model, a continued gradual change in capacity booking behaviour can be seen. Since 1 April 2013, GCA has carried out 8,307\* auctions on PRISMA, with mostly short-term products in demand. Daily, monthly and quarterly products account for 99.88%\*\* of the hourly flow rates sold.

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 0.55%\* of offered auctions cleared with an auction surcharge so far, therefore it can be said that the capacity offer is sufficient.

The implementation of short-term congestion management measures pursuant to section 11 *Gas-Marktmodell-Verordnung* (Gas Market Model Ordinance) 2012 on 1 October 2013 has created an almost daily oversupply of guaranteed capacities at all relevant points. Capacities offered within the scope of congestion management measures are published on the ENTSOG transparency platform.

On 4 March 2013, GCA for the first 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 2013/02 and GCA 2013/03) at the Überackern SUDAL and ABG IPs, which had been approved by administrative decision. No additional capacities were sold in the course of these auctions. Accordingly, the extension threshold for implementing the projects (GCA 2013/02 and GCA 2013/03) was not reached, as the project costs could not be assigned to the relevant points on the basis of long-term bookings according to CAM logic or binding long-term bookings by the storage system operator. Therefore, these projects will not be continued.

Since 1 April 2014, GCA has also offered daily entry and exit capacities at Überackern as bundled capacities jointly with bayernets capacities. Since the introduction of bundled-capacity marketing, as many as 237 bundled products have been offered at auctions.

The FZK quality offered has been well received by customers, with 74%\*\* of the FZK auctions for daily products having been successful. 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.

GCA has registered a 50%\*\* growth in new customers since starting to market capacities by way of auctions on PRISMA. Another crucial factor for customer satisfaction is to create the largest capacity offer possible in the highest quality possible - in a cost-effective way and fully exploiting the technological and economic potential.

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

\* Data as of: 18.06.2014

\*\* Data as of: 19.05.2014

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.

## 6.1 Capacity demand survey

While drawing up the network development plan for 2014, GCA carried out a non-binding capacity data survey from 10 March 2014 to 31 March 2014 regarding the entire planning horizon from 2015 to 2024. The data survey was sent to the GCA customers currently registered on Online Capacity Booking® and on PRISMA in order to ensure the highest possible level of transparency. In addition, it was published on the GCA website, thus allowing all market participants to take part in the capacity data survey. Within the scope of the survey, participants had the possibility to fill in a form that had been coordinated with the MAM and the TSOs, indicating the demand in GWh/a for each point and direction. Unlike in last year's data survey, the regulated tariff at entry and exit points was now specified on the data sheet. Alongside the additional demand for capacity with access to the virtual trading point, the additional demand for short-distance capacities without access to the VTP in GCA's system was identified. For the first time, customers were able to specify their 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 2015-2024. The development of demand in the distribution area is carefully monitored in order to be able to proactively plan potentially necessary measures.

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. An investment analysis based on structured demand cannot be presented for technical and economic reasons.

### 6.1.1 Entry points and exit points

Table 5 shows GCA's entry and exit points for capacity with access to the VTP which were included in the capacity data survey. Table 6 shows GCA's entry and exit points for capacity with no access to the VTP which were included in the capacity data survey.

Table 5: Entry 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 GCA (border to Slovakia)	Mosonmagyaróvár (border to Hungary)	Mosonmagyaróvár (border to Hungary)
Überackern ABG (border to Germany)	Überackern ABG (border to Germany)	Murfeld (border to Slovenia)

Überackern SUDAL (border to Germany)	Überackern SUDAL (border to Germany)	Petrzalka (border to Slovakia)
Storage Point 7 Fields <sup>4</sup>	Murfeld (border to Slovenia)	
	Petrzalka (border to Slovakia)	
	Storage Point 7 Fields <sup>5</sup>	

Table 6: 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)

Short-distance capacity without access to the VTP can only be booked on an interruptible basis as follows:

- From ABG to SUDAL: Überackern ABG (Überackern SUDAL) entry point and Überackern SUDAL (Überackern ABG) exit point
- From SUDAL to ABG: Überackern SUDAL (Überackern ABG) entry point and Überackern ABG (Überackern SUDAL) exit point

Analyses of network development planning are based on projected capacity demand submitted within the framework of the capacity demand survey or from projects that were submitted to the MAM in the course of the project data collection; see chapter 5.2.

For the sake of better readability, capacity data are indicated in MWh/h and Nm<sup>3</sup>/h (0°C). The calorific value of 11.19 kWh/Nm<sup>3</sup>/h (0°C) laid down in the Gas System Charges Ordinance 2013 was used for conversion. It is assumed that the projected capacity demand should be analysed as freely allocable capacity, as the regulated tariffs in the capacity demand survey were also specified on an FZK basis.

### 6.1.2 Demand submitted for capacities with access to VTP

Chart 4 shows the capacity demand by physical entry points.

For the Überackern SUDAL and Storage Point 7Fields entry points, capacity demand was announced in the course of the capacity demand survey. The continuously highest capacity demand over the planning period from 2015 to 2024 was submitted for the Storage Point 7Fields entry point, amounting to 2,797 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C). At the Überackern SUDAL entry point, the capacity demand of 2,400

<sup>4</sup> Physical entry point to GCA's transmission system from the Storage Point 7 Fields storage facility, can only be booked by the storage facility operator pursuant to section 74 par. 2 GWG 2011

<sup>5</sup> Physical exit point from GCA's transmission system to the Storage Point 7 Fields storage facility, can only be booked by the storage facility operator pursuant to section 74 par. 2 GWG 2011

MWh/h or 214,477 Nm<sup>3</sup>/h (0°C) is consistent over the planning period; in the capacity demand survey, it was submitted in the form of bundled capacities.

Chart 4: Projected capacity demand - **Physical entry points** (in MWh/h)

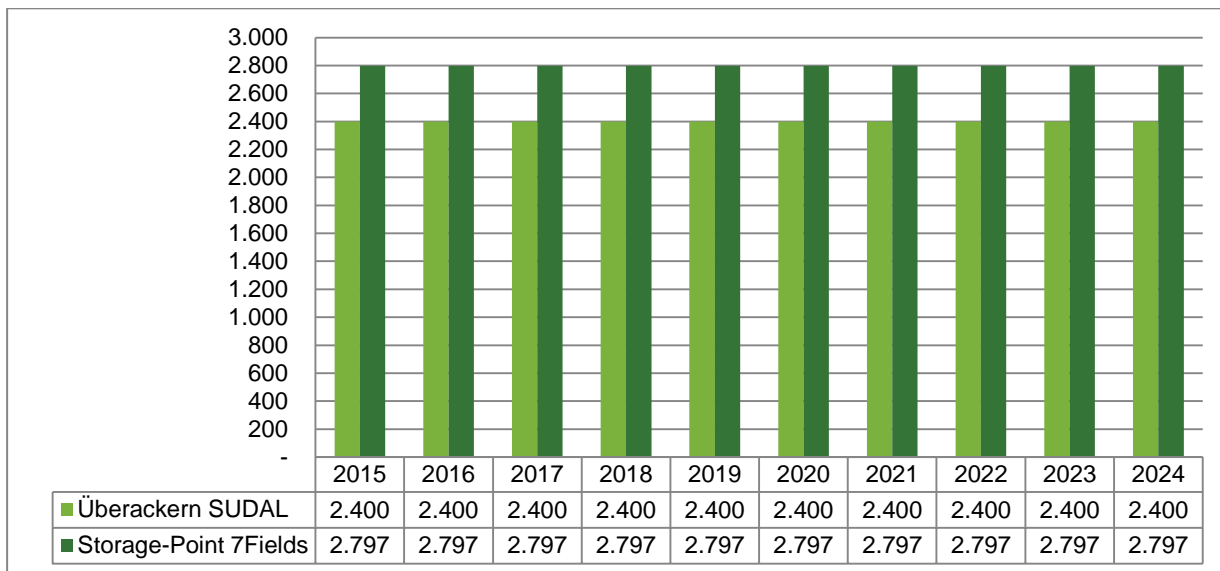
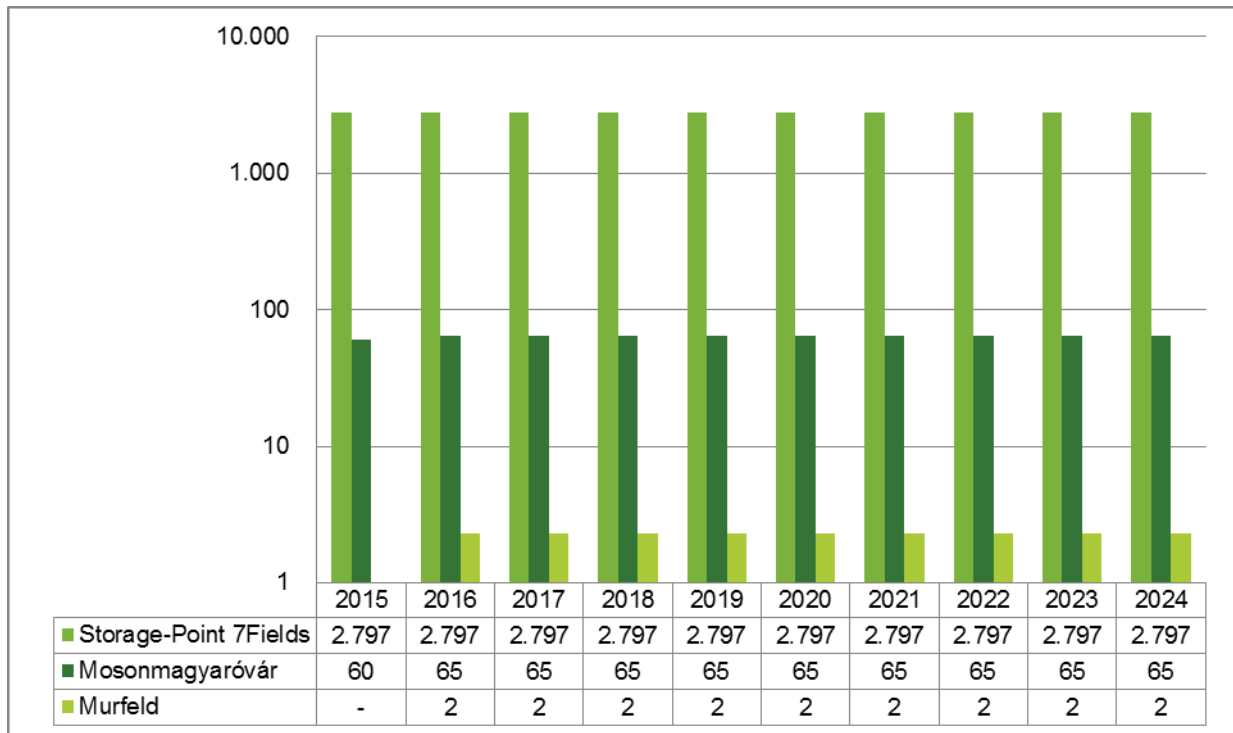


Chart 5 illustrates the capacity demand by physical exit points.

In line with the results at the physical entry point, the highest capacity demand of 2,797 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C) was submitted for the corresponding Storage Point 7Fields exit point at a consistent level over the planning period from 2015 to 2024. At the Mosonmagyaróvár exit point, a capacity demand of 60 MWh/h or 5,362 Nm<sup>3</sup>/h (0°C) was submitted for 2015, and a consistent capacity demand of 65 MWh/h or 5,770 Nm<sup>3</sup>/h (0°C) for the period from 2016 to 2024. For the Murfeld physical exit point, a capacity demand of 2 MWh/h or 204 Nm<sup>3</sup>/h (0°C) was specified.

Looking at the totality of the physical exit points, the Mosonmagyaróvár and Murfeld exit points show the lowest demand.

Chart 5: Projected capacity demand - **Physical exit points** (in MWh/h)

### 6.1.3 Demand submitted for capacities without access to the VTP

Chart 6 illustrates the projected demand for capacities without access to the VTP.

As capacities without access to the VTP are only possible as described in chapter 6.1.1, the specified capacity demand at the Überackern SUDAL entry point equals the demand at the Überackern ABG exit point (SUDAL in the direction of ABG).

For the Überackern SUDAL entry point and the ABG exit point, the capacity demand was specified at 2,163 MWh/h or 193,299 Nm<sup>3</sup>/h over the entire planning horizon. It was not possible to indicate bundling for capacity without access to the VTP. However, this short distance capacity demand was indicated as bundled. As explained in chapter 6.1.1, short-distance transports can currently only be booked on an interruptible; access to the VTP is not possible.



Chart 6: Projected capacity demand - **Capacities without access to the VTP** (in MWh/h)

## 6.2 Capacity demand analysis

Table 7 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. Table 8 analogously shows the demand for capacities without access to the VTP.

At the entry and exit points printed in green font, the additional capacity demand can be met with the available and/or technical 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 7: 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 GCA (border to Slovakia)	Mosonmagyaróvár (border to Hungary)	Mosonmagyaróvár (border to Hungary)
Überackern ABG (border to Germany)	Überackern ABG (border to Germany)	Murfeld (border to Slovenia)
Überackern SUDAL (border to Germany)	Überackern SUDAL (border to Germany)	Petrzalka (border to Slovakia)
Storage Point 7Fields <sup>6</sup>	Murfeld (border to Slovenia)	

<sup>6</sup> Physical entry point to GCA's transmission system from the Storage Point 7 Fields storage facility, can only be booked by the storage facility operator pursuant to section 74 par. 2 GWG 2011

---

Petrzalka  
(border to Slovakia)  
Storage Point 7Fields<sup>7</sup>

---

Table 8: Entry and exit points where demand for short-distance capacity **without access to the VTP** was notified

Demand for 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)

In this chapter, capacity demand that does not lead to a shortage or only to a short-term shortage of capacities will be analysed. Subsequently, the capacity scenarios that contain long-term shortages based on the capacity demand requirements submitted and demand for additional and/or new technical capacities resulting from project submissions will be covered; see capacity scenario definition process chapter 5.3. chart 3.

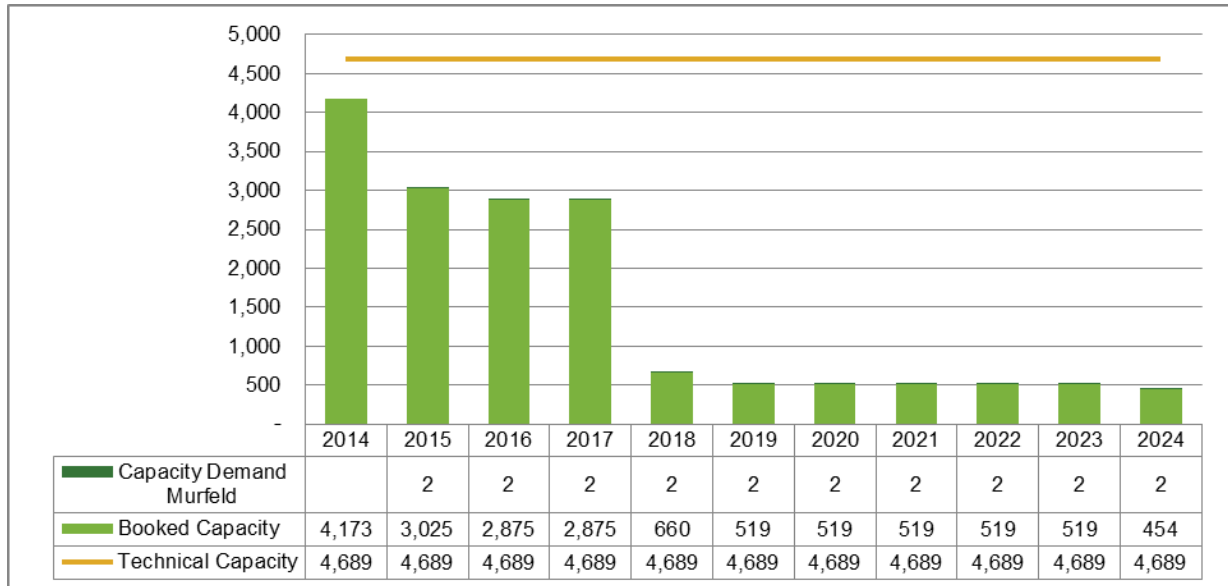
### 6.2.1 Capacity demand analysis - no shortage

The demand for incremental capacity submitted for the Murfeld exit point (border to Slovenia) of 2 MWh/h or 204 Nm<sup>3</sup>/h (0°C) can be fully met by the capacities available (reference date 10 March 2014), as shown in chart 7. Due to the low amount of capacity demanded compared to the technical capacity, the demanded capacity can hardly be seen in the chart.

---

<sup>7</sup> Physical exit point from GCA's transmission system to the Storage Point 7 Fields storage facility, can only be booked by the storage facility operator pursuant to section 74 par. 2 GWG 2011

Chart 7: Capacity demand / booked capacity / technical capacity at the **Murfeld exit point** (in MWh/h)

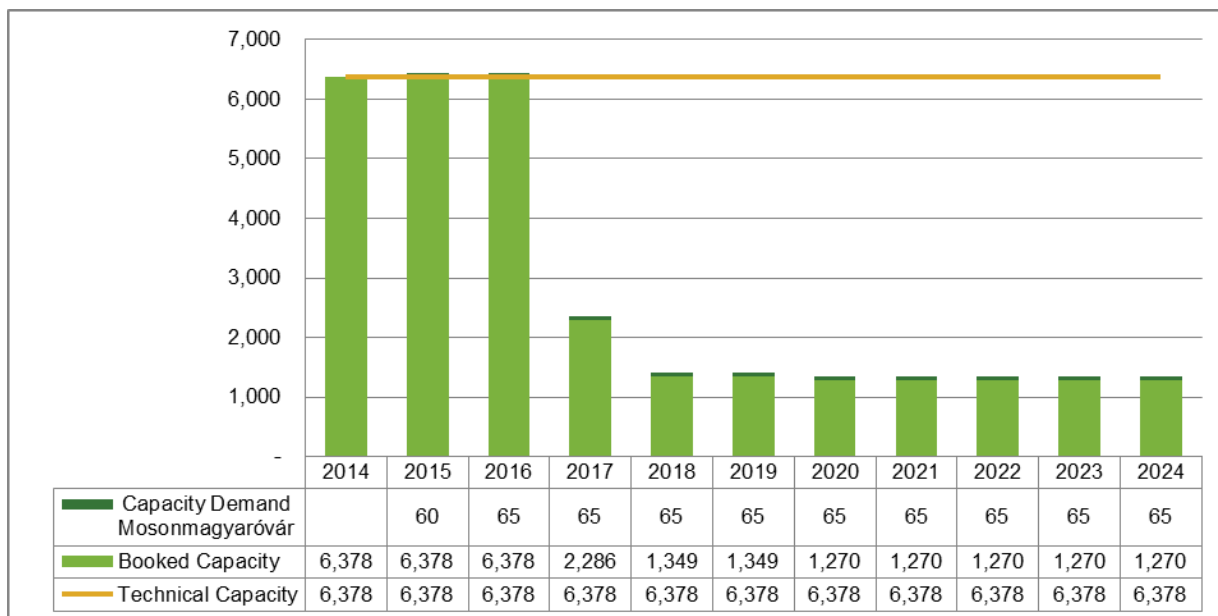


## 6.2.2 Capacity demand analysis - short-term shortage

The additional capacity demand submitted for the Mosonmagyaróvár (border to Hungary) exit point of 60 MWh/h or 5,362 Nm<sup>3</sup>/h (0°C) in 2015 and 65 MWh/h or 5,770 Nm<sup>3</sup>/h (0°C) in the period from 2016 to 2024 cannot be met by the capacities available (reference date 10 March 2014) in 2015 and 2016, as shown in chart 8.

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



### 6.2.3 Capacity demand analysis - long-term shortage

#### 6.2.3.1 Capacity scenario 1: Additional capacity demand at the Überackern interconnection point

Capacity scenario 1 contains all additional demand submitted in the capacity demand survey at the Überackern SUDAL, ABG and Storage Point 7Fields entry points and at the Überackern SUDAL, ABG and Storage Point 7Fields exit points; demand is shown in aggregate form. Capacity scenario 1 is not connected to Capacity scenario 2. All submitted additional demands were examined independently and projects resulting from Capacity scenarios are subject to separate capacity allocations.

The capacity demand was submitted with a value of 2,797 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C); at the Storage Point 7Fields entry point a demand of 2,400 MWh/h or 214,477 Nm<sup>3</sup>/h (0°C) was notified, and at the Storage Point 7Fields exit point a corresponding capacity demand of 2,400 MWh/h or 214,477 Nm<sup>3</sup>/h (0°C) was submitted.

The additional capacity demand at the Überackern SUDAL entry point was submitted as bundled capacity. When submitting this capacity demand for Überackern SUDAL entry point, the market participant explicitly pointed out that this is a substitution quantity for the Oberkappel entry point and, consequently, only the TSO GCA needs to analyse the additional capacity demand at the Überackern SUDAL entry point. The submitted additional demand of 2,797 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C) at the entry and exit Storage Point 7Fields will be examined regarding further impacts by the TSO GCA as well as by the TSO BOG in their respective NDPs.

At the Überackern entry point, the available technical capacity is limited and amounts to 4,750 MWh/h or 424,500 Nm<sup>3</sup>/h (0°C)<sup>8</sup>. At the exit point, the applicable technical capacity amounts to 7,553 MWh/h or 675,000 Nm<sup>3</sup>/h (0°C)<sup>9</sup>. 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 capacity scenario 1 in Nm<sup>3</sup>/h (0°C).

Table 9: Capacity data for capacity scenario 1, incremental capacity required at the **Überackern IP**

IP	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h (0°C)	Additional demand in Nm <sup>3</sup> /h (0°C)
Überackern SUDAL	PW reverse flow	FZK	Entry	424,500	+214,477
Storage Point 7 Fields	PW reverse flow	FZK	Entry	424,500	+250,000
Storage Point 7 Fields	PW flow	FZK	Exit	675,500	+250,000

Chart 9 shows the relationship between booked capacity, technical capacity and the aggregate capacity demand at the Überackern entry point, while chart 10 shows the capacity situation at the Überackern exit point.

At the entry point, the aggregate additional demand results in a shortage of 4,979 MWh(h) or 444,977 Nm<sup>3</sup>/h (0°C) in the period from 2015 to 2017. For the remaining planning period, a shortage of 3,804 MWh/h or 339,977 Nm<sup>3</sup>/h (0°C) at the entry point is expected. At the Überackern exit point, the additional demand results in a shortage of 1,793 MWh/h or 160.274 Nm<sup>3</sup>/h (0°C) in the period from 2015 to 2018, and of 1,675 MWh/h or 149,654 Nm<sup>3</sup>/h (0°C) for the remainder of the planning period.

<sup>8</sup> The applicable capacity for the Überackern SUDAL, ABG and Storage Point 7 Fields entry points is identical, as these points compete with each other.

<sup>9</sup> 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 9: Capacity demand / booked capacity / technical capacity at the **Überackern entry point** (in MWh/h)

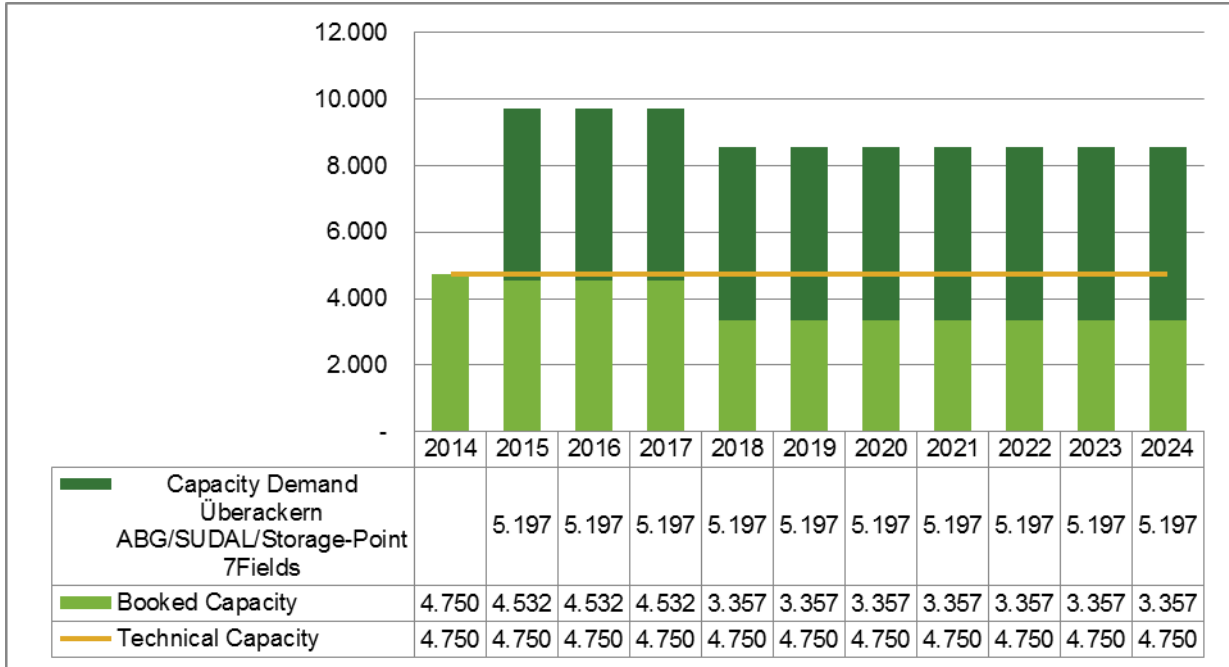
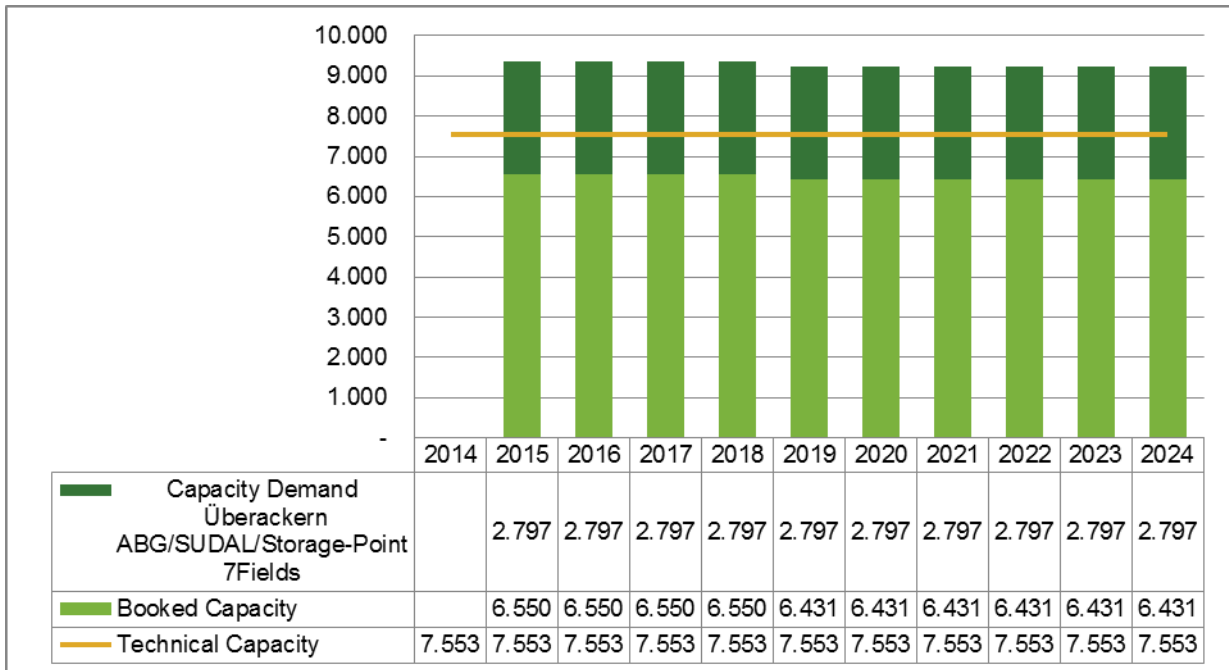


Chart 10: Capacity demand / booked capacity / technical capacity at the **Überackern exit point** (in MWh/h)

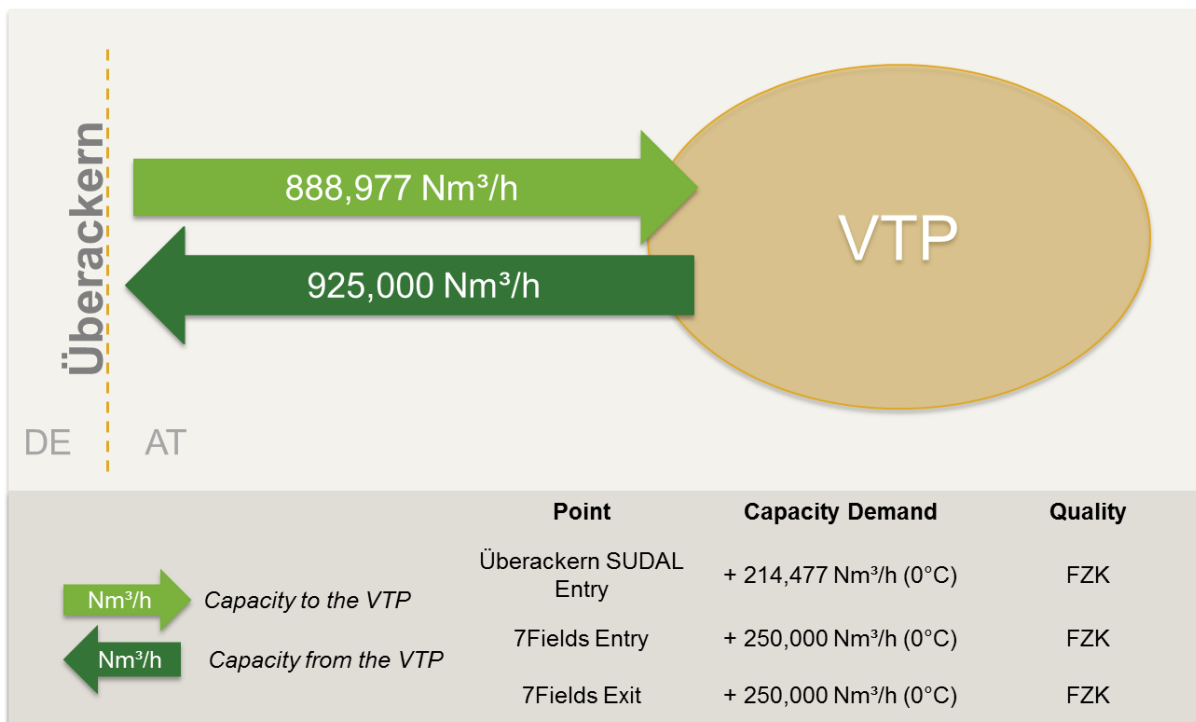


The flow diagram in chart 11 illustrates the overall incremental demand notified for the Überackern entry and exit point, which results in capacity scenario 1. In accordance with capacity scenario 1, the costs of

the additional capacity offer on an FZK basis are analysed in line with the described aggregate capacity demand over the 2015-2024 planning period and reflected in the project application "GCA 2014/01".

GCA has already contacted the adjacent TSO bayernets in writing with respect to additional bundled capacity demand at the Überackern SUDAL entry point with BZK of the Überackern 2 exit point (marketed in Germany by bayernets). According to bayernets' written information, bundling the FZK at the Überackern SUDAL entry point with the Überackern 2 exit point would be possible in BZK-quality in the planning period. FZK cannot be offered at the Überackern IP in the Austrian market area at present.

Chart 11: Capacity scenario 1 - additional capacity demand at the **Überackern IP**



**6.2.3.1.1 Technical feasibility**

The analysis of capacity scenario 1 shows, that for an implementation of a capacity from the entry point Überackern to the VTP on FZK basis of the total amount of 888,977 Nm³/h (0°C) and a capacity from the VTP to the exit point Überackern on FZK basis of the total amount of 925,000 Nm³/h (0°C) an increase of the injection pressure from 50 bar(g) to 83 bar(g) for reverser flow direction 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 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.

Implementation time frame: 3.5 years, completion: Q4 2018

Investment costs 2014 are estimated at ■■■ million €, with a possible deviation of +/- 25%. This project relating to capacity scenario 1 will be submitted for approval under the terms specified in the project sheet "GCA 2014/01" in chapter 9.3, economic data.

At the time the capacity scenario 1 was evaluated the pressure support of 83 bar(g) at the entry point Überackern could not be made by the adjacent TSO. 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 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 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.*

*Additionally the TSO BOG will be provide a confidential enclosure to its NDP which contains a detailed analysis of the necessary technical measures, their costs and their profitability regarding the possibility to offer the submitted additional demand of 2,797 MWh/h or 250,000 Nm<sup>3</sup>/h (0°C) at the entry and exit Storage Point 7Fields on FZK basis.*

#### **6.2.3.1.2 Concept for capacity allocation**

The allocation of the incremental capacity resulting from the capacity scenario 1 regarding the point Überackern is planned by GCA in form of an auction. In any case the allocation of incremental capacity at the Point Überackern and at the Point Oberkappel as described in the NDP of BOG in chapter 8.2.1.1 regarding capacity scenario 1 the competition between the points Überackern and Oberkappel 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.

#### **6.2.3.2 Capacity scenario 2: Additional short-distance capacity demand**

Capacity scenario 2 contains the entire demand for additional short-term capacities without access to the VTP between the relevant Überackern SUDAL and Überackern ABG IPs that was submitted in the capacity demand survey. Capacity scenario 1 is not connected to Capacity scenario 2. All submitted additional demands were examined independently and projects resulting from Capacity scenarios are subject to separate capacity allocations.

At the Überackern SUDAL entry point and the ABG exit point, the capacity demand was reported to amount to 2,163 MWh/h or 193,299 Nm<sup>3</sup>/h (0°C) over the entire planning period. This demand for short-distance transports was submitted by a market participant on a firm basis and bundled.



As capacities without access to the VTP are only possible as described in chapter 6.1.1, the specified capacity demand at the Überackern SUDAL entry point equals the demand at the Überackern ABG exit point (SUDAL in the direction of ABG).

As explained in chapter 6.1.1, short-distance transports can currently only be booked on an interruptible basis; access to the VTP is not possible. Accordingly, no technical capacity can presently be applied to short-distance transports.

As short-distance transports are fundamentally different from freely allocable capacities, bundled allocation of capacities is not possible in the planning period from today's perspective. GCA is continuing to look into the feasibility of this.

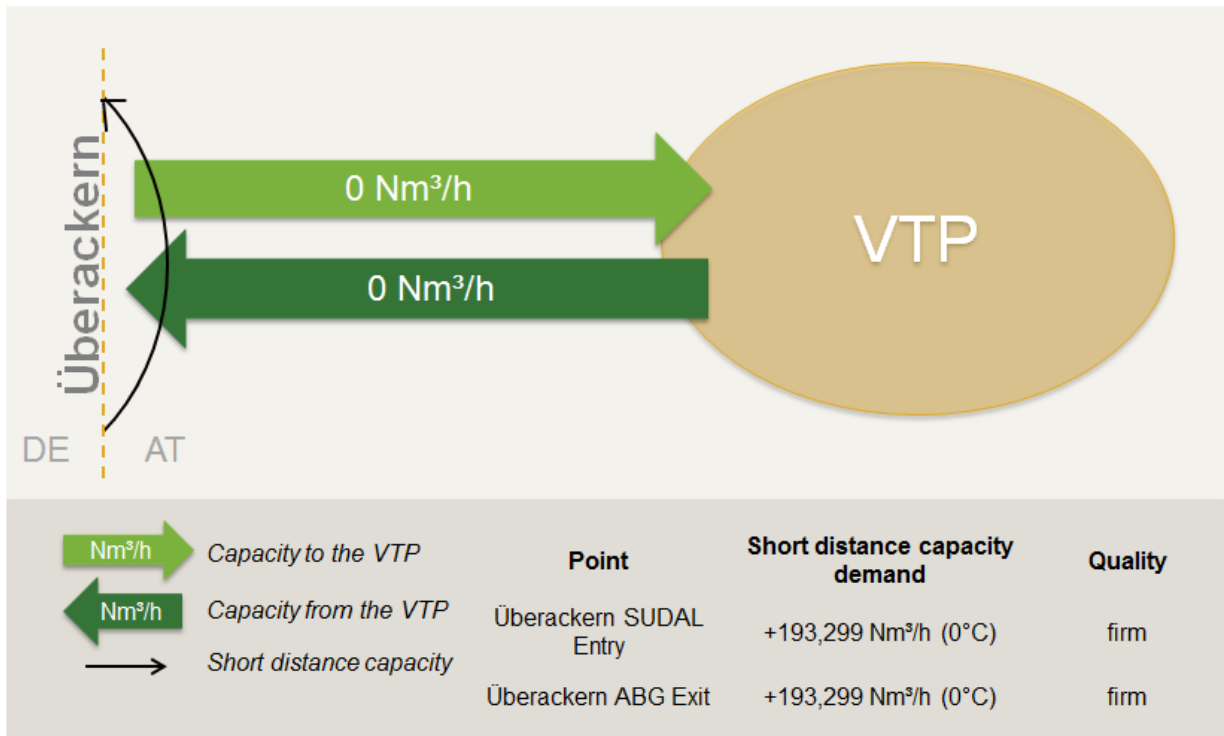
Table 10 shows the relevant data, technical capacities and additional demand of capacity scenario 2 in Nm<sup>3</sup>/h (0° C).

Table 10: Capacity data for capacity scenario 2, additional short-distance capacity demand

Point	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h (0°C)	Additional demand in Nm <sup>3</sup> /h (0°C)
Überackern SUDAL	Short-distance transport SUDAL -> ABG	firm	Entry	only on an interruptible basis	+193,299
Überackern ABG	Short-distance transport SUDAL -> ABG	firm	Exit	only on an interruptible basis	+193,299

The flow diagram in chart 12 shows the overall additional short-distance capacity demand notified between the relevant Überackern SUDAL and Überackern ABG IPs, which results in capacity scenario 2. In accordance with capacity scenario 2, the costs of the additional capacity offer on the basis of guaranteed capacities are analysed in line with the described aggregate capacity demand over the 2015-2024 planning period and reflected in the project application "GCA 2014/02".

Chart 12: Capacity scenario 2 - additional short-distance capacity demand



**6.2.3.2.1 Technical feasibility**

The analysis of capacity scenario 2 shows, that for an implementation of a short distance capacity on firm basis without access to the VTP from the entry point Überackern SUDAL to the exit point Überackern ABG in the amount of 193,299 Nm³/h (0°C) the measuring capacity and filtering capacity of the SUDAL rail have to be increased.

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.

Implementation time frame: 1.75 years, completion: Q1 2017

Investment costs 2014 are estimated at ■■■ million €, with a possible deviation of +/- 25%. This project relating to capacity scenario 2 will be submitted for approval under the terms specified in the project sheet "GCA 2014/02" in chapter 9.3, 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.*

### 6.2.3.2.2 Concept for capacity allocation

The allocation of incremental capacity resulting from capacity scenario 2 regarding short distance capacity is planned by GCA in form of an auction. The process of a respective capacity allocation will be defined in close alignment with the NRA and the implementation is subject to technical possibilities.

## 6.2.4 Capacity demand analysis - project submissions

### 6.2.4.1 Capacity scenario 3a: BACI project

Capacity scenario 3a contains the new capacities submitted in the 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 Nm<sup>3</sup>/h (0°C); therefore, exactly these capacity data are used in capacity scenario 3a, while an **increased** capacity is analysed in capacity scenario 3b.

The project BACI 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 project BACI with the technical parameters as included in capacity scenario 3a was included as “Project of Common Interest” (PCI) Number 6.4 in the Regulation (EU) Nr. 1391/2013.

During the conception of the project the 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.

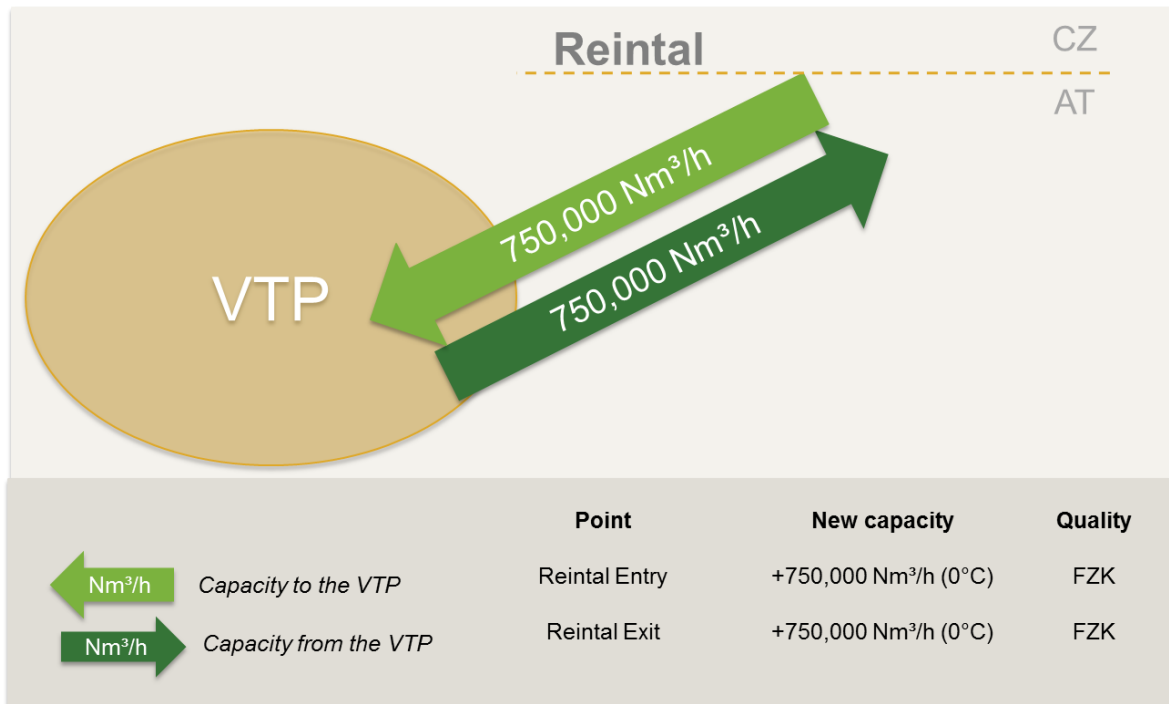
Table 11 shows the relevant data, technical capacities and new capacities of capacity scenario 3a in Nm<sup>3</sup>/h (0° C).

Table 11: Capacity data for capacity scenario 3a **BACI project**

Point	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h (0°C)	New capacity in Nm <sup>3</sup> /h (0°C)
Reintal	BACI	FZK	Entry	0	+750,000
Reintal	BACI	FZK	Exit	0	+750,000

The flow diagram in chart 13 illustrates the new capacities at the new Reintal entry and exit point, which results in capacity scenario 3a. In accordance with capacity scenario 3a, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2015-2024 planning period and reflected in the project application as planning project "GCA 2014/03a".

Chart 13: Capacity scenario 3a **BACI project**



#### 6.2.4.1.1 Technical feasibility

The analysis of capacity scenario 2 shows, that for an implementation of capacity from the new entry point Reintal to the VTP and capacity to 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 capacity scenario 3a:

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

Implementation time frame: 4.25 years, completion: Q3 2019

Investment costs 2014 are estimated at ■■■ million €, with a possible deviation of +/- 25%. This project relating to capacity scenario 3a will be submitted for approval under the terms specified in the project sheet "GCA 2014/03a" in chapter 9.3, economic data and under the condition that the project submission "GCA 2014/03b" is not commercially viable.

*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.*

#### **6.2.4.1.2 Concept for capacity allocation**

The final planning for BACI incremental capacity allocation resulting from capacity scenario 3a 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. The final capacity allocation will be executed in coordination with the NRA.

#### **6.2.4.2 Capacity scenario 3b: BACI DN1200 project**

Capacity scenario 3b contains the new capacities submitted in the project data collection for the new Reintal entry and exit point on the Czech border. In the project submission, the new bi-directional capacities are given as at least 8,392 MWh/h or 750,000 Nm<sup>3</sup>/h (0°C); therefore, exactly these capacity data are used in capacity scenario 3a, while a capacity of 16,561 MWh/h or 1,480,000 Nm<sup>3</sup>/h (0°C) is analysed in capacity scenario 3b.

The project BACI 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 project BACI with the technical parameters as included in capacity scenario 3a was included as “Project of Common Interest” (PCI) Number 6.4 in the Regulation (EU) Nr. 1391/2013.

The increased technical parameters of the project BACI as included in capacity scenario 3b are supposed to enable further possibilities for examination of the project.

During the conception of the project the 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.

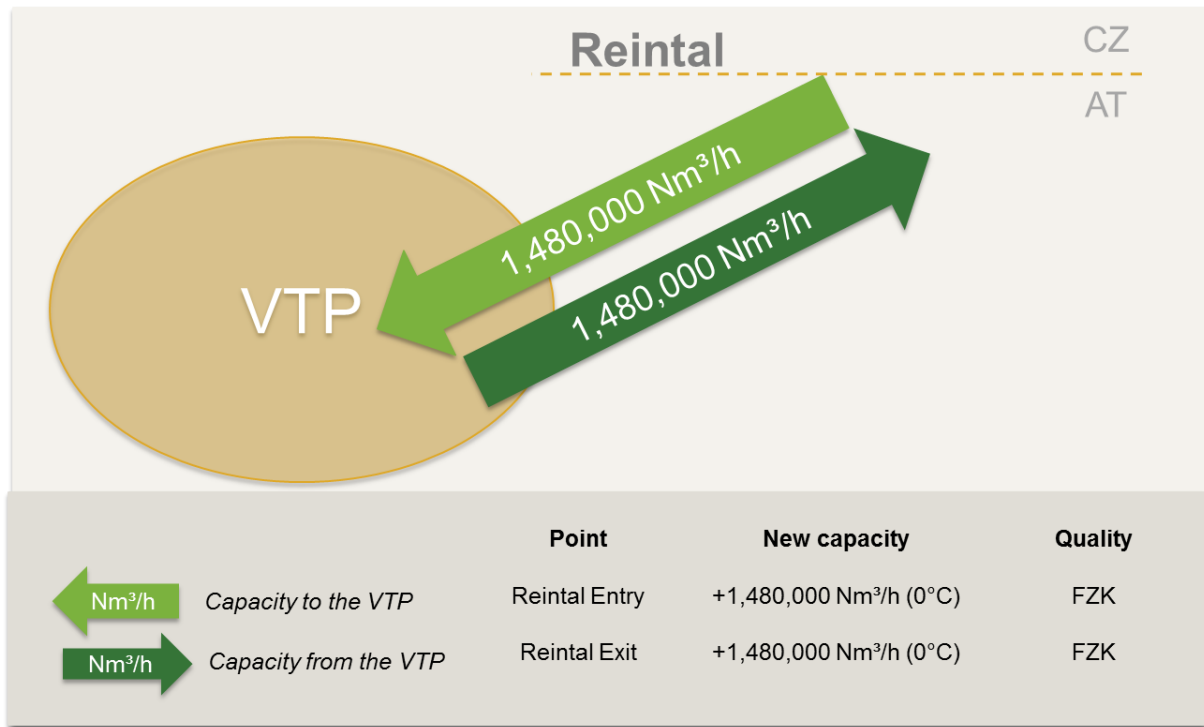
Table 12 shows the relevant data, technical capacities and new capacities of capacity scenario 3b in Nm<sup>3</sup>/h (0° C).

Table 12: Capacity data for capacity scenario 3b **BACI Project**

Point	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h (0°C)	New capacity in Nm <sup>3</sup> /h (0°C)
Reintal	BACI	FZK	Entry	0	1,480,000
Reintal	BACI	FZK	Exit	0	1,480,000

The flow diagram in chart 14 illustrates the new capacities at the new Reintal entry and exit point, which results in capacity scenario 3b. In accordance with capacity scenario 3b, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2015-2024 planning period and reflected in the project application as planning project "GCA 2013/03b".

Chart 14: Capacity scenario 3b **BACI project DN1200**



**6.2.4.2.1 Technical feasibility**

The analysis of capacity scenario 2 shows, that for an implementation of capacity from the new entry point Reintal to the VTP and capacity to the VTP to the new exit point Reintal at the Austrian/Czech border each in the amount of 1,480,000 Nm<sup>3</sup>/h (0°C) on FZK basis a new pipeline project is necessary.

The following investments are necessary for capacity scenario 3b:

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

Implementation time frame: 4.25 years, completion: Q3 2019

Investment costs 2014 are estimated at ■■■ million €, with a possible deviation of +/- 25%. This project relating to capacity scenario 3b will be submitted for approval under the terms specified in the project sheet "GCA 2014/03b" in chapter 9.3, economic data and under the condition that the project submission "GCA 2014/03a" is not commercially viable.

*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.*

#### 6.2.4.2.2 Concept for capacity allocation

The final planning for BACI incremental capacity allocation resulting from capacity scenario 3a 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. The final capacity allocation will be executed in coordination with the NRA.

#### 6.2.4.3 Capacity scenario 4: M1/3 Ceršak border pipeline

Capacity scenario 4 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 7,553 MWh/h or 675,000 Nm<sup>3</sup>/h (0°C) were specified for the M1/3 Ceršak border pipeline project. The analysis of the TSO GCA is solely based on the project submission, further information on the project on Slovenian side are unknown.

At the Murfeld exit point, available technical capacity is limited and amounts to 4,688 MWh/h or 419,000 Nm<sup>3</sup>/h (0°C). There is currently no applicable technical capacity at the entry point, and as a result transports are performed only on an interruptible virtual basis.

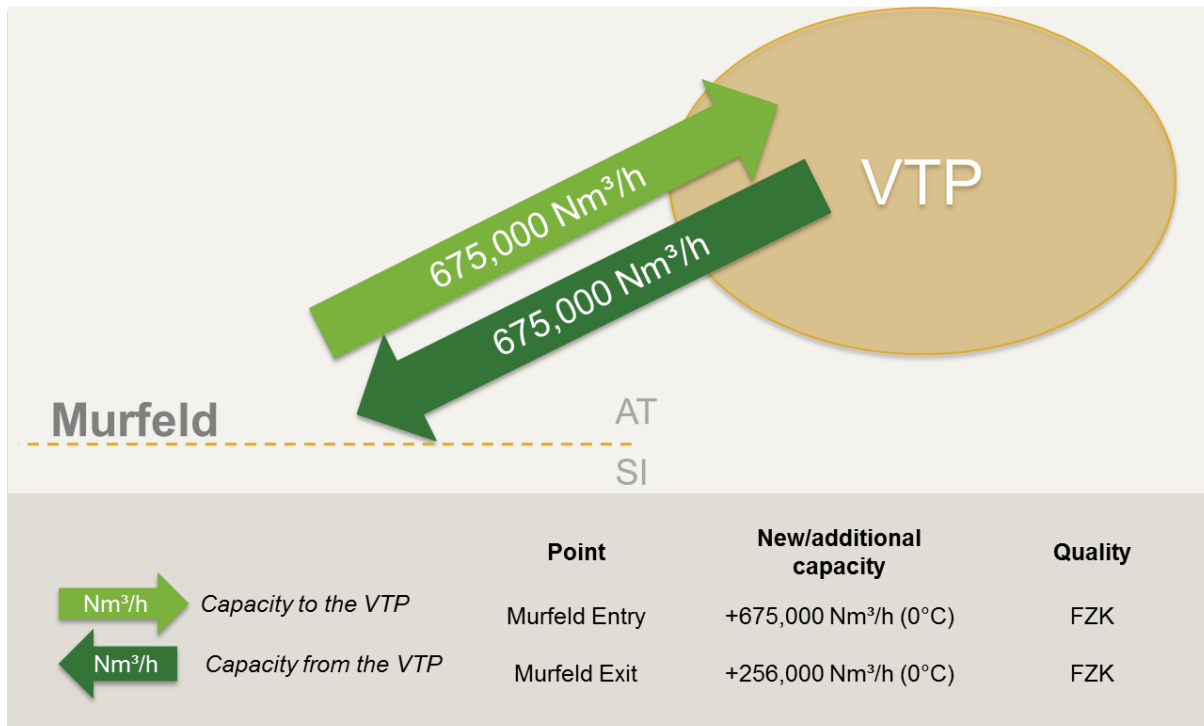
Table 13 shows the relevant data, technical capacities and new capacities of capacity scenario 4 in Nm<sup>3</sup>/h (0° C).

Table 13: Capacity data for capacity scenario 4 **M1/3 Ceršak border pipeline**

Point	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h	New and/or incremental capacity in Nm <sup>3</sup> /h
Murfeld	SOL	FZK	Entry	0	+675,000
Murfeld	SOL	FZK	Exit	419,000	+256,000

The flow diagram in chart 15 illustrates the new capacities at the Murfeld entry and exit point, which results in capacity scenario 4. In accordance with capacity scenario 4, the costs of the additional capacity offer on an FZK basis will be analysed in line with the described project over the 2015-2024 planning period and reflected in the project application as planning project "GCA 2014/04".

Chart 15: Capacity scenario 4 **M1/3 Ceršak border pipeline**



#### 6.2.4.3.1 Technical feasibility

The analysis of capacity scenario 4 shows, that for an 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 675,000 Nm<sup>3</sup>/h (0°C) an increase of the gas injection 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 55 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 capacity scenario 4:

- 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 time frame: 4.25 years, completion: Q3 2019

Investment costs 2014 are estimated at ■■■ million €, with a possible deviation of +/- 25%. This project relating to capacity scenario 4 will be submitted for approval under the terms specified in the project sheet "GCA 2014/04" in chapter 9.3, economic data.

At the time the capacity scenario 4 was evaluated no indication on possible delivery pressures at the Murfeld IP was made by the adjacent TSO. 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 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.*

#### **6.2.4.3.2 Concept for capacity allocation**

The allocation of incremental capacities resulting from capacity scenario 4 regarding the point Murfeld is planned by GCA in form of 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 organizational possibilities.

## 7 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.

### 7.1 Capacity demand survey

As in the year before, in the frame-work of the 2015-2024 CNDP in 2014 Energie-Control Austria (ECA) again invited TSOs to draw up the relevant NDPs based on an online survey of existing and potential system users to investigate the potential demand for additional capacities in a ten-year planning period, and to publish the results in the NDP and the CNDP in coordination with the MAM, whose coordinating role is set out in section 63 Natural Gas Act.

TAG GmbH responded to ECA's invitation and published a non-binding capacity demand survey on its website for three weeks, i.e. from March 11, 2014 through March 31, 2014, in coordination with the Austrian TSOs. In addition, a newsletter jointly prepared with the other two TSOs (i.e. BOG GmbH and GCA GmbH) drawing attention to the market survey was published on PRISMA and sent out via PRISMA Newsletter with the aim of reaching as many potential customers as possible and ensuring the highest possible transparency.

In the capacity demand survey, system users and potential system users of the TAG pipeline system were asked to report (non-binding) additional capacity demand for the 2015-2024 period at the respective physical Baumgarten or Arnoldstein (reverse flow) entry points and 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 to plan any network expansion measures in the period up to 2025 based on the demand, which is in line with the results of the GRIP-SSE and the TYNDP.

### 7.1.1 Entry and exit points

Table 14: 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)	
Arnoldstein (border to Italy)		

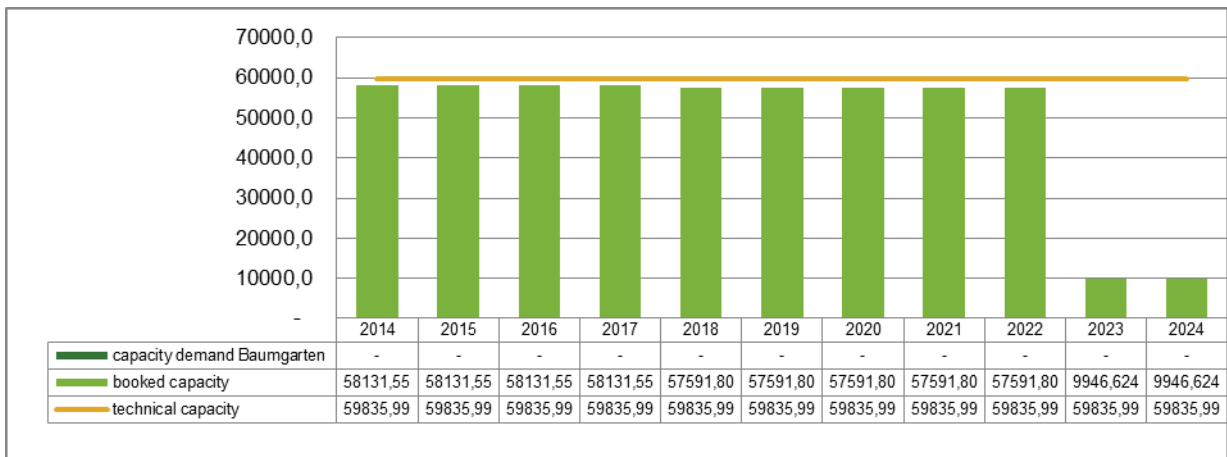
### 7.1.2 Projected demand for capacities with access to VTP

Based on the results of the capacity demand survey, TAG GmbH prepared a capacity analysis for the 2015-2024 period that takes the following parameters into account:

- 1) Technical capacity at the Baumgarten and Arnoldstein entry and exit points
- 2) Booked capacity at the Baumgarten and Arnoldstein entry and exit points
- 3) No increase of potential capacity based on the market survey

#### 7.1.2.1 Baumgarten entry point

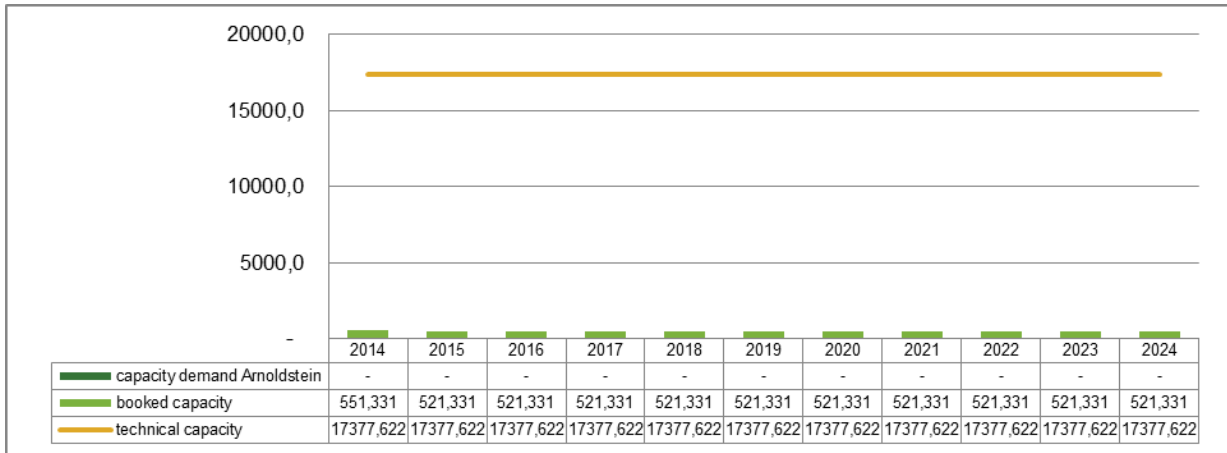
Chart 16: Capacity demand/booked capacity/technical capacity at the Baumgarten entry point (in MWh/h)



The chart shows that both the technical as well as the booked capacity at the Baumgarten entry point will remain constant up to 2017. The freely allocable capacity will increase only as of 2018 due to changes in the contract terms with one system user. The availability of freely allocable capacity will again increase as of 2023, when some contracts with a term of several years expire.

**7.1.2.2 Arnoldstein entry point**

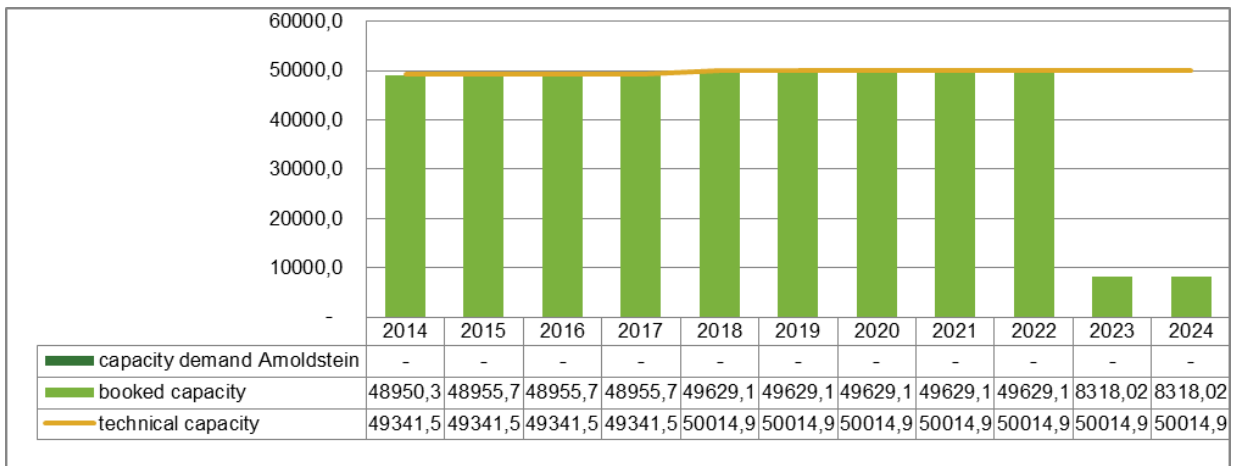
Chart 17: Capacity demand / booked capacity / technical capacity at the Arnoldstein entry point (in MWh/h)



The chart shows that both the technical as well as the booked capacity at the Arnoldstein entry point will remain constant from 2015 up to 2024.

**7.1.2.3 Arnoldstein exit point**

Chart 18: Capacity demand / booked capacity / technical capacity at the Arnoldstein exit point (in MWh/h)



The chart shows that the technical capacity at the Arnoldstein exit point will remain constant for the entire planning period from 2015-2017 and will slightly rise as of 2018, whereas the freely allocable capacity will strongly increase only as of 2023 (when some contracts with a term of several years expire). The slight change in capacity as of 2018 is based on a change in contract terms with one system user.

## 8 Network development plan

### Baumgarten-Oberkappel Gasleitungsgesellschaft m.b.H.

In the WAG system, BOG offers a number of services for cross-border and domestic supply, in this way making sustainable use of the available capacities. As an early adopter of the PRISMA marketing platform, the Congestion Management Procedures (CMP), the Capacity Allocation Mechanisms (CAM) and the measures within the scope of the Interoperability Network Code, BOG offers an exemplary portfolio of services to its customers, while using the existing WAG infrastructure and the available capacity in an optimal way.

The capacities available at the relevant WAG points and the capacities of the neighbouring TSOs are shown in charts 19 and 20.

Chart 19: Technical capacity at the Baumgarten IP

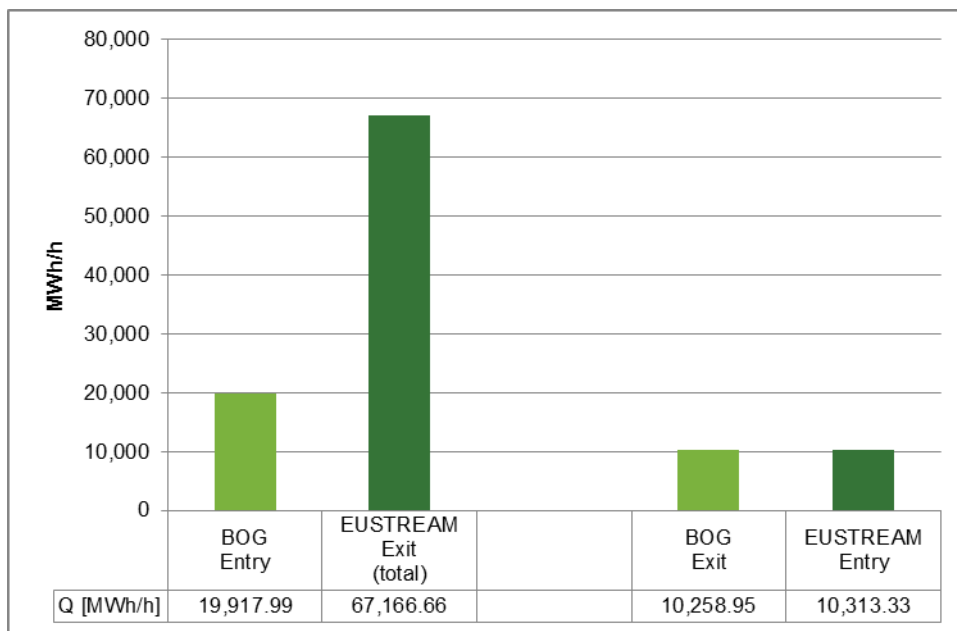
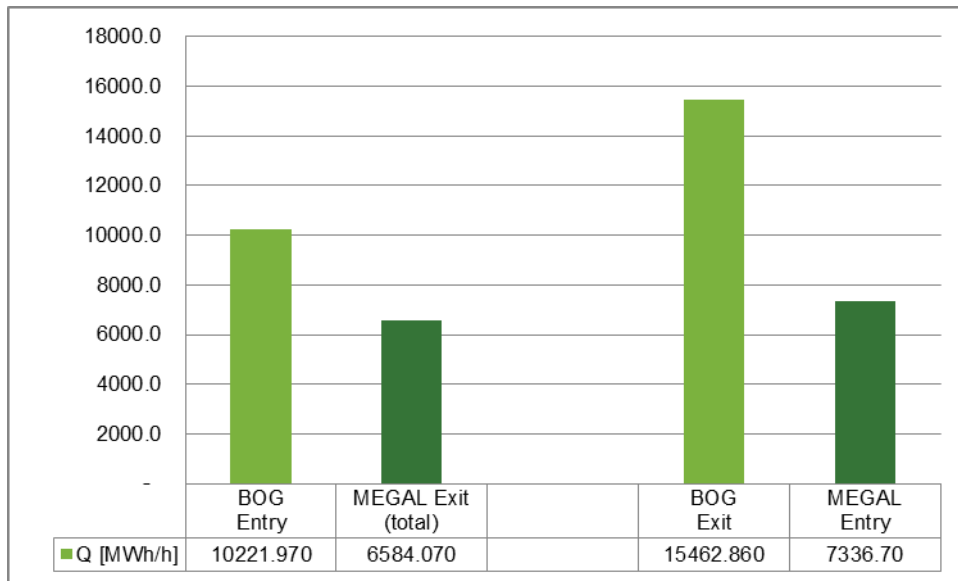


Chart 20: Technical capacity at the Oberkappel IP



In the period under review, the capacity booked at the Baumgarten entry point makes up more than 80% of the available firm capacity. At the Baumgarten exit point, 36% of the firm capacity offered is booked for the next decade. Over the past 12 months, gas flowed exclusively from Slovakia to Austria.

Chart 21: Capacity development at the Baumgarten BOG entry point

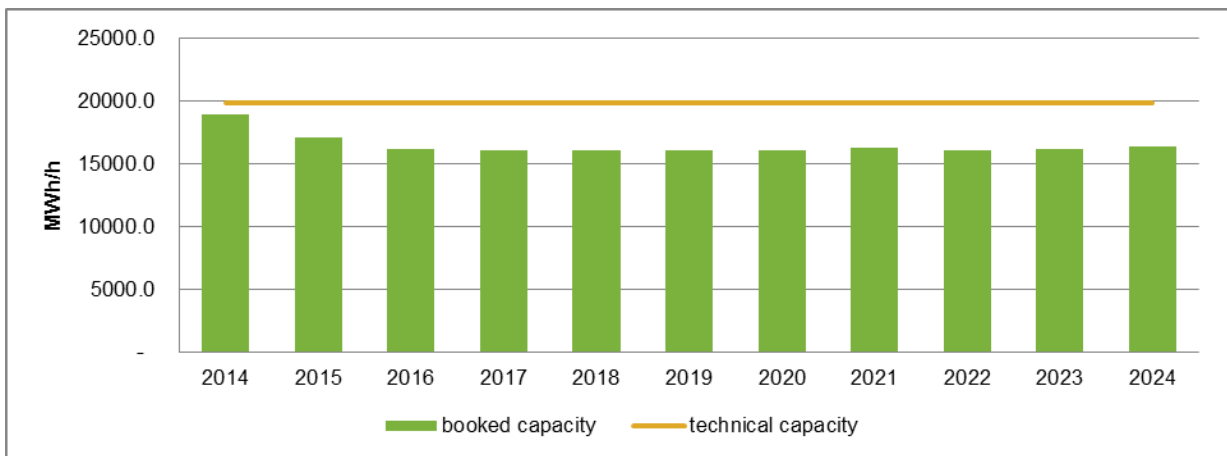
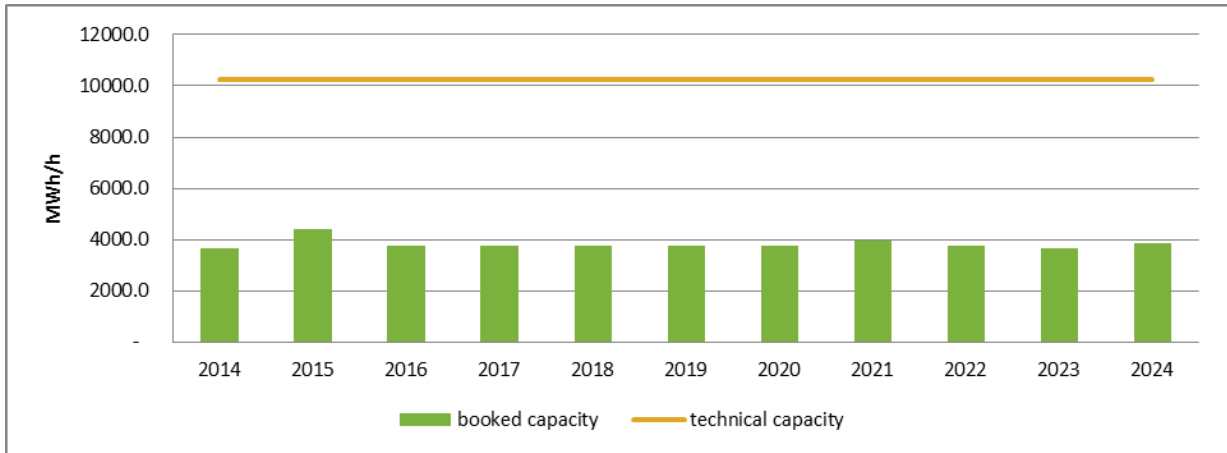


Chart 22: Capacity development at the Baumgarten BOG exit point



In 2015 and 2016, the capacity booked at the Oberkappel entry point will make up 100% of the available firm capacity; as of 2022 the capacity bookings will reduce to 91%, respectively. The situation is similar at the Oberkappel exit point, where the booked capacity is between 100% (2015-2021) and 95% as of 2022.

Chart 23: Capacity development at the Oberkappel entry point

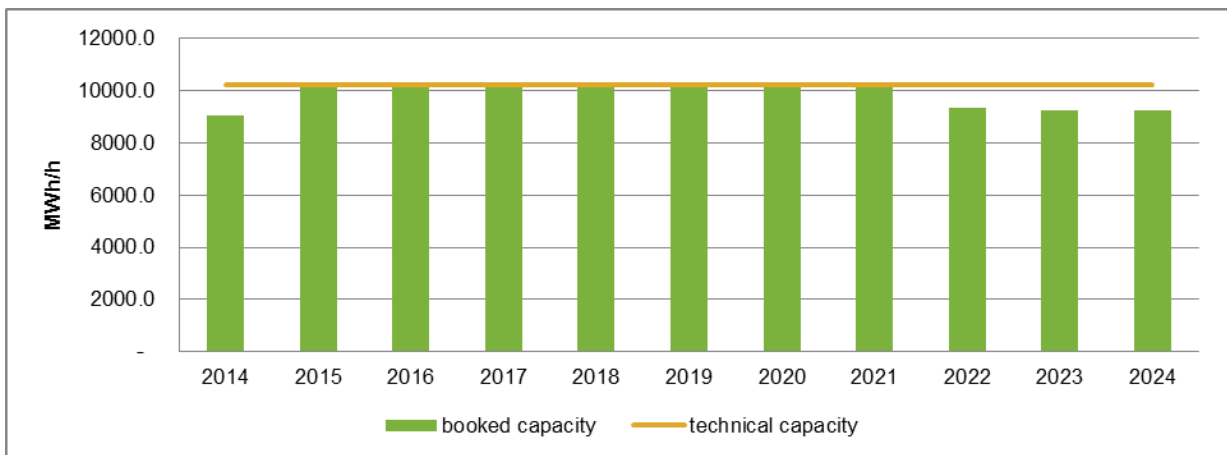
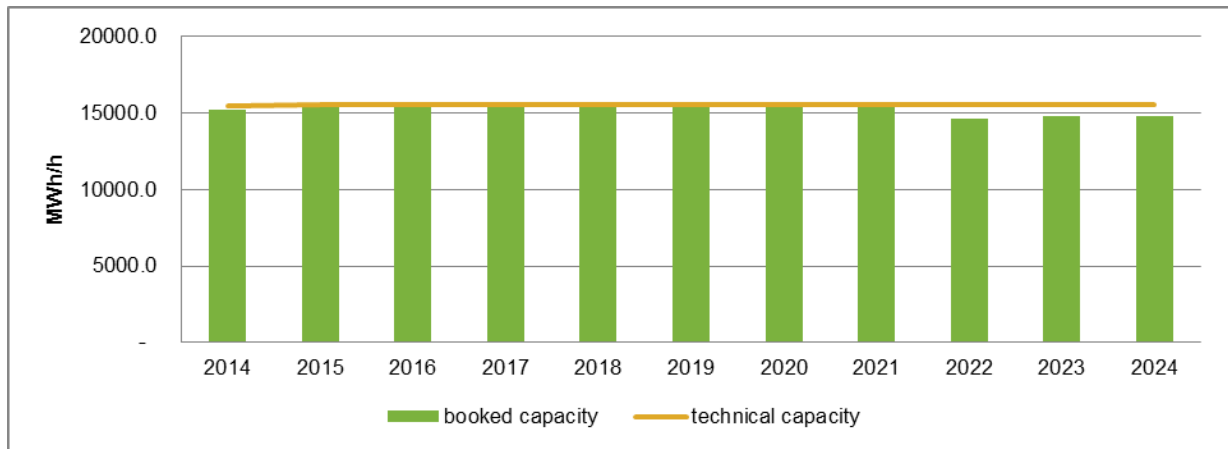


Chart 24: Capacity development at the Oberkappel exit point



A noteworthy fact regarding Oberkappel is that the transmission network was, and still is, much more efficient on the Austrian side than it is in Germany. In the period from 1 January 2013 to 1 May 2014, firm IP capacities were exceeded, specifically those to be transported from Germany to Austria. The occasional interruption of interruptible capacities in Germany had repeatedly drawn market participants' attention to this cross-border point in the past. However, it was possible to mitigate the situation, and the frequency at which interruptions occur is now, in our opinion, within reasonable limits as regards the duration and scope of the interruptions, with a total of 151 hours in the period from 1 February 2013 to 30 April 2014 and an average  $492\text{m}^3(\text{n})/\text{h}_{\text{interrupt}}$ . The interruptions occurred exclusively in the west-east flow direction and only in Germany. The transport customers' interest in incremental capacities, however, is limited as can be seen from the responses to the coordinated market survey conducted by the three Austrian TSOs (cf. chapter 8.1).

The existing Pressure Service Agreement (PSA), BOG-2014/01 Pressure Service Agreement, with the operators MEGAL was extended to fulfil the request by AGGM to provide a delivery pressure via BOG higher than the agreed delivery pressure according to design parameters at the Point Oberkappel when the direction of transport is West-East.

## 8.1 Capacity demand survey

As already in 2013, a survey was conducted by the MAM this year in the course of preparing the 2015-2024 Network Development Plan. Using a standardised questionnaire, the existing and potential transport customers of BOG GmbH were asked to submit (non-binding) the projected incremental capacity demand at the relevant points of the WAG system for the period from 2015 to 2024. The participants were informed of the survey via a newsletter sent by BOG and a mail sent by the PRISMA auction platform. The survey was conducted in the period from 13 March to 31 March 2014.

The capacity demand at the Storage Point WAG/MAB was also included in the survey. The Storage Point WAG/MAB is not a decisive point, therefore only the Storage System Operator is entitled to book capacity at this point. During this year's capacity demand survey no additional capacity was requested by the Storage System Operator.



### 8.1.1 Entry points and exit points

Only a low capacity demand was submitted for the Baumgarten BOG and Oberkappel entry points.

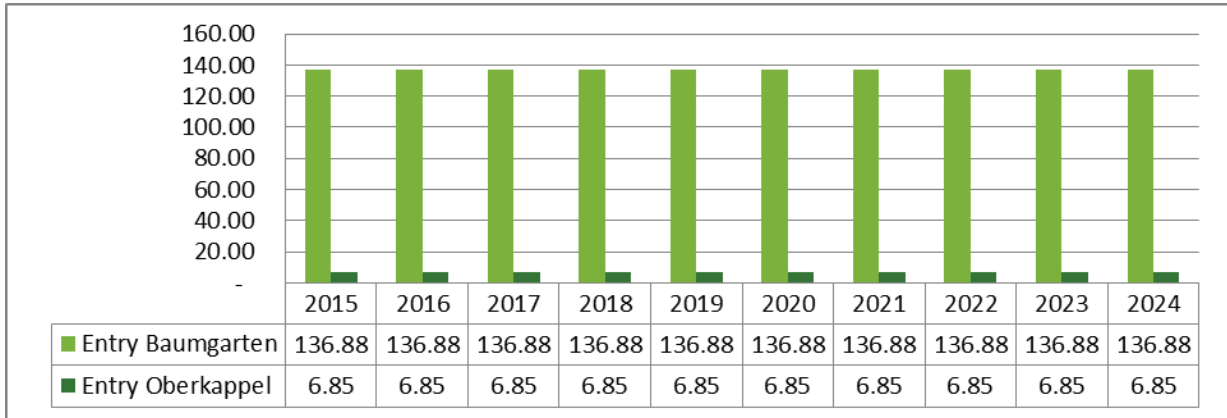
Table 15: Entry and exit points where demand for capacity **with access to the VTP** was notified

Demand for capacity with access to the VTP		
Physical entry points	Physical exit points	Non-physical entry points
Baumgarten BOG	Baumgarten BOG	---
Oberkappel	Oberkappel	---
MAB	MAB	---

### 8.1.2 Demand submitted for capacities with access to VTP

The diagram below illustrates the capacity demand submitted for the relevant points of BOG.

Chart 25: Capacity demand at the physical entry points



## 8.2 Analysis of demand for capacity with access to VTP

The demand of 136.9 MWh/h submitted for the Baumgarten IP only refers to the entry point and can be met with the existing capacities.

The demand of 6.85 MWh/h submitted for the Oberkappel IP suggests that, despite the rare interruptions in Germany, there is no need for incremental capacities on the part of transport customers. Even the minor shortage regarding the total amount of capacity already booked and projected as additionally required in 2015 and 2016 can be covered by BOG in the form of interruptible capacity. Flexibility at the Oberkappel entry point is fostered by measures such as short- and long-term use-it-or-lose-it capacity (UIOLI), capacity surrender, capacity auctions on the primary and secondary markets and a general trend towards short-term contracts regarding both booking (day ahead) and contract term, which pre-

vents interruptions caused by excess capacities in the Austrian transmission system almost entirely. As a matter of fact, congestion does not occur at the relevant points of BOG.

Chart 26: Capacity demand / booked capacity / technical capacity at the Baumgarten BOG entry point (in MWh/h)

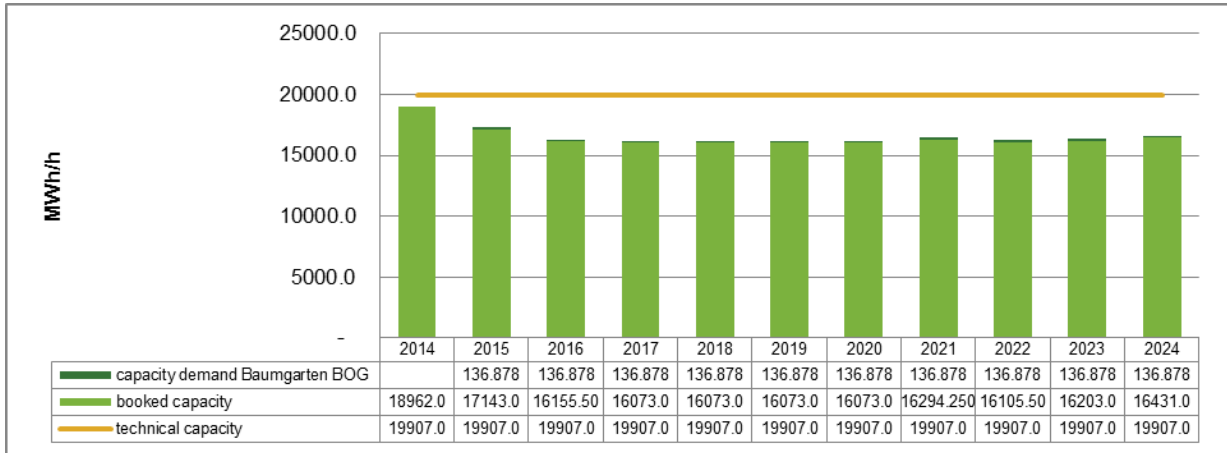
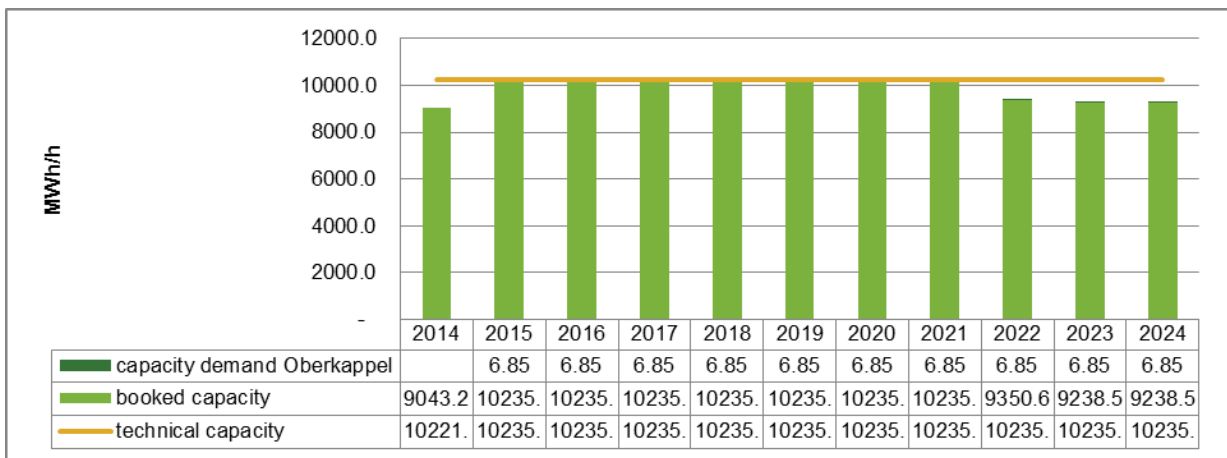


Chart 27: Capacity demand / booked capacity / technical capacity at the Oberkappel entry point (in MWh/h)



As a matter of fact, congestion does not occur at the relevant points of BOG. As the capacity demand for the relevant points of the TSOs GCA and TAG does not result in relevant new capacity scenarios or demand for incremental capacity, there is no need for any capacity expansion measures at present.

### 8.2.1 Capacity demand analysis - long-term shortage

#### 8.2.1.1 Capacity scenario 1: Demand for incremental capacity at the Überackern interconnection point

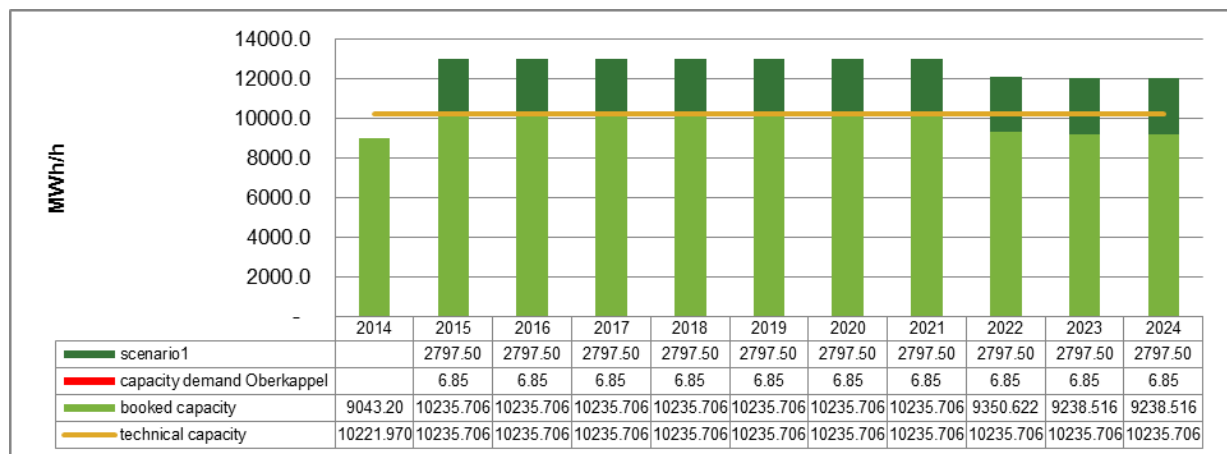
The demand data received by BOG within the framework of the market survey do not suggest that any capacity expansion measures are needed. However, the data submitted to GCA (see chapter 6.2.3.1) require an analysis at the Oberkappel entry and exit point in order to provide the demanded capacities on FZK-basis.

Table 16: Capacity data for capacity scenario 1, incremental capacity required at the Überackern IP - impact on the Oberkappel IP

Point	System	Quality	Direction	Applicable technical capacity in Nm <sup>3</sup> /h (0°C)	Additional demand in Nm <sup>3</sup> /h (0°C)
Storage Point 7Fields	PW counterflow	FZK	Entry	424,500	+250,000
Storage Point 7Fields	PW flow	FZK	Exit	675,500	+250,000

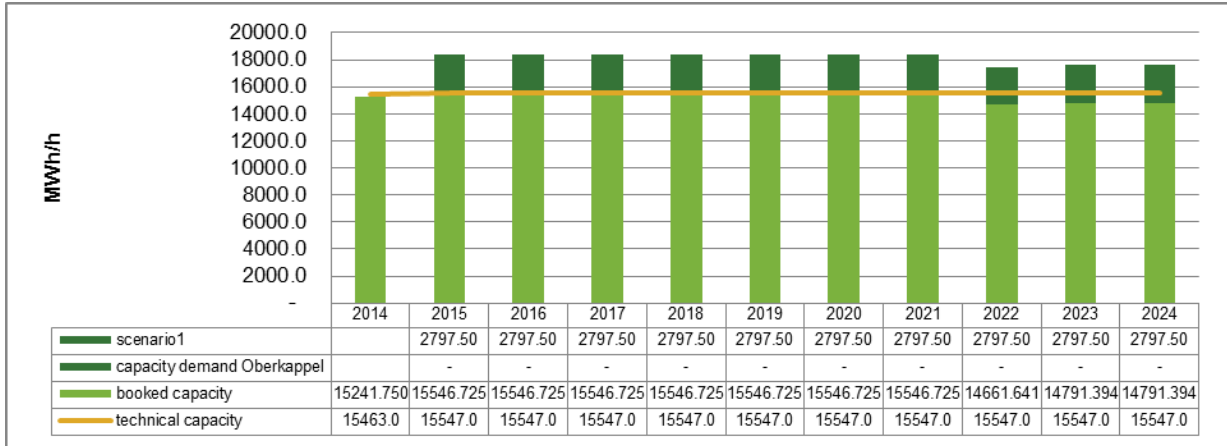
On the basis of the demand data submitted, shortages result from capacity scenario 1 as follows:

Chart 28: Capacity demand / booked capacity / technical capacity at the Oberkappel entry point (in MWh/h)



Incremental capacities of 250,000 m<sup>3</sup>(n)/h (2,789 MWh/h) for the Oberkappel entry point are needed as derived from scenario 1. The overall entry capacity required at the Oberkappel IP amounts to 1,175,000 Nm<sup>3</sup>/h (13,148 MWh/h) including the capacities already booked.

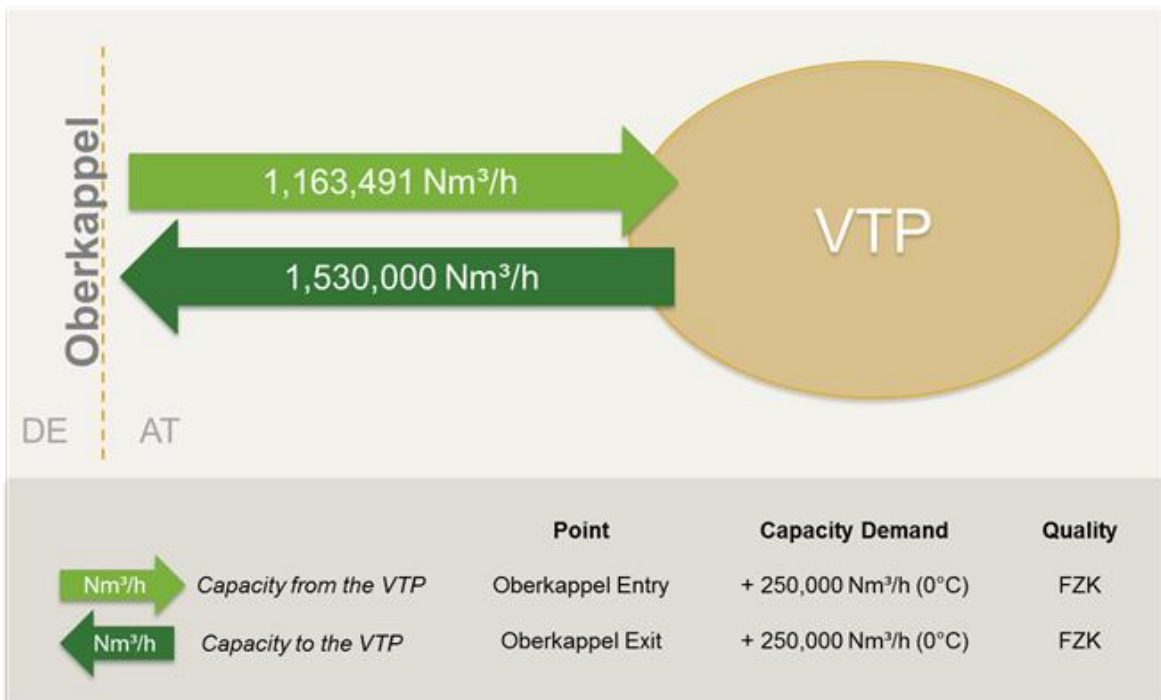
Chart 29: Capacity demand / booked capacity / technical capacity at the Oberkappel exit point (in MWh/h)



Incremental capacities of 250,000 Nm<sup>3</sup>/h (2,798 MWh/h) for the Oberkappel exit point are needed as derived from scenario 1. The overall exit capacity required at the Oberkappel IP amounts to 1,530,000 Nm<sup>3</sup>/h (17,121 MWh/h) including the available capacities.

The flow diagram in chart 30 illustrates the total demand for incremental capacity submitted for the Oberkappel entry/exit point, which results in capacity scenario 1. Accordingly, the costs of the additional capacity offered on the basis of freely allocable capacity in line with the aggregated capacity demand described will be analysed for the planning horizon 2015-2024 and incorporated into the project application BOG 2014/02.

Chart 30: Capacity scenario 1 - additional capacity demand at the Überacker IP - impact on the Oberkappel IP



### 8.2.1.1.1 Technical feasibility

During the conception of the technical measures and their feasibility alignments with the DAM took place in order to consider impacts on the distribution system. The implementation of the technical measures will include an exit pressure of 45 bar(g).

The requirement of additional freely allocable capacities as well as the pressure increase at the break out point Leonfelden can be implemented in two different options:

- Firstly, the incremental capacity needed can be generated by installing an additional compressor (12.5 MW) at CS Rainbach in combination with parallel operation of the Rapottenstein-Liebenau section and the Bad Leonfelden-Arnreith section with total length of 38 km and a pipeline dimension of DN1200 (costs of approximately EUR ■■■ million for each kilometre). The related investments amount to approximately EUR ■■■ million (EUR ■■■ per MW of compressor power) for upgrading the Rainbach CS and approximately EUR ■■■ million for enabling parallel operation of the sections mentioned above, i.e. a total of EUR ■■■ 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). This is the preferred option from a technical and financial point of view. The possible deviation of investment costs is +/- 25%.
- Secondly, the Rapottenstein-Liebenau and Bad Leonfelden-Oberkappel sections may be operated in parallel, with a total length of 58 km and a pipeline dimension of DN1200. If we assume costs of EUR ■■■ million for each kilometre, the investment for this expansion measure is approximately EUR ■■■ million. The possible deviation of investment costs is +/- 25%. The cost estimates are based on BOG's experience in the past..

This project will be submitted for approval under the terms specified in the project sheet **BOG-2014/02** in chapter 9.3, under the conditions in the 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.*

### 8.2.1.1.2 Concept for capacity allocation

The allocation of the incremental capacity resulting from the capacity scenario 1 regarding the point Oberkappel is planned by BOG in form of an auction. In any case the allocation of incremental capacity at the Point Oberkappel and at the Point Überackern as described in the NDP of GCA in chapter 6.2.1.1 regarding capacity scenario 1 the competition between the points Oberkappel and Überackern 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.

## 9 National Projects

### 9.1 Monitoring of projects closed

#### GCA 2013/02 - Penta West extension phase 1

<b>Project name:</b>	Penta West extension phase I		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Completion:</b>	The project will not be continued.
		<b>As of:</b>	04.03.2014
<b>Project objective:</b>			
<p>The project aims to increase the technical capacity at the Überackern entry and exit point in order to provide the storage capacity booked on a firm basis and to meet the additional capacity demand submitted for the Überackern entry/exit point.</p>			
<b>Please note:</b>			
<p>The investment is restricted to the Austrian transmission network (Penta West) that is connected to the Überackern entry/exit point, as the additional capacity demand submitted is classified as substitution capacity. Similarly to the G00.040 project, the Penta West extension phase also has the potential to reinforce the storage facilities' connection to the virtual trading point.</p>			
<b>Project description:</b>			
<p>An additional compressor station needs to be set up at Überackern to transport 710,000 Nm<sup>3</sup>/h (0°C) in the direction of Oberkappel. The metering capacity of the SUDAL pipeline also needs to be enhanced. A simple technical option would be to switch the flanges of the SUDAL and ABG pipelines.</p>			
<b>Technical data:</b>			
<p>After completion of the project, the following additionally guaranteed entry/exit capacities at the Überackern and Storage Point 7Fields IPs are planned to be available to the system users:</p>			
Überackern entry point      285,500 Nm <sup>3</sup> /h (0°C)			
Überackern exit point      35,000 Nm <sup>3</sup> /h (0°C)			
Storage Point 7 Fields entry point      250,000 Nm <sup>3</sup> /h (0°C)			
Storage Point 7 Fields exit point      250,000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b>			
<p>Investment cost basis 2013: EUR ■ million. The cost estimate may deviate by +/- 20% 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, and the costs allocated to the Storage Point 7Fields IP storage are covered by binding long-term bookings from the storage company.</p>			
<b>Project rationale:</b>			
<p>This project is necessary to be able to provide the capacity of the Storage Point 7Fields storage facility that is connected to the transmission system as guaranteed capacity and, at the same time, to partially cover the additional capacity demand submitted for the Überackern entry/exit point. It also increases security of supply in Austria and in Europe. This project was launched in response to the requirements defined in clause 3 of the administrative decision V KNEP G 01/12.</p>			

**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. From a financial viewpoint it is not reasonable for the storage facility operator to bear the costs all by itself. The project has been closed.

**GCA 2013/03 – Penta West extension phase 2**

<b>Project name:</b>	Penta West extension phase II		
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Completion:</b>	The project will not be continued.
		<b>As of:</b>	04.03.2014
<b>Project objective:</b>			
<p>The project aims to increase the technical capacity at the Überackern entry and exit point in order to provide the storage capacity booked on a firm basis and to cover the total additional capacity demand.</p>			
<b>Please note:</b>			
<p>The investment is restricted to the Austrian transmission network (Penta West) that is connected to the Überackern entry/exit point, as the additional capacity demand submitted is classified as substitution capacity. Similar to the G00.040 project, the Penta West extension phase also has the potential to reinforce the storage facilities' connection to the virtual trading point and complements the Penta West extension phase 1.</p>			
<b>Project description:</b>			
<p>Due to the very high demand for transport quantities it is not reasonable to interfere with or modify the existing Penta West system. A new system, in parallel to the existing one, needs to be built for this incremental capacity.</p> <p>This means a new Neustift metering station including a compressor station, a 95 km DN 800 loop pipeline, a new metering station at Überackern as well as an additional compressor station for the transport from Überackern to Neustift will be needed.</p>			
<b>Technical data:</b>			
<p>After completion of the project, the following additionally guaranteed entry/exit capacities at the Überackern IP are planned to be available to the system users:</p> <p>Überackern entry point 1,679,500 Nm<sup>3</sup>/h (0°C)</p> <p>Überackern exit point 1,429,000 Nm<sup>3</sup>/h (0°C)</p> <p>Storage Point 7 Fields entry point 250,000 Nm<sup>3</sup>/h (0°C)</p> <p>Storage Point 7 Fields exit point 250,000 Nm<sup>3</sup>/h (0°C)</p>			
<b>Economic data:</b>			
<p>Investment cost basis 2013: EUR █████ million. The cost estimate may deviate by +/- 20% 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, and the costs allocated to the Storage Point 7Fields IP storage are covered by binding long-term bookings from the storage company.</p>			
<b>Project rationale:</b>			
<p>This project is necessary to be able to provide the capacity requirements of the Storage Point 7Fields storage facility that is connected to the transmission system as guaranteed capacity and, at the same time, to cover the additional capacity demand submitted for the Überackern entry/exit point. It also increases security of supply in Austria and in Europe. This project was launched in response to the requirements defined in clause 3 of the administrative decision V KNEP G 01/12.</p>			
<b>Project status:</b>			
<p>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. From a financial viewpoint it is not reasonable for the storage facility operator to bear the costs all by itself. The project has been closed.</p>			



**BOG 2012/01 – Pressure Service Agreement**

<b>Projekt name:</b>	Extension of the <i>Pressure Service Agreement</i> (PSA) between BOG GmbH and the operators of MEGAL South for the temporary elimination of the pressure problem in Upper Austria		
<b>Project sponsor:</b>	BOG GmbH	<b>Completion:</b>	Q4/2012
		<b>As of:</b>	10.09.2012
<b>Project objective:</b>			
<p>Aim of the project is the extension respectively the adaption of the existing PSA with Open Grid Europe (OGE) and GRTGaz Deutschland (GRTGaz D) for the temporary elimination of the pressure problem in the distribution system in Upper Austria which might occur under certain gas flow scenarios. Therefore, the respective agreements with the operator of Penta West (GCA) and the DAM (AGGM) have to be checked and amended accordingly. The extension is valid for one year as of now. An extension for another year has to be examined before the expiration of the current extension.</p>			
<b>Please note:</b>			
<p>With this short term measure the supply of the domestic customers shall be ensured until long-term sustainable measures are implemented.</p>			
<b>Project description:</b>			
<p>The operators of MEGAL provide a higher delivery pressure than the agreed delivery pressure according to design parameters at the delivery point Oberkappel upon request by AGGM via BOG. This requires respective agreements with GCA as operator of Penta West regarding the maintenance of a compatible delivery pressure at the interface PW/WAG (BOP 14).</p> <p>This allows a further delivery of natural gas with sufficient pressure to the break out points Bad Leonfelden and Rainbach.</p>			
<b>Technical Data:</b>			
---			
<b>Economic Data:</b>			
<p>Costs considered in this project only include costs for fuel gas and the general provision of the compressor station Wildenranna according to German regulations. These costs are invoiced by MEGAL (OGE/GRTGaz D) to BOG and BOG considers them as energy costs.</p> <p>According to the „Description of the cost and tariff methodology according to §82 GWG section 2011 for the transmission systems of GCA, TAG and BOG, which is the basis for approval by the NRA“ these energy costs are included separately from other operating expenses without discount and after four years they are included with actual values. These costs are estimated with Mio € ■■■ in the cost decree of BOG.</p>			
<b>Public Interest:</b>			
---			
<b>Project Status:</b>			
This project is closed..			

**BOG 2013/01 - Pressure Service Agreement**

<b>Project name:</b>	Extension of the <i>Pressure Service Agreement</i> (PSA) between BOG GmbH and the operators of MEGAL South for security of supply of the area Linz in case of technical failures in the distribution system of Upper Austria.		
<b>Project sponsor:</b>	BOG GmbH	<b>Completion:</b>	Q4/2013
		<b>As of:</b>	1.06.2013
<b>Project objective:</b>			
<p>Aim of the project is the extension respectively the adaption of the existing PSA with Open Grid Europe (OGE) and GRTGaz Deutschland (GRTGaz D) for security of supply of the area Linz in case of technical failures in the distribution system of Upper Austria. The respective agreements with the operator of Penta West (GCA) and the DAM (AGGM) have to be checked and amended accordingly. The extension is valid for one year as of now. An extension for another year has to be examined before the expiration of the current extension (01.01.2014-31.12.2014).</p>			
<b>Please note:</b>			
With this measure the supply of the domestic customers shall be secured during emergencies.			
<b>Project description:</b>			
<p>The operators of MEGAL provide a higher delivery pressure than the agreed delivery pressure according to design parameters at the delivery point Oberkappel upon request by AGGM via BOG. This requires respective agreements with GCA as operator of Penta West regarding the maintenance of a compatible delivery pressure at the interface PW/WAG (BOP 14).</p> <p><b>This allows a further delivery of natural gas with sufficient pressure to the break out points Bad Leonfelden and Rainbach.</b></p>			
<b>Technical Data:</b>			
---			
<b>Economic Data:</b>			
<p>According to the „Description of the cost and tariff methodology according to §82 GWG section 2011 for the transmission systems of GCA, TAG and BOG, which is the basis for approval by the NRA“ these energy costs are included separately from other operating expenses without discount and after four years they are included with actual values. These costs are estimated with Mio € █████ in the cost decree of BOG. Costs are not invoiced to AGGM or the end consumers in the Market Area.</p>			
<b>Public Interest:</b>			
---			
<b>Project status:</b>			
The project is closed.			

## 9.2 Monitoring of projects already approved

### G00.040 Reverse Flow Baumgarten Part


<b>Project name:</b>		<b>G00.040 Reverse Flow Baumgarten Part</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q1/2017
		<b>As of:</b>	20.08.2013
<b>Project objective:</b>			
<p>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.</p>			
<b>Please note:</b>			
<p>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 --&gt; PVS1 (2013 long-term planning, 2012/3 project). It competes directly with the Penta West extension, as described in chapter 6.2.3.</p> <p>For these projects a capacity threshold of 300,000 Nm<sup>3</sup>/h was defined. The capacity threshold is reached when the sum of capacities for capacity extension contracts were concluded or network access requests that were submitted exceed the defined capacity limit. Until now network access requests in the amount of 40,000 N<sup>3</sup>/h were approved.</p>			
<b>Project description:</b>			
<p>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.</p>			
<b>Technical data:</b>			
<p>The delivery station is to be set up for bi-directional operations.</p> <p>The other technical specifications of the metering station will not be changed.</p> <p>After completion of the project, the following entry capacities to the transmission system are planned to be available to the distribution area:</p> <p>Entry capacity FZK    570,000 Nm<sup>3</sup>/h (0°C) at 52 bar(g)</p> <p>Entry capacity UK    1,230,000 Nm<sup>3</sup>/h (0°C) at 52 bar(g)</p>			
<b>Economic data:</b>			
<p>Estimated investment costs: EUR ■ 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.</p>			
<b>Project rationale:</b>			
<p>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.</p>			
<b>Project Phase:</b>			
Identify and Assess			
<b>TYNDP:</b>	<b>PCI Status:</b>	<b>CBCA Decision:</b>	
-	No	No	

**Project status:**

As a prerequisite for this project to start, the 2012/3 project of the 2014 long-term planning needs to be completed and the extension threshold defined therein needs to be reached.


### 9.3 Project applications

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


<b>Project name:</b>		<b>Incremental capacities at Überackern – Penta West extension</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q4 2018
		<b>As of:</b>	24.06.2014
<b>Project objective:</b> 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.			
<b>Please note:</b> The investment is restricted to providing capacities with guaranteed access to and from the VTP at Überackern entry and exit point.			
<b>Project description:</b> The following investments are necessary for capacity scenario 1: <ul style="list-style-type: none"> <li>• New CS-Überackern</li> </ul> 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.			
•			
<b>Technical data:</b> 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: <ul style="list-style-type: none"> <li>Überackern SUDAL entry point 214,477 Nm<sup>3</sup>/h (0°C)</li> <li>Storage Point 7 Fields entry point 250,000 Nm<sup>3</sup>/h (0°C)</li> <li>Storage Point 7 Fields exit point 250,000 Nm<sup>3</sup>/h (0°C)</li> </ul>			
<b>Economic data:</b> Investment cost basis 2014: € ■■■ million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Überackern IP are covered by binding long-term bookings or binding long-term bookings by the storage system operator.			
<b>Project rationale:</b> This project is 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.			

<b>Project Phase:</b> Identify and Assess		
<b>TYNDP:</b> <b>TRA-N-359</b>	<b>PCI Status:</b> No	<b>CBCA Decision:</b> No
<b>Project status:</b> The project will be submitted for approval under the terms specified in the economic data section. In case the project GCA 2014/01 receives sufficient demand, it will have to be examined, whether demands according to the project GCA 2014/02 can be fulfilled. The project is directly linked to the project BOG-2014/02.		


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

<b>Project name:</b>		<b>Incremental capacities at Überackern – Penta West extension</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q1 2017
		<b>As of:</b>	24.06.2014
<b>Project objective:</b> 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.			
<b>Please note:</b> 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.			
<b>Project description:</b> The following investments are necessary for capacity scenario 2: <ul style="list-style-type: none"> <li>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.</li> </ul>			
<b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Überackern IP are planned to be available to the system users: Überackern SUDAL entry point    193,299 Nm <sup>3</sup> /h (0°C) Überackern ABG exit point        193,299 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b> Investment cost basis 2014: € [REDACTED] 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.			
<b>Project rationale:</b> 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.			
<b>Project Phase:</b> Identify and Assess			
<b>TYNDP:</b> TRA-N-360	<b>PCI Status:</b> No	<b>CBCA Decision:</b> No	
<b>Project status:</b> The project will be submitted for approval under the terms specified in the economic data section. In case the project GCA 2014/01 receives sufficient demand, it will have to be examined, whether demands according to the project GCA 2014/02 can be fulfilled.			

## GCA 2014/03a BACI – Bi-directional Austrian Czech Interconnector


<b>Project name:</b>		<b>BACI – Bi-directional Austrian Czech Interconnector</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q3 2019
		<b>As of:</b>	24.06.2014
<b>Project objective:</b> The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Reintal entry and exit point between the Austrian market area and the Czech market.			
<b>Please note:</b> The investment is restricted to the Austrian transmission network (BACI) that is connected to the Reintal entry/exit point, as the project submitted is classified as substitution capacity.			
<b>Project description:</b> The following investments are necessary for capacity scenario 3a: <ul style="list-style-type: none"> <li>• New metering station at the handover station – Baumgarten</li> <li>• New CS Baumgarten Transmission system connection between Baumgarten and Reintal</li> </ul>			
<b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users: Reintal entry point      750,000 Nm <sup>3</sup> /h (0°C) Reintal exit point      750,000 Nm <sup>3</sup> /h (0°C)			
<b>Economic data:</b> Investment cost basis 2014: € ■■■ million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> This project is necessary to 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.			
<b>Project Phase:</b> Identify and Assess			
<b>TYNDP:</b> TRA-N-021	<b>PCI Status:</b> yes	<b>CBCA Decision:</b> No	
<b>Project status:</b> Currently the project is in the design phase.			

## GCA 2014/03b BACI – Bidirectional Austrian Czech Interconnector DN1200


<b>Project name:</b>		<b>BACI – Bidirectional Austrian Czech Interconnector DN1200</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q3 2019
		<b>As of:</b>	24.06.2014
<b>Project objective:</b> The project aims to create technical bi-directional capacities on a freely allocable basis for the first time and to set up the Reintal entry and exit point between the Austrian market area and the Czech market.			
<b>Please note:</b> The investment is restricted to the Austrian transmission network (BACI) that is connected to the Reintal entry/exit point, as the project submitted is classified as substitution capacity.			
<b>Project description:</b> The following investments are necessary for capacity scenario 3b: <ul style="list-style-type: none"> <li>• New metering station at the handover station – Baumgarten</li> <li>• New CS Baumgarten</li> </ul> Transmission system connection between Baumgarten and Reintal			
<b>Technical data:</b> After completion of the project, the following additional freely allocable entry/exit capacities at the Reintal IP are planned to be available to the system users:			
Reintal entry point	1,480,000 Nm <sup>3</sup> /h (0°C)		
Reintal exit point	1,480,000 Nm <sup>3</sup> /h (0°C)		
<b>Economic data:</b> Investment cost basis 2014: € █████ million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> This project is necessary to 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.			
<b>Project Phase:</b> Identify and Assess			
<b>TYNDP:</b> -	<b>PCI Status:</b> No	<b>CBCA Decision:</b> No	
<b>Project status:</b> Currently the project is in the design phase.			




## GCA 2014/04 Incremental capacities at Murfeld – SOL extension

<b>Project name:</b>		<b>Incremental capacities at Murfeld – SOL extension</b>	
<b>Project sponsor:</b>	Gas Connect Austria GmbH	<b>Planned Completion:</b>	Q3 2019
		<b>As of:</b>	24.06.2014
<b>Project objective:</b> 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.			
<b>Please note:</b> The investment is restricted to the Murfeld entry/exit point and the connected Austrian transmission grid.			
<b>Project description:</b> The following investments are necessary for capacity scenario 4: <ul style="list-style-type: none"> <li>• Extension metering stations Weitendorf and Murfeld: Filter separator, metering routes, regulation, piping</li> <li>• New CS Murfeld</li> <li>• Loop of SOL between Leibnitz and Murfeld</li> <li>• Loop of the border crossing pipeline Murfeld – CersakExtension of the TAG AZ Baumgarten</li> </ul>			
<b>Technical data:</b> After completion of the project, the following new freely allocable entry/exit capacities at the Murfeld IP are planned to be available to the system users:			
Murfeld entry point	675,000 Nm <sup>3</sup> /h (0° C)		
Murfeld exit point	256,000 Nm <sup>3</sup> /h (0° C)		
<b>Economic data:</b> Investment cost basis 2014: € ■■■ million. The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.			
<b>Project rationale:</b> This project is necessary due to the M1/3 Ceršak-border pipeline project submission of the Slovenian TSO Plinovodi d.o.o.			
<b>Project Phase:</b> Identify and Assess			
<b>TYNDP:</b> TRA-N-361	<b>PCI Status:</b> No	<b>CBCA Decision:</b> No	
<b>Project status:</b> Currently the project is in the design phase.			

**BOG-2014/01 Pressure Service Agreement**

<b>Project name:</b>		<b>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.</b>	
<b>Project sponsor:</b>	BOG GmbH	<b>Planned Completion:</b>	Q4/2014
		<b>As of:</b>	1 May 2014
<b>Project objective:</b>			
<p>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.</p>			
<b>Please note:</b>			
This measure aims to ensure security of supply in Austria in case of emergencies.			
<b>Project description:</b>			
<p>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.</p> <p><b>Subsequently, gas can be delivered with sufficient pressure to the Bad Leonfelden exit point as well as to Rainbach exit point.</b></p>			
<b>Technical data:</b>			
---			
<b>Economic data:</b>			
<p>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.</p> <p>Based on past values the planned costs are estimated with ■ Mio €.</p>			
<b>Project Phase:</b>			
Identify and Assess			
<b>TYNDP:</b>	<b>PCI Status:</b>	<b>CBCA Decision:</b>	
-	No	No	
<b>Project status:</b>			
The project will be submitted for approval under the terms specified in the economic data section.			

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

<b>Project number:</b> BOG-2014/02		<b>Planned Com-pletion:</b> Q4/2018	
<b>Project name:</b> Extension measure to increase FZK capacities at the Oberkappel IP			
<b>Project sponsor:</b> BOG GmbH	<b>As of:</b>		1 May 2014
	<b>Project objective:</b> The project's objective is to increase capacities at the Oberkappel IP in line with scenario 1 (see 8.2.1.1.)		
<b>Please note:</b> 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.			
<b>Project description:</b> 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 ■ million (EUR ■ per MW of compressor power) for the Rainbach CS, and approximately EUR ■ million for enabling parallel operation of the sections mentioned above, i.e. a total of EUR ■ 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).			
<b>Technical data:</b> This results in the following expansion of freely allocable capacities at the Oberkappel IP: <ul style="list-style-type: none"> <li>• Oberkappel entry point: 250,000 m<sup>3</sup>(n)/h (2.798 MWh/h), in total 1,175,000 m<sup>3</sup>(n)/h (13,148.25 MWh/h)</li> <li>• Oberkappel exit point: 150,000 m<sup>3</sup>(n)/h (1,679 MWh/h), in total 1,530,000 m<sup>3</sup>(n)/h (17,121 MWh/h)</li> </ul>			
<b>Economic data:</b> <ul style="list-style-type: none"> <li>• +12.5 MW compressor power at the Rainbach compressor station ~EUR ■ million</li> <li>• Parallel 38 km line with a pipeline dimension of DN1200 ~EUR ■ million</li> <li>• 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</li> </ul>			

station) <ul style="list-style-type: none"> <li>• <b>BOG investment costs in total: ~EUR ■ million</b></li> </ul> 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.		
<b>Public interest:</b> No		
<b>Project Phase:</b> Identify and Assess		
<b>TYNDP:</b> TRA-N-363	<b>PCI Status:</b> No	<b>CBCA Decision:</b> No
<b>Project status:</b> The project will be submitted for approval under the terms specified in the economic data section. The project is directly linked to the project GCA-2014/01.		

## 10 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. As a next step, the results of the market surveys at the entry and exit points were compared with the corresponding technical and free capacity and potential congestion was identified at the Überackern SUDAL, ABG and the Oberkappel entry and exit points as well as, temporarily, at the Mosonmagyaróvár exit point. The market survey of BOG and TAG did not suggest any potential congestion.

The analysis of GCA's NDP regarding the technical necessity and the economic feasibility of offering the incremental capacity as submitted revealed that the demand for incremental capacity at the Überackern entry/exit point will require additional investments in GCA's transmission network. 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. In response to the submission of the BACI and Czesak Border Pipeline projects, GCA included an additional analysis for the existing Murfeld IP and a new Reintal IP. The corresponding projects to cover the related capacity requirements will be submitted for approval.

The capacity development at the aforementioned IPs with projected congestion will be constantly monitored, analysed and evaluated in order to initiate appropriate measures as required.

The analysis of BOG's NDP suggests that the non-binding capacity demand submitted will not result in potential congestion; however, the non-binding capacity demand submitted by the storage facility operator for GCA's pipeline system led to an additional analysis being carried out for the Oberkappel IP. 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 of the storage facility operator. The development of demand is being closely monitored in order to be able to plan any measures required in due time.

From the analysis of TAG's NDP we saw that the demand for incremental capacity can be covered by the existing system and there is no need for any expansion measures.

In addition, the 2012 TYNDP attested the above-average flexibility of Austria's gas market in its analyses of the defined congestion scenarios at >20%, as did the N-1 scenario of 235% prepared by the DAM and the MAM. They also confirmed the analysis that the incremental capacity requirements submitted can be covered by the existing infrastructure.

Stakeholders are invited to provide their feedback on the 2015-2024 CNDP to the MAM ([marktgebietsmanager@gasconnect.at](mailto:marktgebietsmanager@gasconnect.at)) and in this way contribute to further developing and optimising future issues of the CNDP.

## 11 Disclaimer

The Coordinated Network Development Plan 2015 – 2024 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.

## 12 List of abbreviations

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

## 13 Index of Figures

Chart1: Demand scenarios.....	11
Chart2: Demand forecast for the Market Area East, maximum hourly flow rate.....	11
Chart 3: Process: from projected to actual demand.....	18
Chart 4: Projected capacity demand - <b>Physical entry points</b> (in MWh/h).....	22
Chart 5: Projected capacity demand - <b>Physical exit points</b> (in MWh/h) .....	23
Chart 6: Projected capacity demand - <b>Capacities without access to the VTP</b> (in MWh/h) .....	24
Chart 7: Capacity demand / booked capacity / technical capacity at the <b>Murfeld exit point</b> (in MWh/h) .....	26
Chart 8: Capacity demand / booked capacity / technical capacity at the <b>Mosonmagyaróvár exit point</b> (in MWh/h) .....	27
Chart 9: Capacity demand / booked capacity / technical capacity at the <b>Überackern entry point</b> (in MWh/h) .....	29
Chart 10: Capacity demand / booked capacity / technical capacity at the <b>Überackern exit point</b> (in MWh/h) .....	29
Chart 11: Capacity scenario 1 - additional capacity demand at the <b>Überackern IP</b> .....	30
Chart 12: Capacity scenario 2 - <b>additional short-distance capacity demand</b> .....	33
Chart 13: Capacity scenario 3a <b>BACI project</b> .....	35
Chart 14: Capacity scenario 3b <b>BACI project DN1200</b> .....	37
Chart 15: Capacity scenario 4 <b>M1/3 Ceršak border pipeline</b> .....	39
Chart 16: Capacity demand/booked capacity/technical capacity at the Baumgarten entry point (in MWh/h).....	42
Chart 17: Capacity demand / booked capacity / technical capacity at the Arnoldstein entry point (in MWh/h).....	43
Chart 18: Capacity demand / booked capacity / technical capacity at the Arnoldstein exit point (in MWh/h).....	43
Chart 19: Technical capacity at the Baumgarten IP .....	44
Chart 20: Technical capacity at the Oberkappel IP .....	45
Chart 21: Capacity development at the Baumgarten BOG entry point .....	45
Chart 22: Capacity development at the Baumgarten BOG exit point.....	46
Chart 23: Capacity development at the Oberkappel entry point .....	46
Chart 24: Capacity development at the Oberkappel exit point.....	47
Chart 25: Capacity demand at the physical entry points .....	48
Chart 26: Capacity demand / booked capacity / technical capacity at the Baumgarten BOG entry point (in MWh/h) .....	49
Chart 27: Capacity demand / booked capacity / technical capacity at the Oberkappel entry point (in MWh/h) .....	49
Chart 28: Capacity demand / booked capacity / technical capacity at the Oberkappel entry point (in MWh/h) .....	50
Chart 29: Capacity demand / booked capacity / technical capacity at the Oberkappel exit point (in MWh/h).....	51
Chart 30: Capacity scenario 1 - additional capacity demand at the Überackern IP - impact on the Oberkappel IP.....	51



## 14 List of Tables

Table 1: N-1 calculation Market Area East.....	9
Tabelle 2: Relevant projects for the Austrian Market Area.....	13
Tabelle 3: Projektübermittlungen an den MGM.....	16
Table 4: Illustration of capacity scenarios .....	17
Table 5: Entry points indicated in the capacity data survey <b>with access to the VTP</b> .....	20
Table 6: Entry points for short-distance capacity indicated in the capacity demand survey <b>without access to the VTP</b> .....	21
Table 7: Entry and exit points where demand for capacity <b>with access to the VTP</b> was notified.....	24
Table 8: Entry and exit points where demand for short-distance capacity <b>without access to the VTP</b> was notified.....	25
Table 9: Capacity data for capacity scenario 1, incremental capacity required at the <b>Überackern IP</b> ..	28
Table 10: Capacity data for capacity scenario 2, additional short-distance capacity demand.....	32
Table 11: Capacity data for capacity scenario 3a <b>BACI project</b> .....	34
Table 12: Capacity data for capacity scenario 3b <b>BACI Project</b> .....	37
Table 13: Capacity data for capacity scenario 4 <b>M1/3 Ceršak border pipeline</b> .....	38
Table 14: Entry/Exit Points with VTP access .....	42
Table 15: Entry and exit points where demand for capacity <b>with access to the VTP</b> was notified.....	48
Table 16: Capacity data for capacity scenario 1, incremental capacity required at the Überackern IP - impact on the Oberkappel IP .....	50