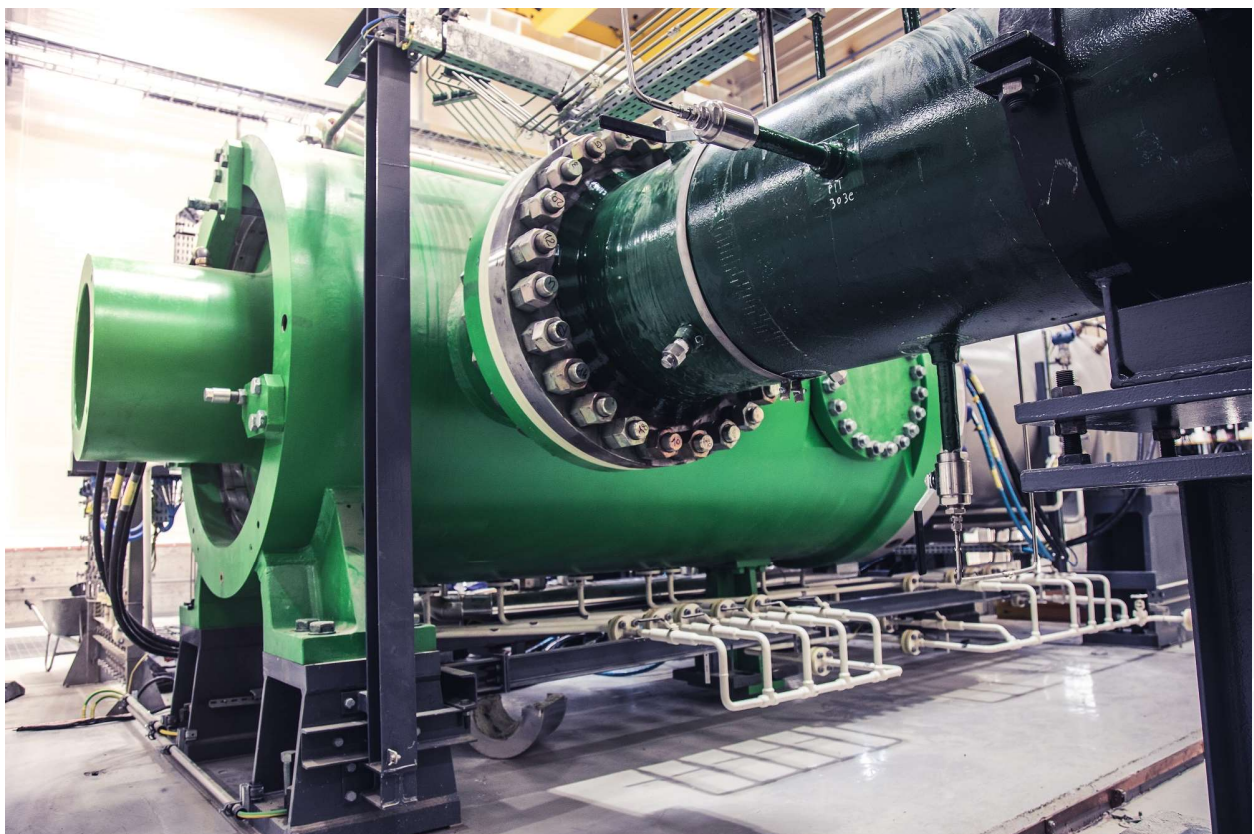


2018 Coordinated Network Development Plan

for the Natural Gas Transmission System Infrastructure in Austria
for the period from 2019 to 2028



Cover page photo: New electrical compressor of the TAG in Grafendorf
CNDP – Project: TAG 2015/R04 NOxER II
Photo courtesy: Trans Austria Gasleitung GmbH

Document History

Edition	Date	Changes
2	23 November 2018	Edition for submission for approval
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Table of Contents

1	Introduction.....	3
1.1	Objectives of the Coordinated Network Development Plan	3
1.2	Approach	3
2	Description Market Area East	5
2.1	Consumption, Energy mix and Role of Natural Gas in Austria	5
2.2	Natural gas transportation in Austria	7
2.3	Transmission system operators in the market area East.....	10
2.4	Present gas transmission system infrastructure and technical capacities	12
2.5	Infrastructure standard	13
3	Planning horizon for the 2018 Coordinated Network Development Plan	17
3.1	Ten Year Network Development Plan.....	17
3.2	Gas Regional Investment Plan 2017 – 2026.....	18
3.3	PCI projects concerning Austria	19
3.4	Network development planning of neighbouring countries	27
3.5	2018 long-term planning.....	31
3.6	Incident in Baumgarten in December 2017	33
3.7	Requirements imposed in the official decision approving the 2017 CNDP	34
3.8	Implemented projects of the CNDP 2017	34
3.9	Energy future.....	35
4	Capacity Demand	37
4.1	Capacity booking and capacity usage – 2017 status report	37
4.2	Capacity scenario for the 2018 CNDP	41
5	Activities of the transmission system operators (Network development plans of the transmission system operators)	50
5.1	Activities of Gas Connect Austria	50
5.2	Activities of Trans Austria Gasleitung GmbH	63
6	Projects (Network development plans of the transmission system operators).....	74
6.1	Classification of projects	74
6.2	Withdrawn projects of the CNDP 2017	76
6.3	Projects of the CNDP 2018	76

6.4	Projects of Gas Connect Austria.....	81
6.5	Projects of Trans Austria Gasleitung GmbH.....	88
7	Appreciation of the statements by the market participants from the consultation by the market area manager.....	93
7.1	Statement of Eustream, a.s.....	93
7.2	Statement of OMV Gas & Power GmbH	94
7.3	Statement of Bayernets GmbH	95
7.4	Stellungnahme der Energienetze Bayern.....	95
8	Summary	96
9	Disclaimer.....	96

- ▶ Appendix 1: Projects of the 2018 Coordinated Network Development Plan
- ▶ Appendix 2: Comments of the market participants to the 2018 CNDP

1 Introduction

In accordance with the legislation in force since 21 November 2011, the market area manager is obliged to prepare a coordinated network development plan (CNDP) once a year in accordance with section 14 (1) (7) in conjunction with section 63 of the Austrian Gaswirtschaftsgesetz (Natural Gas Act, GWG) in line with the aims of section 63 (4) GWG.

Since the assumption of the duties of the market area manager by 01 June 2017, due to the nomination by the transmission system operators Gas Connect Austria GmbH (GCA) and Trans Austria Gasleitung GmbH (TAGG) and the ensuing approval by the authority E-Control Austria (ECA), Austrian Gas Grid Management AG (AGGM) is within this role responsible for establishing the coordinated network development plan. GCA and TAGG contribute to the coordinated network development plan by submitting their respective company-specific network development plan to the market area manager.

The coordinated network development plan refers to the Austrian transmission system in the market area East. Since there are no transmission systems in the market areas Tyrol and Vorarlberg, these market areas are not part of the coordinated network development plan.

1.1 Objectives of the Coordinated Network Development Plan

The objectives of the coordinated network development plan are:

- ▶ Meeting the demand for line capacity to supply consumers while considering emergency scenarios,
- ▶ Ensuring a high degree of availability of line capacity (security of supply of the infrastructure),
- ▶ Covering transport needs and
- ▶ Complying with the obligation to meet the infrastructure standard according to Article 6 Regulation (EU) No 994/2010

in the market area.

In drawing up the coordinated network development plan, technical and economic expediency, the interests of all market participants and consistency with the community-wide network development plan and the long-term plan shall be taken into consideration.

1.2 Approach

The 2018 coordinated network development plan covering the period from 2019 to 2028 was prepared in accordance with the provisions of the Network Code on Capacity Allocation Mechanisms (NC CAM), which entered into force on 6 April 2017. In Articles 26-28, the NC CAM lays down the timelines of network development planning as part of the process for the offer of incremental capacities.

In a continuous process all year round, the market participants submit their capacity requirements to the transmission system operators (TSOs). Any and all requirements reported by 4 July 2018 to the TSOs have been included in the 2018 CNDP. See also Chapter 4.2.

As a next step, the market area manager (MAM) established together with the TSOs the capacity scenario and coordinated it with E-Control Austria on 12 July 2018

Based on this capacity scenario, the TSOs have developed projects in order to meet the submitted demand. Each TSO submitted their individual network contribution to the Austrian network development planning on 31 August 2018 to the MAM. Several meetings between the MAM and the TSOs took place from 15 February 2018 to 14 September 2018 in order to discuss and coordinate the interfaces and the coherence between the projects and the capacity scenario. The submitted contributions of the TSOs to the coordinated network development plan have been added content-related to Chapters 3, 4, 5 and 6. The submitted projects of the TSOs have been formally harmonized and added to Appendix 1.

The first edition of the 2018 network development plan was established by the MAM in coordination with the TSOs and E-Control Austria. This edition 1 was presented to the market participants at the Austrian Gas Grid Infrastructure Day (AGIDD) on 16 October 2018.

The consultation period of the coordinated network development plan by the MAM (2018 CNDP Edition 1.0) was carried out from 17 October to 9 November 2018. The 2018 coordinated network development plan has been published on homepage of AGGM. The statements were appreciated accordingly.

After further revision with E-Control Austria, the date of submission for approval by the transmission system operators was 23 November 2018.

2 Description Market Area East

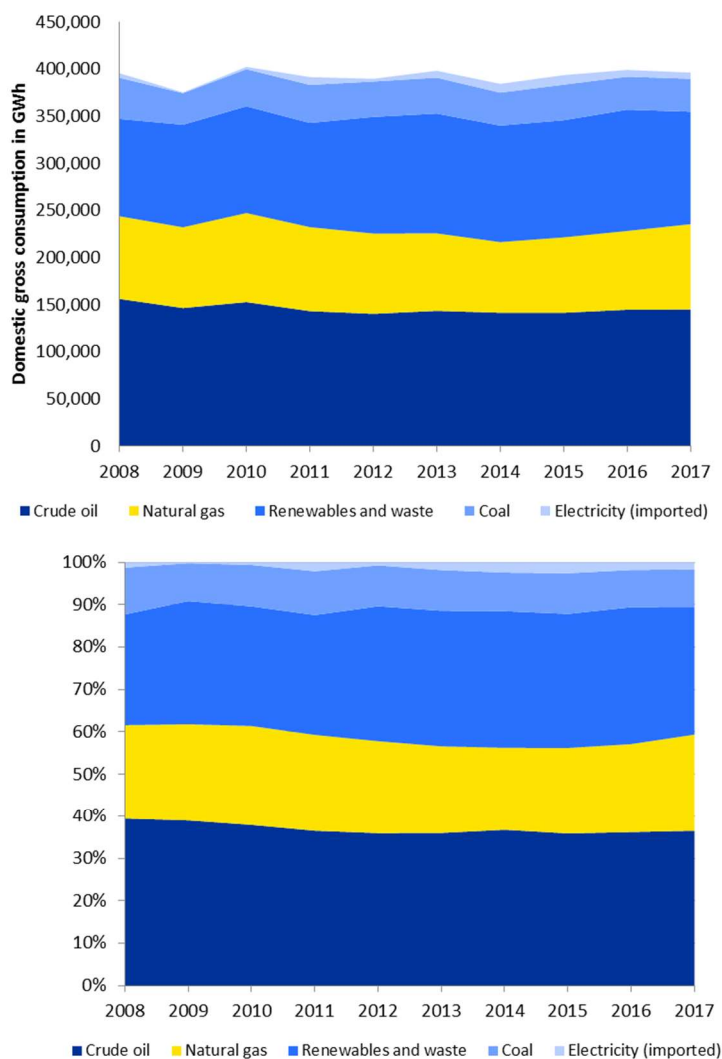
2.1 Consumption, Energy mix and Role of Natural Gas in Austria

Natural gas has certain significance for the Austrian economy. Apart from the production, the infrastructure, respectively the gas hub in Baumgarten, the transport of natural gas as well as trading gas and also the consumption play an important role.

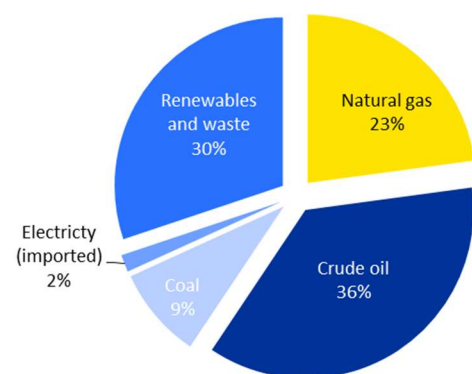
Figure 1 shows that approximately 23% of the primary energy demand in Austria is covered by natural gas. This demand of 80-90 TWh per year, which remained constant over the last 10 years and consists of the following consumption contributors (see also Figure 2):

- ▶ Industry (production of goods, energy sector, non-energy consumption and agriculture)
- ▶ Private households
- ▶ Power plants for generation of electricity and heat
- ▶ Transportation
- ▶ Services

Figure 1: Primary energy mix of Austria

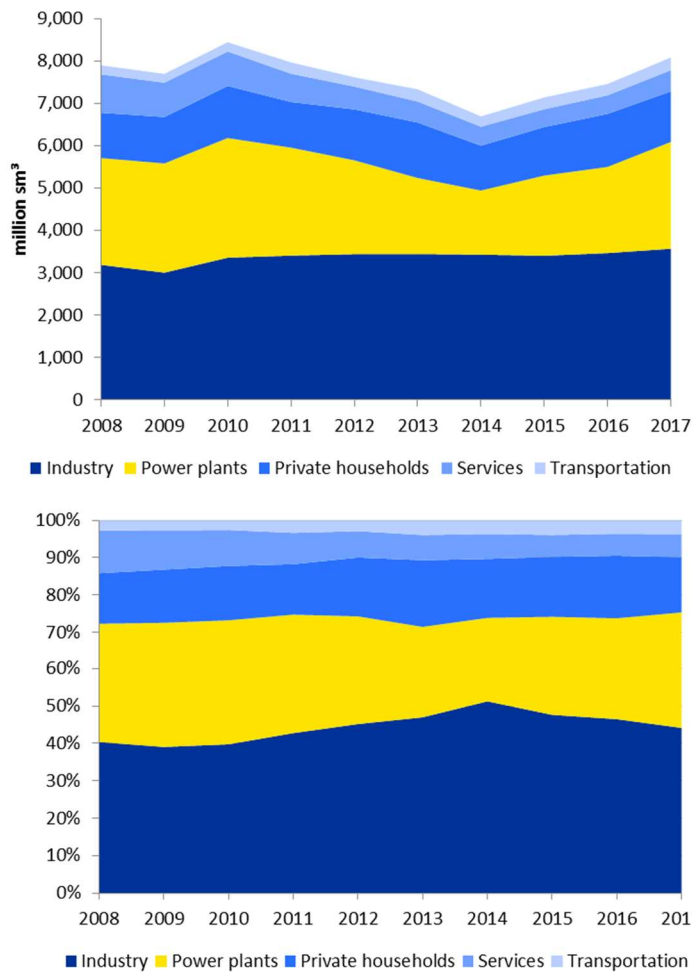


Primary Energy Mix 2017

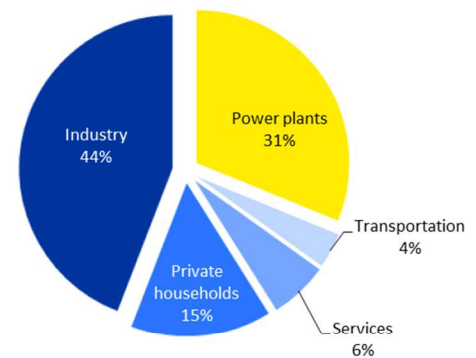


Source: Statistik Austria

Figure 2: Consumption mix of Austria



Consumption Mix Gas 2017



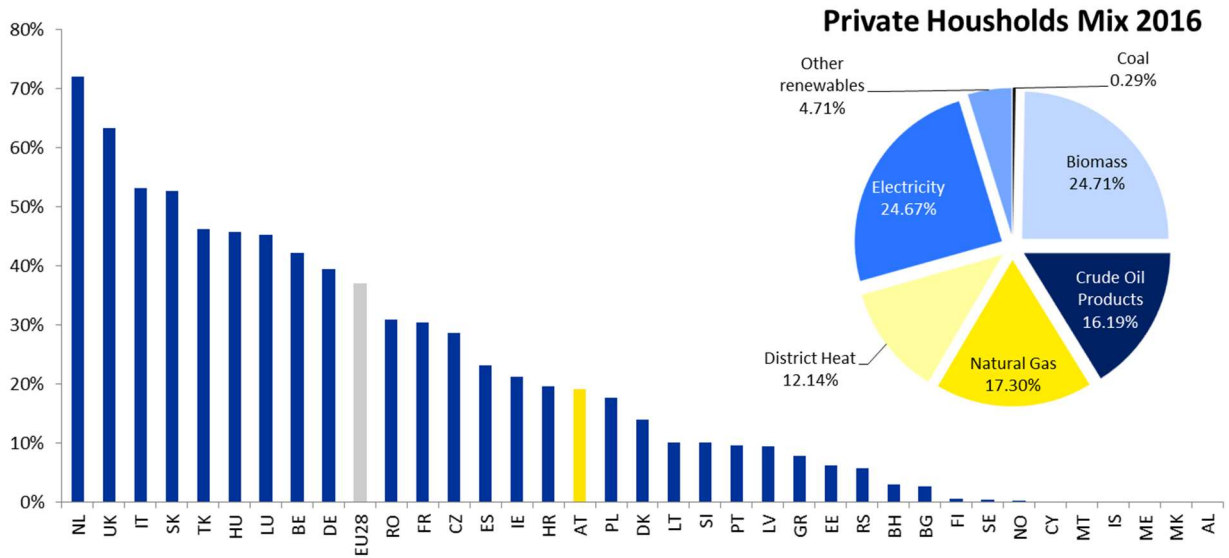
Source: Statistik Austria

In particular, the Austrian industry sector, having a constant consumption over the past 10 years, is the main consumer with a share of 44%. The power plants, including CHP-systems and heating plants had a slight recession in consumption between 2008 and 2014, followed by a steady increase, have a share of approx. 31%. The demand of private households also remains more or less constant with a share of approx. 15%.

Considering a bigger picture and taking the EU28 countries into account, the natural gas share of 18% in the Austrian households is below average, as illustrated in Figure 3. Therefore, there is still potential to increase the share of natural gas in the household sector by substitution of oil-fired heating with gas heating for example. Additionally, the very low percentage of natural gas in the transportation sector offers a great potential to promote compressed natural gas (CNG) powered cars. In order to achieve all that, political incentives are necessary.

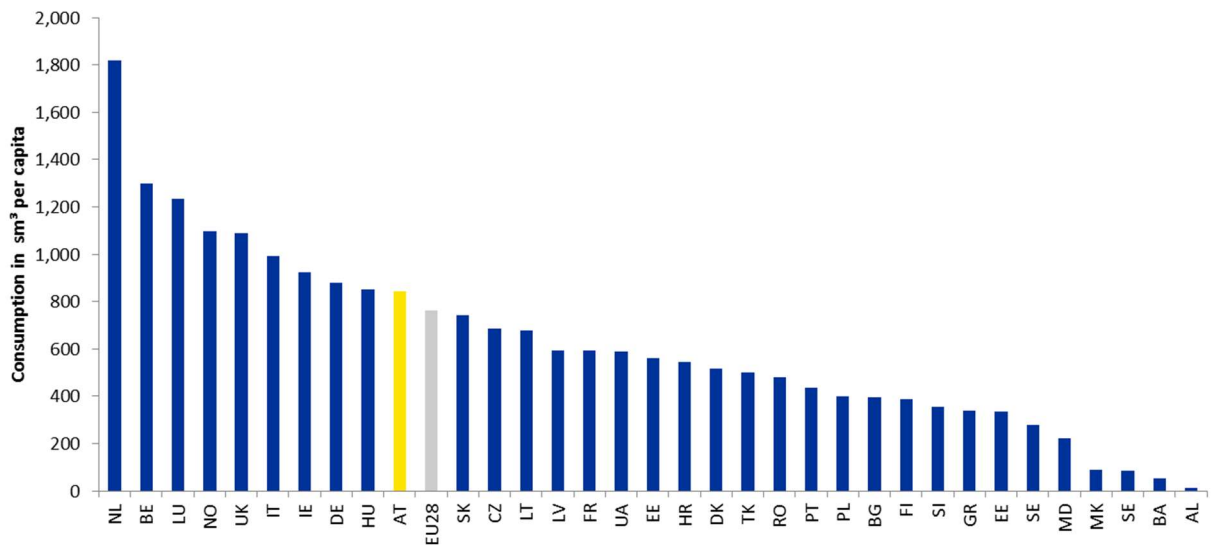
Considering the annual consumption per capita, Austria is slightly above average in the European Union, displayed in Figure 4.

Figure 3: Share of natural gas in private households in Austria and in the European context, 2016



Source: Eurostat

Figure 4: Annual consumption per capita in the European context, 2016

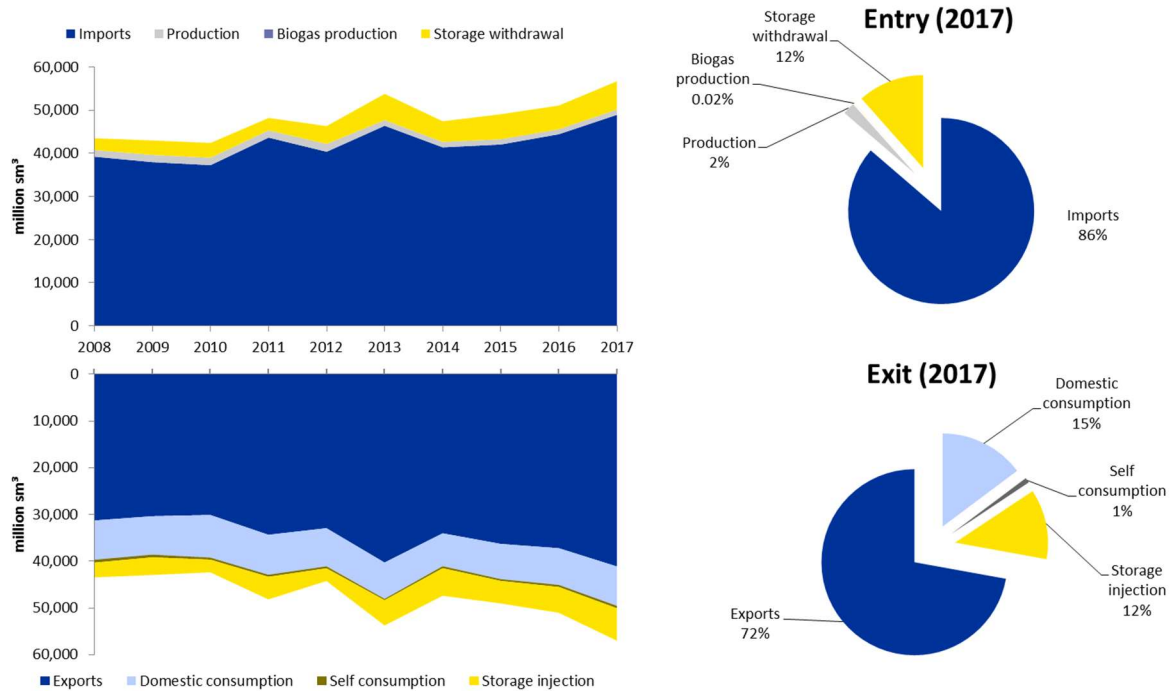


Source: Eurostat

2.2 Natural gas transportation in Austria

Due to its specific geographic location, Austria is considered to be a transit country for natural gas. Figure 5 illustrates that, the exports cover about three quarters of the total supply. Because of the relatively low domestic production (approx. 2% of total supply or approx. 15% of domestic consumption), Austria is highly dependent on foreign imports. Apart from that, there has been an increase in imports and exports over the last 10 years of about 10 billion m³.

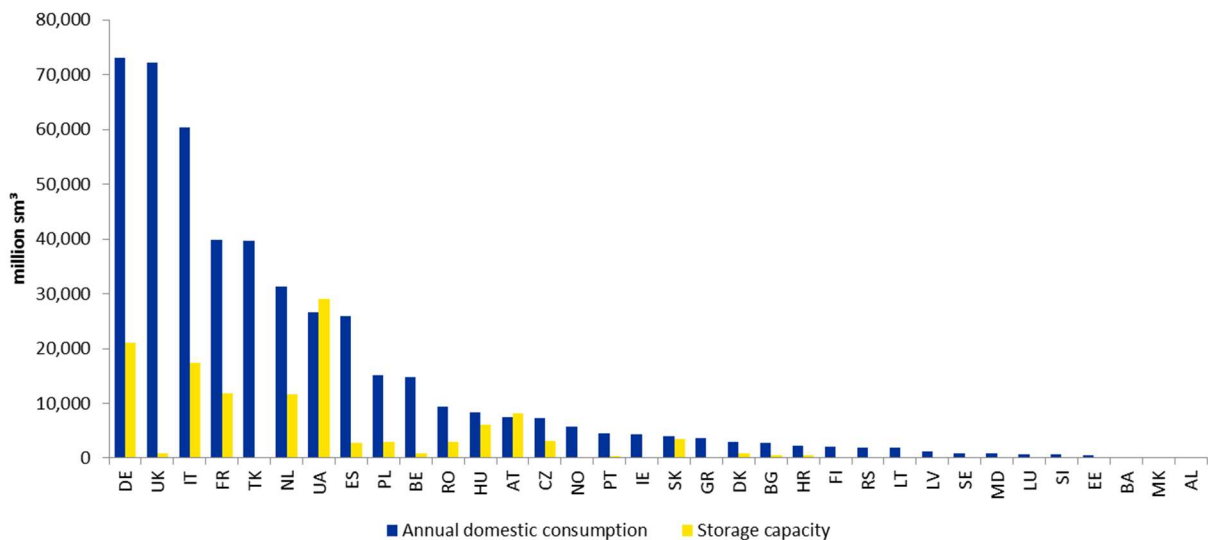
Figure 5: Supply and usage of natural gas in Austria



Source: E-Control Austria

Additionally, the excellent connection of the relatively large domestic storage capacities to the virtual trading point has to be mentioned as well. This storage capacity of about 8.2 billion sm^3 in Austria is the sixth largest domestic storage capacity in Europe as pictured in Figure 6.

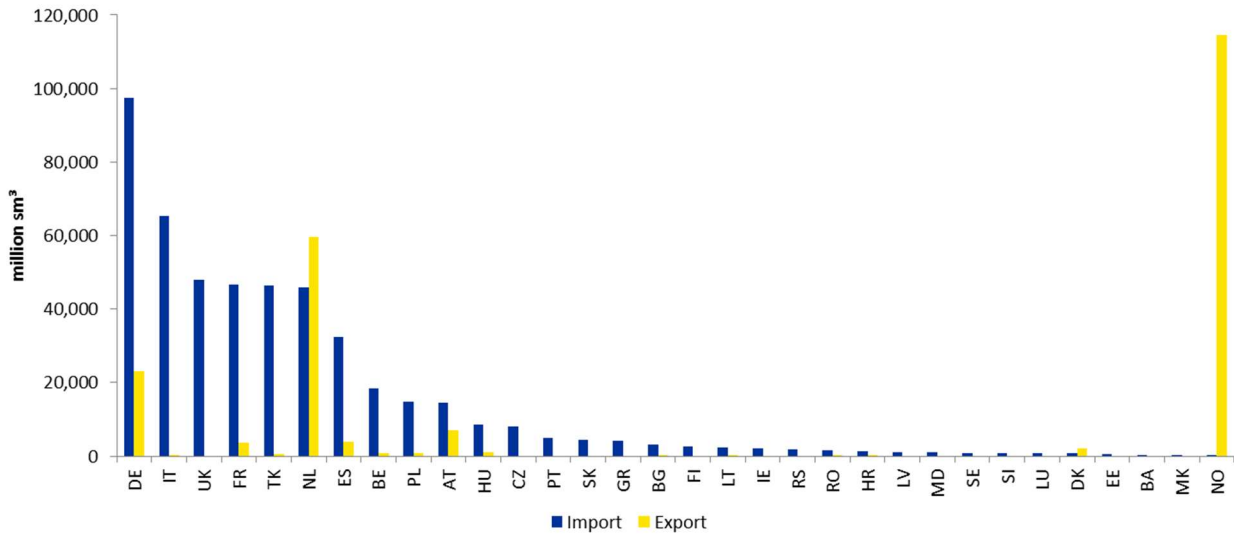
Figure 6: Comparison Annual – storage capacity in Europe 2016



Source: Eurostat

Figure 7 shows, that this storage capacity is not only used for domestic consumers solely, but also used for export purposes. It is remarkable that Austria is on the fourth place within Europe when comparing the cleared imports and exports without transits.

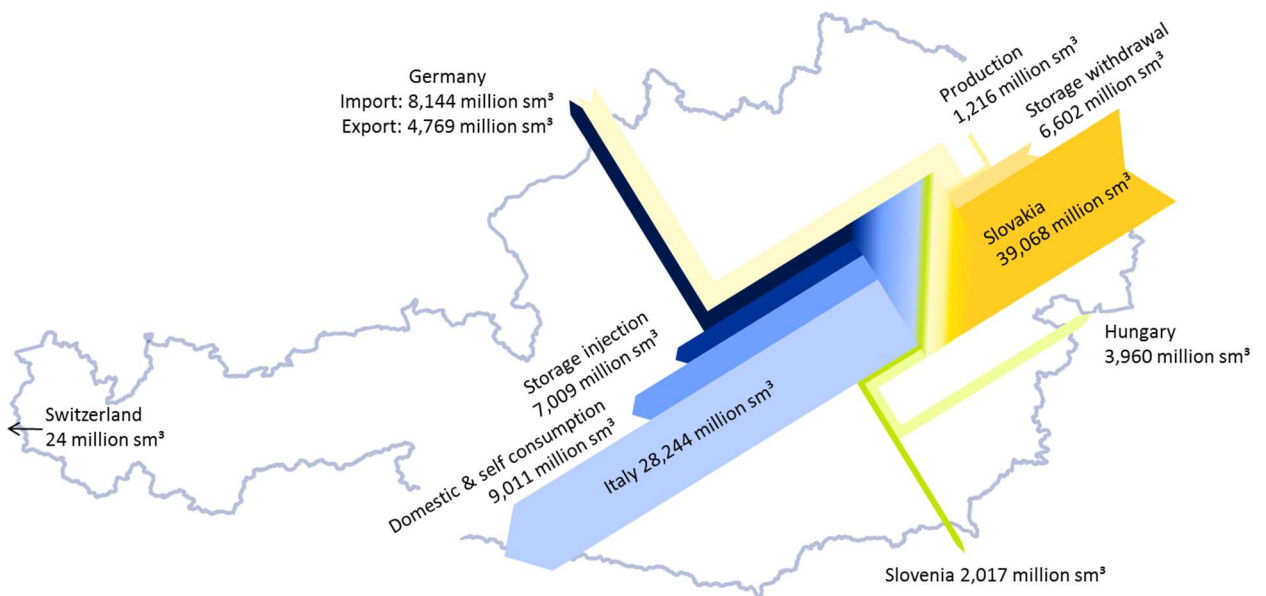
Figure 7: Cleared imports and exports without transits in Europe 2016



Source: Eurostat

The schematic physical natural gas flow for 2017 is illustrated in Figure 8. It can be seen that over 80% of imports to Austria are from Slovakia. The remaining 20% transports are from Germany. By far the biggest share of exports is going to Italy. Exports to Hungary, Germany and Slovenia had been carried out in smaller amounts.

Figure 8: Schematic physical natural gas flow, 2017



Source: E-Control Austria

2.3 Transmission system operators in the market area East



Website: www.taggmbh.at

Total length of transmission grid:

- ▶ 3 Pipelines with 380 km each
- ▶ Approx. 1,140 km in total

Total compressor power:

- ▶ 5 compressor stations
- ▶ Approx. 480 MW ISO

Physical entry points:

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

Neighbouring transmission system operators:

- ▶ Baumgarten TAG: eustream a.s.
- ▶ Tarvisio/Arnoldstein: Snam Rete Gas S.p.A.

Total energy transported (gas):

- ▶ See [ENTSOG Transparency Platform](#)

Physical exit points:

- ▶ Arnoldstein (border to Italy)

Non-physical exit points

- ▶ Baumgarten (border to Slovakia)

(Status 30.06.2018)

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

The TAG pipeline system has a total length of approx.1140 km and reaches from the Austrian-Slovakian border until the Austrian-Italian border.

The TAG system is attached via various connections to the system of GCA in Baumgarten. This essentially enables the freely allocable quality of the transmission capacities at the Austrian entry/exit points as well as the high grade of flexibility between the two TSO at the gas station Baumgarten. The TAG system is also connected to the SOL System in Weitendorf, which enables the gas transport towards Slovenia and further to Croatia. The Austrian market is supplied via ten physical exit points.

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



Website: www.gasconnect.at

Total length of transmission grid:

- ▶ 554.2 km

Total compressor power:

- ▶ 146 MW

Total energy transported (gas):

- ▶ See [ENTSOG Transparency Platform](#)

Physical entry points:

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

Non-physical entry points

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

Neighbouring transmission system operators:

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

Physical exit points:

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

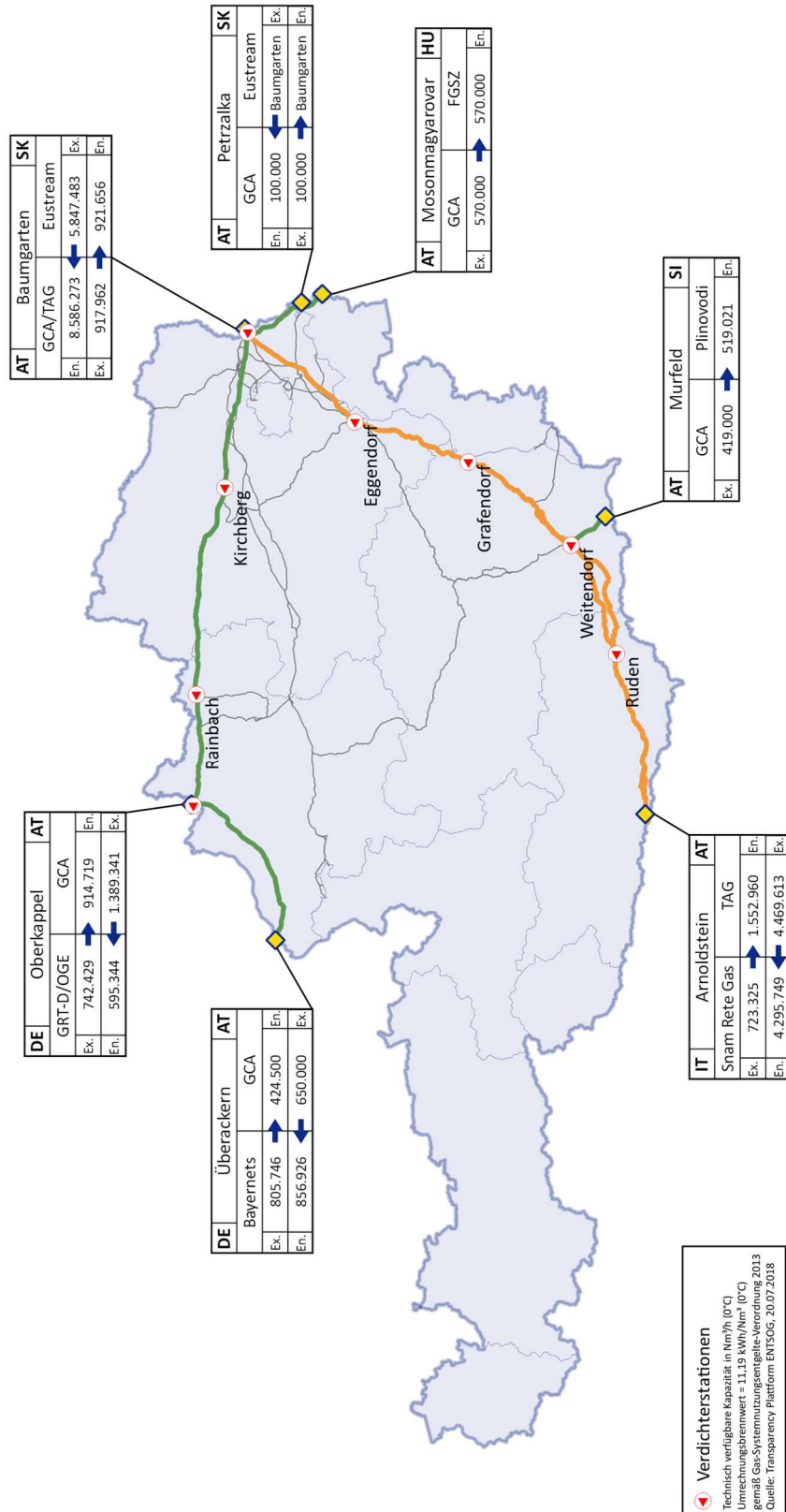
Gas Connect Austria is a gas transmission system operator and distribution system operator based in Vienna. It has a staff of 280 across six locations in Vienna, Lower Austria and Upper Austria. Centred on the distribution node at Baumgarten, Gas Connect Austria operates a modern and efficient high-pressure gas grid with connections to Germany, Slovakia, Slovenia and Hungary, and to storage and production facilities. The 900-kilometre long pipeline system comprises five compressor stations, 40 metering and transfer stations and 100 transfer metering points.

Gas Connect Austria's core business is the marketing of transport capacity at the international cross-border points and for domestic gas supply. The company markets transport capacity totalling 150 billion m³ per year and is a major hub in Central Europe. To secure the supply of gas for the long term, the existing infrastructure is checked, maintained and updated on an ongoing basis. As a customer-oriented logistics service provider, the company is constantly developing its products and services aligned with the needs of the market.

2.4 Present gas transmission system infrastructure and technical capacities

Number of transmission system operators 2
 Total length of transmission grids: approx. 1,690 km
 Total compressor power: 626 MW
 Virtual trading point: CEGH (www.cegh.at)

Figure 9: Technical capacities at relevant interconnection points in the market area East.



2.5 Infrastructure standard

The infrastructure standard has been calculated in accordance with the Regulation (EU) 2017/1938, the Regulation concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No. 994/2010.

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 the case of an outage of the largest infrastructure facility, in this case Baumgarten.

In cooperation with the transmission system operators, AGGM has determined the infrastructure standard for the market area East.

Table 1: Calculation of the Infrastructure standard according to regulation (EU) No 2017/1938

Facility	technical capacity [million sm ³ /d]	Definition & Explanation
Baumgarten (GCA, WAG, TAG)	140.34	Exit Slovakia
Oberkappel	21.95	Minimum from Exit NCG and WAG cap. OK -> BM
Überackern	0	integrated into Oberkappel
Arnoldstein	0	currently DZK, therefore zero
Freilassing&Laa/ Thaya	0.87	available technical capacity
EPm	163.16	
Production OMV	2.73	booked standard capacity
Production RAG	0.49	booked standard capacity
Pm	3.22	
Gas Storage OMV	23.36	at a working gas volume of 30%
Gas Storage RAG ES	15.11	at a working gas volume of 30%
7Fields transmission pipeline	0	
7Fields distribution area	3.56	at a working gas volume of 30%
Haidach distribution area	0	
Sm	42.04	
LNGm	0	
Im	140.34	
Dmax	52.40	Baseline scenario max. from the next 10 years
N - 1	130%	

Source: AGGM; 2018

The result of the N-1 formula for the market area East is 130 %. This result shows that the gas supply in the market area East meets the requirement of being larger than 100% according Regulation (EU) No. 2017/1938.

An infrastructure standard with 130% reflects a good security of supply with regard to the infrastructure. Projects that additionally support the integration with the neighboring countries are to be evaluated positively for the further improvement of security of supply.

The previous result of the N-1 formula in 2017 according to Regulation (EU) No. 2017/1938 was 129%. The slight increase compared to last year is caused by a slight reduction of the forecasted daily consumption.

Description and justification of the parameters

Calculated Area:

In accordance with the provisions of the national Austrian preventive action plan (version 3, December 2016) the infrastructure standard is calculated for the Austrian market area East.

"D_{max}" total daily gas demand:

Regulation (EU) 2017/1938 Annex II (2) defines the parameter "D_{max}", in Article 5 of Regulation (EU) 2017/1938 the addition is made with regard to the development of natural gas consumption and the long term effects of energy efficiency measures.

The up to date maximum historical daily gas demand occurred in February 2012. On the gasday 10.2.2012 51.9 million sm³ was consumed in the market area East. In the electricity-generating power stations, 16.38 million sm³ were consumed on this day, with the power plants not running at full load during the entire day. At 24 hours full load operation of the power plants a power plant consumption of 19.94 million sm³ would have been recorded. This would have resulted in a daily gas demand of 55.46 million sm³. Therefore, a higher consumption is also possible with a corresponding demand situation.

Long-term planning 2018 describes three gas demand scenarios:

- Minimum scenario
- Baseline scenario with the highest probability of occurrence
- Maximum scenario

The minimum scenario assumes an aliquoted implementation of the energy efficiency guideline (energy savings are the same for all primary energy sources). As described in Chapter 2.3.1.4 and Chapter 2.3.1.5 of the long-term planning 2018, there is no clear trend towards a reduction in gas sales apparent.

The baseline scenario of the long-term planning 2018 is therefore used as the base for the determination of D_{max} as well as 10-year planning period (2019-2028). The baseline scenario assumes a slight increase in the maximum possible hourly demand until 2028. According to this

slight increase in the maximum hourly demand, a total daily gas demand of 52.4 million sm^3 is possible in 2028 and is therefore used in the calculation of the infrastructure standard for D_{max} .

This value is quite realistic since the value is lower than the maximum historical gas consumption assuming a 24h full-load power plant operation.

"EP_m" technical capacity of entry points

Technical capacity is defined in detail in VO (EU) 2017/1938 by referring to VO (EU) 715/2009. As the technical capacity the firm capacity is defined. The definition of technical capacity also states "taking into account network integrity", which suggests that the smaller value of entry and exit capacity is to be set at a network connection point.

For the entry point Baumgarten, the smaller value of the technical capacity is taken from Exit Slovakia and Entry Austria. The eustream has a technical exit capacity of 140.34 million sm^3/d (Source: www.transparency.entsog.eu). The Austrian transmission system operators GCA GmbH and TAG GmbH have a total technical entry capacity of 206.07 million sm^3 / d . The smaller value is set for the new calculation as explained above, which is technically quite understandable since the higher entry capacity in Austria cannot be fully used.

Oberkappel und Überackern are marketed competitively, i.e. that either the entry capacity can be booked in Oberkappel or in Überackern. The sum of the entry capacities from the market area NCG is greater than the technical capacity of the WAG from Oberkappel towards Baumgarten. If the gas is to be transported to the end customer in market area East, the capacity of the WAG from Oberkappel towards Baumgarten is the limiting factor. For this reason, the maximum capacity of the WAG is set for the entry points Oberkappel and Überackern, including the storage 7 fields. Therefore, the above-mentioned 21.95 million sm^3/d has taken into account.

TAG GmbH is offering in Arnoldstein currently interruptible entry capacity (DZK) of 1,552,960 sm^3/h (with the completion point Weitendorf). SNAM is offering in Tarvisio a firm exit capacity of 723,325 sm^3/h [Source: *ENTSOG transparency platform*] in competition to exit Passo Gries (border IT -> CH). Since there is currently no freely allocable entry capacity available in Arnoldstein, no potential supply to the virtual trading point according to the calculation method has to be assumed. It has to be mentioned that the total available DZK can be used until Weitendorf in case of an emergency. With the implementation of the CNDP 2018 projects "TAG 2016/01 TAG Reverseflow Weitendorf/Eggendorf" and "GCA 2015/10 Entry Arnoldstein" (according to plan end of 2019) TAG GmbH will offer freely allocable entry capacity at Arnoldstein. Therefore, a potential supply to the VTP will be taken into account for the N-1 calculation. This consideration will have a positive impact on the N-1 factor.

Freilassing & Laa an der Thaya: At the interconnection points in the distribution area, Freilassing and Laa / Thaya, the reported standard capacity is assumed.

"P_m" maximal technical production capacity

The booked standard capacity was set for the maximum technical production capacity. The actual maximum hourly production rate from GY 2018 will reach the level of the booked standard capacity (total of 3.22 million sm³/d).

"S_m": maximal technical storage deliverability

In VO 2017/1938, there are several indications which require consideration of the working gas volume when determining the maximum technical withdrawal capacity.

For the market area East, it is assumed that the coldest day can occur until the end of February. The working gas volume of the Austrian storage facilities in the years 2014 to 2017 by end of February was 22% to 38%. In the determination of the maximum technical withdrawal capacity an average value of 30% working gas volume is assumed. This percentage is also given in the specifications of the new SoS VO. Since the withdrawal capacity changes as a function of the working gas volume, this factor must be taken into account when calculating the N-1 value. The published withdrawal curve was set for each storage facility. Based on the above data the maximal technical daily withdrawal capacity is 42.04 million sm³/d.

For the calculation of the maximal technical storage deliverability the technical withdrawal capacity is used and not only the marketed withdrawal capacity

The use of a lower working gas volume does not appear to be appropriate, since in the case of storage management, efforts should be made to obtain proper working gas volume and thus withdrawal rate as far as possible until the end of the winter period.

"LNG_m": maximal technical LNG facility capacity

Has no relevance for Austria

"I_m": means the technical capacity of the single largest gas infrastructure

This is for the market area East Baumgarten, therefore, this value is deducted accordingly in the calculation of the infrastructure standard.

3 Planning horizon for the 2018 Coordinated Network Development Plan

3.1 Ten Year Network Development Plan

One of the key tasks of the European Network of Transmission System Operators for Gas (ENTSO-G) is to prepare the Community-wide Ten-Year Network Development Plan (TYNDP) which has a planning horizon of (at least) ten years and has to be revised every other year. The TYNDP provides a picture of the European gas infrastructure and, in particular, comprises detailed information on various development scenarios, market integration and security of supply, in this way reflecting the overall dynamics of the European gas market. One of the objectives of the TYNDP is, however, to provide modelling of the integrated gas network in order to be able to identify future investment gaps in a timely manner, particularly with respect to cross-border capacities. Pursuant to Regulation (EC) No 715/2009, the Agency for the Cooperation of Energy Regulators (ACER) reviews the national ten-year network development plans to assess their consistency with the TYNDP and, in the case of inconsistencies, recommends amendments to the national ten-year network development plan as appropriate.

In view of the ambitious climate targets to be achieved by 2030, ENTSOG for the first time set the planning horizon at twenty years in the 2017 TYNDP. In order to model demand, ENTSOG examined four different consumption evolution scenarios, taking into account a large number of general parameters such as the overall economy and achieving the climate targets as well as specific parameters such as the future role of natural gas in heating, power generation and in the transport sector. Only one of the four scenarios is based on growing demand for natural gas by 2030, caused primarily by the increased use of natural gas in the transport sector and for power generation based on regulatory requirements. With regard to the gas infrastructure in Europe, which has to be the basis for a functioning internal market, ENTSOG concludes in the 2017 TYNDP that - as many projects are in an advanced phase - supply is no longer the key issue and that the focus is on maintaining diversity among the producers and suppliers. Although the reduced production of the Groningen field and the German L-gas fields, which will become noticeable in the next few years, can be compensated for by additional pipeline gas from Russia and LNG supply sources, the diversification of supply will not be able to be maintained. From this point of view, it will be necessary to promote the promising conventional gas production in Cyprus and the Black Sea region (ROHUAT project); ENTSOG also mentions biogas production in this context as a factor contributing to the diversification of supply. After discussing the infrastructure, however, ENTSOG concludes that the present system is able to cope even with the highest-demand scenario, and even in the case of peak consumption.

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

divide potential candidates for inclusion on the next Union list into three categories: The 2017 TYNDP retains this approach and introduces a new project category in order to differentiate more clearly between projects that are “advanced” and projects that are “less advanced”:

- ▶ Projects with a final investment decision
- ▶ Projects (advanced) without a final investment decision
- ▶ Projects (less advanced) without a final investment decision
- ▶ Projects that are already PCIs

In the TYNDP 2017, similarly to the TYNDP 2015, the project categories are analysed in terms of their direct and indirect benefit in the different sales, consumption and congestion scenarios. The analysed scenarios and assumptions are based on the energy system-wide cost-benefit analysis undertaken by ENTSOG. In order to conclude application for the next Union list, the projects contained in the TYNDP 2017 were merged into project groups at the request of the European Commission. In conjunction with the project-specific cost-benefit analysis, the direct and indirect benefit of the individual project groups for European Member States was presented and rated in the various demand, consumption and congestion scenarios. The following table shows the Austrian projects that are part of the 2017 TYNDP (see also this [Link](#) for more detailed information)

Table 2: TYNDP 2017 Projects concerning Austria

TYNDP Projectno.	Projectname	TYNDP 2017 Status	KNEP 2018 Projects	3rd PCI List
TRA-N-954	TAG Reverse Flow	Less-advanced, FID	TAG2016/01 TAG 2016/03	No
TRA-N-361	GCA 2015/08: Entry/Exit Murfeld	Advanced, non-FID	GCA 2015/08	Yes, 6.26.4
TRA-N-021	Bidirectional Austrian-Czech Interconnector (BACI)	Advanced, non-FID	GCA 2015/01a	Yes, 6.4
TRA-N-423	GCA Mosonmagyaróvár	Advanced, non-FID	GCA 2015/05	Yes, 6.24.1
TRA-N-801	Breclav-Baumgarten Interconnection (BBI) AT	Advanced, non-FID	GCA 2016/01	No

Source: ENTSOG, TYNDP 2017-2026

3.2 Gas Regional Investment Plan 2017 – 2026

The gas regional investment plans (GRIP) are established and published by the respective concerning transmission system operators in coordination every two years according to Directive (EC) 2009/74 (2) and Regulation (EC) 715/2009 as a consistent supplement to the TYNDP. The GRIPs build upon the TYNDP data sets and have in comparison to the TYNDP a more detailed planning horizon of 10 years. The aim of the regional plans is to give an overall

view of future dynamic developments in the gas market by an integrated and regional view of supply scenarios, market integration and security of supply as well as hydraulic analyses.

Based on the analysis of interconnection points, the operation of transmission pipelines, and the need of developments, six sometimes overlapping regional investment plans had been established. They have already been published in their third edition:

- ▶ GRIP North-West
- ▶ **GRIP Central Eastern Europe CEE** (with Austrian contribution TAG GmbH & GCA)
 - ▶ see [Link](#) for further details (edition 2017-2026)
- ▶ GRIP Baltic Energy Market Interconnection Plan (BEIMP)
- ▶ **GRIP Southern Corridor SC** (with Austrian contribution TAG GmbH & GCA)
 - ▶ see [Link](#) for further details (edition 2017-2026)
- ▶ GRIP South-North Corridor
- ▶ GRIP South

Since the database of the GRIPs build upon the ones from the TYNDP, all the projects in Table 2 are also part of the GRIP CCE and SC.

3.3 PCI projects concerning Austria

Projects of common interest (PCI) are key infrastructure projects (gas, electricity, oil), mainly cross-border projects, within the European Union aimed at making affordable, secure and sustainable energy available to all citizens in line with the Paris climate targets. These projects are decided every two years by the European Parliament and the Council and published by the European Commission. The current PCI list, the third of its kind, was published in April 2018 (see [link](#)).

The selected projects benefit from accelerated approval and implementation processes and potential access to European Union funding.

These projects were selected according to the following criteria:

- ▶ Significant impact on at least two EU countries
- ▶ Improve market integration or national energy grids
- ▶ Boost competition by enabling alternative transit routes
- ▶ Increase security of supply (SoS)
- ▶ Contribute to the EU's climate and energy goals through integration of renewable energy

The following chapters describe in more detail the environment (corridor) of the PCI projects with relevance for Austria appearing on the third PCI List¹.

3.3.1 North-South Gas Interconnections in Western Europe ("NSI West Gas")

PCI 5.11 Support to the North West market and bidirectional cross-border flows

This project will increase the flexibility of the gas transmission and the security of supply in the north-west area of Italy as well as increase the existing export capacity towards Austria at the IP Tavisio/Arnoldstein.

Infrastructure:	New transmission pipelines (DN1400 62 km and DN1200 19 km) New compressor station (85 MW)
Aim & Capacity:	Flow IT -> CH in Passo Gries with additional capacity of 368 GWh/d Flow IT -> AT in Tarvisio/Arnoldstein with additional capacity of 189 GWh/d (in competition with Passo Gries)
Commissioning:	October 2018 (implemented)

3.3.2 North-South Gas Interconnections in Central Eastern and South Eastern Europe ("NSI East Gas")

PCI 6.2 Cluster Poland – Slovakia – Czech Republic and Hungary

and

PCI 6.4 Bidirectional Austrian Czech Interconnection (BACI)

The aim of this cluster is on the one hand to give the Slovakian and Czech market full access to the LNG Terminal in Świnoujście (PL). On the other hand the new routes Poland – Czech Republic – Austria and the access to the global LNG market will diversify supply routes and increase the security of supply of these countries. It will also create a well-functioning and competitive central eastern market and also give the possibility of gas transmission from and to Ukraine.

Because of the fact that the main driver of this cluster is security of supply in the Central-Eastern region, the lack of external co-financing may be a serious risk to these projects

¹Source: Technical information on Project of Common interest, EU; 2018
https://ec.europa.eu/energy/sites/ener/files/technical_document_3rd_list_with_subheadings.pdf

Figure 10: Cluster Poland – Slovakia – Czech Republic – Austria



Source: ENTSOE TYNDP 2017-2026

PCI 6.2.10 & 6.2.12 Poland - Czech Republic Interconnection (currently known as "Stork II")

Infrastructure:	<ul style="list-style-type: none"> New compressor station (30 MW) Kedzierzyn (PL) Adaption of compressor station (24 MW) Breclav (CZ) New transmission pipelines: (DN1000, 249 km in PL and 207 km in CZ) <ul style="list-style-type: none"> Czeszow (PL) – Kedzierzyn (PL) (195 km) PL-CZ interconnection (54 km) Tvrdonice (CZ) – Hat' (CZ/PL) (207 km)
Aim & Capacity:	<ul style="list-style-type: none"> Flow CZ -> PL IP Hat' with additional capacity of 219,1 GWh/d Flow PL -> CZ IP Hat' with additional capacity of 153,2 GWh/d
Commissioning:	Planned 2022 (Czeszow – Kedzierzyn currently under construction)

PCI 6.2.11 North-South gas corridor in Western Poland

Infrastructure:	<ul style="list-style-type: none"> New compressor station (20 MW) Odolanow (PL) Neue Fernleitung Lwówek - Kedzierzyn (DN1000, 205 km)
Aim & Capacity:	New transport routes: PL (EuRoPol) <-> CZ und PL <-> SK
Commissioning:	Planned 2020 (currently under construction)

PCI 6.2.13 Increase of the transmission capacity at the Slovakia – Hungary interconnection Balassagyarmat (HU) / Velké Zlievce (SK)

and

PCI 6.2.14 Enhancement of the Hungarian transmission system between Vecsés and Városföld required for the increased capacity at the Slovakia-Hungary interconnection

Infrastructure:	New compressor station Szada (HU) Adaption/Automatisation of compressor- and crossborder station New transmission pipeline Vecsés - Városföld (DN800, 80 km)
Aim & Capacity:	Flow HU -> SI with additional capacity of 102 GWh/d Flow SI -> HU with additional capacity of 26 GWh/d
Commissioning:	Planned 2021

Although these two PCI projects are part of the North-South corridor, they have a special importance for the Austrian market. The implementation of these projects would enable an alternative route (keyword “HUSKAT”) for gas transports from the Black Sea region to Baumgarten via Slovakia. The original route, the South corridor (“ROHUAT” or “BRUA”) is presented in detail in Chapter 5.1.2.4.

The so-called alternative route “HUSKAT” is promoted by *Gas Connect Austria*, the Slovakian TSO *eustream a.s.* and the Hungarian TSO *Magyar Gáz Tranzit Zrt. (MGT)*. Further details to this project are presented in Chapter 5.1.2.5.

PCI 6.4 Bidirectional Austrian Czech Interconnection (BACI)

The BACI project connects the transmission system of Gas Connect Austria GmbH in Austria with that of NET4GAS, s.r.o. in the Czech Republic

Infrastructure:	New transmission pipeline in CZ: Břeclav - Rheintal (DN800, 12 km) New transmission pipeline in AT: Rheintal – Baumgarten (DN800, 49 km)
Aim & Capacity:	Flow CZ <-> AT with additional capacity of 201,4 GWh/d
Commissioning:	Planned 2024 (Source: GCA)

This project will create fully new transport capacities for the Austrian and Czech markets and their virtual trading points. Alongside the increased market integration to be achieved by this project, the interconnection concepts for the two markets and the resulting flexibility for system users, BACI is a significant component in implementing the North-South Corridor.

The implementation of BACI also depends on the outcome of the project „TRU“. See also Chapter 5.1.2.1. and Chapter 6.4.1. for further information.

PCI 6.24 Cluster Bulgaria – Romania – Hungary – Austria

This Cluster will enable a capacity increase on the Bulgaria — Romania — Hungary — Austria bidirectional transmission corridor (currently known as "ROHUAT/BRUA") of 1.75 bcm/a in the first phase and 4.4 bcm/a. The aim is therefore to make the resources from the black sea available to the already mentioned countries which will diversify resources and reduce the import dependence of Europe on only few suppliers.

The new corridor will be planned and implemented as a bidirectional corridor from the very beginning. The gas volumes to be transported are primarily from new offshore gas fields in the Black Sea yet to be developed in the framework of an upstream initiative. The project will be implemented by not only constructing new facilities, but also by using existing pipelines and by increasing capacity at relevant points

The risks of these projects might be lack of market support as well as low rate of return.

See also Chapter 5.1.2.4 und 5.1.2.5 for further information.

Figure 11: Southern Corridor



Source: Southern Corridor GRIP 2017-2026

PCI 6.24.1 & 6.24.4 ROHUAT/BRUA (First and second phase)

Hungary (First phase):

Infrastructure:	New compressor station Csanádpalota (2 x 4.5 MW)
Aim & Capacity:	Flow HU <-> RO with additional capacity of 48,9 GWh/d
Commissioning:	Planned 2019

Hungary (Second phase):

Infrastructure:	New transmission pipeline Városföld – Ercsi - Győr (DN1000, 100 bar, 210 km) New transmission pipeline Ercsi – Szazhalombatta (DN800, 63 bar, 11 km) Adaption of compressor station Csanádpalota/Algyő (1 x 4.5 MW) New compressor station Városföld (5,7 MW)
Aim & Capacity:	Flow HU -> AT with additional capacity of 153 GWh/d Flow AT -> HU with additional capacity of 25 GWh/d Flow HU <-> RO with additional capacity of 76,5 GWh/d
Commissioning:	Planned 2024 (Source: GCA)

Romania (First and second phase):

Infrastructure:	New transmission pipeline Podișor — Horia (DN800, 63 bar, 528 km) 3 new compressor stations (Jupa, Bibești and Podișor)
Aim & Capacity:	Flow HU -> RO with additional capacity of 76,5 GWh/d Flow RO -> HU with additional capacity of 126,1 GWh/d Flow RO -> BG with additional capacity of 29,3 GWh/d
Commissioning:	Planned 2022 (Construction started 06/2018)
Infrastructure:	New transmission pipeline Black Sea – Podișor (DN1200/1000, 307 km)
Aim & Capacity:	Access to natural gas resources in the Black Sea region
Commissioning:	Planned 2020

Austria (First phase):

GCA 2015/05 Mosonmagyaróvár (See also Chapter 6.4.4 for further information)

Infrastructure:	Adaption of cross border station Mosonmagyaróvár New compressor station on HAG
Aim & Capacity:	Flow HU -> AT with additional capacity of 153,1 GWh/d
Commissioning:	Planned 2024 (Source: GCA)

PCI 6.25 Cluster Bulgaria – Romania – Hungary – Slovakia

This cluster aims to connect the existing gas infrastructure of the aforementioned countries to the natural gas sources in Caspian region (Kasachstan and Turkmenistan) via Turkey (Trans Anatolia Natural Gas Pipeline TANAP) and Georgia (South-Caucasus Pipeline Future Expansion SCPFX). The TANAP already went into operation in the middle of 2018. This connection should have a potential capacity of 20 billion m³/year in the first phase and 40 billion m³/year in the second phase. The goal of this project is to increase the security of supply in Central-, Western- and South Europa by diversification of sources. The projects capacity would particularly cover 100% of the supply in the Balkan region as well as give shippers the possibility to supply the Balkan region including Turkey from the NCG/Gaspool/CEGH markets via Baumgarten.

PCI 6.25.1 Pipeline system from Bulgaria via Romania and Hungary to Slovakia („Eastring“)

Infrastructure:	New transmission pipeline: BG/TR - Veľké Kapušany (SK) (DN1400, 1029 km)
Aim & Capacity:	Flow BG <-> RO <-> HU <-> SK with additional capacity of 570 GWh/d (1 st Phase) and. 1140 GWh/d (2 nd Phase)
Commissioning:	Planned 2021 and 2025

PCI 6.26 Cluster Croatia – Slovenia – Austria

The goal of this cluster is to enable new supply routes for Central- and South East Europe by the connection of the future LNG Kerminal Krk in Croatia as well as the future Ionic-Adriatic-Pipeline (IAP). The IAP, which should exploit new resources from the Caspian Region via the TAP and SCPFX, should connect to the Croatian transmission system via Albania and Montenegro.

Therefore, this cluster would contribute positively to the diversification of sources as well as offer new possible transporting routes to Baumgarten.

See also Chapter 5.1.2.3 für further information.

PCI 6.26.1. Interconnection Croatia – Slovenia (Lučko – Zabok - Rogatec)

Infrastructure:	New transmission pipeline Lučko - Rogatec (DN700, 69 km)
Aim & Capacity:	Flow HR <-> SI with additional capacity of 162 GWh/d
Commissioning:	Planned 2020

PCI 6.26.2 Compressor station Kidričevo, 2nd phase of upgrade (Slovenia)

Infrastructure:	Adaption of compressor station Kidricevo (30 MW)
Aim & Capacity:	Increasing the capacity and enabling bidirectional flow
Commissioning:	Planned 2020

PCI 6.26.3 Compressor stations 2 and 3 at the Croatian gas transmission system

Infrastructure:	New compressor stations
Aim & Capacity:	Flow LNG Terminal -> HR with additional capacity of 43,3 GWh/d Flow HR -> HU with additional capacity of 43,3 GWh/d Flow HU -> HR with additional capacity of 62,5 GWh/d
Commissioning:	Planned 2022 (Start of construction will be 2018) (Source: Plinacro http://www.plinacro.hr/default.aspx?id=984)

PCI 6.26.4 GCA 2015/08: Entry/Exit Murfeld (See also Chapter 6.4.3.)

Infrastructure:	Adaption of Murfeld and Weitendorf stations New compressor station Murfeld Loop of „SOL“ transmission pipeline and bordercrossing pipeline Murfeld - Cersak
Aim & Capacity:	Flow AT -> SI with additional capacity of 53,7 GWh/d Flow SI -> AT with additional capacity of 166,5 GWh/d
Commissioning:	Planned 2023 (Source: GCA)

PCI 6.26.5 Upgrade of Murfeld/Ceršak interconnection (AT-SI) in Slovenia

Infrastructure:	Adaption of cross border station in Slovenia (160m DN800 piping)
Aim & Capacity:	Flow AT -> SI with additional capacity of 78,7 GWh/d Flow SI -> AT with additional capacity of 165,0 GWh/d
Commissioning:	Planned 2020

PCI 6.26.6 Upgrade of Rogatec interconnection

Infrastructure:	Adaption of cross border station (4km DN800 piping)
Aim & Capacity:	Flow HR <-> SI with additional capacity of 165 GWh/d
Commissioning:	Planned 2020

3.4 Network development planning of neighbouring countries

This chapter gives a short overview of the transmission system network development of Germany, Italy and Slovenia with special focus on relevant projects and developments for the Austrian market. The respective network development plans of these neighbouring countries are published in English.

The network development plans of the other neighbouring countries Czech Republic, Slovakia and Hungary could not have been taken into account since they are not published in English and therefore only available in their own respective language.

3.4.1 Germany

Source: [Netzentwicklungsplan Gas 2018-2028](#)

The current Network Development Plan (NDP 2018-2028) examines two scenarios for the development of German gas demand. Both scenarios assume that total demand will fall by 11% and 22% respectively by 2028, but that demand from the transformation sector (electricity and heat production) and from power stations in particular will remain constant or increase slightly.

They assume a sharp 46% fall in conventional natural gas production by 2028, and only a 6% rise in biogas injection, although it should be noted here that it is impossible to factor in the impact of future amendments to the German Erneuerbare-Energien-Gesetz (EEG, Renewable Energy Act).

The scenario framework therefore predicts that by 2028, Germany's import requirements will stagnate at 741 TWh or 649 TWh.

In Germany, gas-fired power stations which are connected directly to the transmission system and may potentially be needed to maintain security and stability within the transmission system are referred to as "systemically relevant". It is assumed that the capacity of these power plants is allocated to one entry point (cross-border IP or storage point) from which it can be supplied.

In the model, the following existing systemically relevant gas-fired power stations are supplied via cross-border interconnection points with Austria:

- ▶ Bierwang steam power plant (710 MWh/h) cross-border IP Überackern 2 (SP Haidach)
- ▶ Irsching power station (1,110 MWh/h) cross-border IP Haiming 2 (SP 7Fields)
- ▶ UPM Schongau (155 MWh/h) cross-border IP Überackern ABG, Überackern 2

In the model, the following future gas-fired power stations are supplied via cross-border interconnection points with Austria:

- ▶ Zolling power station (1,840 MWh/h) cross-border IP Überackern ABG, Überackern 2
- ▶ Gundremmingen I CCDP (1,900 MWh/h) cross-border IP Überackern (if necessary)

- ▶ Gundelfingen power station (1,900 MWh/h) cross-border IP Überackern (if necessary)
- ▶ Leipheim I CCDP (1,900 MWh/h) cross-border IP Überackern (if necessary)

The following future additional storage projects were submitted and are taken into account in the model with reference to Austria.

- ▶ 7Fields (Haiming 2-RAGES/bayernets) entry 648 MWh/h exit 432 MWh/h
- ▶ 7Fields (Haiming 2-RAGES/bayernets) entry 346 MWh/h exit 230 MWh/h

As regards interruptions to interruptible capacities, the German network development plan for 2018-2018 analyses the three points with the highest level of interruptions historically and develops measures in response:

- ▶ Haiming 2 Exit & USP Haidach Exit
 - ▶ Connect the NCG market area with the Austrian storage facilities 7Fields and Nussdorf/Zagling or Haidach.
 - ▶ Interruptions due to temporary congestion in upstream grid areas.
 - ▶ In view of the measures implemented (MONACO 1 etc.), the German transmission system operators do not feel that expansion at this cross-border point is required.
- ▶ Oberkappel Exit:
 - ▶ Interruptions due to grid expansion and alteration works in the upstream system.
 - ▶ The German network development plan assumes that there will be a fall in exit capacities as other routes (EUGAL, ROHUAT, etc.) for filling storage facilities during the summer months are opened up. No additional demand was reported for Oberkappel in the market demand assessment carried out in accordance with the CAM NC in 2017. It is therefore assumed that no expansion is required.

The most significant infrastructure measure for Austria in the German 2018-2028 NDP is the Monaco 1 project. The MONACO 1 project is the first part of a larger project consisting of MONACO 1, MONACO 2 und SEL:

- ▶ MONACO 1 Burghausen – Finsing near Munich (DN 1200, 86.7 km, PN 100)
 - ▶ currently under construction, commissioning scheduled for 10/2018
- ▶ MONACO 2 Finsing – Amerding
 - ▶ No confirmation of demand, regional planning process discontinued
- ▶ SEL Amerding – Mannheim region
 - ▶ No final investment decision
- ▶ Other key connecting pipelines to MONACO 1: (Connection to MEGAL)
 - ▶ Schwandorf-Forchheim pipeline (62 km): Commissioning 12/2017
 - ▶ Forchheim-Finsing pipeline (79 km): commissioning scheduled (12/2018)

Besides strengthening security of supply in the southern part of Germany SEL has the potential to strengthen the transit capacity towards Austria. Moreover, through the commissioning of the first section of MONACO 1 the diversification of transit routes is strengthened and the market participants will have further possibilities for gas transport among the VTPs NCG and CEGH. In addition, potent storage facilities in the Austrian/German area at the Überackern interconnection point may, thanks to the expansion of cross-border capacities, further strengthen the security of supply.

The capacity restriction (approx. 50% at the Wallbach cross-border IP) on TENP I as a result of corrosion damage to one of the two lines is particularly significant for the Tyrol and Vorarlberg market areas. This restriction has been extended to September 2020. In addition, further checks on pipeline integrity and implementation of measures identified are currently under way. To ensure that future demand in Baden-Württemberg and thus the Vorarlberg MA can be safely covered in the theoretical event that this capacity restriction continues beyond the date set, the German NDP for 2018-2028 includes a security of supply scenario for TENP I.

Also of relevance for Austria is the construction of the new EUGAL pipeline (DN 1400, 480 km, PN 100). This pipeline will connect the Lubmin II gas receiving station for the Nord Stream pipeline with the Czech grid area. Commissioning of the first line is scheduled for December 2019.

3.4.2 Slovenia

Source: Ten-Year Gas Transmission Network Development Plan for the 2018 – 2027 Period

The Slovenian Ten-Year Gas Transmission Network Development Plan is carried out every year by the Slovenian transmission system operator Plinovodi in order to determine the main transmission infrastructure developments, illustrate all the decided and future investments within the next three years and constitute a time frame for all investment projects. This plan is based on existing and expected supply and demand with necessary and efficient measures to fulfill the requirements of the market on the system and the security of supply. The development plan is consulted by the national energy agency as well by the relevant stakeholders.

The gas market in Slovenia is supplied almost solely by the upstream Austrian transmission system. More than 90% of the gas used for domestic consumption as well as for transit purposes to Croatia in the past years has been imported via the interconnection point Murfeld/Cersak. In 2016 this IP had an average monthly utilization of about 45% of its technical capacity. Because of that, Slovenia has an N-1 criterion of about 57% which will be improved by future infrastructure measures.

Concerning the forecast of domestic consumption and booked transmission capacity, an increase of 20-30% over the next ten years is expected, mainly caused by the commissioning of a new gas power plant in 2020. Furthermore, it is estimated that the transmission capacity booking at the IP Murfeld will increase in 2019 by 10.000 kWh/day.

The most important project in Slovenia, affecting the Austrian transmission infrastructure concerns the PCI 6.26 Project called “Cluster Croatia-Slovenia-Austria”. This project is further illustrated in Chapter 3.3.2 and 5.1.2.3.

Another relevant Project for Austria the PCI Project 6.23 called “Hungary-Slovenia Interconnection”, with expected commissioning in 2023 (Source: GCA, NDP Slovenia: 2020). This project will connect the Slovenian and Hungarian gas market and will give Slovenia access to the Hungarian underground gas storages. Since Slovenia has no domestic gas storage facilities, this project might create new competition for Austrian gas storage operators who have customers supplying Slovenia.

3.4.3 Italy

Source: Ten-year development plan of the natural gas transmission network 2017 – 2026

The Italian ten-year network development plan is done annually by Snam Rete Gas, the Italian transmission system operator according to European Directive 2009/73/EC, Regulation 715/2009 and 994/2010. The plan determines the main development of gas infrastructure projects for the national and regional transmission network owned by Snam Rete Gas. The development plan is made in consent with European and Italian legislative and regulatory frameworks, the National Energy Strategy, ENTSOG TYNDP, relevant stakeholders as well as the general strategy of the parent company Snam.

The Italian gas market is strongly linked to the Austrian gas infrastructure by the important interconnection point Tavisio/Arnoldstein. Almost 50% of the total imported volumes were supplied towards Italy via this IP over the past years.

The natural gas demand in Italy increased over the past three years by 5%, whereas the demand is expected to remain more or less constant over the next 10 years in the low assumption. In the high case, an increase of about 18% in 2035 compared to 2016 is forecasted. It is remarkable that in both scenarios a significant growth of the transportation sector is expected. With regards to the contribution of bio-methane in the gas consumption in order to meet the European emission reduction targets, an increase up to 4 bcm in 2026 and up to 10.4 bcm in 2035 is predicted, which will be about 12% of the forecasted demand in Italy.

According to the Italian national energy strategy ([SEN](#)), the storage capacity in Italy needs to be expanded in the upcoming years in order to increase the capacity margin as well as the flexibility in supply during peak demand situations and/or supply interruptions. Currently the storage facilities in Fiume, Treste, Minerbio, Ripalta and Settala are under expansion. Additionally, new gas storage sites are under construction or authorization. This can lead to an additional completion for the Austrian storage operators with customers being present in the Italian market.

The biggest infrastructure development project in Italy is the connection to the Trans Adriatic Pipeline (TAP) which enables the route with a capacity of min. 10 billion m³/year from the

Caspian Region via Georgia, Turkey, Greece, and Albania to the Italian market in Lecce. The 878 km long pipeline is currently under construction and already completed by two thirds. It is expected to deliver first gas in 2020 to Italy. In order to divert the transported volumes of the TAP a new North-South transmission pipeline called “Adriatica Pipeline” (Minerbio – Sulmona, DN1200, approx. 470 km) and a new compressor station (approx. 33 MW) is being planned. Commissioning is planned in 2024. This new corridor may present a competition for the existing route via Austria.

Compared to that, a project called “Importdevelopments from North East” with planned completion in 2034 is presented in the Italian network development plan. This project includes the construction of a new transmission pipeline (DN1400, approx. 120 km) between Bordano and Istrana in parallel to the already existing route in the Northeast of Italy. The aim of this project is on the one hand to increase the dissipation capacity from Arnoldstein/Tarvisio and on the other hand to enable a connection with the future LNG Terminal Krk in Croatia by constructing another new transmission pipeline (DN1050, 15km) in the direction of Slovenia (IP Gorizia) should

3.5 2018 long-term planning

Alongside the CNDP, AGGM prepares the long-term planning (LTP) for the natural gas distribution network infrastructure in Austria.

The overall objective of the LTP is to ensure the transport capacities in the distribution area that are required to supply end consumers and meet the transport needs of storage facilities and producers.

Consumer demand is analysed using three demand scenarios: to this end, two different evolution scenarios of the performance of gas-fired power stations and two different scenarios of consumer behaviour were combined.

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

Figure 12: Demand scenarios in the distribution area

		Development of gas power plants	
		Stagnation on Status Quo 6/2018	Considering all submitted system operator demands
Developments of other end consumers	Considering all future changes published by system operators	Baseline Scenario	Maximum Scenario
	Considering all future changes published by system operators including an annual demand reduction of 1.5%	Minimum Scenario	

Source: AGGM, LFP 2018

Peak demand in the Eastern distribution area was measured at 2,386 ksm³/h in February 2012. This high demand was due both to a prolonged cold spell and high levels of electricity generation. Demand was at a similarly high level in January 2017 (clearing values: 2,233 ksm³/h). The demand scenarios considered in the LTP 2018 are based on this historical peak demand value recorded in February 2012. The NB_MAX value for maximum possible hourly flow rate is used in hydraulic calculations for grid design across the entire distribution network.

The maximum possible hourly flow rate in the maximum scenario is closer to the baseline scenario in the 2018 LTP. This is because only one additional gas-fired power station is included in the maximum scenario in the 2018 LTP.

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

Figure 13 shows actual hourly flow rates and development of the maximum hourly flow rate in the eastern distribution area over the period from 2004 to 2028. The chart shows future maximum hourly flow rates for the three scenarios defined.

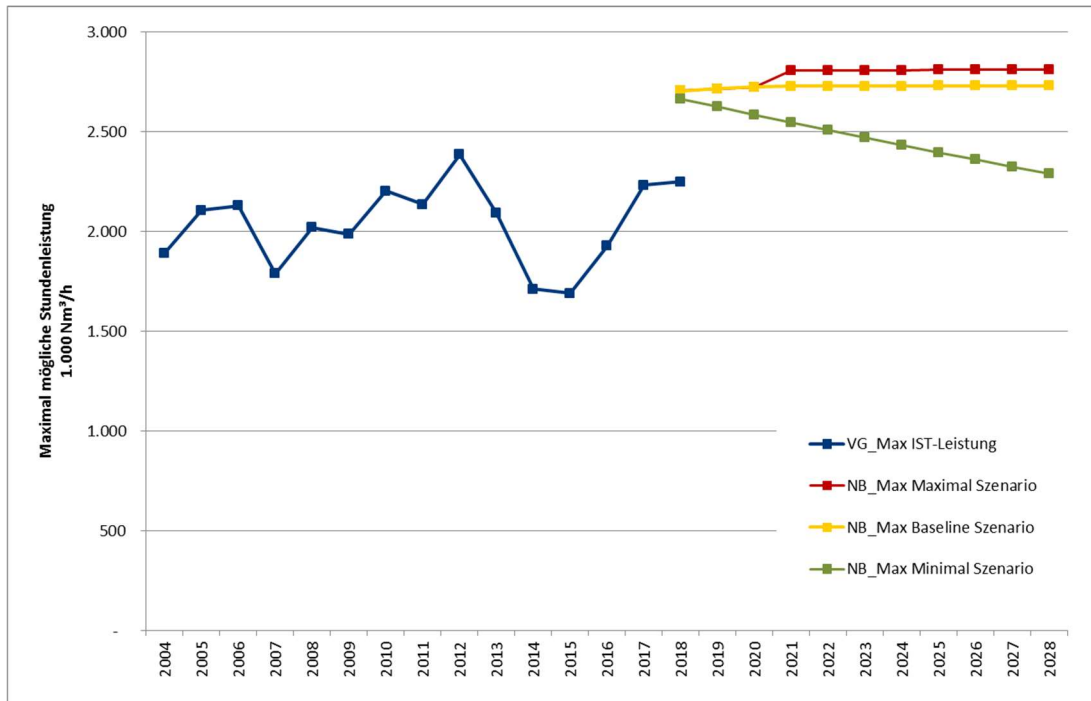
The actual flow rates and the future maximum possible flow rate in Figure 13 were determined using different approaches. The actual flow rates shown reflect the historical simultaneous gas demand measured in the distribution area (VG_MAX). The future maximum possible hourly flow rates reflect the maximum expected simultaneous demand, comprising the total maximum expected flow rates for each distribution area (NB_MAX).

The NB_MAX value for maximum possible hourly flow rate is used in hydraulic calculations for grid design across the entire distribution network.

The maximum possible hourly flow rate in the maximum scenario is closer to the baseline scenario in the 2018 LTP. This is because only one additional gas-fired power station is included in the maximum scenario in the 2018 LTP.

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

Figure 13: Demand scenarios, maximum hourly demand, market area East



Source: AGGM, LFP 2018

3.6 Incident in Baumgarten in December 2017

On 12 December 2017, there was an incident at the Baumgarten station which resulted in an explosion and fire. As an immediate response an emergency shut down of the entire distribution node was carried out. This caused all gas flows to cease, meaning that supplies to the distribution network, transmission via the WAG and transmission to Italy via the TAG were temporarily suspended. After the incident, the distribution network was supplied primarily from the storage facilities, while regional independent gas supply along the WAG and TAG was provided from linepack in the transmission lines. In Italy an energy emergency was declared immediately.

After approximately 11 hours, operation of the WAG and TAG transmission line infrastructure in Baumgarten was restarted. The direct connection between the Baumgarten station (entry and exit) and the distribution area stayed down until 13 March 2018. Even so, the well-developed storage capacities in the Eastern market area meant that supplies to all consumers continued without restriction.

The gas explosion, fire and subsequent firefighting operation damaged numerous parts of the facility. The distribution area infrastructure at the distribution node suffered the greatest damage. See also Chapter 4.16 “Wiederherstellung der Station Baumgarten nach dem Zwischenfall” (Repairing the Baumgarten station after the incident) the 2018 Long-Term Plan.

Repair of the damaged parts of the Gas Connect Austria transmission system infrastructure is covered by project GCA 2018/E1 Baumgarten Incident (see Appendix 1).

3.7 Requirements imposed in the official decision approving the 2017 CNDP

Section 2a of Official Decision (Bescheid) V KNEP G 01/17 of 19 January 2018 requested the TSOs, prior to any final investment decision or, in the case of planning projects, in the 2019 CNDP at the latest, to optimise the planned measures in terms of technical and economic efficiency and provide proof of this to the authority in order to reduce the costs of some of the projects and so improve their economic efficiency. The analysis must also reflect possible alternatives for cross-border optimisation.

In addition, section 2 of the official decision requested the market area manager, in coordination with the transmission system operators, to carry out a review prior to the next coordinated network development plan to examine whether better use of existing infrastructure could be achieved through additional connections between the distribution system and the transmission system. The available results of this examinations carried out are discussed in a separate document presented separately to E-Control.

3.8 Implemented projects of the CNDP 2017

The projects listed in Table 3 have been approved within the CNDP 2016 and CNDP 2017 and had been implemented during the last planning period. These projects are not part of the current CNDP 2018 anymore.

Table 3: Implemented projects during the last planning period (8/2017 to 8/2018).

Project type*	Project owner	Project number	Project name
C	TAG	2016/02	AZ1 additional entry and connection with BOP 13
R	TAG	2016/R07	DLE 1.5 + holes PT module RC500 in CS Ruden
R	TAG	2016/R08	Generalsanierung Schieberstationen Orth / Kalndorf / Finkenstein 1
R	TAG	2016/R10	Erneuerung Niederspannung Schaltanlage, CS-Grafendorf
R	TAG	2017/R10	Sec.3: Replacement of TAG I damaged Insulation
R	TAG	2017/R11	Sec.1: Refurbishment Sec Ball Valve SS1 (Orth)
R	TAG	2017/R12	CS-E: Repl. Insulation Joint Loop 2

*) C – Project for additional capacities; R – Replacement investment project

Source: GCA, TAG, AGGM; 2018

3.9 Energy future

Greening the Gas initiative

The Greening the Gas initiative views gas as a key element of Austria's energy future.

As replacements for conventional natural gas, biogas and synthetic gases will make a significant contribution to implementation of environmental and climate strategy.

Biogas is produced using agricultural, household and food industry waste. At present, the majority of biogas produced is converted into electricity (which is less efficient). In future, significantly greater amounts will be injected directly into the gas grid. The aim is to enter approx. 350 million Nm³/h of biogas directly into the gas grid by 2025 and around 600 million sm³/h by 2030.

Synthetic gases will be produced mainly using excess electricity generated by wind, solar and hydroelectric facilities. It is possible as a first step to produce hydrogen via electrolysis. Hydrogen can either be injected into the gas grid directly or converted into methane with CO₂ in a second step and again injected into the gas grid.

The gas grid, which enables energy to be transported efficiently, will play a major role in the energy future.

Gas storage facilities can also be used to store energy on a larger scale.

Integrated Energy

Central to "Mission 2030" is the way that it views energy as a single system in which there will in future be significantly more interaction between the individual sources of energy. While gas will continue to be carried to gas-fired power stations and used to generate electricity, excess electricity generated from renewable sources (wind, solar, hydroelectric) will increasingly be used to generate synthetic gases which can be injected into the gas grid for transport and storage.

The electricity and gas network planning processes are already harmonised. In future, even more stringent planning requirements will be required. Links between the various energy sources in terms of planning and management will become increasingly important.

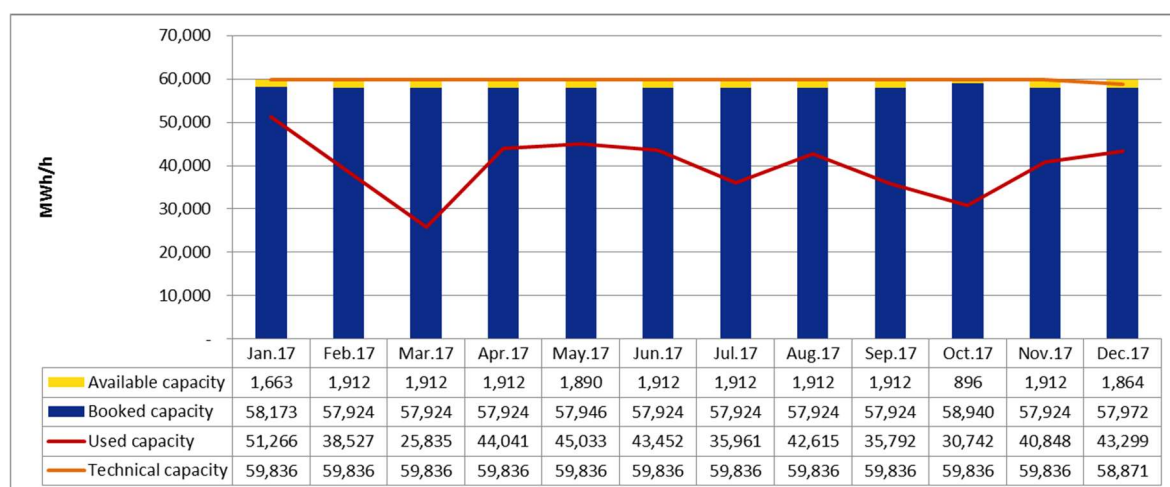
4 Capacity Demand

4.1 Capacity booking and capacity usage – 2017 status report

Figure 14 to Figure 24 show technically marketable capacity, available capacity, booked capacity and used capacity for each point and direction determined in accordance with the approved capacity calculation model from 1 January 2017 to 31 December 2017.

Fluctuations in technically marketable capacity are attributable to maintenance work that restricts capacity. The current maintenance work schedules of the transmission system operators are available from the GCA website [here](#) and on the TAG GmbH website [here](#).

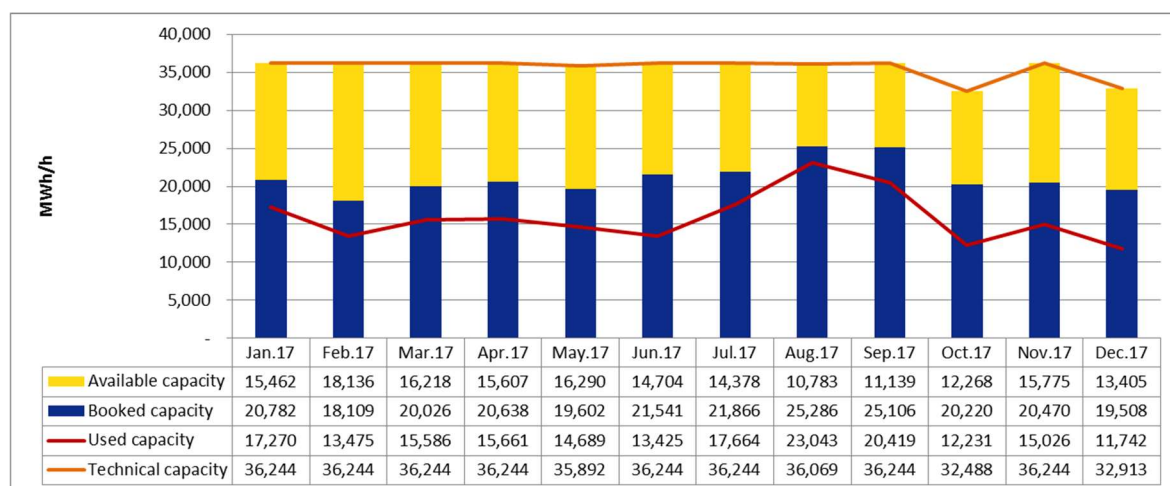
Figure 14: TAG - Entry Baumgarten



Source: TAG GmbH

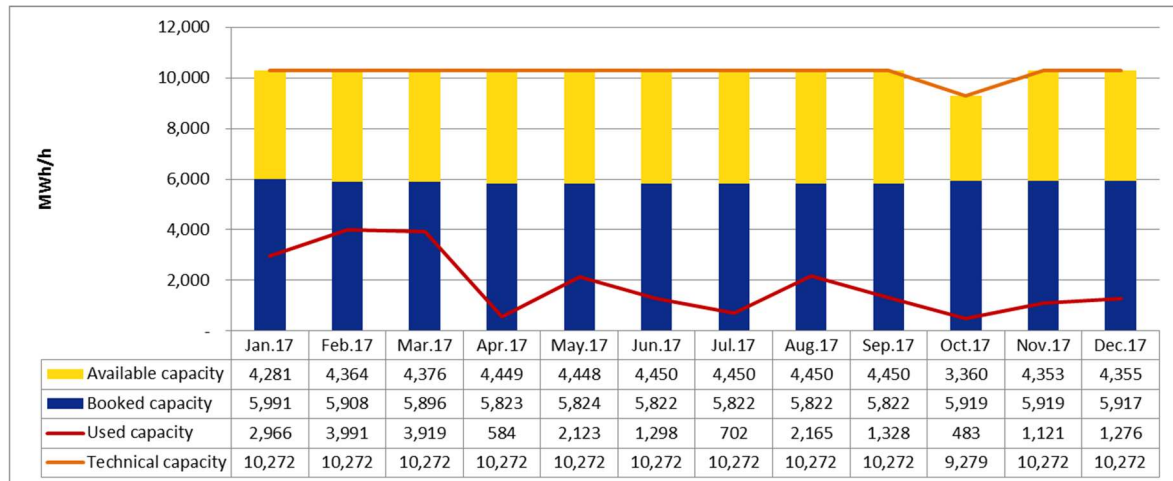
Figure 15: GCA - Entry Baumgarten

Entry Baumgarten GCA and Entry Baumgarten WAG have been aggregated.



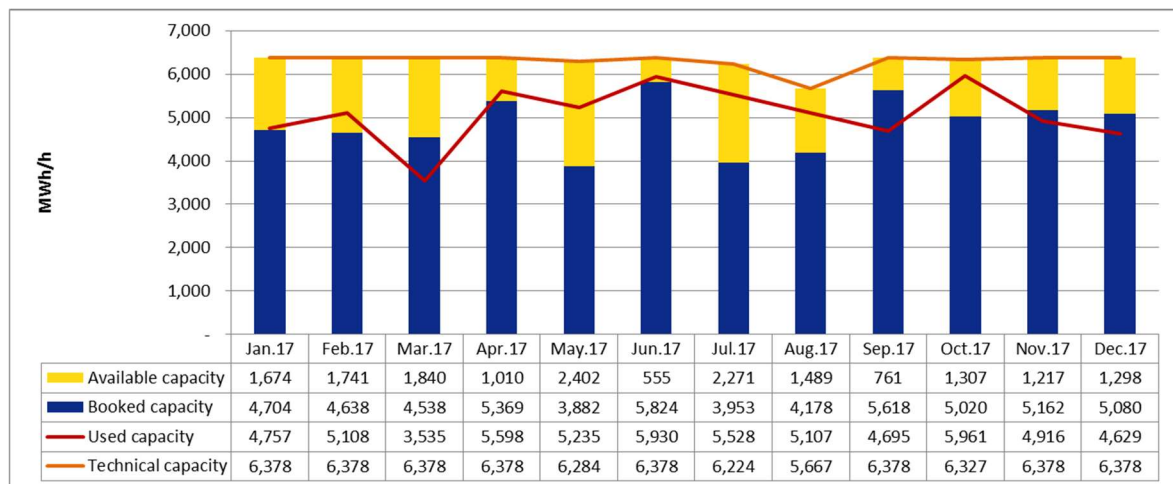
Source: GCA

Figure 16: GCA – Exit Baumgarten



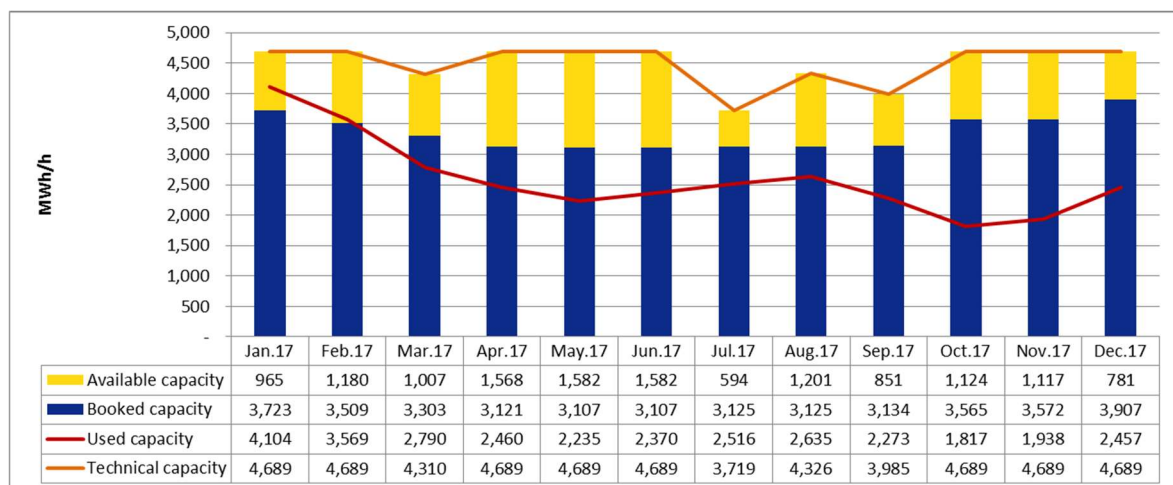
Source: SGCA

Figure 17: GCA – Exit Mosonmagyaróvár



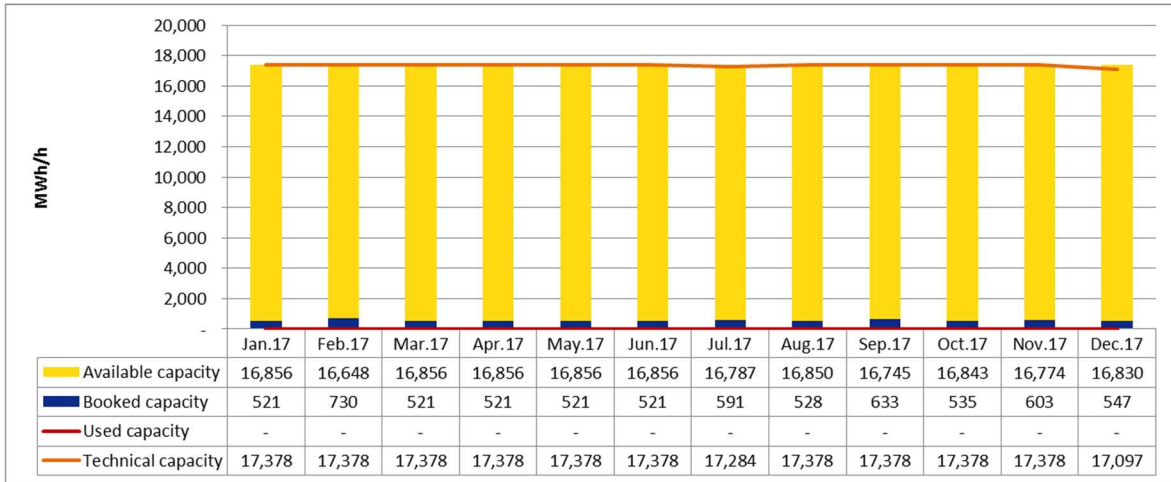
Source: GCA

Figure 18: GCA – Exit Murfeld



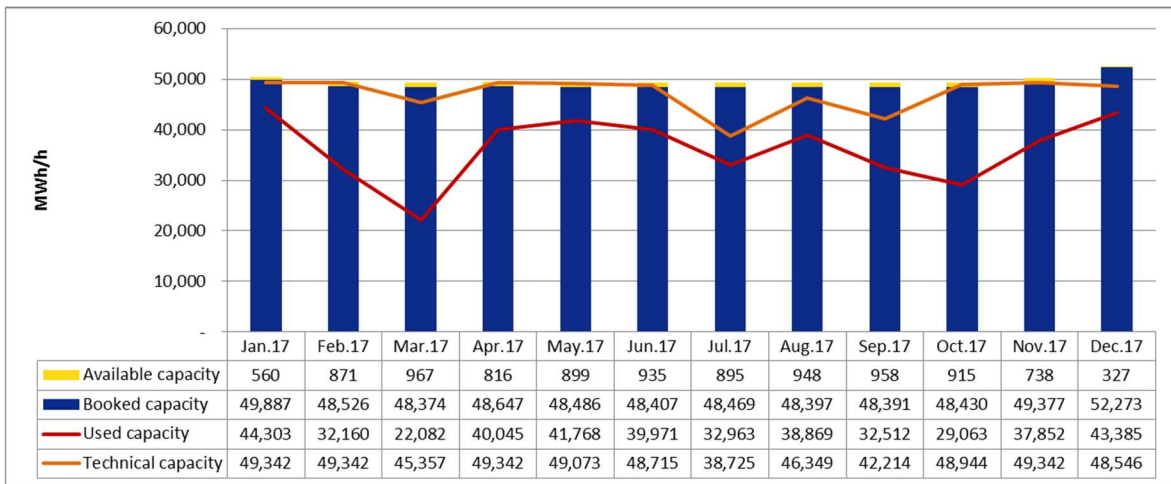
Source: GCA

Figure 19: TAG – Entry Arnoldstein



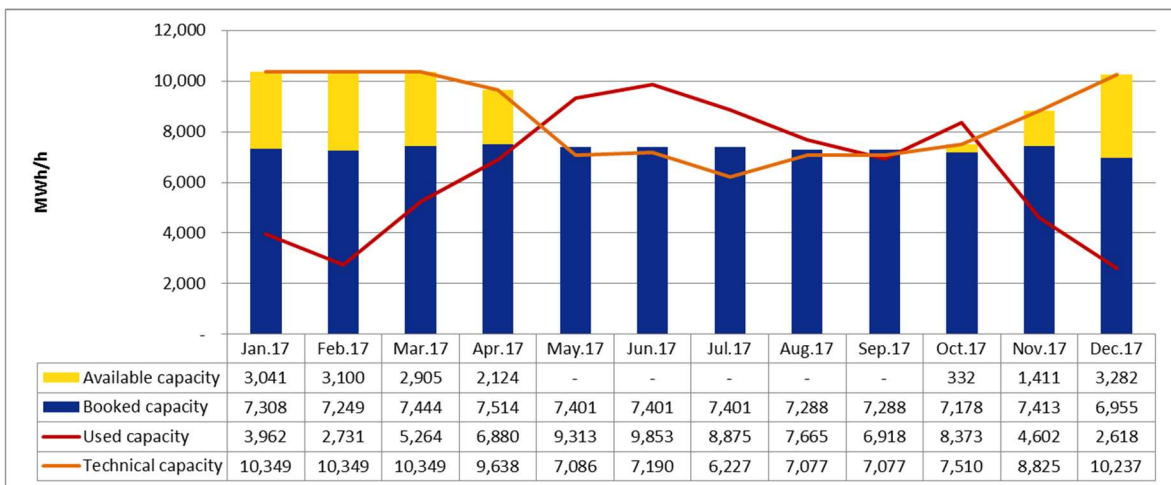
Source: TAG GmbH

Figure 20: TAG – Exit Arnoldstein



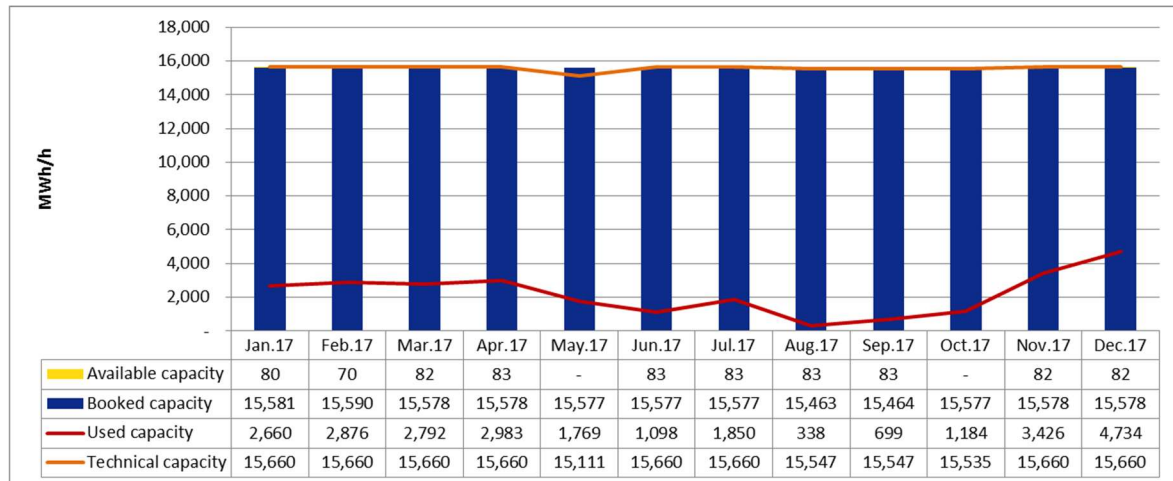
Source: TAG GmbH

Figure 21: GCA – Entry Oberkappel



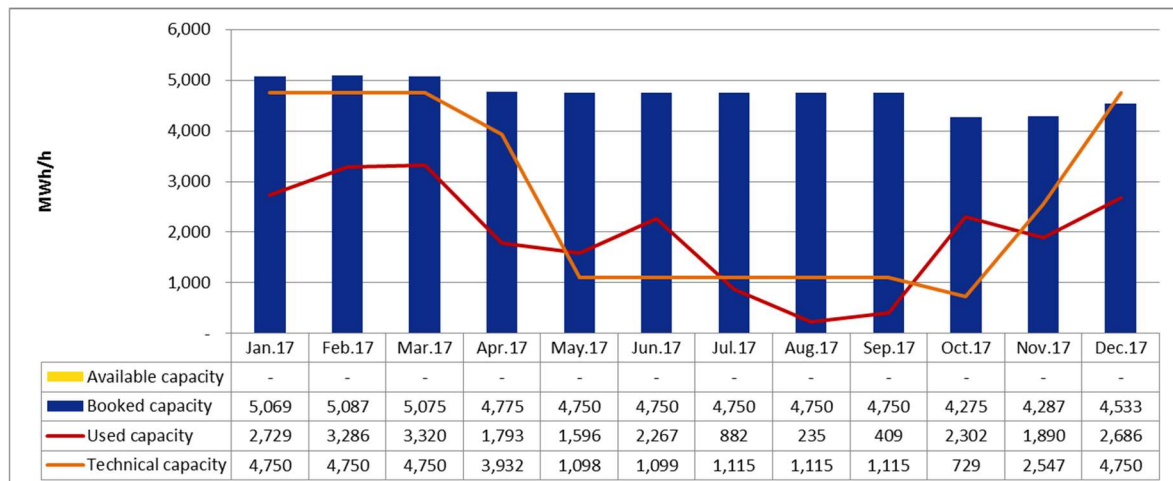
Source: GCA

Figure 22: GCA – Exit Oberkappel



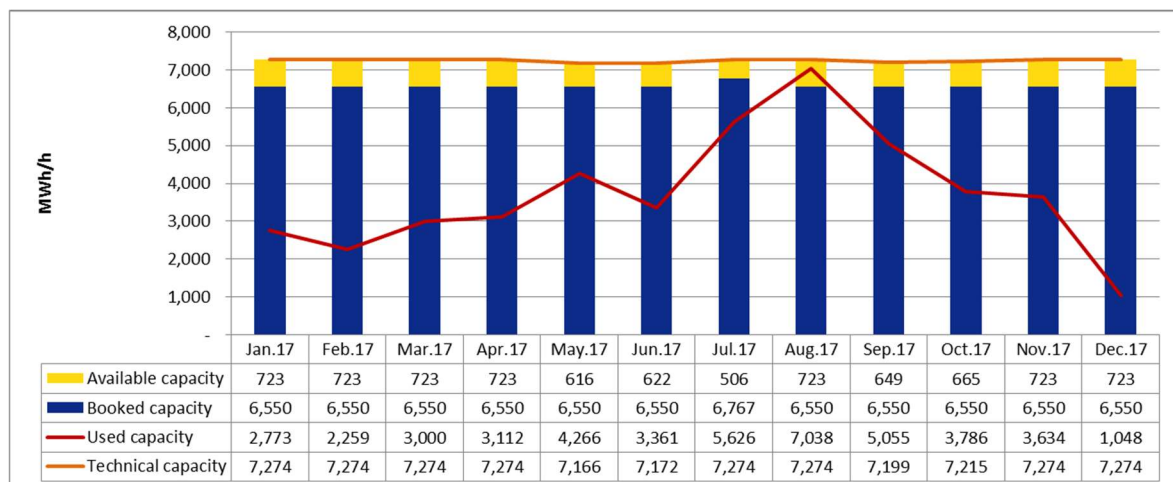
Source: GCA

Figure 23: GCA – Entry Überackern ABG/SUDAL



Source: GCA

Figure 24: GCA – Exit Überackern ABG/SUDAL



Source: GCA

The reduction in technical capacity at the Oberkappel and Überackern entry points between May and October 2017 was due to the decommissioning of facility parts and construction of new facility parts. Interconnection capacity between the WAG and TAG lines was limited during this period.

4.2 Capacity scenario for the 2018 CNDP

4.2.1 Capacity demand requests submitted

The Austrian transmission system operators receive non-binding demand requests for incremental capacity and incorporate them into the planning process for the next CNDP. In accordance with their statutory obligations, TAG GmbH and GCA announced the end of the non-binding capacity demand survey on their websites,² although demand for new/incremental capacity and potential new projects can be reported to both transmission system operators year-round. All non-binding capacity demand submitted by 4 July 2018 has been incorporated in the 2018 CNDP, and is shown in Table 4.

Table 4: Non-binding capacity demand requests by system user

Year	until 1 June 2017			from 1 June 2017 to 4 July 2018
	Entry Mosonmagyaróvár [MW]	Entry Distribution area [MW]	Exit Distribution area [MW]	Entry Baumgarten GCA [MW]
2019	4,737	6,714	56.	—
2020	4,737	6,714	56.	—
2021	4,737	6,714	56.	—
2022	4,737	6,714	56.	4,644
2023	4,737	6,714	56.	4,644
2024	4,737	6,714	56.	4,644
2025	4,737	6,714	56.	4,644
2026	4,737	6,714	56.	4,644
2027	4,737	6,714	56.	4,644
2028	4,737	6,714	56.	4,644

Source: AGGM, GCA, TAGG; 2018

As well as collecting non-binding capacity demand requests from system users, the transmission system operators also carried out a project data collection survey, in which project sponsors were invited to report their projects and the resulting requirements for capacity from the Austrian transmission system.

² GCA: <https://www.gasconnect.at/netzinformationen/netzentwicklung/netzentwicklungsplanung/#collapse789>

TAGG: <https://www.taggbh.at/fuer-netzbenutzer/netzentwicklungsplan-nep/marktbefragungen/>

4.2.2 Resulting capacity scenario

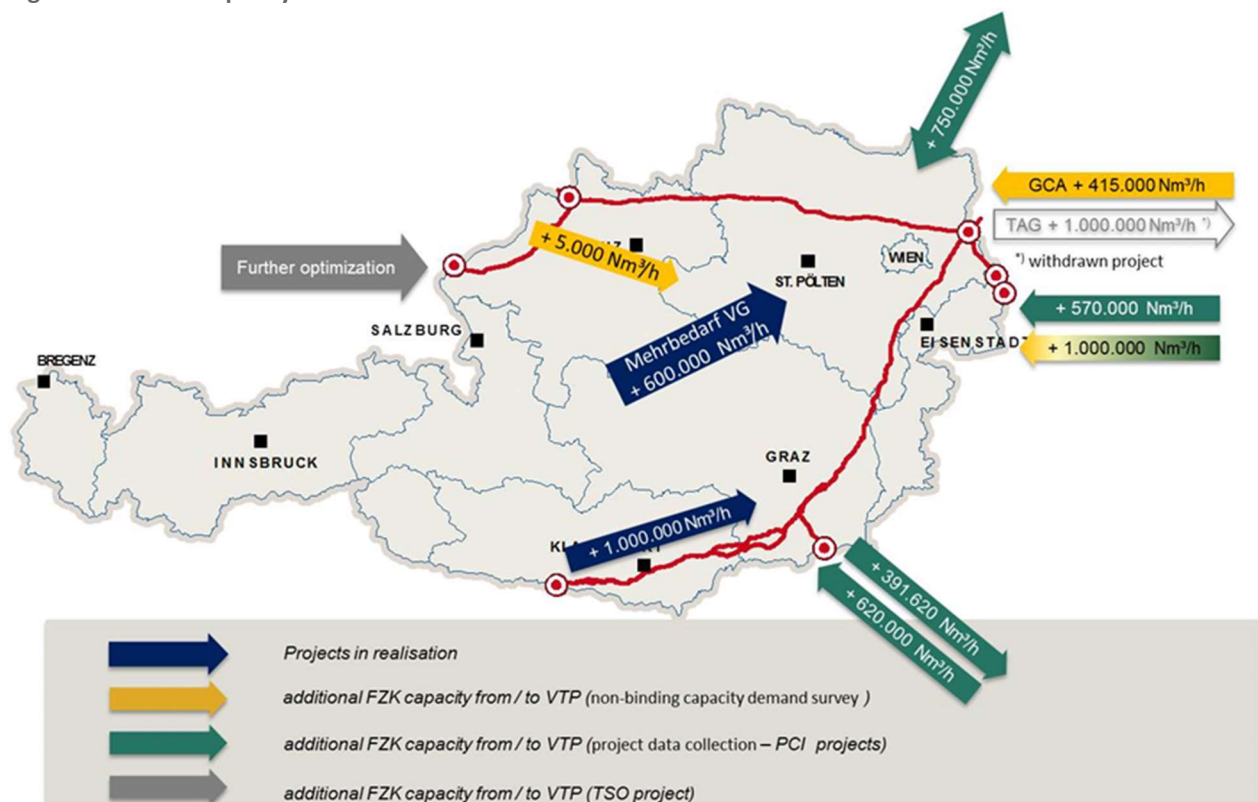
The market area manager in cooperation with the transmission system operators have aggregated the submitted demands and created the resulting capacity scenario for the CNDP 2018 (illustrated in Figure 25).

The capacity demand is divided into four categories:

- Capacity requirements arising from the non-binding capacity demand survey: These capacity requirements were submitted by the shippers and are marked in Figure 25 in yellow.
- Capacity requirements based on project data collection including PCIs. These capacity requirements are marked in Figure 25 in green.
- Capacity requirements which were submitted previously and are currently in the implementation phase. These capacity requirements are marked in Figure 25 in blue.
- Capacity demand included in the planning by the transmission system operators themselves or in order to meet requirements imposed by the authority. These capacity requirements are marked in Figure 25 in grey.

The capacity scenario had been presented to E-Control Austria on 12 July 2018 and thereafter approved by E-Control Austria.

Figure 25: Capacity Scenario

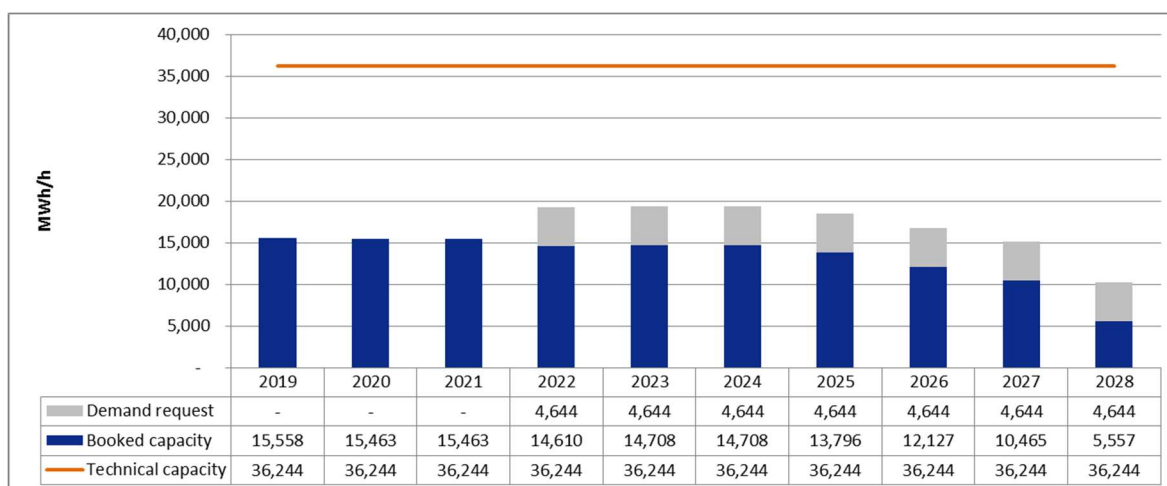


Source: AGGM, GCA, TAGG; 2018

4.2.3 Capacities booked and capacity demand by exit/entry point from 2019 to 2028

The following figures illustrate the capacities booked at each entry/exit point and the capacity demand from the capacity scenario of the 2018 CNDP covering 2019 to 2028.

Figure 26: Entry Baumgarten GCA, capacities booked and capacity demand 2019-2028

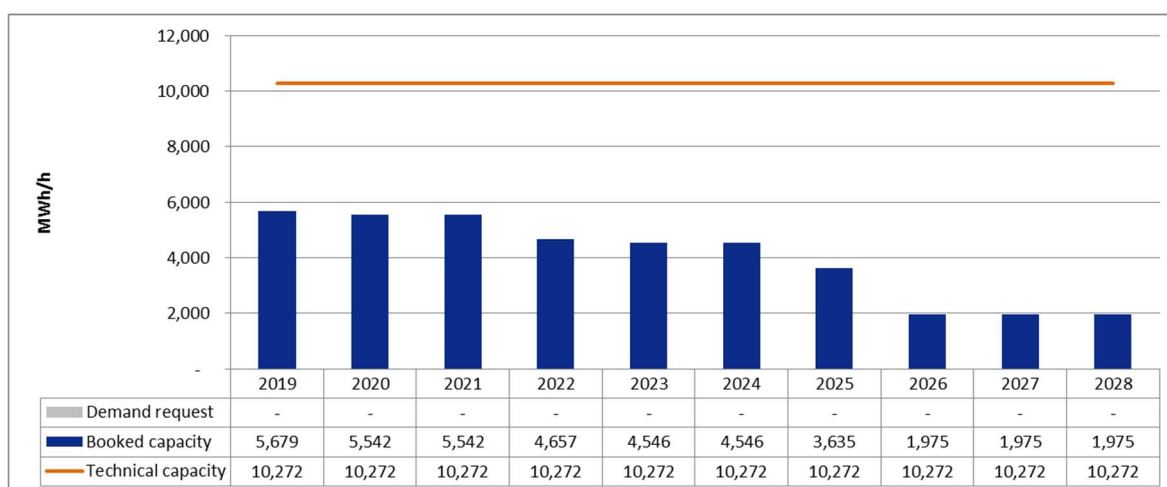


Quelle: AGGM platform, capacity demand survey; 2018

At the Baumgarten GCA entry point additional non-binding capacity demand of 4.644 MW was submitted for the period from 2022 to 2037. The additional demand submitted was for bundled capacities. As illustrated in Figure 26, adequate free capacity is available at the Baumgarten GCA entry point to meet the reported demand. The demand submitted does not necessitate any infrastructure expansion.

No additional capacity demand was reported at the Baumgarten GCA exit point (see Figure 27).

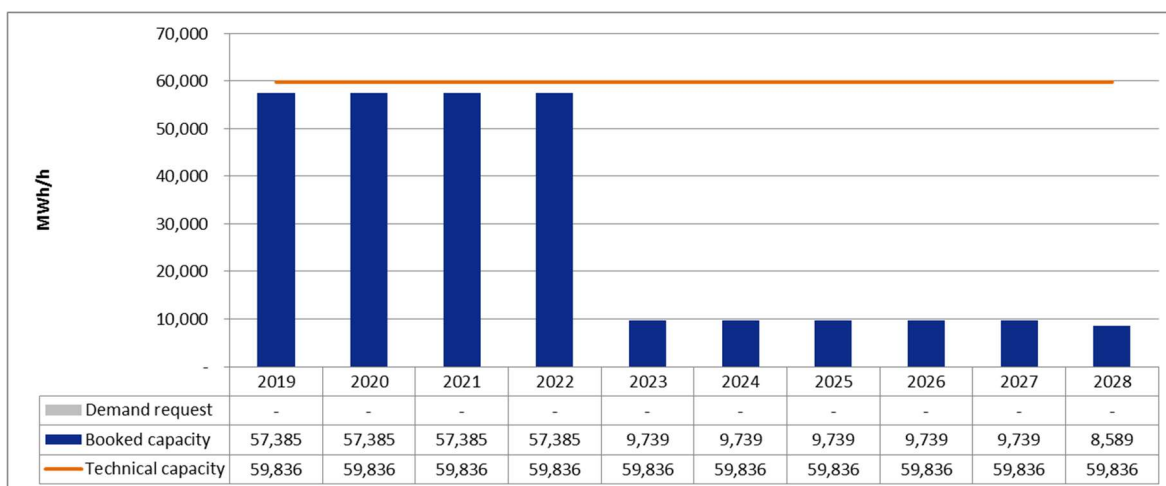
Figure 27: Exit Baumgarten GCA, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

Figure 28 shows that both the technical as well as the booked capacity at the Baumgarten entry point will remain steady from 2018 to 2022. As several long-term contracts will expire, the available free capacity will increase significantly from 2023.

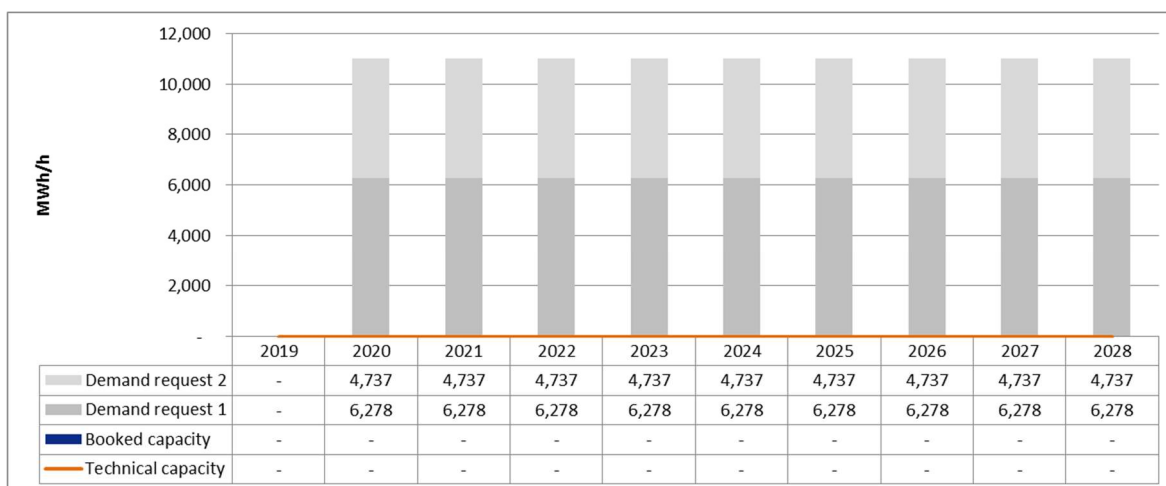
Figure 28: Entry Baumgarten TAG, capacities booked and capacity demand 2019-2028



Source: TAG GmbH, capacity demand survey; 2018

Physical flow at the Mosonmagyaróvár entry point is currently impossible. The demand comprises 6.278 MWh/h, which were approved in a project in the course of the PCI corridor “ROHUAT” and a reported demand of 4.737 MWh/h. See also Chapter 5.1.2.4.

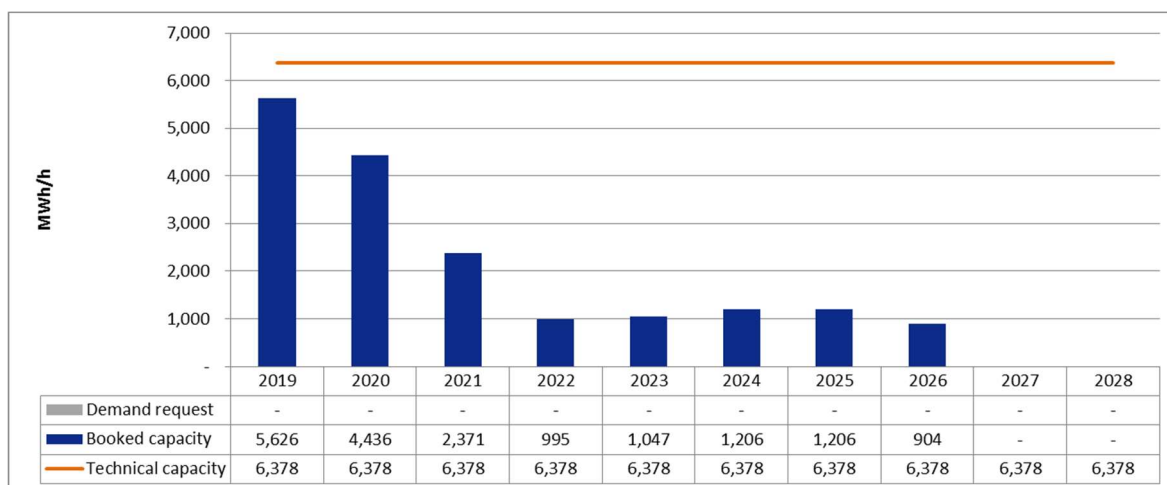
Figure 29: Entry Mosonmagyaróvár, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

No demand was reported at the Mosonmagyaróvár exit point.

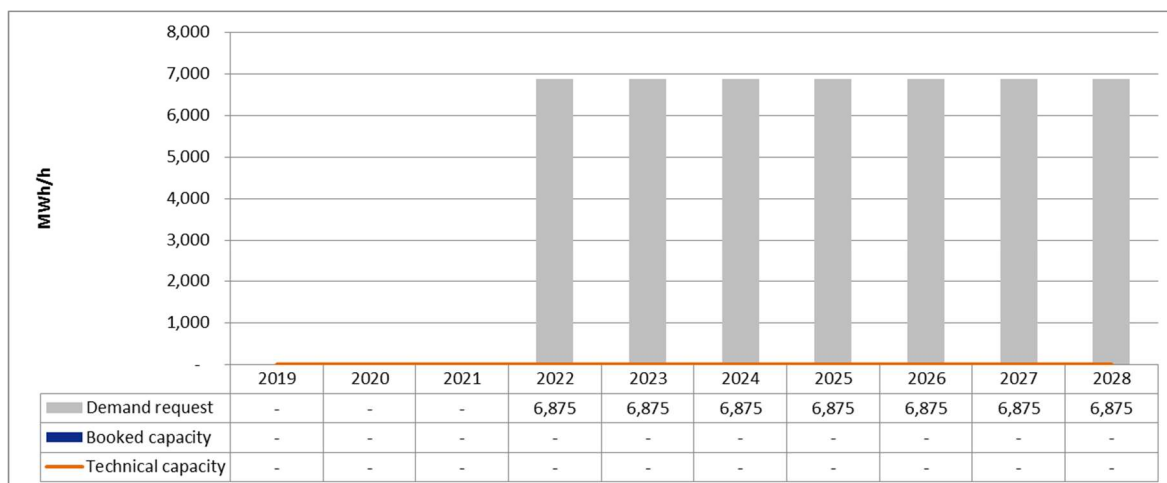
Figure 30: Exit Mosonmagyaróvár GCA, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

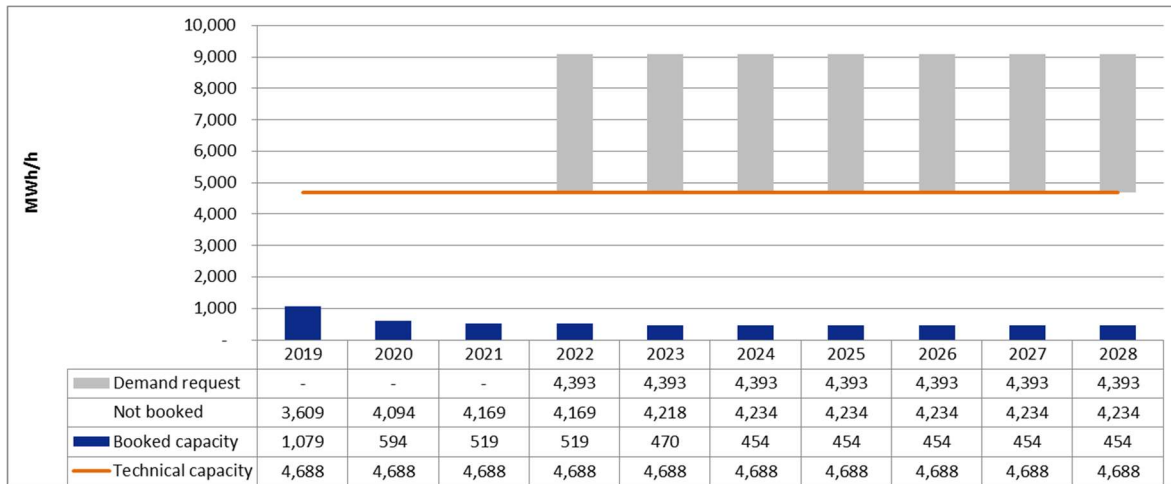
The demand reported at the Murfeld entry and exit point was recorded by the transmission system operators Gas Connect Austria and Plinovodi in the market demand assessment according to the procedure of the NC CAM. The aim is to provide entry capacity in the amount of 6.875 MWh/h and a total exit capacity of 9.081 MWh/h. See also Figure 31 and Figure 32.

Figure 31: Entry Murfeld, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

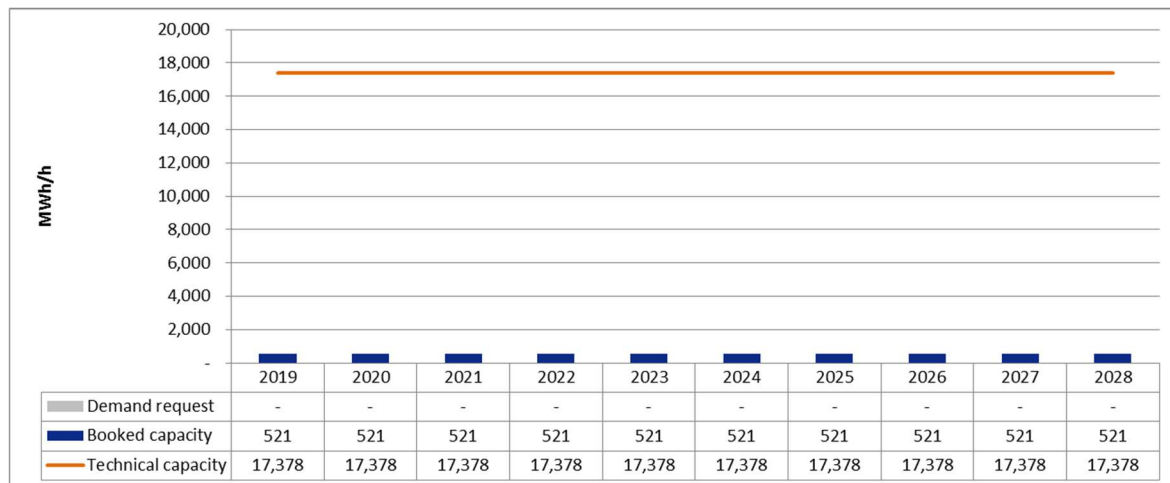
Figure 32: Exit Murfeld, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

Figure 33 shows that both the technical capacity and the capacity booked at the Arnoldstein entry point remain steady during the forecast period of 2019 to 2028.

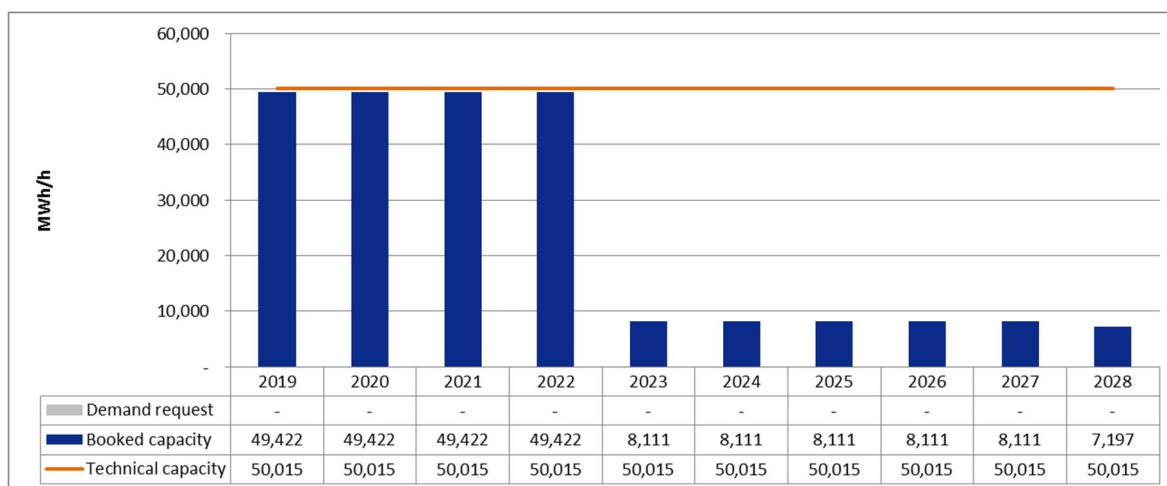
Figure 33: Entry Arnoldstein, capacities booked and capacity demand 2019-2028



Source: TAG GmbH, capacity demand survey; 2018

The technical as well as the booked capacity at the Arnoldstein exit point will remain constant from 2018 to 2022. Similar to the Baumgarten entry point, free capacity will increase markedly from 2023 as a result of the expiry of long-term contracts spanning several years.

Figure 34: Exit Arnoldstein, capacities booked and capacity demand 2019-2028

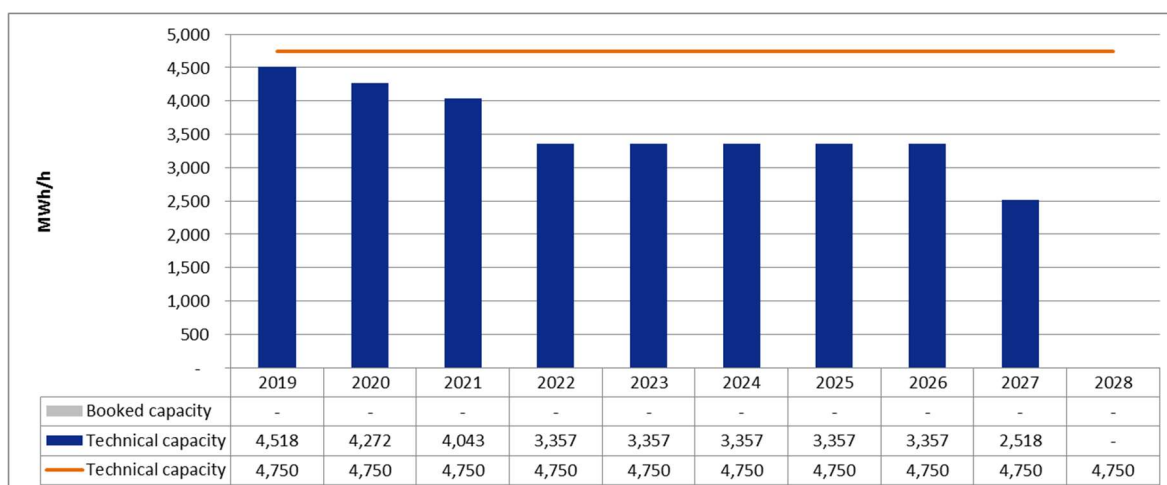


Source: TAG GmbH, capacity demand survey; 2018

No additional demand was reported at the Überackern entry and exit point in the 2018 CNDP. See also Figure 35 and Figure 36.

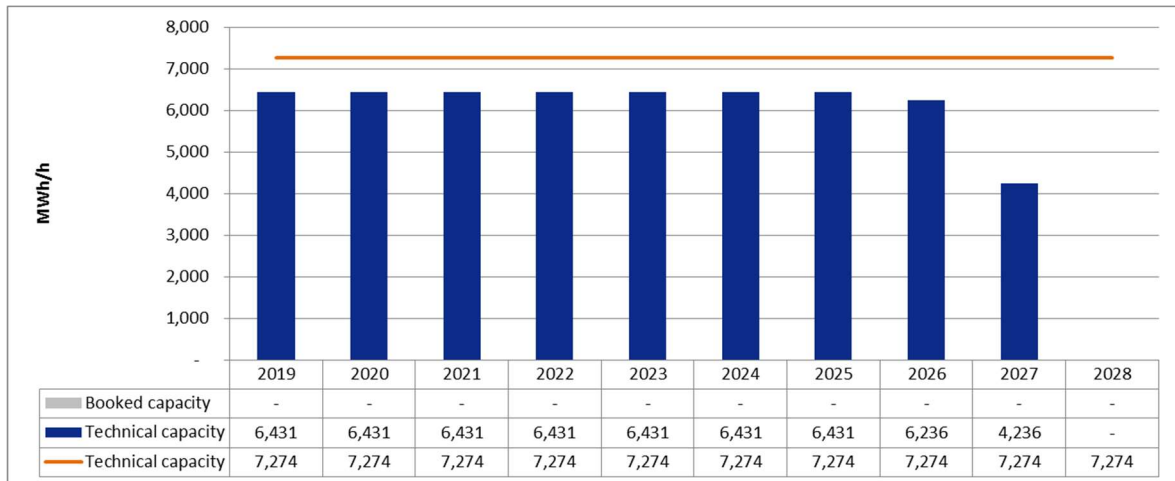
Nevertheless, GCA prepared a project to increase the entry capacity at Überackern and to be able to offer wheeling services between the Überackern entry point and the Oberkappel exit point.

Figure 35: Entry Überackern ABG and SUDAL, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

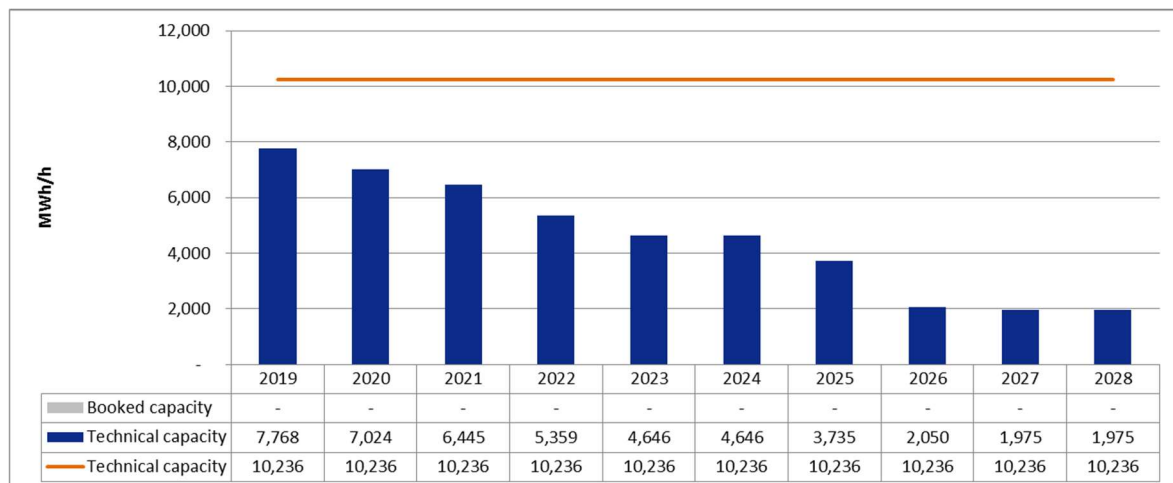
Figure 36: Exit Überackern ABG and SUDAL, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

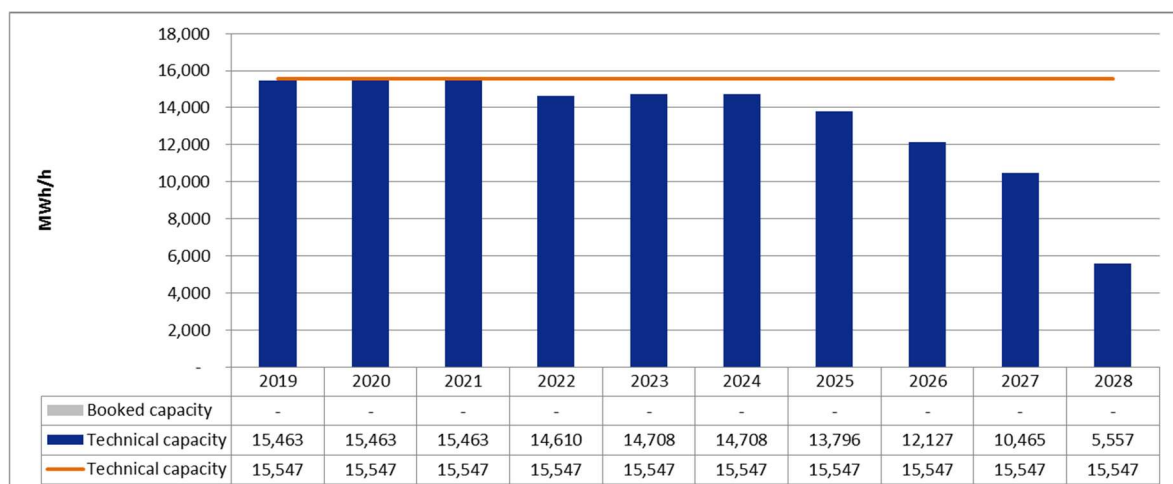
No additional demand was reported at the Oberkappel entry and exit point in the 2018 CNDP. See also Figure 37 and Figure 38.

Figure 37: Entry Oberkappel, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

Figure 38: Exit Oberkappel, capacities booked and capacity demand 2019-2028



Source: AGGM platform, capacity demand survey; 2018

4.2.4 Capacity demand requests with corresponding projects

During the planning phase the transmission system operators developed suitable projects in order to meet the capacity demands of the capacity scenario. Table 5 shows the assigned capacity demand per respective project

Table 5: Capacity demand requests and corresponding projects to meet the demands

Demand	Project number	Project sponsor	Project name	Implementation time frame [years]	Planned completion [date]
Entry / Exit Reintal +750,000 sm³/h					
	2015/01a	GCA	Bidirectional Austria Czech Interconnector	4.5	
	2016/05	TAG	TAG Baumgarten interconnection capacity (BACI)	4.5	
Entry Mosonmagyaróvár +570,000 sm³/h					
	2015/05	GCA	Entry Mosonmagyaróvár	4.5	
	2016/04	TAG	TAG Baumgarten interconnection capacity (Mosonmagyaróvár)		Q4/2021
Entry Mosonmagyaróvár +1,000,000 sm³/h					
	2017/01	GCA	Entry Mosonmagyaróvár Plus	4.5	
	2017/01	TAG	TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II	4.5	
Mehrbedarf Verteilergebiet +600,000 sm³/h					
	2015/07b	GCA	Additional Demand in Distribution Area +		Q4 2018
Exit Andorf +5,000 sm³/h					
	2017/02	GCA	Penta West – Exit distribution area	1.5	
Entry Arnoldstein +1,000,000 sm³/h					
	2016/01	TAG	TAG Reverse Flow Weitendorf/Eggendorf		Q4/2019
	2015/10	GCA	Entry Arnoldstein		Q4/2018
Entry Murfeld +620,000 sm³/h and Exit Murfeld +391,620 sm³/h					
	2015/08	GCA	Entry/Exit Murfeld	4.5	
	2016/01	TAG	TAG Reverse Flow Weitendorf/Eggendorf		Q4/2019
	2018/01	TAG	Murfeld Exit Capacity Increase	4.5	
Überackern - Oberkappel Wheeling +250,000 sm³/h					
	2018/01	GCA	Überackern - Oberkappel	4.5	

Source: AGGM, GCA; TAGG, 2018

5 Activities of the transmission system operators (Network development plans of the transmission system operators)

5.1 Activities of Gas Connect Austria

Putting the customer front and centre. In its network development planning work, Gas Connect Austria puts its customers front and centre. For us, delighting our customers – rather than simply satisfying them – is key to Gas Connect Austria’s success as a logistics service provider. In this first and most important element of our network development planning work we take the customer’s perspective of Gas Connect Austria and focus on personalisation and process optimisation in our customer interactions (see Chapter 5.1.1).

Maximising opportunities. Building on this customer focus, it becomes clear how Gas Connect Austria defines its offering for the future and so maximises opportunities for its customers. We are expanding this offering to include the innovative new service “Trading Region Upgrade” (TRU) and projects diversifying transit routes and sources of gas to the central European gas hub at Baumgarten (see Chapter 5.1.2).

Gas Connect connects. Finally, we break down our future offering to focus specifically on network development planning: the detailed planning of technical measures that we undertake in our infrastructure project planning forms the basis for our future offering, and we do this by developing concrete project plans for the entry/exit points at Überackern, Mosonmagyaróvár and Murfeld (see Chapter 6.4 and Appendix 1).

5.1.1 Our focus – putting the customer front and centre

To continuously improve service quality and customer satisfaction, Gas Connect Austria aligns its *corporate activities* with its customers’ justified expectations. For this reason, Gas Connect Austria invests in customer retention, personalised key account management and highly efficient communications systems. In line with the motto “We delight our customers every day”, this chapter discusses how Gas Connect Austria views itself as a logistics service provider. It spans the seemingly contradictory concepts of personalisation and automation in customer communications. Firstly, we discuss the quality of the personalised key account management service provided by Gas Connect Austria (see Chapter 5.1.1.1). For us, optimised customer communications also include optimised communication systems, and thus our automated marketing systems. Given the dynamism and process speed that characterise the contemporary gas logistics environment, highly efficient marketing systems of this kind are a must for successful service provision. So below we also describe our continual development work in this area (see Chapter 5.1.1.2).

5.1.1.1 Satisfying delighting the customer – the key to our success

Maximisation. Gas Connect Austria is a service company. So our aim is to maximise customer satisfaction. What does this mean? Customers have justified expectations of the service we provide. If we can meet these expectations, the customer will be satisfied. If we can exceed them, they will be delighted. So when we talk about maximising customer satisfaction, it means we want to delight our customers.

Personalisation and process optimisation. To delight our customers, we focus on two key elements all along the value chain: personalised, active key account management, and process optimisation. Our key account management team works with our customers to create innovative, demand-led services, develop new projects (see Chapters 5.1.2 and 6.4) and provide advice and support to users of our logistics solutions Continuous process optimisation enables capacity allocation and usage to be handled using standardised services on e-commerce platforms (see section 5.1.25.1.1.2).

Key performance indicators. Gas Connect Austria markets capacity services on the capacity booking platforms PRISMA European Capacity Platform® (“PRISMA®”) and Regional Booking Platform® (“RBP®”). The table below shows the number of auctions carried out on these platforms by Gas Connect Austria per year. In 2018, Gas Connect Austria ran an average of 120 auctions per hour on its capacity booking platforms.

Table 6: Number of auctions carried out

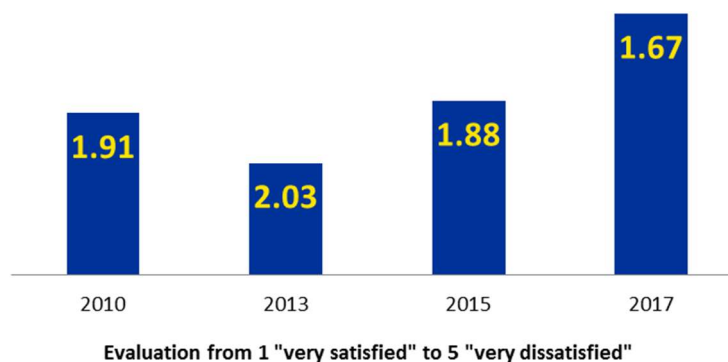
Year	PRISMA®	RBP®	SUM
2013	4,570	—	4,570
2014	8,805	—	8,805
2015	58,328	—	58,328
2016	230,448	—	230,448
2017	224,243	9,930	234,173
2018 (until 30 Aug. 2018 06:00)	157,705	17,228	174,933
SUM	684,099	27,158	711,257

Source: GCA, 2018

Sustainability. Gas Connect Austria is constantly investing in its pipeline network, so ensuring the supply of gas to Austria and surrounding countries. This investment ensures that operations can be maintained and reduces any risk of complete outage. The expansion measures undertaken in this connection additionally guarantee that potential capacity increases are achieved in future. Such investments strengthen Austria’s attractiveness for businesses and create new jobs. Extensive maintenance activities were planned again in 2018. At the beginning of each project, effort is made to identify alternatives able to be implemented during operations. This is done in particular to avoid or at least keep to a minimum long downtime periods.

We measure our performance. We regularly review how well our customers feel we have met their expectations. Every two years, we commission an external consulting firm to measure and assess customer satisfaction and thus the quality of the service we provide. The following figure shows how customer satisfaction has changed over time.

Figure 39: Customer satisfaction of Gas Connect Austria



Source: GCA, 2018

Starting from an already high level, the overall satisfaction of customers surveyed during October and November 2017 rose once again. Over 50% of customers surveyed said that they were “very satisfied”, the highest rating, and over 85% were “very satisfied” or “satisfied”. Advice that responds to customer needs, problem-solving expertise and reliability are identified as particular strengths. Customers view Gas Connect Austria as both significantly more flexible and stronger (compared with the competition) than in previous years.

Customer retention. Customer satisfaction is an indicator of the quality of customer retention activities and customer loyalty initiatives. The Gas Convention, held for the fourth time in March 2018, has grown to be an annual milestone in Gas Connect Austria's customer relationship management activities. A 25% increase in attendance is further proof of this. The key note speech by one of Austria's leading futurologists invited the audience to “rethink the future” and prepared the ground for rollout of the Gas Connect Austria's innovative new service TRU – Trading Region Upgrade and international capacity projects (see Chapter 5.1.2). Customer requirements and concerns were examined at a special “Infopoint Session”. These chiefly concerned improvements to Gas Connect Austria's communication systems.

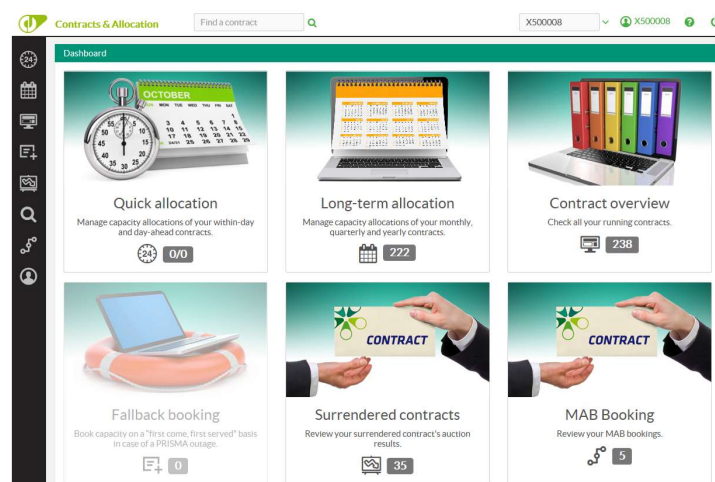
Continuous improvement. The record rating achieved in 2017 has spurred Gas Connect Austria on to make further continuous improvements. This is because customer feedback also identifies potential for future improvements to our service quality: the optimisation of communication channels and communication speed are two key challenges that Gas Connect Austria has taken from the customer feedback it has received. Improvements of this kind include the new Capacity Utilization® Backend Application (“CUBA”) and the introduction of a newsletter tool.

5.1.1.2 Investment in communication

Communication breakdown? Gas Connect Austria carried out over 234,000 capacity auctions in 2017 – an average of 650 per day. The shortest interval between capacity booking and use of the booked capacity (“nomination”) is now 3.5 hours. These KPIs are an indication of the dynamism and process speed that characterise the contemporary gas transport sector. So we are investing in communications technology to ensure the necessary exchange and transmission of information – i.e. communication – between Gas Connect Austria and its customers. Our customers have given us a clear mandate: the 2017 customer satisfaction survey showed that they justifiably expect us to continuously develop and improve our communications systems.

Backbone. We overhauled the “backbone” of our customer platforms back in 2016 with the introduction of the capacity management system Capacity Utilization®. Capacity Utilization® makes registration as a transport customer of Gas Connect Austria easier. Our transport customers use Capacity Utilization® to manage their portfolio of bookings with Gas Connect Austria, assign booked capacities to balance groups quickly and flexibly and surrender booked capacities. Capacity Utilization® also serves as a backup system for capacity allocation on a first-come first-served basis in the event of failure of one of our capacity booking platforms. The start page of Capacity Utilization® is shown below.

Figure 40: Capacity Utilization®

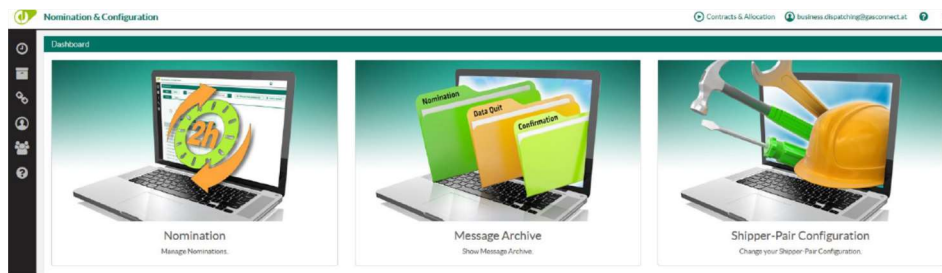


Source: GCA

Web nomination. In 2017, the Nomination & Configuration module was added to Capacity Utilization®. This means that Capacity Utilization® is now the central system not only for capacity bookers (“grid users”), but also for capacity users (“balance group representatives”). These are now able to make and manage nominations online. Any system-related communication with Gas Connect Austria's Dispatching team is archived and can be viewed by capacity users at any time. Users can now also configure the various settings needed for

smooth matching of transport nominations (known as “shipper code pairs”). The figure below shows the start page of Capacity Utilization® Nomination & Configuration.

Figure 41: Capacity Utilization® Nomination & Configuration module



Source: GCA

CUBA. The rollout of CUBA in the fourth quarter of 2018 will mark the completion of Gas Connect Austria’s overhaul of its customer platforms. CUBA will mainly optimise the automated management of auctions on Gas Connect Austria’s capacity booking platforms, as well as meeting transparency requirements by promptly providing complete and correct information to market participants.

Booking platforms. In mid-2017, Gas Connect Austria began marketing standard capacity products for the Austrian-Hungarian interconnection point at Mosonmagyaróvár using the RBP® booking platform, successfully rising to the challenge of migrating between platforms during live operations. This means that bundled capacity allocation is possible at every Austrian interconnection point despite the fact that two different booking systems are in use. Our partnership with PRISMA® has proven its value once again this year: Working with our colleagues at PRISMA®, we have enabled the platform to allocate incremental capacities and so laid the foundations for an incremental capacity process at the Überackern interconnection point (see Chapter 5.1.2.2).

Newsletter tool. In the third quarter of 2018, Gas Connect Austria will also change the format of its customer newsletter. Our new newsletter tool will make it easier and quicker to bring our customer base more precisely targeted information about new services, projects and initiatives of Gas Connect Austria.

5.1.2 Fit for the future by maximising the options

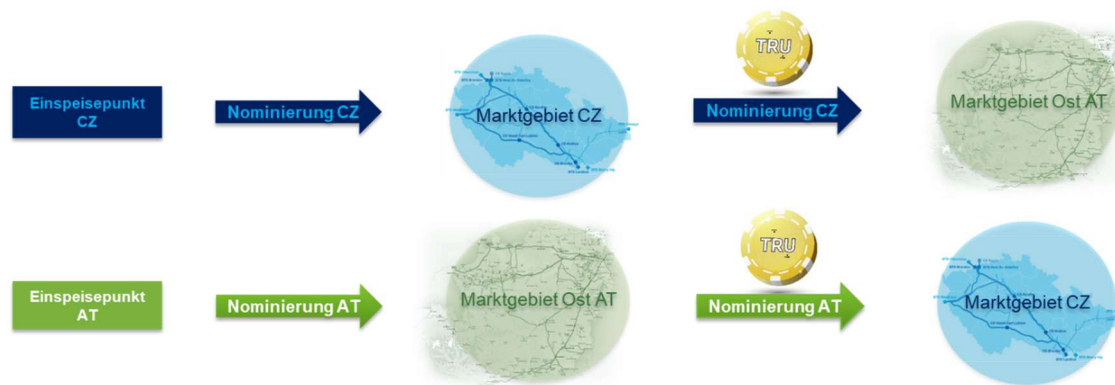
Hub With its pipeline system and the distribution node at Baumgarten, Gas Connect Austria is the gas logistics hub for central Europe. Our aim is to steadily develop and expand this function: only by doing so can Gas Connect Austria secure and strengthen its role as a leading gas logistics service provider over the long term. With this in mind, we are working with our customers and neighbouring transmission system operators to continually develop new options for gas transport. The following chapter summarises the initiatives and innovations aimed at

reinforcing the hub function and so shows how Gas Connect Austria wants to maximise its customers' options into the future.

5.1.2.1 Innovative service: TRU

Integration. The Trading Region Upgrade service ("TRU") is a special new service offering a range of additional options for connecting the Austrian and Czech gas markets. TRU was implemented by Gas Connect Austria together with the Czech transmission system operator NET4GAS, s.r.o. ("NET4GAS") and marketing began on 2 July 2018. The figure below shows the basic usage model for TRU.

Figure 42: TRU operating principle and application



Source: GCA

Connection. The Trading Region Upgrade (TRU) initiative enables our customers to transport gas volumes between the Eastern gas market area in Austria and the Czech market area. It enables simultaneous access to the virtual trading points of both market areas using existing infrastructure. In operational terms, TRU provides a standardised nomination facility: a TRU nomination in Austria made with Gas Connect Austria will provide the nominated capacities at the Czech virtual trading point, and a TRU nomination made with NET4GAS will provide the nominated capacities at the Austrian virtual trading point. And this is guaranteed – the corresponding transport capacity is already included in TRU.

Commercial success. This novel service was very well received by the market: around 90 MWh/h, constituting 80% of total TRU capacity offered, was sold in the 2018 annual auction for the gas year from 1 October 2018 to 1 October 2019. Given this strong demand, in August 2018 NET4GAS and Gas Connect Austria TRU also offered TRU on a quarterly basis. On this occasion, 22 MWh/h, or 97% of capacity offered, was sold for each of the second and third quarters of 2019. The project partners are now working on offering the TRU service on a monthly and daily basis.

Simple. TRU simplifies cross-border transport and access to both market areas. It means that only one contract is needed for a transit route from the Czech Republic to Austria or vice versa. By providing a "one-stop shop", TRU simplifies transactions and reduces transaction costs. By

combining the capacities needed for the transport route in a single booking process, it reduces potential risks relating to capacity allocation. Finally, TRU significantly improves trading flexibility and thus the options open to market participants.

5.1.2.2 Incremental capacity offering – a pioneering achievement in Überackern

Analysis. Between April and July 2017, Gas Connect Austria and the German transmission system operators bayernets GmbH (“bayernets”), GRTgaz Deutschland GmbH and Open Grid Europe GmbH carried out a market demand assessment for their shared interconnection points at Oberkappel and Überackern. The analysis showed non-binding demand for FZK capacity at the Überackern SUDAL entry point of around 2,500 MWh/h, which on the Austrian side cannot be covered by available capacities in the long term. As part of its network development planning activities for the previous year, Gas Connect Austria therefore carried out a technical study to plan a project for incremental capacity.

Collaboration. At the same time, Gas Connect Austria and bayernets embarked on a process of coordination with the objective of offering the incremental capacity as bundled standard products. To this end, Gas Connect Austria and bayernets produced a joint project proposal specifying the main economic, contractual and technical parameters for allocation of the incremental capacity and put it out to consultation on the market. The project proposal was finalised in close consultation with the two national regulatory authorities and approved by both authorities.

Application. As a result, Gas Connect Austria and bayernets became the first European transmission system operators to offer incremental capacity in accordance with demand and with the statutory framework established by the Network Code on Capacity Allocation Mechanisms. On 2 July 2018, a coordinated offer level for the Überackern 2/Überackern SUDAL interconnection point for the Germany to Austria flow direction was included in the annual yearly products auction on the PRISMA® booking platform, which had been upgraded for this purpose. An offer level is the sum of available capacity and the respective level of incremental capacity and is offered in parallel with and independently of annual auctions for existing capacity. The table below shows both existing capacity offered and the offer level containing the incremental capacity (“offer level 1”).

Table 7: Offer level at Überackern

Gas year Starting on 1 Oct.	Existing capacity [kWh/h]	Offer level 1 [kWh/h]
2018	—	—
2019	3,282	—
2020	3,282	—
2021	918,140	—
2022	918,140	3,435,890
2023	443,124	2,960,874
2024	443,124	2,960,874
2025	443,124	2,960,874
2026	443,124	2,960,874
2027	3,800,124	6,317,874
2028	3,800,124	6,317,874
2029	3,800,124	6,317,874
2030	3,800,124	6,317,874
2031	3,800,124	6,317,874
2032	3,800,124	6,317,874
2033	—	6,317,874
2034	—	6,317,874
2035	—	6,317,874
2036	—	6,317,874

Source: GCA

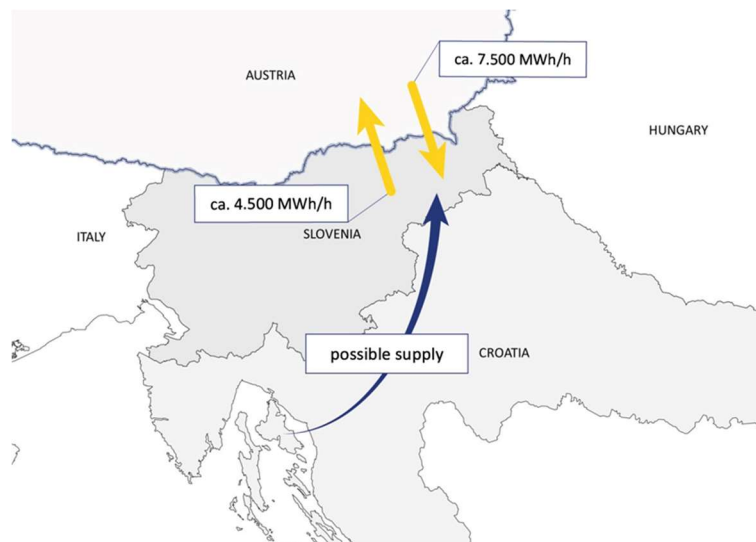
Lessons learned. Non-binding demand did not translate into binding demand, however: The fact that no bookings were achieved in the auctions suggests that the market cannot currently bear the costs associated with the incremental capacity for access to the Austrian virtual trading point (VTP). Gas Connect Austria will therefore look into further optimising the underlying technical measures with the aim of reducing costs and therefore tariffs (see 6.4.2). This incremental capacity process - the first anywhere in Europe to be carried out in accordance with the provisions of the Network Code on Capacity Allocation Mechanisms, which only entered into force in April 2017 - has prepared Gas Connect Austria for future allocation procedures at its cross-border interconnection points, and it will contribute the knowledge gained also to the European regulatory process. One example of such knowledge is a critical analysis of the basic suitability of the statutory mechanism of ascending clock auctions for the allocation of incremental capacity.

5.1.2.3 LNG corridor

Diversification. Well developed and flexible gas infrastructure contributes towards realising the objectives defined for European energy policy: market integration, security of supply, competition and sustainability. Such infrastructure stimulates market activity and enhances its liquidity. Alongside existing routes, an important role is played here by new transport routes and sources of natural gas, which help to further diversify the supply of energy.

The Croatia-Slovenia-Austria *project cluster* is part of the European priority corridor for north-south gas interconnections in central eastern and south eastern Europe (“NSI East Gas”). The objective of this project cluster is to diversify both routes and sources of gas supply in central eastern Europe: one such potential new source is the planned LNG terminal on the Croatian Adriatic island of Krk. The new route would pass via the strengthened Croatian/Slovenian interconnection point at Rogatec and the Slovenian/Austrian interconnection point at Murfeld/Ceršak to the central European gas hub at Baumgarten. Details regarding project planning for the Austrian side of the Murfeld interconnection point are found in Chapter 6.4.30. The figure below shows the transport corridor and the improvements in both flow directions at the Murfeld/Ceršak interconnection point planned jointly by Gas Connect Austria and the Slovenian transmission system operator Plinovodi d.o.o. (“Plinovodi”).

Figure 43: „LNG corridor“



Source: GCA

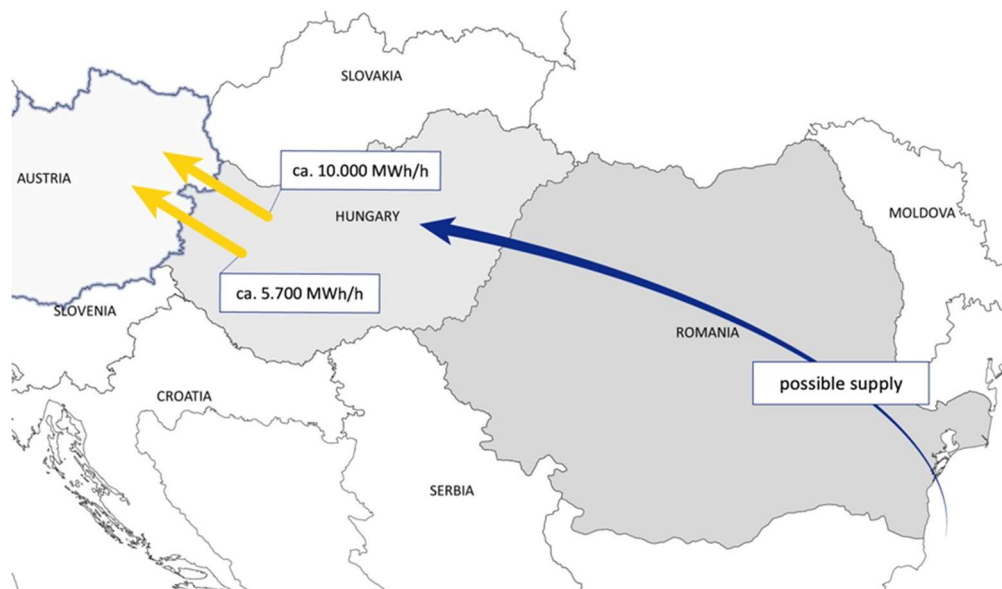
5.1.2.4 Black Sea corridor – „ROHUAT“

Legal framework. A central element of the European legal framework is the identification and promotion of projects of common interest (PCI) for Europe. As represented by the ROHUAT/BRUA corridor project, the Black Sea region plays a key role in this process. The project comprises various sub-projects that have been designed as clusters to be implemented in several stages over time. As a result it should become possible to assign additional capacities at the cross-border points in Bulgaria, Romania, Hungary and Austria, along a corridor operated

bidirectionally. To implement this transport corridor, Gas Connect Austria, together with the Hungarian transmission system operator FGSZ Zrt. (“FGSZ”) and the Romanian transmission system operator Transgaz S.A., prepared a joint binding allocation process for gas transport from Romania via Hungary to Austria. However, FGSZ withdrew from the project, forcing a situation in which allocation would apply to the Romanian/Hungarian cross-border interconnection point only. This process is being implemented as the “ROHU” alternative allocation process, while the open process for the “HUAT” Hungarian/Austrian interconnection point is subject to the standard process for the allocation of incremental capacity laid down in the Network Code on Capacity Allocation Mechanisms.

Growing demand. Despite the unilateral withdrawal from binding allocation for the “ROHUAT” corridor project by the Hungarian transmission system operator FGSZ Zrt. („FGSZ”) immediately before the scheduled start of capacity allocation, non-binding demand for transport capacity of gas from the Black Sea region to the central European gas hub at Baumgarten is rising. In addition to the incremental capacity of around 6,400 MWh/h per year that “ROHUAT” would provide, the market demand assessment carried out by Gas Connect Austria and its neighbouring transmission system operators between 6 April 2017 and 1 June 2017 revealed non-binding demand for another 4,700 MWh/h per year at the Mosonmagyaróvár interconnection point. This demand was apparent on both sides of the interconnection point in the Hungary to Austria flow direction. Gas Connect Austria and FGSZ therefore conducted technical studies in accordance with Article 27 of the Network Code on Capacity Allocation Mechanisms in order to design incremental capacity projects and coordinated offer levels. The figure below shows a schematic view of the transport corridor and the offer levels for incremental capacity from the Hungarian entry/exit system to the Austrian entry/exit system.

Figure 44: “ROHUAT” Black Sea corridor



Source: GCA

Justified customer expectation. From 19 October 2017 to 19 November 2017, FGSZ and Gas Connect Austria carried out a binding, joint and public consultation on the draft proposal for the incremental capacity project. It comprises two coordinated offer levels of approximately 10,000 MWh/h per year and 5,700 MWh/h per year which would be allocated in parallel auction processes for the gas years 2022 to 2036. The transmission system operators received comments from four market participants. The market participants requested the right to cancel any contracts for incremental capacity entered into to enable them to synchronise their transport portfolios with other relevant projects in the Southern Corridor region. In response, the transmission system operators, in coordination with the relevant national regulatory authorities, developed a right of withdrawal. System users to which incremental capacity is allocated can, up to a particular cut-off date, withdraw from capacity contracts without specifying reasons.

Market economy. Again on the basis of non-binding demand, Gas Connect Austria worked with the Slovakian transmission system operator Eustream a.s. (“Eustream”) and the Hungarian transmission system operator Magyar Gaz Transit Zrt. (“MGT”) to develop the “HUSKAT” alternative transport corridor (as an alternative to the direct route from Hungary to Austria – “HUAT”), which runs via the Hungarian and Slovakian entry/exit systems to the central European gas hub at Baumgarten (see Chapter 5.1.2.5). This is evidence of the fact that Gas Connect Austria is guided in its business activities by the conviction that maximising options maximises customer satisfaction.

Command economy. While the Austrian regulatory authority ultimately approved the project proposal submitted by Gas Connect Austria and so gave the green light for system users to select their preferred transport route – either “(RO)HUAT” or “HUSKAT” – the Hungarian regulatory authority issued a negative opinion on FGSZ’s corresponding proposal for an incremental capacity project at the Mosonmagyaróvár interconnection point.

Mosonmagyar-over? Gas Connect Austria continues to view this transport corridor as attractive, however, and is seeking to auction the incremental capacity in the annual auction in July 2019. Even more so, as market participants have submitted demand totalling around 10,000 MWh/h per year, less than half of which could be covered by the “HUSKAT” corridor.

5.1.2.5 Black sea corridor – “HUSKAT”

More of the same? In October 2017, Gas Connect Austria and the Slovak transmission system operator Eustream received non-binding capacity demand requests of approximately 4,648 MWh/h per year for the Baumgarten interconnection point for the period from 2022 to 2037 in the Slovakia to Austria flow direction. Although this demand was submitted after the market demand assessment reporting period was over, the transmission system operators opted to address it in the market demand assessment for the current incremental capacity process. The non-binding capacity demand can be covered on the Austrian side of the Baumgarten interconnection point by existing capacity, but cannot be covered by existing

capacity on the Slovak side. The market demand assessment also showed corresponding demand at the Slovak/Hungarian interconnection point at Veľké Zlievce/Balassagyarmat.

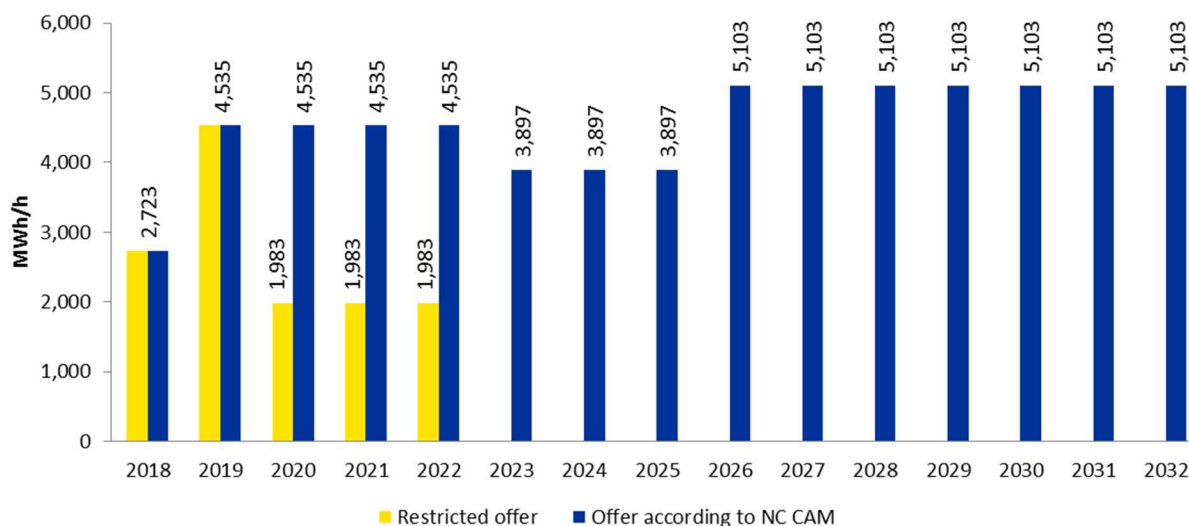
Alternatives? To maximise the options available to its transport customers, Gas Connect Austria, together with Eustream and the operator of the Hungarian-Slovak interconnector, MGT, developed an alternative capacity allocation mechanism in accordance with Article 30 of the Network Code on Capacity Allocation Mechanisms. This allocation mechanism allows transport customers to bid for capacity bookings at both interconnection points during the allocation process. These bids can be made subject to certain conditions, specifically the allocation of capacity at both interconnection points, the allocation of capacity for multiple yearly standard capacity products at an interconnection point, and/or allocation of a minimum amount of capacity. Unlike the standard incremental capacity procedure, under which transport customers are tied to the rigid rules relating to ascending clock auctions and as such are “price takers”, here capacity is allocated according to customers’ actual willingness to pay. As with the corridor project at the Mosonmagyaróvár entry point (see Chapter 5.1.2.4), the “HUSKAT” project also gives transport customers a special right to terminate contracts to enable them to synchronise their transport portfolios with other relevant projects in the Southern Corridor region.

Start of allocation. From 25 May 2018 to 25 June 2018 the transmission system operators concerned carried out a binding, joint and public consultation on the draft project proposal. Comments were submitted by nine market participants. On 5 June 2018, the project partners held an information event for market participants in Budapest. After considering the results of the consultation, the transmission system operators submitted coordinated project proposals to their respective national regulatory authorities, which were approved between 23 July 2018 and 26 July 2018. The allocation process for “HUSKAT” corridor then began on 27 July 2018. The approved allocation procedure, including the schedule and specimen contracts for the capacity offered, are available from the Gas Connect Austria website.

5.1.2.6 Digression – sale restrictions at the Mosonmagyaróvár interconnection point

Limited by bundling requirement. After the Hungarian regulatory authority prohibited the Hungarian transmission system operator FGSZ at short notice from marketing any yearly capacities in the 2017 annual auctions, Gas Connect Austria was able to offer bundled products for just two years instead of 15 years due to the bundling obligation imposed by the Network Code on Capacity Allocation Mechanisms. In 2018, marketing of yearly capacity was again significantly limited by order of the Hungarian regulatory authority, meaning that only 19% of the capacity available on the Austrian side of the interconnection point could be offered. Figure 45 shows how the offer of FZK capacity was limited at the Mosonmagyaróvár exit point compared to the capacity that it should have been possible to offer on the Austrian side in accordance with the Network Code on Capacity Allocation Mechanisms.

Figure 45: Sales limitation Exit Mosonmagyaróvár



Source: GCA, 2018

Core business. Gas Connect Austria considers this renewed interference with its core business, namely the marketing of cross-border transport capacities, to be in conflict with European legislation, particularly as regards the obligation to allocate bundled capacity under Article 19 of the Network Code on Capacity Allocation Mechanisms. The Hungarian regulatory authority argues that the capacity restrictions are needed because of the potential market foreclosure risk resulting from bookings by a dominant market participant, which according to the Hungarian regulatory authority has an information advantage. In view of the numerous transnational infrastructure projects currently at the planning and implementation stages, Gas Connect Austria considers this line of argument to be speculative. Furthermore, the Hungarian regulatory authority is simultaneously supporting incremental capacity projects such as “ROHU” and “HUSKAT” (see Chapter 5.1.2.5) despite the fact that following the Hungarian argument these capacities too could cause market foreclosure. Gas Connect Austria takes the view that the market alone should decide on use of existing transit routes by way of existing capacity auctions and/or on the creation of new transport corridors by way of incremental capacity auctions. It is the responsibility of the transmission system operators, together with the regulatory authorities, to create and maximise options for market participants.

5.2 Activities of Trans Austria Gasleitung GmbH

Laid on the intersection between the North-South for the middle and eastern Europe („NSI East Gas“) and southern („SGC“) priority gas corridors, Austria and its virtual trading point play due to their geographical situation a crucial role in the supply of natural gas of the European Union. The international new or extended interconnections for the gas supply originating from the Black Sea, respectively of Russian gas through the North Europe will probably reinforce this function of physical and trading hub, particularly linked with the node Baumgarten.

Due to that central place, Trans Austria Gasleitung GmbH („TAG GmbH“) constitutes a vital transportation artery from the Slovakian to the Italian borders. In constant exchange with the other national adjacent TSO Gas Connect Austria GmbH („GCA“), TAG GmbH makes a considerable contribution to the Austrian security of supply in the direction of the domestic distribution system and to the international security of transit towards the adjacent Italian, Slovakian and furthermore Croatian networks.

The planning and the execution of investment projects achieve basically a double target, which lie at the core of the responsibilities of TAG GmbH as TSO:

On the one hand, maintain through re-investments the existing transportation infrastructure of the TAG system reliable, efficient and optimized, in order to guarantee the hitherto existing transportation requirements

On the other hand, respond adequately to the addressed market demand on additional transportation capacity, by mean of the pinned NDP methodology „survey on capacity demand / determination of the capacity need / definition and analysis of capacity scenario / project planning“.

The network development plan (NDP) of TAG GmbH delivers essentially an overview of the continuous planning activity and progress of the company towards the different actors of the gas and energy sectors, stakeholders, policy makers, consumers.

The listing of the main investments articulated between investments for capacity extension respectively re-investment materializes each of the realization for covering the demand and the infrastructural perpetuation of the TAG system. TAG GmbH introduces also in the NDP the link of the activity of the TSOs in the broader context of the further development of the European gas market, some aspects of the innovation and the technology, the current and potential commercial activity.

The NDP of TAG GmbH is integral part of the coordinated network development plan („CNDP“) and was established in an integrative way in closed cooperation with GCA and the neighbor TSOs. The other possible interactions with the Austrian distribution system have been also integrated closely in a holistic consideration under the involvement of AGGM as distribution area manager (DAM) and market area manager (MAM).

5.2.1 Commercialization of capacity and commercial activity

PRISMA commercialization: the “one stop shop“ of TAG GmbH for the capacity sales

In line with its philosophy of making available a unique standardized marketing platform („one stop shop“), all transportation capacities offered by TAG GmbH at the relevant entry points Baumgarten and Arnoldstein (reverse flow) and at the relevant exit points Baumgarten (virtual) and Arnoldstein are exclusively auctioned on PRISMA, for all mandatory market segments. Thus, the transparency is increased for all the system users of the TAG system and the administrative expenditures are simultaneously kept as low as possible.

Since October 2015 TAG GmbH offers the possibility to book Within-Day products and herewith allows the customer highest degree of flexibility. In order to develop foresightfully the product portfolio of TAG GmbH in favor of its system users, as of October 2015, TAG GmbH introduced the possibility to make use of capacity on interruptible basis at the Exit Point TAG Baumgarten to the Slovakian transportation system (non physical Reverse Flow on interruptible basis).

A last implementation and innovative tool of the network code CAM („NC CAM“) under the direct contribution of TAG GmbH together with the other European TSOs, the bidding for potential projects with incremental capacities has been enabled on the PRISMA Platform in the framework of the yearly auction 2018 of 02.07.2018. The bidding can be addressed for different marketing configurations, the so-called “offer levels”, which correspond basically to different project variations which various maximal potential new technical transportation capacity. The project can be initiated, if enough bids were offered for the foreseen bidding period (e.g. 15 years) guaranteeing the positive result of the economic test of the project.

The Prisma platform represents finally a high efficient system for the most diverse bundling configurations, enabling the maximization of bundled capacity at a relevant point through the TSOs' coordination directly serving the interest of the market needs. Die Prisma Plattform stellt letztendlich auch ein höchsteffizientes System dar, um verschiedenste Bündelungsarten und dadurch maximierende gebündelte Kapazität an einem maßgeblichen Punkt durch die Koordinierung zwischen Fernleitungsnetzbetreibern zu verwenden, welche direkt dem Markt dienen.

Additional service provisions form TAG GmbH to the market

TAG GmbH assumes fully its role of service provider for the network users in optimizing and flexibilizing the commercialization possibilities.

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 to its system users the option to return bindingly booked, guaranteed capacities which were contracted by the system user at an entry or exit point, except for capacity products with a term of one day or less. TAG GmbH offers the returned capacities as well as the capacities freed up by applying the short-term Day-Ahead UIOLI regulation (Use-It-or-Lose-It) together with TAG capacities in the corresponding auctions.

Also initiated through the requirements of the NC CAM, TAG GmbH offers from 01.10.2017 a capacity conversion service of unbundled free allocable capacity (FZK) at its concerned relevant points. This service enables the TAG system user, which booked formerly unbundled capacity and which purchase in an auction bundled capacity on the same relevant point, to convert the former unbundled capacity into a bundled capacity under the valid applying conditions ([Link](#) to the capacity conversion service of TAG GmbH).

Customer relations as a success factor

TAG GmbH introduced in the course of 2017 an internal process to analyze the customer satisfaction. The goal is to continuously assess the quality of the commercial service offered and to improve it, with the target to maintain future-orientated the current high quality of customer management. The key tool of this process is the market survey performed from 12.04.2017 to 12.05.2017, which served as input to define performance and steering indicators.

The analysis of the survey results and the listing of corresponding measures were finalized by the beginning of 2018 and apply for the next years till end of 2020.

In this period, beyond the customer care, a specific focus will be given to further noteworthy criteria like “transparency and data quality”, “environment aspects” or “reliability of the transportation”.

Other topics

As member of the ENTSOG, TAG GmbH participates actively to the implementation of the NC CAM and its new requirements. The following working packages are currently intensively followed: the preparation of the template for the „Alignment of main terms and conditions for bundled capacity products” according to NC CAM § 20 after the completion of the corresponding public consultation on 30. April 2018; the continuous analysis of the potential shortening of process lead times for the execution of capacity transfer of uses or of assignments. A significant step has been realized end of 2017, in which the lead time for execution of transfer of uses for the customers of the TAG GmbH has been decreased from the former 2 days to 4 hours.

5.2.2 Capacity booking– report 2018

Capacity booking of yearly, quarterly and monthly products

For the time 01.10.2014 – 01.10.2018 taken as sampling delivery period, about no capacity³ offered as yearly and quarterly products in the relevant Entry points Baumgarten and Arnoldstein (Reverse Flow) as well as Exit points Baumgarten (virtual) and Arnoldstein has been acquired from the side of the network users, for both firm and interruptible marketed product

³ One award has been recorded in March 2014 for the Exit point Arnoldstein in interruptible quality.

quality. This current dynamic can be in the certain extent explained by the high booking situation at the relevant points of the TAG system through long-term contracts till 2023.

The capacity booking based on monthly products indicates tendentially for the same analyzed delivery period a similar dynamic. Nevertheless, since end of 2017, bookings have been registered systematically at the Exit point Arnoldstein for the months January till May 2018 and the Start prices of the auctions of January, February and April 2018 have been exceeded. This shows, that the demand of available capacities at this relevant point meets only in seldom cases the maximal technical capacity. Interpreted in other way, the technical and commercial dimensioning and optimization of the capacity offer corresponds adequately to the current market demand (see also next chapter).

Booking of Day-Ahead and Within-Day products

As in the previous years, mainly short-term products, particularly Day-Ahead products, were requested in the TAG system by the market participants in 2017. The fact that in most auctions the start price of the auction equals the clearing price, can be seen as a clear indication, that in the TAG system no congestion can be currently identified and therefore the capacity offer covers currently the market demand sufficiently. See also the 5th publication of Annual report on contractual congestion at Interconnection points (Annual report on contractual congestion at Interconnection points – 2017, ACER).

Table 8: Statistical analysis of short-term products auctions 2017 – TAG GmbH

Year 2017			Day-Ahead*				Within-Day	
B = bundled, U = unbundled			FZK (firm)		UK (interruptible)		Auctions	Surcharge
			Auctions	Surcharge	Auctions	Surcharge		
Baumgarten	Entry	B	340	0	0	0	Basically hourly; bundling in inter-dependency with the adjacent TSO	4
Baumgarten	Entry	U	105	5	265	0		0
Baumgarten	Exit	B	0	0	0	0		-
Baumgarten	Exit	U	0	0	363	0		-
Arnoldstein	Entry	B	362	0	3	0		0
Arnoldstein	Entry	U	362	0	10	0		0
Arnoldstein	Exit	B	318	26	67	0		23
Arnoldstein	Exit	U	7	0	248	0		0

*) The number of auctions on the Day-Ahead and Within-Day market segments depends principally on the planned maintenance works on the TAG and adjacent TSOs networks, and on the bundling configurations..

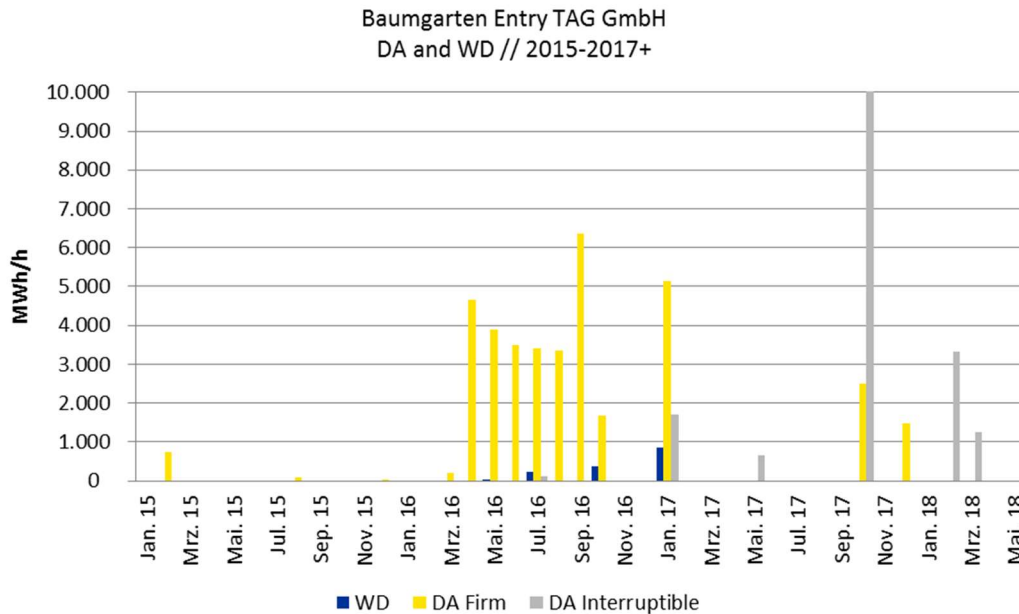
Source: TAG GmbH, 2018

Furthermore, the introduction of short-term congestion management procedures in 2013 according to §11 of the Gas market model regulation 2012 as well as the possibility of capacity surrender has contributed to increasing the availability of freely allocable capacity at relevant

points. With the introduction of Within-Day auctions TAG GmbH has fully implemented the provision of the EU Regulation 984/2013 (precedent version of the CAM Network Code).

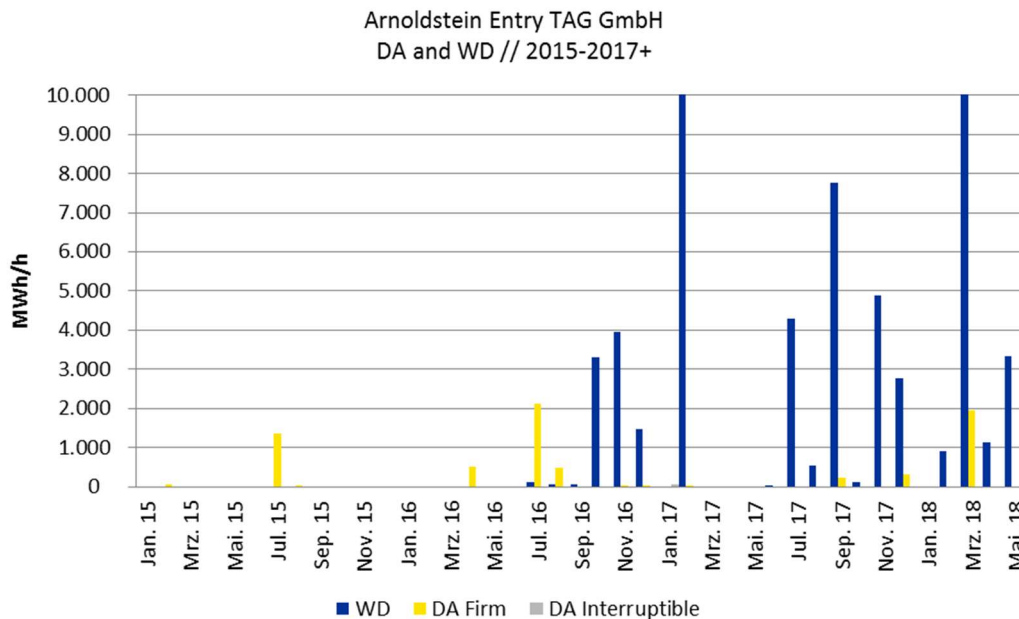
The evolution of the booked capacity shows an increase of the short-term purchase since begin of 2017.

Figure 46: Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Entry Baumgarten



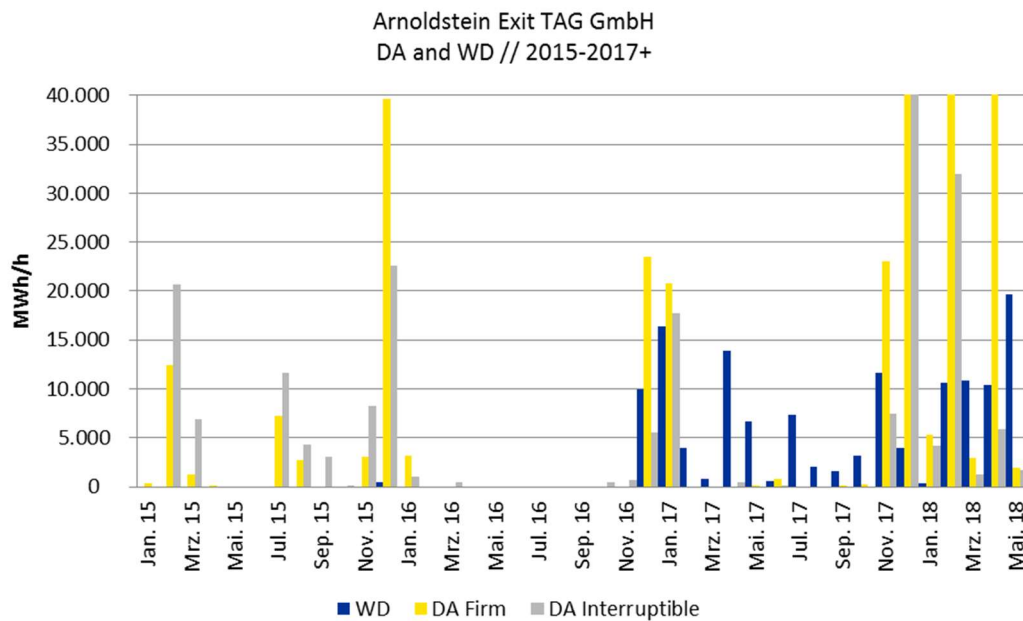
Source: TAG GmbH

Figure 47: Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Entry Arnoldstein



Source: TAG GmbH

Figure 48: Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Exit Arnoldstein



Source: TAG GmbH

5.2.3 Quality and certification

The security of facilities and employees and the fulfilment of all the environment standards find in TAG GmbH paramount importance, in the daily operation as well as in the realization of projects. Hence TAG GmbH put in place continuously appropriate measures in the fields of health, job safety, security and environment.

Job safety first

TAG GmbH applies a pro-active approach for the safe-guarding of the health and the physical integrity of the employees and contractors. Not fully secured situations and corresponding actions are for example reported immediately, recorded and corrective measures initiated correspondingly in a strict observance of the rules and standards.

The crisis and emergency management system ensure additionally, that potential incidents are managed professionally.

The core activity is based on all the legal provisions and the most recent state of the art of the technic. TAG GmbH strives for the certification ISO 45001:2018 (Norm for a certificated system for the management of the safety at work) for the year 2019.

Protection of the environment

TAG GmbH considers the impacts on people, animals and environment extremely seriously and strives to minimize them constantly in the broadest extent possible. A continuous control of the emissions, the regular collection of reference and performance environmental indicators

including the definition of appropriate measures and the sensitization of our employees enable a constant improvement of the environment protection.

The core activity based on all the legal provisions and the most recent state of the art of the technology. TAG GmbH strives for the certification ISO 14001:2015 (Norm for a certificated system of the environmental management) for the year 2019.

Design and dimensioning of the infrastructures and facilities

The infrastructures and facilities of TAG GmbH are built according to the valid decrees, norms, rules and standards, and decision or requirements of the Authorities. Additionally, the high secured, transparent and professional execution of projects is ensured by the company specific written process instructions handbook and standards and the internal HSEQ -guidelines. The project processing (engineering, installation, handing-over and putting into operation) is executed under the compliance of the valid European norms, national laws and decrees, provisions and the most effective state of the art of the technic.

Maintenance, operational activities and corrective measures

The security and the integrity of the facilities is ensured through a structured maintenance. As a core component, the requirements of all planned maintenance activities are encompassed in the maintenance matrix. The type and periodicity of the activities have been determined according to acts and decrees (e.g. GWG), decisions of the Authorities, norms (ISO, DIN, EN, ÖNORM), provision of contractors and manufacturers, historical knowledge. The execution of the planned activities is planned and recorded electronically, and administrated and archived in a database.

Moreover, these entire operational measures guarantee that deviations from the targeted stand are identified in due time and the ideal stand is recovered in the shortest time.

A continuous improvement process ensures finally, that measures will be permanently implemented for the guarantee and further development of the security and integrity of the infrastructures.

5.2.4 Renewal of the transportation system to the latest state of the innovation and technology

The renewal of the TAG system and the maintenance activity are in the core of the main responsibilities of TAG GmbH, in order to ensure the technical, operational and commercial integrity of the operation of the TAG system, in the higher-ranked target of the security of supply and the avoidance of transport curtailments. In the course of the development of major re-investment projects and programs, TAG GmbH dedicates a significant focus on the innovation and technology, with the goal to generate socio-economic benefits for the society, which refer for example to the emission reduction, the optimization of the OPEX, the diminution of transportation interruptions, the increase of the operational reliability or the optimization of the energy consumption for compression.

The NOxER II project: the power energy and sunken CO₂-emissions in focus

Due to the requirements of the new emission protection law for boiler plants (EGK) as well as due to the age and the achieved operation hours (over 100.000 per unit) of the 10 gas-driven compressor units (type GE Frame 3) installed in 1975, TAG will take these units out of operation step by step in order to reduce the burden with NO_x and CO₂ emissions on its system.

After comparison of the possibilities in the selection of the technology, a technical solution based on electro-driven compression units has been chosen, motivated by the detailed technical, system-steering and economic analyses. The following main advantages of this technology are recapped herewith:

- ▶ Compliance with the EGK
- ▶ The huge environmental-orientated reduction of emissions of gases (including partially greenhouse gas) like CO₂, CO, NO_x, etc. corresponding to the valid legal specifications and in the background of the global mid-term perspective of intensification of the European decarbonization.
- ▶ Considerable lowering of the noise emissions.
- ▶ The maintenance works and downtime occurrence of the units will be reduced thanks to the diminution of the mechanical and thermic stresses. Less spare parts are moreover required.
- ▶ A wider range of outputs power and a faster compressor time reaction enabling a higher flexibility and operability for the steering of the system.
- ▶ Drop of the purchasing costs of CO₂ emissions certificates.
- ▶ From the economic point of view, the energy cost for compression is optimized between both compression technologies according to the energy market fluctuations.

The NOxER II project and its four planned electro-driven compressors provide a strong diversification of the TAG-compressor fleet, while the selected technology demonstrates a high socio-economic benefit without impacting the maximal available transportation capacity of the TAG system. The physical realization of new compressors is ongoing and is strived to be completed till the end of 2018. The remaining dismantlings are planned to be performed in 2019.

Upgrade of gas generators and turbines at the latest state of the technology

The 16 remaining youngest gas-driven compressors (from type GE PGT25 DLE), distributed in 5 different compressor stations, forms the backbone of the TAG system. The drive of the gas compressor is realized by a gas generator (GE LM2500 DLE) combined with a power turbine (PGT25).

Re-investments concerning the turbo-compressors are currently followed for two different types of works and are realized in the latest technic and technology offered by the manufacturer:

- ▶ The upgrade of the gas generators from the so-called DLE1.0 to DLE1.5 respectively DLE1.5 Xtend product generation with extended service interval reduces the NOx emissions according to the new legal obligation and leads to a positive impact on the CO emissions
- ▶ The upgrade of the obsolete 46 hole housing flange of the power turbines, or of the old generation 72 hole housing flange, to the latest generation 72 hole housing flange with extended service interval, ensures a high reliable operation of the compressor units

All these measures substantially reduce the inspection and maintenance service and are therefore only realized when the respective machines have reached a certain number of operating hours (each with a 25,000 or 50,000 operating hours service), which is related to maintenance costs and maintenance downtime lowering effect. As a result, this technological leap is first applied to the heavily loaded compressors of the Baumgarten and Ruden compressor stations.

Table 9: Gas generators and turbine projects

Compressor station and units	Turbine Type	Potential Technology Upgrade	Gas Generator Type	Potential Technology Upgrade	Projekt Phase
Baumgarten C500	72-hole old	72-hole new	DLE 1.0	DLE 1.5 Xtend	Planning
Baumgarten C600	72-hole new	/	DLE 1.0	DLE 1.5 Xtend	Planning
Baumgarten C700	46-hole	72-hole new	DLE 1.0	DLE 1.5 Xtend	Engineering
Baumgarten C800	72-hole new	/	DLE 1.5	DLE 1.5 Xtend	/
Ruden C400	46-hole	72-hole new	DLE 1.0	DLE 1.5 Xtend	Execution
Ruden C500	46-hole	72-hole new	DLE 1.0	DLE 1.5	Executed
Ruden C600	72-hole new	/	DLE 1.5	DLE 1.5 Xtend	Engineering

Source: TAG GmbH

The first fully completed project “TAG 2016/R07: DLE 1.5 + 72 holes PT module RC500 in CS Ruden” lays an important milestone toward the technological standardization of the turbocompressor-fleet of the TAG system. On the mid-term, TAG GmbH intends to apply the same philosophy to all concerned gas-driven compressor units.

Program of overhaul of valve stations of the TAG system: an illustration of the sustainable security and reliability of the operations

Already end of 2015, the necessity of renewal of several valve stations of the TAG system was identified, justified by the aging and the ineluctable deterioration of these infrastructural elements: some of them were installed in the same time with the construction of the oldest TAG I pipeline 40 years ago.

The target of these projects is the renewal and/or replacement of the instrumentation, coatings and underground insulations, cathodic protection system, cabling and enclosures of the valve stations along the TAG pipeline system when the necessity was identified through the inspections and corresponding to the newest state of the technics.

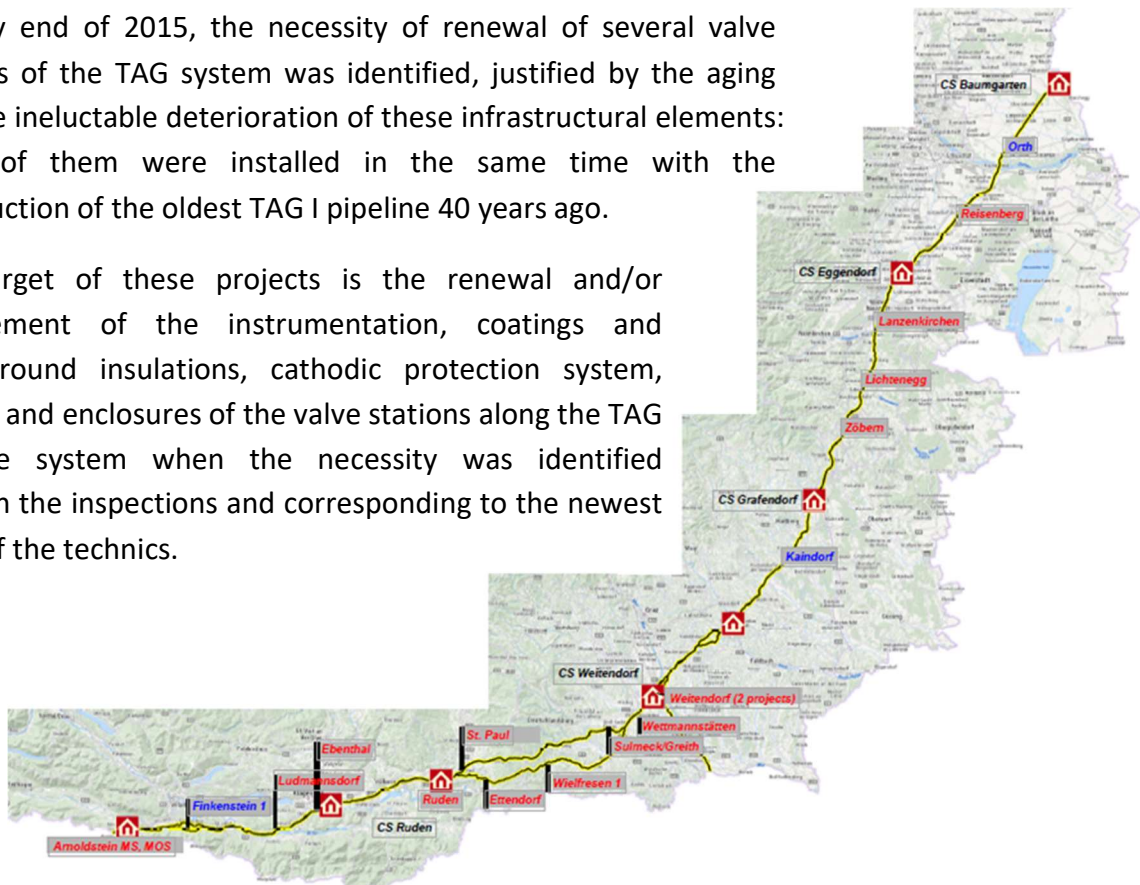


Figure 49: The sites or renewal of main valve stations (blue: executed; red: in execution or planned), Source: TAG GmbH

Such renewals have been included in the project plan and NDP of TAG GmbH for at the minimum 18 identified main valve stations along the 3 pipelines of the TAG system. 3 projects of them have been meanwhile completed successfully in 2017 on the sites Orzh, Kaindorf and Finkenstein.

Figure 50: Renewal of valve stations: site Finkenstein



Source: TAG GmbH

5.2.5 Focus on the future: digitalization and sustainable gas

Sustainable gases

Based on the strategy plan communicated by the European commission for a low CO₂ economy till 2050, respectively the strategy for the climate and energy of the Austrian government, the topics of the decarbonization and the development of the sustainable gases (bio-, green-, synthetic- gases) are taking always more place and importance in the dedicated mid-term development national, regional and European scenarios. In this scope, TAG GmbH started in 2018 to assess the potential business and intervention fields in Austria, where TSOs, as central element of the energy value chain, can bring their contribution and orientation in the most efficient way.

The identified priority fields concern currently the mobility and the conversion of power to gases (hydrogen or synthetic gases) as sectoral power-gas coupling and will be deepened in close collaboration with the other actors of the gas and energy sector in the upcoming time.

Digitalization

In order to meet the huge challenges of the societal decarbonization and energy transition impacting the European Union, one of the vectors at the utmost importance is the digitalization of the infrastructures. Smart Grid, Smart Meter, Virtualization of business elements, steering and control techniques by means of digital technologies, blockchains frames the integrative elements for the transformation of the energy sectors. TAG GmbH puts a strong strategic focus on the transformation of its system, in order to prepare gradually the future.

As a good illustration of this transformation, TAG GmbH plans currently to introduce a remote diagnostic system in all the compression stations, in order to start implementing on-condition maintenance, optimizing intervention times, increasing reliability and reducing maintenance costs.

6 Projects (Network development plans of the transmission system operators)

6.1 Classification of projects

The projects in the KNEP are structured according to project categories and project types.

6.1.1 Project categories

The projects of the CNDP are divided into 5 project categories (see Figure 51) which reflects the procedure of approval.

Figure 51: Project categories

Projects of the previous CNDP	New projects	Projects of the current CNDP
	Continued and approved projects without amendments	
	Continued and approved projects with amendments	
	Withdrawn projects	
	Implemented projects	

Source: AGGM

New Projekte

New projects are projects that are submitted for approval in the current CNDP for the first time.

Continued and approved projects without amendments

This category comprises projects that have been submitted and approved in previous CNDPs and are continued without any substantial modifications.

Continued and approved projects with amendments

Pursuant to section 64 para. 1 Natural Gas Act 2011, approval is granted based on proof to be submitted by the TSO showing that the investments in the plan are necessary for technical reasons, adequate and economically efficient. In the event of substantial changes to this proof and the underlying data, the project modifications have to be submitted by the TSOs, and the project has to be re-evaluated pursuant to section 64 Natural Gas Act 2011 by E-Control as a matter of principle.

Withdrawn projects

This category comprises projects that have been put into operation by the submission deadline for the current CNDP.

Implemented projects

This category comprises projects that have been put into operation by the submission deadline for the current CNDP.

6.1.2 Project types

Furthermore, the projects in the CNDP are distinguished according to their scope of realization (e.g. creating of additional capacities, replacement of existing infrastructure, etc.) into following project types.

Planning projects for additional capacities

Planning projects are projects in an early planning stage aiming to create additional capacities, which have been influenced by related precursory projects with regard to technical design and economic optimisation or for which marketing modalities have not yet been finalised.

Projects of additional capacities

Projects creating additional capacities are projects in an advanced planning stage (e.g. detailed planning has been completed, approval procedures have been started, a feasibility study has been carried out). They can be sub-divided into the following groups:

- a. Projects that require an economic test pursuant to Article 22 in conjunction with Article 24 of Regulation (EU) 2017/459 ('CAM NC'):

These are projects whose costs are entirely or partially assigned to one or several handover point(s) (IP). These projects should only be implemented if the economic test pursuant to Article 22 in conjunction with Article 24 CAM NC has a positive result.
- b. Complementary projects:

These are projects that must be realised in order for a project listed under item a. to entirely fulfil its function. Such projects can only be implemented if the corresponding project listed under item a. has received a positive result on the economic test pursuant to Article 22 in conjunction with Article 24 CAM NC. Once approved, these projects should be implemented when the related precursory project or the corresponding project fulfils the conditions for being implemented.
- c. Projects that do not require an economic test:

These are projects that neither fit item a. nor item b. and are not replacement investment projects either but which are still capacity-relevant projects with regard to their intended function and purpose (e.g. increasing the flexibility of access to the virtual trading point, fostering freely allocable capacities with regard to security of supply and transit (increase in the redundancy of freely allocable capacity etc.).

Replacement investment projects

In keeping with the CNDP's purpose, also replacement investments that concern important existing infrastructure pursuant to section 63 para. 3 item 1 Natural Gas Act 2011 and that safeguard secure, reliable and effective operations must be included in the CNDP. Also replacement investments can contribute to the goals of meeting demand in line capacities catering to final consumers and achieving a high degree of availability in line capacities (security of supply) (e.g. exchange of compressor units or revamping line sections).

6.2 Withdrawn projects of the CNDP 2017

Table 10 lists the approved projects of previous CNDPs, which will be withdrawn due to the lack of necessity in order to meet the requested capacity demands in the CNDP 2018. Subject to the approval of E-Control Austria these projects are regarded as CNDP projects anymore.

Table 10: Withdrawn projects

Project type*	Project sponsor	Project no.	Project name
C	TAG	2016/03	Reverse Flow Baumgarten MT Station (MS2)

*) C – Project for additional capacities; E – Replacement investment project

Source: GCA, TAG, AGGM; 2018

6.3 Projects of the CNDP 2018

The CNDP 2018 includes following projects listed in Table 11, Table 12, Table 13, Table 14 and Table 15.

Table 11 and Table 13 show the projects of the CNDPs 2015, 2016 and 2017 which are continued without amendments. These projects have already been approved by E-Control Austria and will be further continued according to plan.

Table 14 displays the already approved projects of the previous CNDPs, which have been amended based on new knowledge or changed demands. These projects will be submitted for approval to the regulation authority in the amount of their changes.

Table 12 and Table 15 illustrate the newly developed projects of the CNDP 2018 will be submitted for approval to the regulation authority.

The project sheets containing the essential project data are attached in Appendix 1. The projects are listed by project type and project number.

Information concerning possible impacts on existing transportation capacities during the implementation of the projects can be found on the following Links:

- AGGM: <https://www.aggm.at/en/network-information/maintenance-coordination>
- GCA: <https://www.gasconnect.at/en/network-information/network-development/maintenance/>
- TAGG: <https://www.taggbh.at/en/for-system-users/maintenance-works/>

6.3.1 Projects for additional capacities

The following projects have been analysed and developed in close coordination between the Austrian transmission system operators and/or the respective neighbouring TSO. The requirements defined in the decree V KNEP G 01/17 of 19.01.2018 were also taken as basis of reference for the analysis.

These projects including the technical measures are presented in Appendix 1. Further details are provided separately by the transmission system operators to the regulation authority as confidential supplements.

Table 11: Projects for additional capacities – Continued and approved projects without amendments

Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]
GCA	2015/01a ¹	Bidirectional Austria Czech Interconnector	4,5	
GCA	2015/01b	Projekt 1b: BACI DN 1200	4,25	
GCA	2015/02a	Entry Überackern	4,5	
GCA	2015/03	Entry/Exit Überackern - Maximum	6	
GCA	2015/04	Entry Mosonmagyaróvár - Minimum	1,5	
GCA	2015/05 ²	Entry Mosonmagyarovar	4,5	
GCA	2015/07b ⁴	Additional Demand in Distribution Area +		Q4 2018
GCA	2015/08 ³	Entry/Exit Murfeld	4,5	
GCA	2015/10 ⁴	Entry Arnoldstein		Q4 2018
GCA	2017/01 ²	Entry Mosonmagyaróvár Plus	4,5	
GCA	2017/02	Penta West – Exit Distribution Area	1,5	
TAG	2016/01	TAG Reverse Flow Weitendorf/Eggendorf		Q4 2019
TAG	2016/04	TAG Baumgarten interconnection capacity (Mosonmagyaróvár)		Q4 2021
TAG	2016/05	TAG Baumgarten interconnection capacity (BACI)	4,5	
TAG	2017/01	TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II	4,5	

¹) The completion of the project GCA 2015/01a Bidirectional Austria Czech Interconnector is currently planned with 2024, since the implementation and evaluation of the project “Trading Region Upgrade / TRU,” according to the 3rd „PCI“ list, has to be carried out in advance.

²) The completion of the projects GCA 2015/05 Entry Mosonmagyarovar and GCA 2017/01 Entry Mosonmagyarovar Plus Interconnector is currently planned with 2024, since the adjacent TSO FGSZ Zrt. has changed the timeframe of the corresponding project in the Hungarian transmission system accordingly.

³) The completion of the project GCA 2015/08 Entry/Exit Murfeld is currently planned with 2023, since the submission of the project proposal for an incremental project to create additional capacities by the adjacent TSO Plinovodi d.o.o. has not happened yet.

⁴) The completion of the project GCA 2015/07b Additional Demand in Distribution Area + and GCA 2015/10 Entry Arnoldstein has been delayed due to prioritization of measures due to the Baumgarten incident of 22 December 2017

Source: GCA, TAGG; 2018

Table 12: Projects for additional capacities – New projects

Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]
GCA	2018/01	Überackern - Oberkappel	4,5	
TAG	2018/01	Murfeld Exit Capacity Increase	4,5	

Source: GCA, TAGG; 2018

6.3.2 Replacement investment projects

An overview of the individual replacement investment projects can be found in Table 13, Table 14 and Table 15. These projects including the technical measures are presented in Appendix 1. Further details will be provided separately by the transmission system operators to the regulation authority as confidential supplements.

For the sake of a best identification and readability, several re-investment projects have been renamed homogeneously in English or have been renamed. These rules apply also for projects already submitted and approved in the past CNDP exercises⁴. These rules have been applied in the present NDP 2018 for the following projects:

- ▶ TAG 2016/R09 Exchange leaking valves St. Paul / Ruden / Arnoldstein
- ▶ TAG 2016/R11 Replacement of Gashydraulic Actuators, CS-Baumgarten, Grafendorf and Ruden
- ▶ TAG 2016/R12 SCS Replacement, CS Baumgarten -Grafendorf-Ruden
- ▶ TAG 2017/R04 Substitution Gas Hydraulic Actuators TUCO, CS Baumgarten Grafendorf Ruden
- ▶ TAG 2017/R05 Replacement E-Actuators Filter Separators & Metering Station MS2 CS-Baumgarten

Moreover, the projects „TAG 2017/R02 Major Overhaul Renewal of Valve Stations, Lichtenegg / Wielfresen 1 / Ettendorf / Ludmannsdorf“ and „TAG 2017/R03 Major Overhaul Renewal of Valve Stations Lanzenkirchen / Sulmeck / St.Paul / Ruden / Arnoldstein“ are split in NDP 2018 per station; the corresponding amendments of the respective former projects into the new structure per station will be submitted for approval.

⁴ This is a pure syntactical and user-oriented adaptation and should be not interpreted as a content-wise project change or update.

After the consultation of the 2018 CNDP by the MAM from 17 October 2018 until 09 November 2018, TAG GmbH introduced, according to their latest company-specific project planning, small changes to the final version A2:

- ▶ TAG 2017/R03-A Rescheduling of planned completion from Q4/2019 to Q4/2020
- ▶ TAG 2017/R04 Rescheduling of planned completion from Q4/2019 to Q4/2020
- ▶ TAG 2017/R05 Rescheduling of planned completion from Q4/2019 to Q4/2020
- ▶ TAG 2018/R10 Rescheduling of planned completion from Q4/2021 to Q4/2020
- ▶ TAG 2018/R13 Rescheduling of planned completion from Q4/2019 to Q4/2020

Table 13: Replacement investment projects – Continued and approved projects without amendments

Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]
GCA	2016/E1	110 kV Freileitung		Q4 2021
GCA	2016/E2 ²	MS3 Reverse Flow		Q3 2020
GCA	2016/E4 ²	Baumgarten MS3 & Oberkappel – Switch from orifice to ultrasound metering		Q3 2020
GCA	2016/E5 ²	Revamp Oberkappel		Q1 2021
GCA	2017/E4 ¹	Extension of Baumgarten Substation TAG NOxER II		Q4 2018
GCA	2017/E5	VS Rainbach Tausch Prozessleitsystem		Q4 2019
GCA	2017/E6	SOL Revamp		Q4 2018
TAG	2015/R04	NOxER II		Q4 2018
TAG	2016/R09	Exchange leaking valves St. Paul / Ruden / Arnoldstein		Q4 2019
TAG	2016/R11	Replacement of Gashydraulic Actuators, CS-Baumgarten, Grafendorf and Ruden		Q4 2021
TAG	2016/R12	SCS Replacement, CS Baumgarten -Grafendorf-Ruden		Q4 2021
TAG	2017/R01	MS2 Refurbishment		Q4 2019
TAG	2017/R06	DLE 1.5 + 72 hole PT module RC400 in CS-Ruden		Q4 2018
TAG	2017/R07	Gas Generator BC800 in CS-Baumgarten		Q1 2019
TAG	2017/R08	Gas Generator RC600 in CS-Ruden		Q4 2019

¹⁾ The completion of the project GCA 2017/E4 Extension of Baumgarten Substation TAG NOxER II 2 has been delayed due to coordination measures associated with the project TAG 2015/R04 NOxER II.

²⁾ The completion of the projects GCA 2016/E2 MS3 Reverse Flow, GCA 2016/E4 Baumgarten MS3 & Oberkappel – Switch from orifice to ultrasound metering and GCA 2016/E5 Revamp Oberkappel has been delayed due to prioritization of measures due to the Baumgarten incident of 22 December 2017

Source: GCA, TAGG; 2018

Table 14: Replacement investment projects – Continued and approved projects with amendments

Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]
TAG	2017/R02-A	Major Overhaul Valve Station, Lichtenegg		Q4 2022
TAG	2017/R02-B	Major Overhaul Valve Station, Wielfresen 1		Q4 2022
TAG	2017/R02-C	Major Overhaul Valve Station, Ettendorf		Q4 2021
TAG	2017/R02-D	Major Overhaul Valve Station, Ludmannsdorf		Q4 2018
TAG	2017/R03-A	Major Overhaul Valve Station Lanzenkirchen		Q4 2020
TAG	2017/R03-B	Major Overhaul Valve Station Sulmeck-Greith		Q4 2019
TAG	2017/R03-C	Major Overhaul Valve Station St. Paul		Q4 2019
TAG	2017/R03-D	Major Overhaul Pigging Station Ruden		Q4 2019
TAG	2017/R03-E	Major Overhaul Valve Station Arnoldstein		Q4 2019
TAG	2017/R04	Substitution Gas Hydraulic Actuators TUCO, CS Baumgarten Grafendorf Ruden		Q4 2020
TAG	2017/R05	Replacement E-Actuators Filter Separators & Metering Station MS2 CS-Baumgarten		Q4 2020

Source: GCA, TAGG; 2018

Table 15: Replacement investment projects – New projects

Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]
GCA	2018/E1	Baumgarten Incident		Q4 2021
TAG	2018/R01	SCS Replacement, CS Eggendorf-Weitendorf		Q4 2021
TAG	2018/R02	Major Overhaul Valve Station Ebenthal		Q4 2020
TAG	2018/R03	Major Overhaul Valve Station Wettmannstätten		Q4 2020
TAG	2018/R04	Major Overhaul Valve Station SS09 Weitendorf		Q4 2021
TAG	2018/R05	Major Overhaul Pigging Station Weitendorf		Q4 2021
TAG	2018/R06	Major Overhaul Valve Station Reisenberg		Q4 2020
TAG	2018/R07	Major Overhaul Valve Station Zöbern		Q4 2021
TAG	2018/R09	Sec.1/Sec.2/Sec.3: Corrosion Refurbishment and Repair		Q4 2019
TAG	2018/R10	DLE 1.5 + 72 hole PT module BC700 in CS Baumgarten		Q4 2020
TAG	2018/R12	Shut Off Valve MS2, CS-Baumgarten		Q4 2019
TAG	2018/R13	Major Overhaul of Valve Stations AZ3-AZ3L Eggendorf		Q4 2010

Source: GCA, TAGG; 2018

6.4 Projects of Gas Connect Austria

Projects: important components. In order to provide a solid foundation for the above described maximisation of the options, Gas Connect Austria is preparing detailed planning for the technical measures required to enable our future offering. The planning of projects is part of network development planning and is subject to a designated procedure, which has changed since the amendments to the Network Code on Capacity Allocation Mechanisms entered into force in April 2017. This procedure is described in detail, followed by the description of individual projects.

Coordinated. Gas Connect Austria's network development plan is an integral part of the Coordinated Network Development Plan. Consequently, the project planning was coordinated with the Austrian transmission system operator Trans Austria Gasleitung GmbH ("TAG") and the neighbouring transmission system operators.

New provisions. Since the amended Network Code on Capacity Allocation Mechanisms came into force in April 2017, new provisions apply to the analysis, project planning, and auctioning of incremental capacity. A market demand assessment has to be carried out in cooperation with the neighbouring transmission system operators with the aim to assess the market participants' demand for incremental capacity and decide on possible technical measures to be planned. Following the analysis, a project proposal containing the commercial and technical planning parameters has to be developed and the market will be consulted. The transmission system operators will then submit the final project proposal to their national regulatory authorities for approval. Provided that the authorities approve of the proposal, the legal basis for the auctioning of incremental capacity will be established.

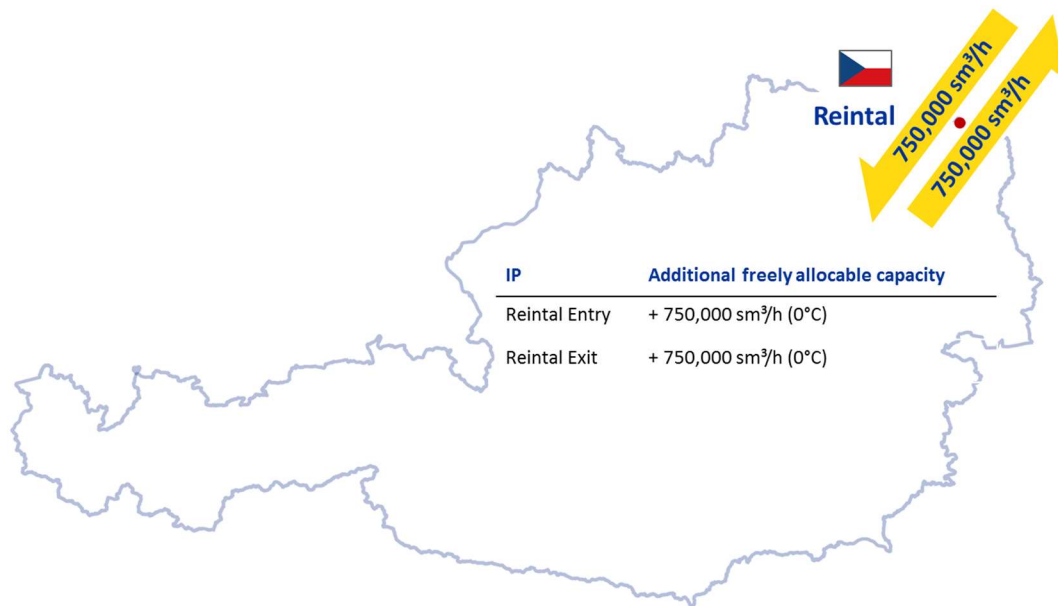
New opportunities. In 2017, Gas Connect Austria prepared a joint market demand assessment together with the neighbouring transmission system operators in Germany, the Czech Republic, Slovakia, Hungary and Slovenia. The assessment was published on Gas Connect Austria's website. The following Chapters describe the project planning resulting from this assessment. While the overall regulated incremental capacity process for the Überackern interconnection point together with the German transmission system operator bayernets was successfully completed for the first time in Europe, the procedures for the Mosonmagyaróvár and Murfeld interconnection points are still to be carried out. Hence, corresponding project planning is continued and updated in this network development plan. The open procedures continue to be included with the aim to auction incremental capacity at the 2019 annual auction.

6.4.1 Bidirectional Austrian-Czech Interconnector - BACI (GCA2015/01a)

Basis: market demand assessment. In the market demand assessment of 27 June 2017 carried out in line with the incremental capacity process, the Czech transmission system operator NET4GAS and Gas Connect Austria identified a capacity demand for incremental bidirectional FZK capacities at the potential new Reintal entry/exit point of 8,393 MWh/h or 750,000 Nm³/h (0°C).

Incremental capacity. The flow diagram below illustrates the new capacities at the potential new Reintal entry/exit point.

Figure 52: GCA2015/01a Bidirectional Austrian-Czech Interconnector



Source: GCA

Approval in the Network Development Plan. Project GCA2015/01 was already approved in the 2015 Network Development Plan. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2019–2028 planning period and updated in the project sheet (see Appendix 1).

Concepts for capacity allocation. The incremental capacities would be allocated at the cross-border point at Reintal on the Austrian-Czech border, with the corresponding entry and exit capacities being offered at this new interconnection point.

Included in European plan. The project is currently contained in the third Union list of PCI supplemented by the following note: “The implementation of the BACI as a PCI will depend on the results of the pilot project Trading Regional Upgrade (*actually ‘Trading Region Upgrade’*)”. Since the Trading Region Upgrade project is still being implemented (see Chapter 5.1.2.1) and no assessments of its results are available, Gas Connect Austria included the BACI project into the 2018 Ten-Year Network Development Plan (TYNDP).

6.4.2 Überackern - Oberkappel (GCA2018/01)

Basis: incremental capacity auctions. The first Europe-wide auction of incremental capacity at the Überackern interconnection point carried out in accordance with the provisions of the Network Code on Capacity Allocation Mechanisms shows that there is no apparent demand for accessing the Austrian virtual trading point at present. However, the feedback of market participants suggests an interest for incremental capacity between the entry and exit points Überackern and Oberkappel.

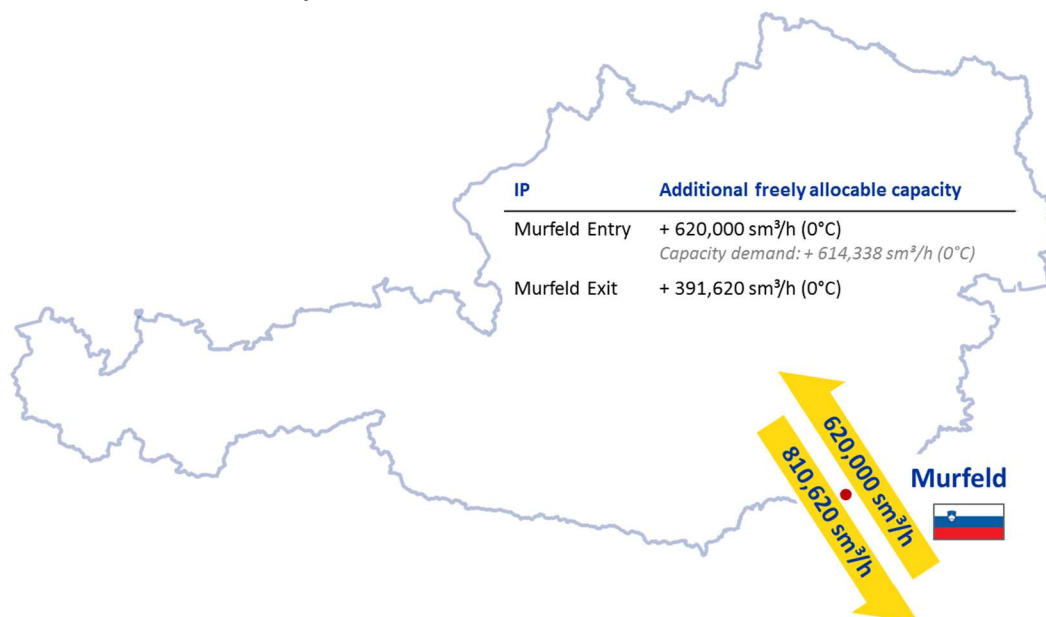
Opening up new possibilities. This would reinforce the connection between the German Net Connect Germany VTP and the Haidach storage facility connected to the German bayernets grid as well as the 7Fields storage facility connected to the Penta West pipeline system. Gas Connect Austria plans to strengthen this “transportation path between the storage facility and the German VTP” with 250,000 Nm³/h (0°C) of new firm capacity (see Appendix 1) and intends to auction this capacity at the 2019 annual auction. The transportation service would not include access to the Austrian VTP and would as such be similar to the already existing short distance transportation service Überackern SUDAL—Überackern ABG (“Wheeling”).

6.4.3 Entry/Exit Murfeld (GCA2015/08)

Basis: market demand assessment. In the market demand assessment of 27 June 2017, carried out in line with the incremental capacity process, the Slovenian transmission system operator Plinovodi and Gas Connect Austria identified a capacity demand for incremental bidirectional FZK capacities at the Murfeld entry point of 6,857 MWh/h or 614,388 Nm³/h (0°C) and 4,394 MWh/h or 391,620 Nm³/h (0°C) at the Murfeld exit point. Since the projects “Upgrade of Murfeld-Czersak Interconnection”, “Upgrade of Rogatec Interconnection”, and “CS Kidricevo” were first submitted by Plinovodi in the course of Gas Connect Austria’s 2015 Network Development Plan, Plinovodi and Gas Connect Austria have been in ongoing consultation and pursue all projects along the corridor extending to the projected LNG Terminal in Croatia (see Chapter 5.1.2.3).

Incremental capacity. The figure below illustrates the new capacities at the Murfeld entry/exit point. At this time, available technical capacity at the Murfeld exit point is limited and amounts to 4,688 MWh/h or 419,000 Nm³/h (0°C). There is currently no applicable technical capacity at the entry point, and as a result transports are performed on an interruptible virtual basis.

Figure 53: GCA 2015/08 Entry / Exit Murfeld



Source: GCA

Approval in the Network Development Plan. Project GCA2015/01 was already approved in the 2015 Network Development Plan. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2019–2028 planning period and updated in the project sheet (see Appendix 1).

Concepts for capacity allocation. On 24 April 2018, Gas Connect Austria submitted a project proposal, which had been previously coordinated with Plinovodi, to the Austrian regulatory authority for the auctioning of agreed offer levels at the annual capacity auction on 2 July 2018. Plinovodi, however, did not submit a corresponding project proposal to the Slovenian regulatory authority. This means that no legal basis was established for incremental capacity auctions in line with the Network Code on Capacity Allocation Mechanisms. In the course of the ongoing incremental capacity process, Gas Connect Austria therefore intends to auction these capacities at the 2019 annual capacity auction and is consequently in close consultation with Plinovodi.

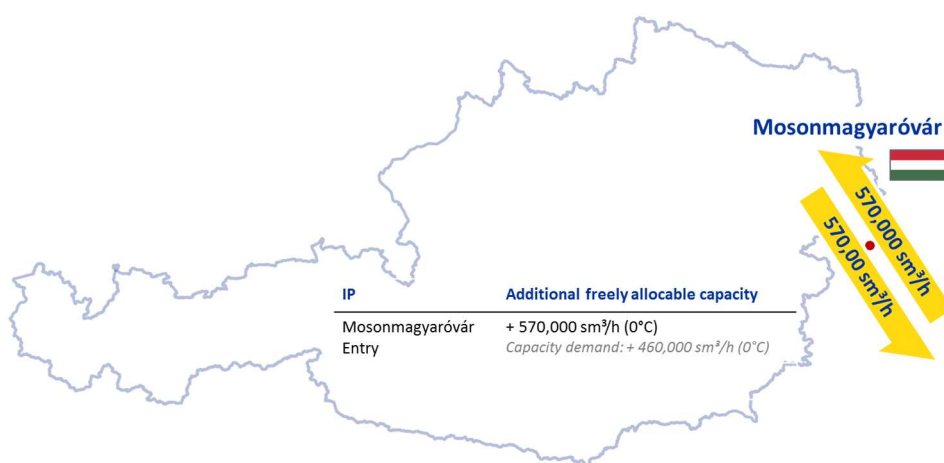
Included in European plan. By 28 February 2018, Gas Connect Austria submitted for inclusion in the TYNDP 2018 projects which were previously approved as projects in the network development planning, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. The project is currently included in the third Union list of projects of common interest. Gas Connect Austria therefore submitted the project for inclusion in the TYNDP 2018 and fulfilled the first condition for inclusion in the next Union list of PCIs. The fourth Union list of PCIs is expected to be approved in 2019.

6.4.4 Entry Mosonmagyaróvár (GCA2015/05, GCA2017/01 & GCA 2015/04)

Basis: market demand assessment. In the market demand assessment of 27 June 2017, carried out in line with the incremental capacity process, the Hungarian transmission system operator FGSZ and Gas Connect Austria identified a capacity demand for incremental bidirectional FZK capacities at the Mosonmagyaróvár entry point of 11,115 MWh/h or 993,325 Nm³/h (0°C). The demand is based on the reporting of 4,737 MWh/h or 423,325 Nm³/h (0°C) as well as 6,278 MWh/h or 570,000 Nm³/h (0°C) already approved in Gas Connect Austria's 2015 Network Development Plan within the scope of "ROHUAT".

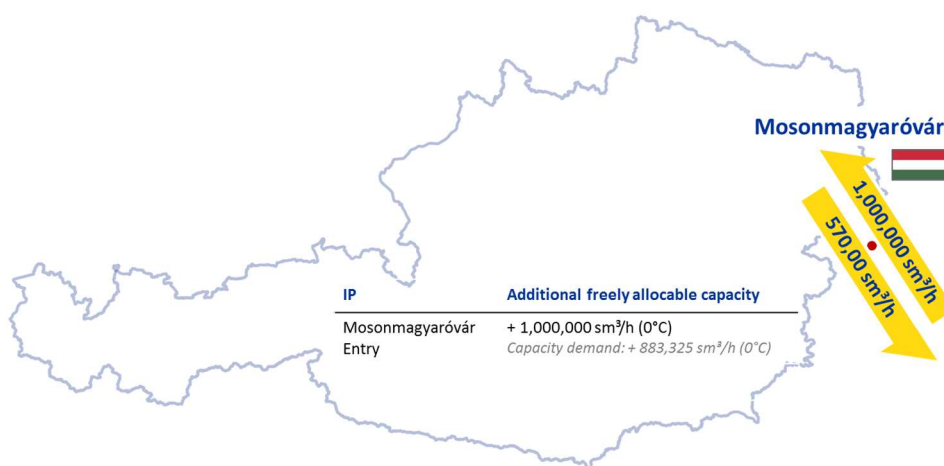
Incremental capacity. The flow diagram below illustrates the capacity situation at the potential Mosonmagyaróvár physical entry point. The volumes indicated are based on the GCA 2015/05 project, with 6,378 MWh/h or 570,000 Nm³/h (0 °C) in additional capacities, and the additional need for 4,737 MWh/h or 423,325 Nm³/h (0 °C) submitted in 2017. These requirements were combined and are represented in the GCA2017 project in Gas Connect Austria's 2017 Network Development Plan. There is currently no applicable technical capacity at the Mosonmagyaróvár entry point, and as a result transports are performed only on an interruptible virtual basis.

Figure 54: GCA2015/05 Entry Mosonmagyaróvár



Source: GCA

Figure 55: GCA 2017/01 Entry Mosonmagyaróvár Plus



Source: GCA

Approval in the Network Development Plan. Project GCA2015/01 was approved in the 2015 Network Development Plan. Project GCA2017/01 was approved in the 2017 Network Development Plan. The measures for creation of the additional capacity offering on a freely allocable basis as per the project described were analysed over the 2019–2028 planning period and updated in the project sheet (see Appendix 1).

Concepts for capacity allocation. On 10 April 2018 Gas Connect Austria submitted a project proposal, which had been previously coordinated with FGSZ, to the Austrian regulatory authority for the auctioning of agreed offer levels at the annual capacity auction on 2 July 2018. The project proposal was approved by the regulatory authority⁵. The corresponding project proposal for the other side of the interconnection point Mosonmagyaróvár submitted by FGSZ was not approved by the Hungarian regulatory authority (see Chapter 5.1.2.4). In the course of the ongoing incremental capacity process, Gas Connect Austria therefore intends to auction these capacities at the 2019 annual capacity auction. Gas Connect Austria is consequently in ongoing consultation with FGSZ.

Included in European plan. By 28 February 2018, Gas Connect Austria submitted for inclusion in the TYNDP 2018 projects which were previously approved as projects in the network development planning, projects in respect of which an application for recognition of costs had already been submitted to the authority, or projects which currently have PCI status. The project is currently included in the third Union list of projects of common interest. Gas Connect Austria therefore submitted the project for inclusion in the TYNDP 2018 and fulfilled the first condition for inclusion in the next Union list of PCIs. The fourth Union list of PCIs is expected to be approved in 2019.

Minimum. There is no corresponding project in the Hungarian transmission system for the CNDP project GCA 2015/04 Entry Mosonmagyaróvár Minimum. The creation of new freely allocable entry capacity (FZK) of 120,000 Nm³/h (0°C) is depended on a pressure support from the upstream transmission system operator FGSZ Zrt.

6.4.5 Additional Demand in Distribution Area Plus (GCA2015/07b)

The **Additional Demand in Distribution Area Plus** project is currently being implemented. It was approved in Gas Connect Austria's 2015 Network Development Plan. The project goes back to

⁵The project proposal by Gas Connect Austria has been approved with notice V NKO G 03/18 by the Austrian regulatory authority E-Control in accordance with Article 28 of Regulation (EU) 2017/459 (Network code for capacity allocation mechanisms) in a separate procedure on 27 April 2018. This notice including the project proposal by Gas Connect Austria is published only in German on the website of E-Control <https://www.e-control.at/recht/entscheidungen/vorstand-gas> in section "Entscheidungen auf Basis von Netzkodizes". The parameter discount rate ("Abzinsungszinssatz") set in the project proposal correspond to a weighted average capital cost rate. The determination has been carried out taking the explicit equity and borrowed capital interest rate in accordance with Chapter II.3 in conjunction with Chapter II.2 of the officially approved cost and tariff methodology pursuant to section 82 Natural Gas Act 2011 on the website of E-Control. (<https://www.e-control.at/en/marktteilnehmer/gas/netzentgelte/methodenbeschreibung>)

AGGM Austrian Gas Grid Management AG (“AGGM” - as system user) reporting an additional capacity demand of 6,714 MWh/h or 600,000 Nm³/h (0°C) to Gas Connect Austria (as transmission system operator) in the course of the 2015 Network Development Plan. On completion of the project, a total of 10,742 MWh/h, or 960,000 Nm³/h (0°C) from the distribution area will be made available to the transmission system as freely allocable capacities at the virtual entry point. The project is expected to be completed in the fourth quarter of 2018 (see Appendix 1).

6.4.6 Penta West - Exit Distribution Area (GCA2017/02)

Project *Penta West - Exit Distribution Area* was developed on the basis of the data submitted by the system user AGGM in 2017 regarding supplies to the Schärding region. The project goal is to generate FZK capacity in the amount of 56 MWh/h or 5,000 Nm³/h (0°C) at the Andorf valve station of the Penta West pipeline system for injection into the distribution area. The implementation depends on the submission of specific requirements by the system user AGGM, even more so as the distribution area manager AGGM withdrew a corresponding project from this year’s long-term plan for the Eastern market area. Consequently, the project is included as a planning project in the network development plan (see Appendix 1).

6.4.7 Entry Arnoldstein (GCA2015/10)

In order to create *incremental freely allocable (FZK) capacity* at the Arnoldstein entry point, a project was developed with the transmission system operator TAG to strengthen Gas Connect Austria’s pipeline systems accordingly. The GCA Project 2015/10 encompasses only technical measures that are required to transport FZK capacities of 11,190 MWh/h or 1,000,000 Nm³/h (0°C) agreed with TAG GmbH to the VTP and/or to allow capacities to be diverted into downstream pipeline systems. The project was approved in the Gas Connect Austria 2015 Network Development Plan and the project is being implemented. The project is expected to be completed in the fourth quarter of 2018 (see Appendix 1).

6.5 Projects of Trans Austria Gasleitung GmbH

6.5.1 TAG Reverse Flow Weitendorf/Eggendorf [TAG 2016/01]

Upgraded FZK capacity and security of supply as basis: The project fulfills the requirements of the decree V KNEP G 01/15 of 27.10.2015, issued by ECA with reference to CNDP 2016-2015, together with projects TAG 2016/02, GCA 2015/10, and GCA 2015/08, by creating new and non competing freely allocable capacity (FZK) at the entry points Arnoldstein and Murfeld.

Capacity at the entry point Arnoldstein and Murfeld: The project foresees the possibility to reverse the flow in the Weitendorf and Eggendorf CSs in an automatised way, allowing the transportation of the existing capacity at the entry point Arnoldstein in the upgraded FZK quality in addition to the planned new additional capacity at entry point Murfeld toward Baumgarten, by also fulfilling all the contractual obligations at the exit points toward the Austrian distribution system. The project also foresees encompasses corresponding adaptations of the piping and of the station control systems in both TAG compressor stations, allowing reverse flow to be operated in usual operating conditions without need for local intervention.

The implementation of the project “TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf“ will allow the operation of the CS Weitendorf and all the necessary modifications of the station control system, the physical transportation of at least 17,904,000 kWh/h (1,600,000 Nm³/h, 0°C), i.e. at least 11,190,000 kWh/h (1.000.000 Nm³/h, 0°C) at the entry point Arnoldstein and 6,714,000 kWh/h (600,000 Nm³/h, 0°C) at the entry point Murfeld. The project will additionally ensure, even though unlikely from the current point of view, possible physical flow from the entry point Murfeld towards Italy via the SOL and TAG Systems.

Coordination with the adjacent TSOs: The coordination at operational level between TAG GmbH and GCA takes place since 2016. The coordination process for the detailed planing has been continued based on identified additional required technical along the CNDP capacity scenario.

Concepts for the capacity allocation: The project, in combination with the projects GCA 2015/10 (execution currently strived for end 2018) and TAG 2016/02 (executed) will enable the upgrade of existing DZK capacity into FZK capacity at the entry point Arnoldstein and represents an important milestone for a complete reverse flow of the TAG System. After the completion of the complementary project of GCA, the full relevant capacity at the Entry point Arnoldstein will be marketable in the upgraded FZK quality.

Achievement of European connection: As of 28.04.2017, this project is officially part of the TYNDP 2017 (TRA-N-954) and will be further represented in TYNDP 2018. The project TAG 2016/01, together with projects TAG 2016/02 and GCA 2016/E2, strives for strengthening the local security of supply by diversification of the supply roads and sources, and the resulting increased access from Italy to Austria. The project underpins the North-South-East corridor in the supply of further physical transport possibilities in Reverse Flow in the directions South-North and South-East, and is therefore meaningful for the Austrian market area.

Approval already within NDP 2017 –2026 and Monitoring: The project TAG 2016/01 was already approved within the CNDP 2017 – 2026. The project is currently in line with the expected budget and timeline and is in the planning phase.

6.5.2 Reverse Flow Baumgarten MT Station (MS2) [TAG 2016/03]

Already approved within CNDP 2017 – 2026 and withdrawal: The Project TAG 2016/03 was approved within the CNDP 2018 – 2027 subject to conditions and pursued in CNDP 2017-2028. In conjunction with the functionality of the project GCA 2016/E2 and as no capacity demand were identified by TAG GmbH in the framework of the market demand survey for the Exit point Baumgarten, the project will be withdrawn.

6.5.3 TAG Baumgarten interconnection capacity (Mosonmagyaróvár) [TAG 2016/04]

Non-binding demand from GCA and Austrian internal connection capacity as basis: The project TAG 2016/04, as complementary project to the project GCA 2015/05, will create additional interconnection capacity in Baumgarten on the freely allocable basis (FZK) at the GCA entry point Mosonmagyaróvár (see also Chapter 6.4.4). The project ensures the modification of TAG Baumgarten Station in order to allow an increased gas flow into the TAG System and to guarantee the access to the VTP. The project is required in order to increase the technical interconnection capacity between the transit systems of TAG GmbH and GCA within the Baumgarten Station, and furthermore to improve the Security of Supply of the Austrian and Hungarian markets. The increase of the interconnection capacity entails improved liquidity of the European markets, as well as an increase of the Austrian and European Security of Supply by enabling alternative transport routes for alternative gas supply sources.

Additional capacities at the entry point Mosonmagyorovar: The Project TAG 2016/04 itself does not create additional new capacities at the relevant points, but it creates the conditions to ensure the access to VTP, which allows additional FZK capacity at the entry and exit points of the Austrian Eastern market area. In the framework of the GCA's NDP additional not-binding additional capacity demand were addressed at the entry point Mosonmagyorovar in the amount of up to 5.113.000 kWh/h, i.e. 453.927 Nm³/h (0°C) (see project GCA 2015/05 for more details).

Concepts for the capacity allocation: As the additional connection capacity does not impact the amount of capacity at the relevant points of the TAG system, an allocation of capacity will not be performed by TAG GmbH itself.

Coordination with the adjacent TSOs: TAG GmbH and GCA carried on the coordination process for the detailed project planning on the basis of additional technical capacities up to the amount of 6.378.000 kWh/h, i.e. 570.000 Nm³/h (0°C). Depending on the implementation of the project TAG 2016/02, on the schedule plan of the Project GCA 2015/05, as well as on the results of the measures aimed at creating the planned incremental capacity offer on FZK basis

by the TSO directly involved from Austria and Hungary, the necessity to implement the project TAG 2016/04 will be further analyzed.

Approval already within CNDP 2017-2026 and Monitoring: The Project TAG 2016/04 was already approved as planning project within the CNDP 2017 – 2026 and carried forward in CNDP 2018-2019. The project is currently in the planning phase.

6.5.4 TAG Baumgarten interconnection capacity (BACI) [TAG 2016/05]

Non-binding demand from GCA and Austrian internal connection capacity as basis: The project TAG 2016/04, as complementary project to the project GCA 2015/05, will create additional interconnection capacity in Baumgarten on the freely allocable basis (FZK) at the GCA entry point Mosonmagyaróvár (see NDP GCA). The project ensures the modification of TAG Baumgarten Station in order to allow an increased gas flow into the TAG System and to guarantee the access to the VTP. The project is required in order to increase the technical interconnection capacity between the transit systems of TAG GmbH and GCA within the Baumgarten Station, and furthermore to improve the Security of Supply of the Austrian and Hungarian markets. The increase of the interconnection capacity entails improved liquidity of the European markets, as well as an increase of the Austrian and European Security of Supply by enabling alternative transport routes for alternative gas supply sources.

Additional capacities at the entry point Mosonmagyaróvár: The Project TAG 2016/04 itself does not create additional new capacities at the relevant points, but it creates the conditions to ensure the access to VTP, which allows additional FZK capacity at the entry and exit points of the Austrian Eastern market area. In the framework of the GCA's NDP additional not-binding additional capacity demand were addressed at the entry point Mosonmagyaróvár in the amount of up to 5.113.000 kWh/h, i.e. 453.927 Nm³/h (0°C) (see project GCA 2015/05 for more details).

Concepts for the capacity allocation: As the additional connection capacity does not impact the amount of capacity at the relevant points of the TAG system, an allocation of capacity will not be performed by TAG GmbH itself.

Coordination with the adjacent TSOs: TAG GmbH and GCA carried on the coordination process for the detailed project planning on the basis of additional technical capacities up to the amount of 6.378.000 kWh/h, i.e. 570.000 Nm³/h (0°C). Depending on the implementation of the project TAG 2016/02, on the schedule plan of the Project GCA 2015/05, as well as on the results of the measures aimed at creating the planned incremental capacity offer on FZK basis by the TSO directly involved from Austria and Hungary, the necessity to implement the project TAG 2016/04 will be further analyzed.

Approval already within CNDP 2017-2026 and Monitoring: The Project TAG 2016/04 was already approved as planning project within the CNDP 2017 – 2026 and carried forward in CNDP 2018-2019. The project is currently in the planning phase.

6.5.5 TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II [TAG 2017/01]

Non-binding demand from GCA and Austrian internal connection capacity as basis: The project TAG 2017/01, as complementary project to the project GCA 2017/01, shall create additional interconnection capacity in Baumgarten on the basis of additional FZK capacity at the planned entry point Mosonmagyaróvár of the GCA System (see also Chapter 6.4.4). The project ensures the modification of the TAG Baumgarten Station in order to allow a higher gas flow into the TAG System and to guarantee the access to the VTP. The project is necessary to increase the interconnection capacity between the transit systems of TAG GmbH and GCA within the Baumgarten Station and to further improve the Security of Supply of the Austrian and Hungarian markets. The increase of the interconnection capacity improves the liquidity of the Austrian markets and increases the Austrian and European Security of Supply by creating alternative transport routes for alternative gas supply sources. This project is an alternative to the project TAG 2016/04 with higher connection capacities.

Additional capacity at the Entry Point Mosonmagyaróvár: The project itself does not create additional new capacity at the relevant points, but it guarantees the conditions for the access to the VTP, that allows additional FZK Capacity at the entry/exit points of the Austrian Eastern Market Area. Additional not-binding bi-directional capacity demand amounting to up to 11.190.000 kWh/h i.e. 1.000.000 Nm³/h (0°C) at the entry point Mosonmagyaróvár has been notified in the NDP by GCA.

Concepts for the capacity allocation: As the additional capacity does not impact the amount of capacity at the TAG relevant points, an allocation of capacity will not be performed by TAG GmbH itself.

Coordination with the adjacent TSOs: The coordination process for the detailed project planning was initiated and carried on by TAG GmbH and GCA within the preparation of the CNDP 2017. Based on the coordination between both TSOs TAG GmbH and GCA and on the dependency of this project with the complementary project GCA 2017/01, the potential completion duration of the planning project TAG 2017/01 is estimated to the maximal amount of 4,5 years, potentially beginning from 2018 and subject to the approval of the relevant authorities.

Approval already in CNDP 2018 – 2027: The Project TAG 2017/01 was approved within the CNDP 2018–2027 as planning project. The project is currently in the planning phase.

6.5.6 Murfeld Exit Capacity Increase [TAG 2018/01]

PCI and non-binding capacity demand from Plinovodi as basis: in the framework of the project and capacity demand survey from 2016 of GCA, the Slovenian TSO Plinovodi notified the projects „Upgrade of Murfeld-Czersak interconnection“, „Upgrade of Rogatec interconnection“ und „CS Kidricevo“ in the NDP of GCA. The project TAG 2018/01, as complementary project of the project GCA 2015/08 for potential additional FZK capacity in the direction from Austria to Slovenia, enables through the extension of the TAG system between

the compressor stations Baumgarten and Weitendorf in the North-South flow direction the foreseen additional FZ capacities at the Exit Point Murfeld (see also Chapter 6.4.3).

Additional Capacity in Exit Point Murfeld: The current technical capacity in Exit Point Murfeld amounts to 419,000 Nm³/h (0°C). The TAG project TAG 2018/01 itself does not create additional new capacity at the relevant points, but is necessary as complementary project of the project GCA 2015/08 to enable the creation of additional freely allocable capacity in Exit Point Murfeld in the amount of 391,620 Nm³/h (0°C).

Concepts for the capacity allocation: As the additional capacity does not impact the amount of capacity at the TAG relevant points, an allocation of capacity will not be performed by TAG GmbH itself.

Coordination with the adjacent TSOs: The process of coordination for the detailed project planning has been carried on by TAG GmbH and GCA. Based on the coordination between both TSOs TAG GmbH and GCA and on the dependency of this project with the complementary project GCA 2015/08, the potential completion of the planning project TAG 2018/01 is estimated as a relative project duration to the maximal amount of 4,5 years, potentially beginning from 2018 and subject to the approval of the relevant authorities.

Submission for approval in CNDP 2019–2028: The TAG 2018/01 project is submitted as a planning project during the submission phase for the 2019-2028 NDP. Currently the project is in the planning phase.

7 Appreciation of the statements by the market participants from the consultation by the market area manager

The 2018 Coordinated Network Development Plan was presented to the market participants within the Austrian Gas Infrastructure Development Day (AGIDD) on 16 October 2018. After that, the edition 1 of 2018 CNDP was published for consultation on the website of AGGM and all market participants were noticed about the consultation by e-mail. This consultation took place from 17 October 2018 until 09 November 2018.

The transmission system operators and the market area manager are thanking all the market participants, who submitted statements.

In total, four statements to the 2018 CNDP have been submitted and were added to Appendix 2 of this document.

7.1 Statement of Eustream, a.s.

The transmission system operators and AGGM are thanking Eustream, a.s. (Eustream) for its statement.

Ad 1) Regarding the suggestion of Eustream, to publish the results of the analysis, it has to be noted that the available results of the analysis are already reflected in the consultation edition (edition 1) of the 2018 Coordinated Network Development Plan.

Ad 2) Eustream mentions that the source of the increment of 750,000 Nm³/h for the entry/exit point Reintal would be missing in Chapter 4.2.4 Table 5. Gas Connect Austria refers to in Chapter 4.2.2 (“Capacity requirements based on project data collection including PCIs”) of the 2018 CNDP.

Eustream mentions that the published Market Demand Assessment Report available on the website of Gas Connect Austria indicates a non-binding demand for the entry/exit point Reintal of 200,000 kWh/h. Therefore Eustream suggests updating Table 5 in Chapter 4.2.4 accordingly.

Gas Connect Austria refers to the continuing explanation of the amount of new incremental capacity in Chapter B.ii and C of the referred Market Demand Assessment Report and therefore will not pursue the proposed changes of Eustream.

Ad 3) Eustream suggests to include the latest developments and outcomes of the capacity allocation procedure for the “HUSKAT” corridor project in the 2018 CNDP.

Gas Connect Austria refers to the deadlines for the content-related work according to Chapter 1.2 of the 2018 CNDP and therefore will not pursue the proposed addition of Eustream. The current status of the undergoing capacity allocation procedure for the “HUSKAT” corridor project is available on the website of Gas Connect Austria (<https://www.gasconnect.at/en/network-access/transmission-network/capacity-projects/>)

Ad 4) Eustream proposes that the project GCA 2015/01a “Bidirectional Austrian Czech Interconnector“(BACI) as well as the complementary project TAG 2016/05 should be removed from 2018 CNDP because of the success of the projects “Trading Region Upgrade “ (TRU) and the economic evaluation of this project with regard to its cost-benefit relation, security of supply/diversification of sources and sustainability.

Gas Connect Austria does not share these conclusions and strengthen its position of maximizing the possibilities for the market participants as one of the main tasks of the network development planning: Only the market, viz. the transport customers, should decide via market tests about infrastructure expansion measures. This equally relates to transport routes, which are in competition with each other (see also correspondingly Chapter 5.1.2.4, 5.1.2.5 and **Fehler! Verweisquelle konnte nicht gefunden werden.** of the 2018 CNDP).

Furthermore, Gas Connect Austria refers to Chapter 6.4.1 of the 2018 CNDP according to which the project BACI is included in the third PCI List of the European Union with the addition depending on the results of the pilot project TRU. Since the pilot project TRU is currently ongoing (see also Chapter 5.1.2.1 of the 2018 CNDP) and therefore no final evaluation of the results is made yet, BACI remains in the European and National network development planning. Because of these reasons, Gas Connect Austria will not pursue the proposal of Eustream

7.2 Statement of OMV Gas & Power GmbH

The transmission system operators and AGGM are thanking OMV Gas & Power for its statement.

OMV Gas and Power GmbH appreciates the continuation of the PCI projects GCA 2015/05 Entry Mosonmagyaróvár and GCA 2017/01 Entry Mosonmagyaróvár Plus with the focus on the importance and urgency of a direct connection of Baumgarten to the Southern European supply route.

Gas Connect Austria shares this appraisal. Only the market, viz. the transport customers, should decide via market tests about infrastructure expansion measures. This especially relates to transport routes, which are in competition with each other like in this case “HUAT” and “HUSKAT” (see also Chapter 5.1.2.4, 5.1.2.5 und 5.1.2.6 of the 2018 CNDP). Therefore, Gas Connect Austria will further drive forward the above mentioned projects on bilateral level (viz. with the Hungarian transmission system operator FGSZ Zrt.) and on the European level (viz. within the currently ongoing activities for the fourth PCI list). In addition to that, an official decision-making case regarding the project for additional capacities at the entry point Mosonmagyaróvár is currently pending before the Agency for the Cooperation of Energy Regulators (ACER).

7.3 Statement of Bayernets GmbH

The transmission system operators and AGGM are thanking bayernets GmbH (bayernets) for its statement.

Bayernets states that the conditions for and additional pressure support at the interconnection point Überackern SUDAL have already been established by bayernets through measures in order to optimize the flow capacities at the node in Burghausen. According to this, Gas Connect Austria has received an offer for pressure support by bayernets and the construction of a new compressor station in direct proximity to the Burghausen node is due to financial and control reasons not reasonable anymore.

Gas Connect Austria can confirm, that a first operational test for the above mentioned additional pressure support together with bayernets is scheduled for late 2018. Gas Connect Austria will continue the discussions about the above mentioned offer for pressure support regarding the results of the operational tests. Gas Connect Austria points out, that possible contracts regarding pressure support are not regarded as infrastructure and therefore not part of the network development planning according to article 63 paragraph 3 subparagraph 1 Natural Gas Act 2011. Because of this reason the planned compressor station in order to meet the projected transport quantity will remain in the network development planning.

Baynerets points out their positive stance towards the planned reinforcement of the transport capacity of the Penta West system according to project GCA 2018/01. Gas Connect Austria appreciates this opinion.

7.4 Stellungnahme der Energienetze Bayern

AGGM is thankful for the announcement of the information regarding the increase in capacity for supplying the Schärding area, which will be implemented by Energienetze Bayern as of 2019.

Gas Connect Austria, Netz Oberösterreich and AGGM are currently evaluating the alternative possibility to supply the Schärding area from the Penta West. Therefore there are no evaluation results available yet.

Due to the fact, that the interconnection point Schärding is part of the DIANE model, the effects on this model, especially due to different flow scenarios, are taken into account in the overall evaluation.

8 Summary

The new capacity requirements submitted were included in the 2018 CNDP and the transmission system operators developed corresponding projects which are suitable to meet the demand for additional capacity. The projects were developed in accordance with the European planning tools and in coordination with domestic and foreign transmission system operators. The demand of the distribution area was taken into consideration as well.

The TSOs provided information on the projects to be realised in the planning horizon 2019-2028 in order to be able to meet the capacity requirements submitted, see Table 5. The projects which will be continued without changes based on earlier approvals were listed in the CNDP (Table 11 and Table 13). The projects which will be continued with changes based on earlier approvals were listed in the CNDP (Table 14).

The projects approved in earlier Coordinated Network Development Plans which are no longer required based on the current capacity scenario and were therefore withdrawn by the transmission system operators were listed in Table 10.

Newly submitted projects in the 2017 CNDP are listed in Table 12 and Table 15. For each project, an implementation schedule was prepared and the expected date of completion or the expected implementation period was specified in the project sheet (Appendix 1).

The 2018 CNDP meets the aims set out in section 63 (4): The security of supply for consumers can be guaranteed by the already existing network. In planning new projects, great importance was placed on the high level of availability of pipeline capacity. Covering transport needs was ensured and the obligation to meet the infrastructure standard according to Article 5 Regulation (EU) No. 2017/1938 was complied with.

Both GCA and TAGG have submitted one new project for new capacities. A total of 12 new replacement investment projects have been submitted. Implementation of the projects will ensure security of supply for domestic and foreign customers.

In the Official Decision (Bescheid) of 19 January 2018 on the 2017 Coordinated Network Plan, E-Control Austria imposed the following conditions:

In order to meet and fulfil the official decision, AGGM, jointly with Gas Connect Austria GmbH and TAG Trans Austria Gasleitung GmbH, carried out a review to examine whether better use of existing infrastructure could be achieved through additional connections between the distribution system and the transmission system. The details of the review were submitted to ECA in a separate confidential report.

9 Disclaimer

The 2018 Coordinated Network Development Plan 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 solely for information purposes. The market area manager and the transmission system operator accept no liability for any variations in content or errors of translation.

Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
AGGM	AGGM Austrian Gas Grid Management AG
AT	Austria
BG	Bulgaria
CBCA	Cross Border Cost Allocation
CEGH	Central European Gas Hub
CNDP	Coordinated Network Development Plan
CZ	Czech Republic
DAM	Distribution Area Manager
DE	Germany
DZK	Dynamic allocable capacity
ECA	Energie-Control Austria
ENTSOG	European Network of Transmission System Operators Gas
FZK	Freely allocable capacity (Freie zuordenbare Kapazität)
GCA	Gas Connect Austria GmbH
GWG	Natural gas act (Gaswirtschaftsgesetz)
GWh	Gigawatthours
GRIP	Gas Regional Investment Plan
HR	Croatia
HU	Hungary
IP	Interconnection Point
IT	Italy
kWh	Kilowatthours
LNG	Liquefied Natural
LTP	Long Term Plan
MAB	March Baumgarten Gasleitung
MAM	Market Area Manager
MW	Megawatt
MWh	Megawatthours
NC CAM	Network Code Capacity Allocation Mechanism
NCG	Net Connect Germany
sm ³ /h	standardkubikmeter pro Stunde (Temperature 0°C; 1013 mbar)
PCI	Project of Common Interest
RO	Romania
SEL	Süddeutsche Erdgasleitung
SI	Slovenia
SK	Slovakia
SOL	Süd Ost Leitung
SoS	Security of Supply
TAG	Trans Austria Gasleitung
TR	Turkey
TSO	Transmission System Operator
TWh	Terrawatthours
TYNDP	Ten Year Network Development Plan
UK	Interruptible capacity (unterbrechbare Kapazität)
VTP	Virtual Tradingpoint
WAG	West Austria Gasleitung

List of Figures:

Figure 1:	Primary energy mix of Austria _____	5
Figure 2:	Consumption mix of Austria _____	6
Figure 3:	Share of natural gas in private households in Austria and in the European context, 2016 ___	7
Figure 4:	Annual consumption per capita in the European context, 2016 _____	7
Figure 5:	Supply and usage of natural gas in Austria _____	8
Figure 6:	Comparison Annual – storage capacity in Europe 2016 _____	8
Figure 7:	Cleared imports and exports without transits in Europe 2016 _____	9
Figure 8:	Schematic physical natural gas flow, 2017 _____	9
Figure 9:	Technical capacities at relevant interconnection points in the market area East. _____	12
Figure 10:	Cluster Poland – Slovakia – Czech Republic – Austria _____	21
Figure 11:	Southern Corridor _____	23
Figure 12:	Demand scenarios in the distribution area _____	32
Figure 13:	Demand scenarios, maximum hourly demand, market area East _____	33
Figure 14:	TAG - Entry Baumgarten _____	37
Figure 15:	GCA - Entry Baumgarten _____	37
Figure 16:	GCA – Exit Baumgarten _____	38
Figure 17:	GCA – Exit Mosonmagyaróvár _____	38
Figure 18:	GCA – Exit Murfeld _____	38
Figure 19:	TAG – Entry Arnoldstein _____	39
Figure 20:	TAG – Exit Arnoldstein _____	39
Figure 21:	GCA – Entry Oberkappel _____	39
Figure 22:	GCA – Exit Oberkappel _____	40
Figure 23:	GCA – Entry Überackern ABG/SUDAL _____	40
Figure 24:	GCA – Exit Überackern ABG/SUDAL _____	40
Figure 25:	Capacity Scenario _____	42
Figure 26:	Entry Baumgarten GCA, capacities booked and capacity demand 2019-2028 _____	43
Figure 27:	Exit Baumgarten GCA, capacities booked and capacity demand 2019-2028 _____	43
Figure 28:	Entry Baumgarten TAG, capacities booked and capacity demand 2019-2028 _____	44
Figure 29:	Entry Mosonmagyaróvár, capacities booked and capacity demand 2019-2028 _____	44
Figure 30:	Exit Mosonmagyaróvár GCA, capacities booked and capacity demand 2019-2028 _____	45
Figure 31:	Entry Murfeld, capacities booked and capacity demand 2019-2028 _____	45
Figure 32:	Exit Murfeld, capacities booked and capacity demand 2019-2028 _____	46
Figure 33:	Entry Arnoldstein, capacities booked and capacity demand 2019-2028 _____	46
Figure 34:	Exit Arnoldstein, capacities booked and capacity demand 2019-2028 _____	47
Figure 35:	Entry Überackern ABG and SUDAL, capacities booked and capacity demand 2019-2028 ___	47
Figure 36:	Exit Überackern ABG and SUDAL, capacities booked and capacity demand 2019-2028 _____	48
Figure 37:	Entry Oberkappel, capacities booked and capacity demand 2019-2028 _____	48
Figure 38:	Exit Oberkappel, capacities booked and capacity demand 2019-2028 _____	48
Figure 39:	Customer satisfaction of Gas Connect Austria _____	52
Figure 40:	Capacity Utilization® _____	53
Figure 41:	Capacity Utilization® Nomination & Configuration module _____	54
Figure 42:	TRU operating principle and application _____	55
Figure 43:	„LNG corridor“ _____	58
Figure 44:	“ROHUAT” Black Sea corridor _____	59
Figure 45:	Sales limitation Exit Mosonmagyaróvár _____	62
Figure 46:	Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Entry Baumgarten _____	67
Figure 47:	Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Entry Arnoldstein _____	67
Figure 48:	Day-Ahead and Within-Day capacity sales 2015-2017+: TAG Exit Arnoldstein _____	68
Figure 49:	The sites or renewal of main valve stations _____	72
Figure 50:	Renewal of valve stations: site Finkenstein _____	72

Figure 51:	Project categories _____	74
Figure 52:	GCA2015/01a Bidirectional Austrian-Czech Interconnector _____	82
Figure 53:	GCA 2015/08 Entry / Exit Murfeld _____	84
Figure 54:	GCA2015/05 Entry Mosonmagyaróvár _____	85
Figure 55:	GCA 2017/01 Entry Mosonmagyaróvár Plus _____	85


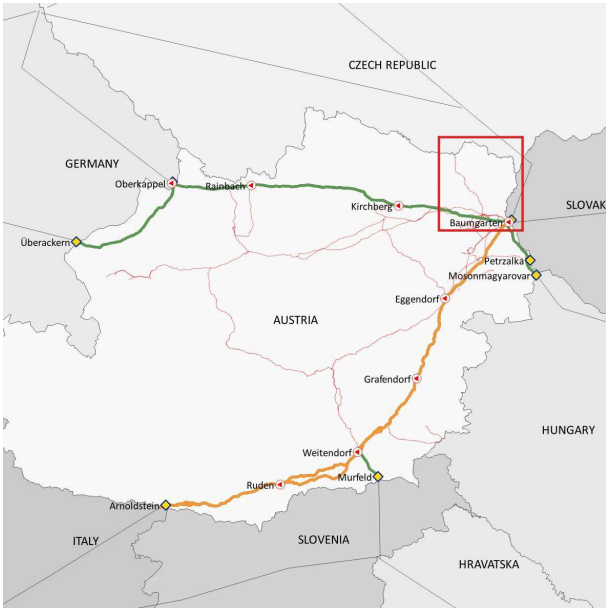
List of Tables

Table 1:	Calculation of the Infrastructure standard according to regulation (EU) No 2017/1938 ____	13
Table 2:	TYNDP 2017 Projects concerning Austria _____	18
Table 3:	Implemented projects during the last planning period (8/2017 to 8/2018). _____	34
Table 4:	Non-binding capacity demand requests by system user _____	41
Table 5:	Capacity demand requests and corresponding projects to meet the demands _____	49
Table 6:	Number of auctions carried out _____	51
Table 7:	Offer level at Überackern _____	57
Table 8:	Statistical analysis of short-term products auctions 2017 – TAG GmbH _____	66
Table 9:	Gas generators and turbine projects _____	71
Table 10:	Withdrawn projects _____	76
Table 11:	Projects for additional capacities – Continued and approved projects without amendments _____	77
Table 12:	Projects for additional capacities – New projects _____	78
Table 13:	Replacement investment projects – Continued and approved projects without amendments _____	79
Table 14:	Replacement investment projects – Continued and approved projects with amendments	80
Table 15:	Replacement investment projects – New projects _____	80


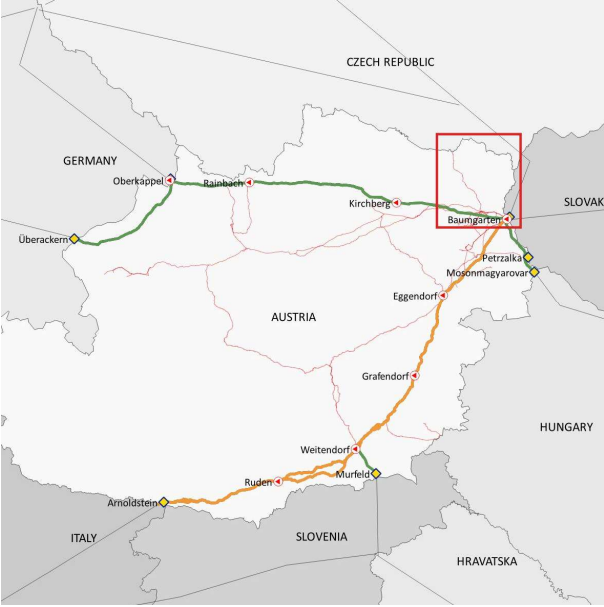
Appendix 1:

Projects for additional capacities


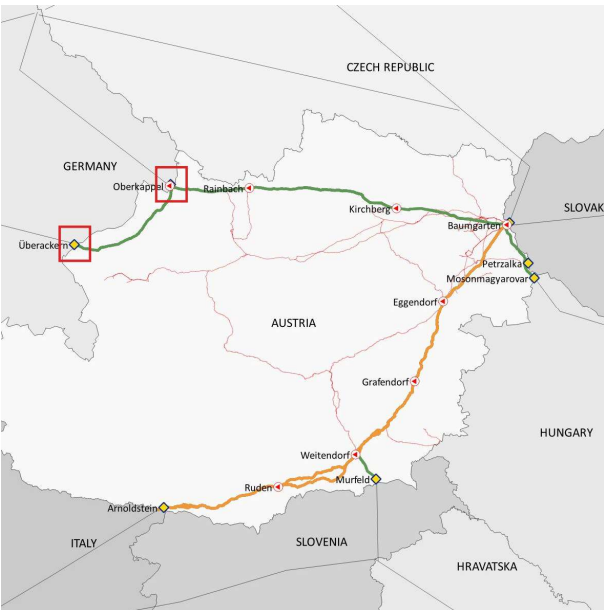
Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]	Development compared to CNDP 2017 *)
Projects for additional capacities					
GCA	2015/01a	Bidirectional Austria Czech Interconnector	4.5		continuation
GCA	2015/01b	Projekt 1b: BACI DN 1200	4.25		continuation
GCA	2015/02a	Entry Überackern	4.5		continuation
GCA	2015/03	Entry/Exit Überackern - Maximum	6		continuation
GCA	2015/04	Entry Mosonmagyaróvár - Minimum	1.5		continuation
GCA	2015/05	Entry Mosonmagyaróvár	4.5	Q4 2024	continuation
GCA	2015/07b	Additional Demand in Distribution Area +		Q4 2018	continuation
GCA	2015/08	Entry/Exit Murfeld	4.5		continuation
GCA	2015/10	Entry Arnoldstein		Q4 2018	continuation
GCA	2017/01	Entry Mosonmagyaróvár Plus	4.5		continuation
GCA	2017/02	Penta West – Distribution Area	1.5		continuation
GCA	2018/01	Überackern - Oberkappel	4.5		new
TAG	2016/01	TAG Reverse Flow Weitendorf/Eggendorf		Q4 2019	continuation
TAG	2016/03	Reverse Flow Baumgarten MT Station (MS2)	3.5		withdrawn
TAG	2016/04	TAG Baumgarten interconnection capacity (Mosonmagyaróvár)		Q4 2021	continuation
TAG	2016/05	TAG Baumgarten interconnection capacity (BACI)	4.5		continuation
TAG	2017/01	TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II	4.5		continuation
TAG	2018/01	Murfeld Exit Capacity Increase	4.5		new
*)	continuation	Continued and approved project without amendments			
	amendment	Continued and approved project with amendments			
	withdrawn	Withdrawn project			
	new	New project			

Project name:	GCA 2015/01a Bidirectional Austria Czech Interconnector		
Project number:	GCA 2015/01a		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	3	Date:	11.01.2018
Project type:	Planning project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims to create technical bidirectional 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.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - New metering station at the handover station – Baumgarten (3x) - New Baumgarten CS - Transmission system connection between Baumgarten and Reintal - New metering station at the handover station - Reintal 		
Project rationale:	This project is necessary to foster the north-south corridor, reduce market isolation, increase the security of supply in the Czech Republic and in Austria and provide transport routes for alternative gas sources.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	This project is in direct connection with the complementary project TAG 2016/05 TAG Baumgarten interconnection capacity (BACI).		


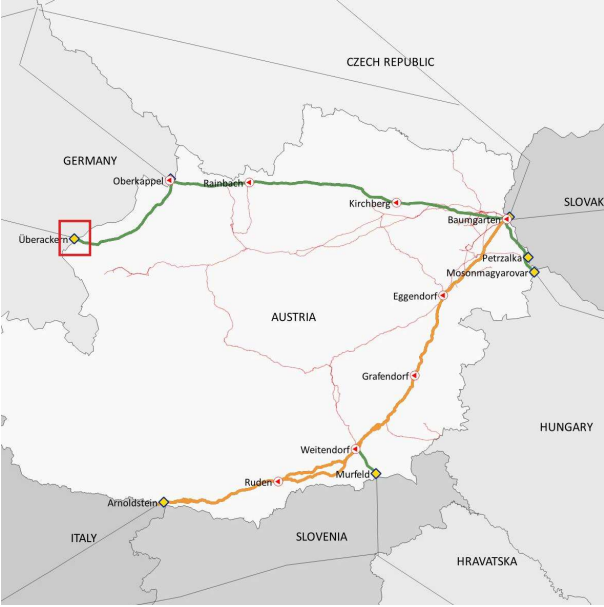
<p>Technical data: Following new freely allocable capacities (FZK) are planned to be available to the system users after completion of the project. Reintal entry point 750,000 Nm³/h (0°C) Reintal exit point 750,000 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: TRA-N-021</p>	<p>PCI status: 6.4</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2015: Approved as a planning project CNDP 2016: Approved including amendments CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/01b BACI DN 1200		
Project number:	GCA 2015/01b		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	13.08.2015
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,25 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims to create technical bidirectional 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.		
Project description	 <p>The following investments are necessary for Project 1b:</p> <ul style="list-style-type: none"> - New metering station at the handover station – Baumgarten - New Baumgarten CS - Transmission system connection between Baumgarten and Reintal <p>New metering station at the handover station - Reintal</p>		
Project rationale:	This project is necessary to foster the north-south corridor, reduce market isolation, increase the security of supply in the Czech Republic and in Austria and provide transport routes for alternative gas sources.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		


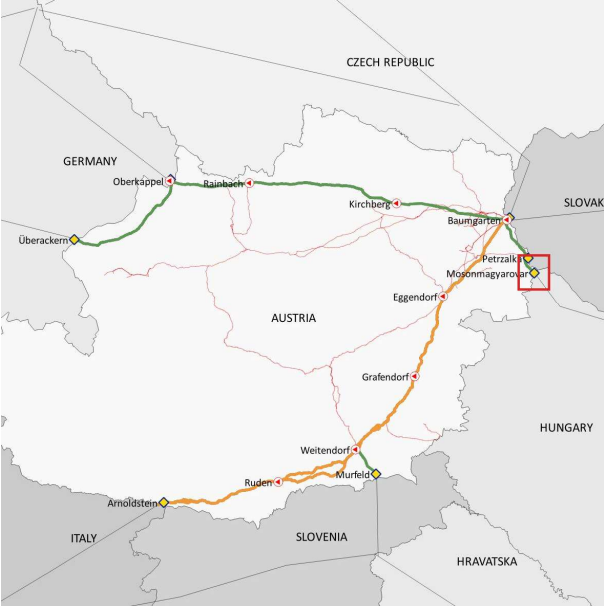
<p>Technical data: Following new freely allocable capacities (FZK) are planned to be available to the system users after completion of the project. Reintal entry point 1,480,000 Nm³/h (0°C) Reintal exit point 1,480,000 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2015) The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2015: Approved as a planning project CNDP 2016: Further monitored without amendments CNDP 2017: Further monitored without amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/02a Entry Überackern		
Project number:	GCA 2015/02a		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	11.01.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	<p>The project aims to increase technical capacity at the Überackern SUDAL entry point to cover projected demand for additional entry capacities at the Überackern SUDAL point. As the Überackern SUDAL, Überackern ABG and Oberkappel points are in competition, capacity at the Oberkappel entry point will also be adjusted.</p>		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Modification of the Überackern metering station at the handover station - Überackern CS "New" - WAG partial loop - Modification of Oberkappel metering station - Modification Baumgarten station 		
Project rationale:	<p>In particular, this project becomes necessary to be able to cover the projected additional capacity demand at the Überackern SUDAL entry point.</p>		
Please note in particular:	<p>The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.</p>		
Connection to other projects:	No		


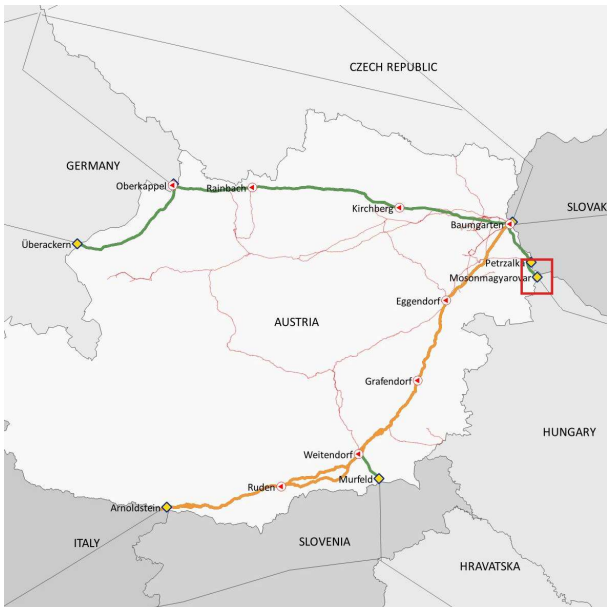
<p>Technical data: The project-related analyses were carried out on the basis of the following capacities: Freely allocable capacity (FZK) Überackern SUDAL entry point: 674,500 Nm³/h (0°C) Freely allocable capacity (FZK) Oberkappel entry point: 1,175,000 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017). 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.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/03 Entry/Exit Überackern - Maximum		
Project number:	GCA 2015/03		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	30.06.2015
Project type:	Planning project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	6 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims at increasing technical capacity at the Überackern entry/exit point to present a possible maximum variant and analyse alternative routes for potential storage connections.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - New Überackern CS - Modification of the Überackern 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. - Penta West pipeline loop - Modification of the Neustift metering and compressor stations - WAG loop - Modification of the Rainbach and Kirchberg compressor stations - Piping at Baumgarten 		
Project rationale:	This project is being examined in order to present a possible maximum variant and to examine alternative routes for potential storage connections. It also increases security of supply in Austria and in Europe.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		


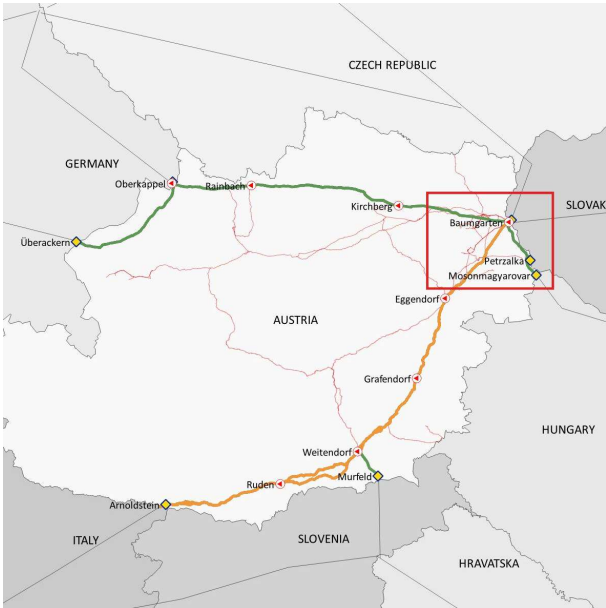
<p>Technical data: Following additional freely allocable capacities (FZK) are planned to be available to the system users after completion of the project. Überackern SUDAL/ABG/7 Fields entry point 1,427,389 Nm³/h (0°C) Überackern SUDAL/ABG/7 Fields exit point 1,580,440 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2015). 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.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2015: Approved as a planning project CNDP 2016: Further monitored without amendments CNDP 2017: Further monitored without amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/04 Entry Mosonmagyaróvár - Minimum		
Project number:	GCA 2015/04		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	11.01.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	1,5 years	Economic test according to CAM NC:	No
Planned completion:			
Project objective:	The project aims to create technical capacity at the Mosonmagyaróvár entry point.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Modification HAG MS: Filter separator, metering routes, regulation, piping - Extension of the Baumgarten node 		
Project rationale:	This project is being examined in order to cover the additional demand for capacity submitted at the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and diversifies sources of natural gas and supply routes.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		
Technical data:	The project-related analyses were carried out on the basis of the following additional capacities: Freely allocable capacity (FZK) Mosonmagyaróvár entry point: 120,000 Nm ³ /h (0°C)		


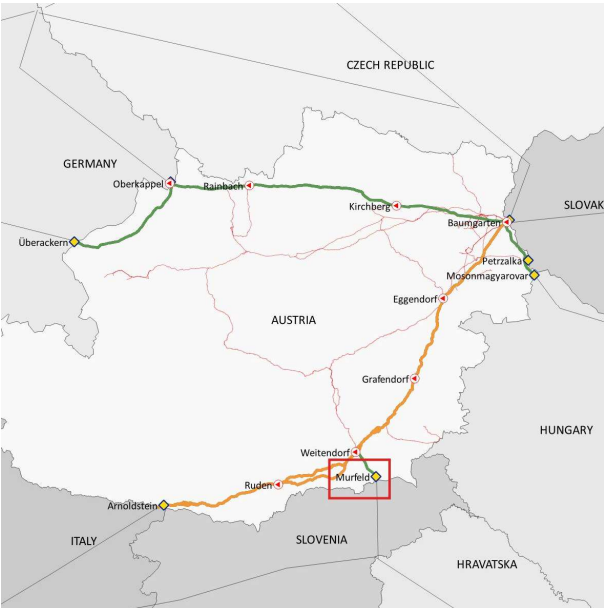
<p>Economic data: Planned investment cost XX € (Cost base 2015) The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. . The realization of the project depends on a pressure support by the upstream TSO at the entry point to realize the above mentioned FZK capacities.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2015: Approved as a planning project CNDP 2016: Further monitored without amendments CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/05 Entry Mosonmagyaróvár		
Project number:	GCA 2015/05		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	3	Date:	11.01.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims to create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional entry capacities at the Mosonmagyaróvár point on a freely allocable basis.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Modification HAG MS: Filter separator, metering routes, regulation, piping - New HAG CS <p>Extension of the Baumgarten node</p>		
Project rationale:	This project aims at covering the projected additional demand for capacity at the Mosonmagyaróvár entry point.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	This project is in direct connection with the complementary project TAG 2016/04 TAG Baumgarten interconnection capacity (Mosonmagyaróvár).		
Technical data:	The project-related analyses were carried out on the basis of the following additional capacities: Freely allocable capacity (FZK) Mosonmagyaróvár entry point: 570,000 Nm ³ /h (0°C)		


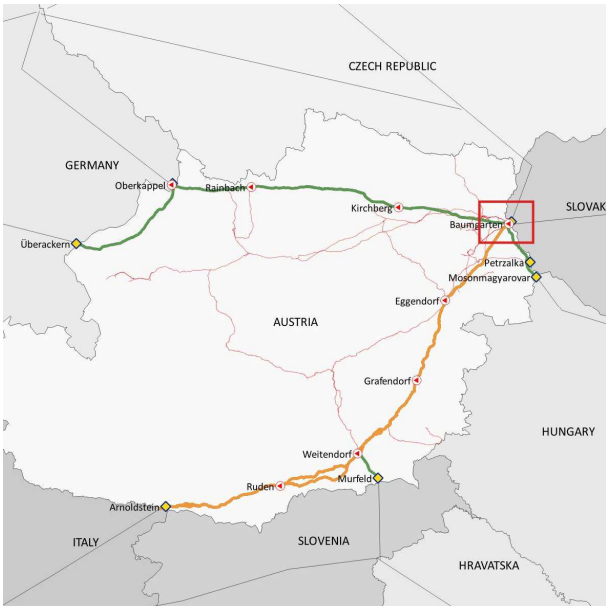
Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Mosonmagyaróvár IP are covered by binding long-term bookings.		
Capacity impact: None		
Project phase: Identify & Assess		
TYNDP: TRA-N-423	PCI status: 6.24.3	CBCA decision: No
Project modifications: None		
Project status: CNDP 2015: Approved as a project CNDP 2016: Approved including amendments CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments		

Project name:	GCA 2015/07b Additional Demand in Distribution Area +		
Project number:	GCA 2015/07b		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	4	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	<p>The project aims to increase technical capacity at the virtual point from the distribution area to the GCA transmission system level to cover the submitted demand for additional entry capacities at the virtual point on a freely allocable basis.</p>		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Extension of the WAG suction pipe in order to divert the entire quantity (600,000 PVS + 515,000 MAB) in a compressed manner to the WAG system. - Reconnect HAG metering station and establish direct connection of collector via BOP11 in the WAG. - Construction of TAG AZ 		
Project rationale:	<p>In particular, this project is reviewed to cover the projected additional capacity demand at the virtual point from the distribution area to the GCA transmission system level.</p>		
Please note in particular:	<p>The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.</p>		
Connection to other projects:	No		


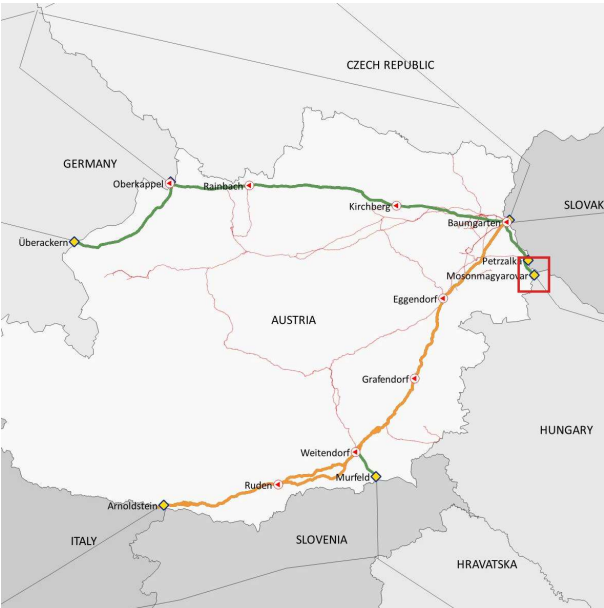
<p>Technical data: The project-related analyses were carried out on the basis of the following additional capacities: Virtual entry point (Distribution area --> transmission system): 960,000 Nm³/h The assumptions for this project are based on input pressure at Baumgarten of 54 barg.</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 10% due to uncertainties in the implementation phase.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Execute</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.</p>		
<p>Project status: CNDP 2015: Approved as a project CNDP 2016: Approved including amendments CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/08 Entry/Exit Murfeld		
Project number:	GCA 2015/08		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	11.01.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims to increase technical capacities on FZK basis at the Murfeld entry/exit point and to create technical capacities on FZK basis at the Murfeld entry point for the first time.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Extension of Weitendorf and Murfeld metering stations: Filter separator, metering routes, regulation, piping - New Murfeld CS - Loop of the SOL over entire length - Loop of the Murfeld – Cersak border crossing pipeline 		
Project rationale:	This project aims at covering the projected additional demand for capacity at the Murfeld entry and exit points.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	This project is in direct connection with the complementary project TAG 2016/01: TAG Reverseflow Weitendorf/Eggendorf.		


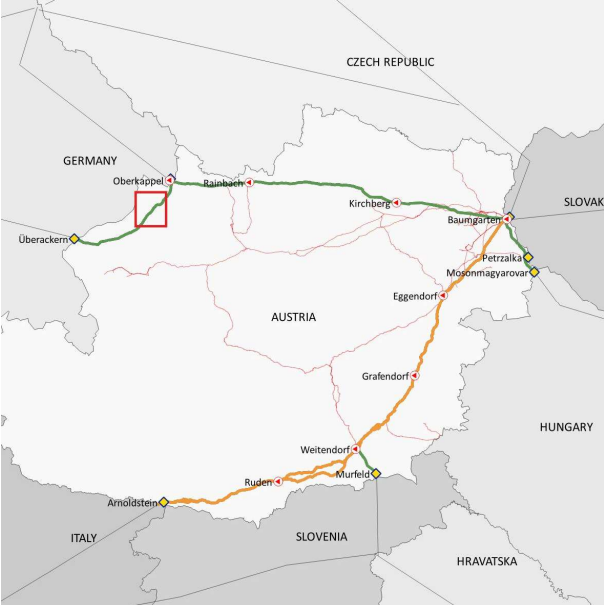
<p>Technical data: The project-related analyses were carried out on the basis of the following additional capacities: Freely allocated capacity (FZK) Murfeld entry point: 620,000 Nm³/h (0°C) Freely allocated capacity (FZK) Murfeld exit point: 810,620 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017) The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the virtual point are covered by binding long-term bookings.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: TRA-N-361</p>	<p>PCI status: 6.26.4</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2015: Approved as a project CNDP 2016: Withdrawn and replaced by the project GCA 2016/03 CNDP 2017: Approved as a project including amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2015/10 Entry Arnoldstein		
Project number:	GCA 2015/10		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	4	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	The project aims to facilitate the maximum possible freely allocable capacity at the Arnoldstein entry point.		
Project description	 <p>The following investments are necessary:</p> <ul style="list-style-type: none"> - Increase in connection capacity at Baumgarten from the TAG line to the VTP and to other systems (TAG AZ, MS 4 bidirectional) 		
Project rationale:	This project aims to enable the maximum possible freely allocable capacity at the Arnoldstein entry point and to comply with the condition imposed in the official decision approving the 2016-2025 CNDP.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	This project is in direct connection with the corresponding project 2016/01 TAG Reverse Flow Weitendorf/Eggendorf.		
Technical data:	For implementation of the project, freely allocable capacity (FZK) yet to be realized at the Arnoldstein entry point of 11,190 MWh/h or 1,000,000 Nm ³ /h (0°C) (to be analysed) was agreed with TAG.		


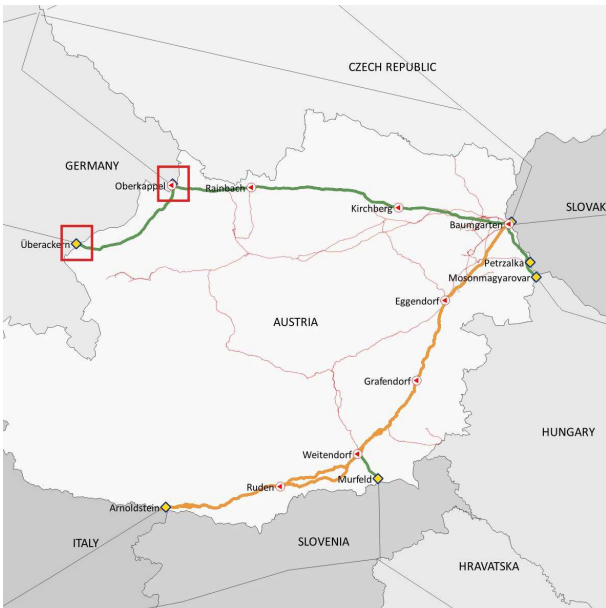
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 10% due to uncertainties in the implementation phase.</p>		
<p>Capacity impact: This project enables together with its corresponding project following quality improvement of the capacity to freely allocable capacity (FZK): Arnoldstein entry point: +1.000.000 Nm³/h (0°C)</p>		
<p>Project phase: Execute</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.</p>		
<p>Project status: CNDP 2015: Approved as a planning project CNDP 2016: Approved as a project including amendments CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2017/01 Entry Mosonmagyaróvár Plus		
Project number:	GCA 2017/01		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	11.01.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The project aims to create technical capacity at the Mosonmagyaróvár entry point to cover projected demand for additional entry capacities at the Mosonmagyaróvár point on a freely allocable basis.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Loop of the HAG pipeline - New HAG CS - Extension of the Baumgarten node including construction of new metering routes 		
Project rationale:	This project is being examined in order to cover the projected additional demand for capacity at the Mosonmagyaróvár entry point. It also increases security of supply in Austria and in Europe and diversifies sources of natural gas and supply routes.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	This project is in direct connection with the complementary project TAG 2017/01: TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II		


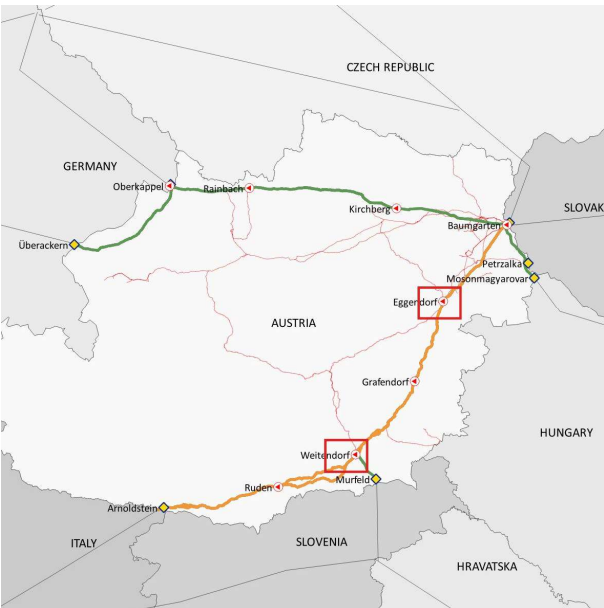
<p>Technical data: Following additional additional freely allocable capacity (FZK) shall be provided to system users after completion of the project: Mosonmagyaróvár entry point: 1,000,000 Nm³/h (0°C)</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Mosonmagyaróvár IP are covered by binding long-term bookings.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2017/02 Penta West – Distribution Area		
Project number:	GCA 2017/02		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	11.01.2018
Project type:	Planning project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	1,5 years	Economic test according to CAM NC:	No
Planned completion:			
Project objective:	The aim of the project is to provide technical capacity along the Pent West pipeline at the station Andorf for an exit into the distribution area.		
Project description	 <p>The following investments are necessary for the project:</p> <ul style="list-style-type: none"> - Adaptation and expansion of the station Andorf on the Pent West 		
Project rationale:	Project development due to the respective demand request by AGGM as a system user.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	Nein		
Technical data:	<p>Following new freely allocable capacities (FZK) shall be provided to the system users after completion of the project:</p> <p>Andorf exit point (Penta West --> Distribution area): 5,000 Nm³/h (0°C)</p>		


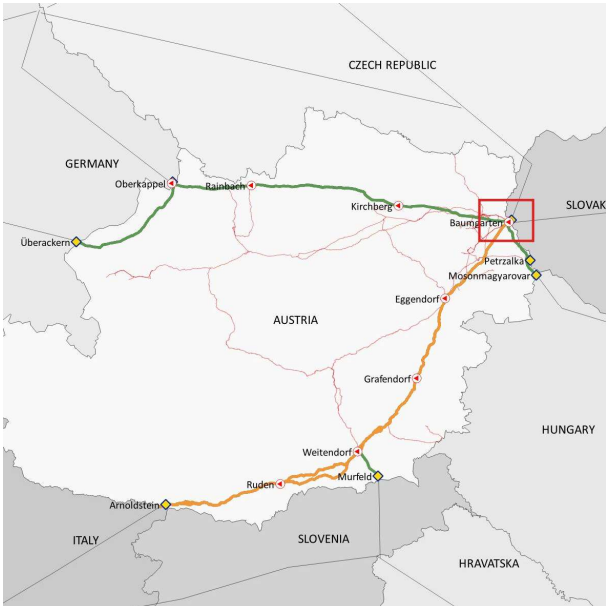
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimation has an accuracy of +/- 25%, which represents the uncertainty in the first planning phase. The realization of the project is achieved when the costs allocated to the point are covered by binding long-term bookings.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2017: Approved as a planning project CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2018/01 Überackern - Oberkappel		
Project number:	GCA 2018/01		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	New project
Implementation time frame:	4,5 years	Economic test according to CAM NC:	Yes
Planned completion:			
Project objective:	The aim of this project is increase the technical entry/exit capacity in Überackern SUDAL and Oberkappel in order to fulfill possible additional capacity demands between these points.		
Project description	 <p>Following investments are necessary for the implementation:</p> <ul style="list-style-type: none"> - Modification "MS Überackern" - CS Überackern "New" - Modification of MS Oberkappel 		
Project rationale:	Market feedback indicates the interest in new additional capacities between the entry/exit points Überackern and Oberkappel.		
Please note in particular:	-		
Connection to other projects:	No		
Technical data:	<p>The project-related analyses were carried out on the basis of the following capacities:</p> <p>Additional firm capacity at the entry/exit points Überackern SUDAL and Oberkappel of 233,414 Nm³/h (0°C) each</p>		


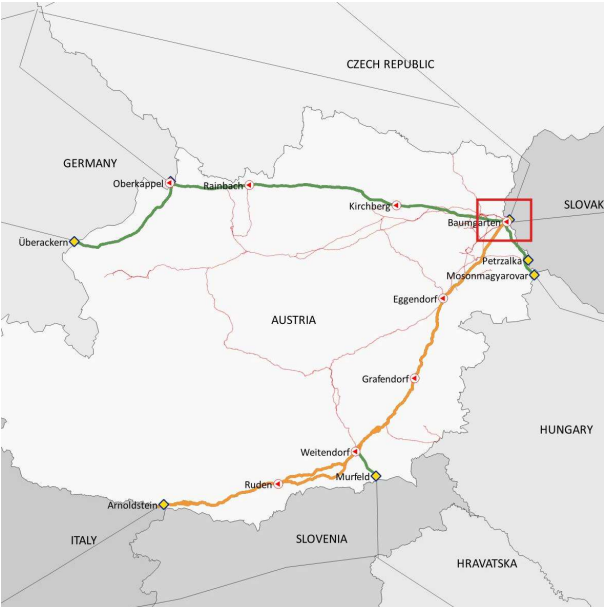
<p>Economic data: Planned investment cost XX € (Cost base 2018). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase. The extension threshold for implementing the project is reached as soon as the costs allocated to the Überackern and Oberkappel IPs are covered by binding long-term bookings.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Identify & Assess</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: -</p>		
<p>Project status: CNDP 2018: Submitting for approval as a project</p>		

Project name:	TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf		
Project number:	TAG 2016/01		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	<p>The implementation of the project "TAG 2016/01 TAG Reverse Flow Weitendorf/Eggendorf" will allow the transportation of at least 1.6 million Nm³/h (at least 1,000,000 Nm³/h in Arnoldstein entry points and 600,000 Nm³/h in Murfeld entry point) to Baumgarten, with the possibility to utilize CS Weitendorf and CS Eggendorf. The scope of the project includes modifications of the station control system.</p>		
Project description	 <p>The following activities are planned:</p> <ul style="list-style-type: none"> - Creation of a connection from the SOL system to the low-pressure side of the compressor station (approx. 20 metres at DN 24") with corresponding valve and bypass - Creation of a connection from the high-pressure side to TAG 2 (approx. 20 meters of DN 24") with corresponding valve and bypass in Eggendorf in order to enable reverse flow on two pipelines - Update of the existing station control system at the Weitendorf CS and the Eggendorf CS. 		
Project rationale:	<p>Without any compressor station in operation the maximum physical reverse flow in Baumgarten – by continuing to respect contractual obligations at the Austria domestic exit points – is around 1,000,000 Nm³/h. After the implementation of the project it will be possible to use Weitendorf and Eggendorf compressor stations in reverse flow operation.</p> <p>The project fulfills the obligation imposed in the official decision PA 16870/15 issued by ECA in respect of the 2016-2025 CNDP.</p>		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES		


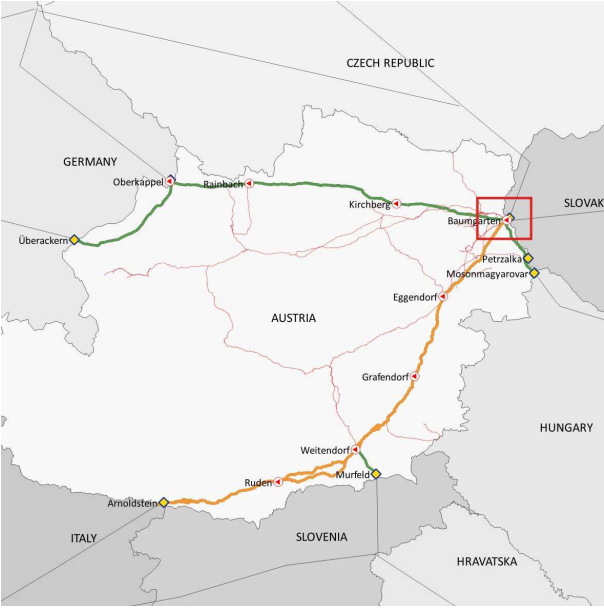
<p>Connection to other projects: This project is in direct connection with the following corresponding projects: TAG 2016/02 AZ1 additional entry and connection with BOP 13 (already implemented) GCA 2015/08 Entry/Exit Murfeld GCA 2015/10 Entry Arnoldstein</p>		
<p>Technical data: The project will permit flow at the Weitendorf CS to be reversed to allow the existing entry capacity at Arnoldstein and the planned new capacity at Murfeld to be transported towards Baumgarten while also fulfilling all contractual obligations at the domestic exit points. The project also involves a number of minor changes at the TAG CS to permit reverse flow under normal operating conditions with no need for intervention in Baumgarten. Increase in technical reverse flow capacity in the TAG system: >1.6 million Nm³/h (0°C)</p>		
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimation has been valuated by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- 25%. CNDP 2017: Planned investment cost XX € (Cost base 2017) The cost estimate underlies in this project phase an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate underlies in this project phase an accuracy of +/- 25%.</p>		
<p>Capacity impact: This project enables together with its corresponding projects following non competing freely allocable capacity (FZK): Arnoldstein entry point: minimum +1.000.000 Nm³/h (0°C) Murfeld entry point: +614.388 Nm³/h (0°C)</p>		
<p>Project phase: CNDP 2016: Planing phase CNDP 2017: Planing phase CNDP 2018: Planing phase</p>		
TYNDP: TRA-N-954	PCI status: No	CBCA decision: No
<p>Project modifications: CNDP 2017: Planned completion CNDP 2018: None</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments The project with updates is in the planning phase and in the budget. The setup study is finalized and the next phase of the project will be initiated.</p>		

Project name:	TAG 2016/03 Reverse Flow Baumgarten MT Station (MS2)		
Project number:	TAG 2016/03		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Withdrawn project
Implementation time frame:	3,5 years	Economic test according to CAM NC:	No
Planned completion:			
Project objective:	<p>The TAG 2016/03 project will facilitate physical reverse flow in the TAG system towards the Slovak network and other potential cross-border connections, which will improve security of supply in the regional as a whole, and was also submitted for inclusion in the 2017 TYNDP (TRA-N-954).</p>		
Project description	 <p>The following activities are planned:</p> <ul style="list-style-type: none"> - Connection of the three TAG lines (using 24" pipe and valves) with the collector prior to the filters. - Connection with TAG1 and TAG2 downstream of MS2 (using DN 40" pipe) (both towards SK). - Reverse flow connection (using DN 40" pipe) downstream compression (on the collector) up to TAG1 and TAG2. 		
Project rationale:	<p>Increase security of supply This project will enable interruptible capacity (UK) to be upgraded to freely allocable capacity (FZK) at the Baumgarten exit point.</p>		
Please note in particular:	-		
Connection to other projects:	<p>The project will permit flow at the TAG Baumgarten metering station to be reversed, enabling physical reverse flow towards Slovakia. This project should be viewed as an SoS project which will increase security of supply in Slovakia in particular. Project TAG 2016/01 is also necessary to achieve this objective.</p>		


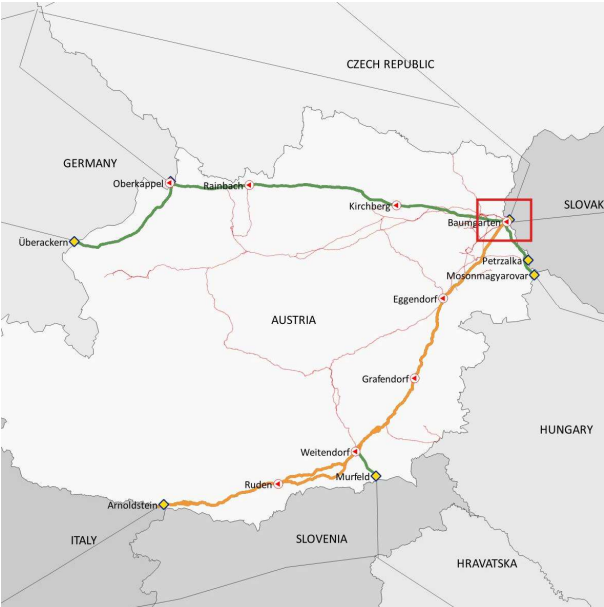
<p>Technical data: The project comprises all activities required to reverse the direction of flow at the Baumgarten CS, including filtering, compression and metering of the gas towards Slovakia and adjustments to the station control system. Baumgarten exit capacity: 1,000,000 Nm³/h</p>		
<p>Economic data: CNDP 2016: Planned investment cost: XX € (Cost base 2016). The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2016: Planning phase CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: TRA-N-954</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2017: Project category, planned completion CNDP 2018: Project category</p>		
<p>Project status: CNDP 2016: Approved as a project with restraint CNDP 2017: Approved as a planning project within amendments CNDP 2018: Submission for withdrawal</p>		

Project name:	TAG 2016/04 TAG Baumgarten interconnection capacity (Mosonmagyaróvár)		
Project number:	TAG 2016/04		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Planning project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:			
<p>The project objective is to create an additional interconnection capacity on freely allocable basis (FZK) in Baumgarten with guaranteed access to the VTP, based on additional FZK capacities at the GCA entry point Mosonmagyaróvár. The project ensures the modification of the TAG Baumgarten station in order to allow an increased gas flow into the TAG system.</p>			
Project description			
		<p>The following activities are foreseen:</p> <ul style="list-style-type: none"> - Extension of interconnection facilities in Baumgarten 	
Project rationale:			
<p>Increase of interconnection capacity and liquidity of the market in order to increase the Austrian and European security of supply and to enable alternative transport routes for alternative gas supply sources.</p>			
Please note in particular:			
<p>Potential impact on availability of transportation capacity during the execution: None</p>			
Connection to other projects:			
<p>This project is in direct connection with the corresponding project GCA 2015/05 Entry Mosonmagyaróvár.</p>			


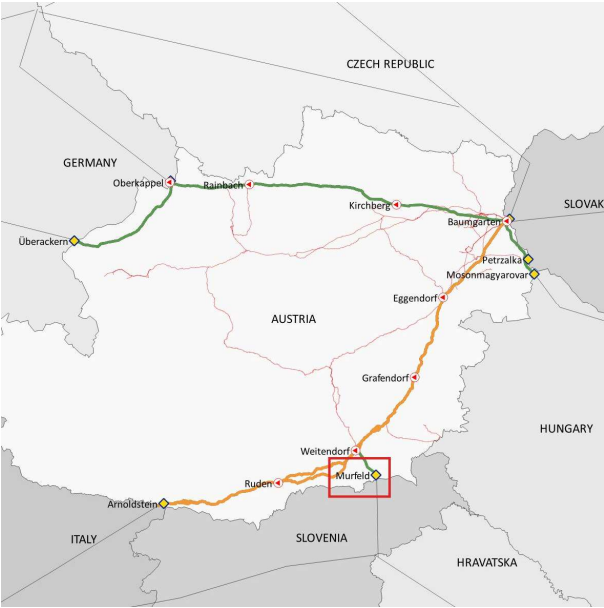
<p>Technical data: Following additional additional freely allocable interconnection capacity (FZK) shall be provided in Baumgarten: Additional entry capacity: +570,000 Nm³/h (0°C).</p>		
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimation has been valuated by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- 25%, which reflects the uncertainty in the first planning phase. CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimate is to be understood with an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate is to be understood with an accuracy of +/- 25%. The realization of the project is subject to the economic feasibility to be proven by binding long-term booking at the Mosonmagyaróvár entry point.</p>		
<p>Capacity impact: This project enables following proposed freely allocable capacity (FZK), created by its corresponding project: Mosonmagyaróvár entry point: +570.000 Nm³/h (0°C)</p>		
<p>Project phase: CNDP 2016: Planning phase CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications: CNDP 2017: None CNDP 2018: None</p>		
<p>Project status: CNDP 2016: Approved as planning project CNDP 2017: Further monitored without amendments CNDP 2018: Further monitoring without amendments The first setup study of the project was completed in Q4/2016. The next steps depend on the next steps of the corresponding GCA's project GCA 2015/05. The project is currently on schedule and in the budget.</p>		

Project name:	TAG 2016/05 TAG Baumgarten interconnection capacity (BACI)		
Project number:	TAG 2016/05		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	No
Planned completion:			
Project objective:	<p>The project objective is to create an additional interconnection capacity on freely allocable basis (FZK) from/into the TAG system going to/coming from the Czech market (entry/exit point Reintal) with guaranteed access to the VTP, based on additional FZK capacities at the new GCA point Reintal. The project ensures the modification of the TAG Baumgarten station in order to allow an increased interconnection gas flow.</p>		
Project description	 <p>The following activities are foreseen:</p> <ul style="list-style-type: none"> - Extension of interconnection facilities in Baumgarten 		
Project rationale:	<p>Increase interconnection capacities and market liquidity in order to foster the north-south corridor, reduce market isolation, increase security of supply in the Czech Republic and Austria and provide alternative transport routes for alternative sources of supply.</p> <p>Furthermore, guaranteed access to the VTP shall be ensured.</p>		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES		
Connection to other projects:	The project is in direct connection with the corresponding project GCA 2015/01a: Bidirectional Austria Czech Interconnector.		

<p>Technical data: Following additional additional freely allocable interconnection capacity (FZK) shall be provided in Baumgarten: Additional entry capacity: +750,000 Nm³/h (0°C) Additional exit capacity: +750,000 Nm³/h (0°C)</p>		
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimation has been valuated by the Engineering partner. The cost estimate underlies in this project phase an accuracy of +/- 25%, which reflects the uncertainty in the first planning phase. CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimate is to be understood with an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate is to be understood with an accuracy of +/- 25%. The realization of the project is subject to the economic feasibility, to be proven by binding long-term booking at the future Reintal entry/exit point.</p>		
<p>Capacity impact: This project enables following proposed freely allocable capacity (FZK), created by its corresponding project: Reintal entry point: +750.000 Nm³/h (0°C) Reintal exit point: +750.000 Nm³/h (0°C)</p>		
<p>Project phase: CNDP 2016: Planning phase CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications: CNDP 2017: Planned completion, project type CDNP 2018: None</p>		
<p>Project status: CNDP 2016: Approved as a planning project CNDP 2017: Approved as a project with amendments CNDP 2018: Further monitoring without amendments The first Setup-Study of the project was completed in Q4/2016. The next steps depend on the next steps of the corresponding GCA's project GCA 2015/01a. The project is currently on schedule and in the budget.</p>		

Project name:	TAG 2017/01 TAG Baumgarten interconnection capacity (Mosonmagyaróvár) II		
Project number:	TAG 2017/01		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Project for additional capacities	Project category:	Continued and approved project without amendments
Implementation time frame:	4,5 years	Economic test according to CAM NC:	No
Planned completion:			
Project objective:			
<p>The project objective is to create additional FZK capacity at the GCA Mosonmagyaróvár entry point and additional interconnection capacity on an FZK basis at Baumgarten with guaranteed access to the VTP. The project provides for modification of the TAG Baumgarten station to enable increased gas flow into the TAG system.</p>			
Project description			
		<p>The following activities are planned:</p> <ul style="list-style-type: none"> - Installation of a 32" pipeline connection between the GCA and TAG pipeline systems, including valves and instruments - Pipeline connection can be used in both directions - Integration into the TAG process control system 	
Project rationale:			
<p>Increase of interconnection capacity and liquidity of the market in order to increase the Austrian and European security of supply and to enable alternative transport routes for alternative gas supply sources.</p>			
Please note in particular:			
<p>Potential impact on availability of transportation capacity during the execution: None</p> <p>An impact on availability of connection capacity on the MS4 connection during execution is possible, depending on the technical concept.</p>			
Connection to other projects:			
<p>This project is in direct connection with the corresponding project GCA 2017/01 Entry Mosonmagyaróvár plus.</p>			


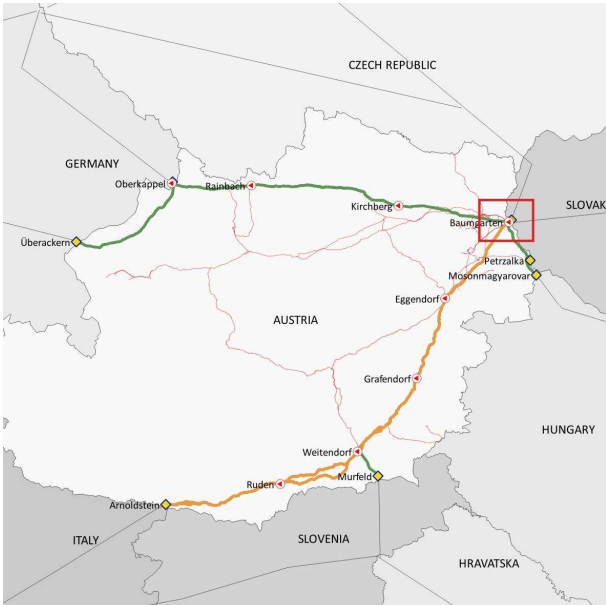
<p>Technical data: Following additional additional freely allocable interconnection capacity (FZK) shall be provided in Baumgarten: Additional entry capacity: 1,000,000 Nm³/h (0°C), possible as TAG normal flow (SK=>AT) and TAG reverse flow (IT=>AT).</p>		
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimate underlies in this project phase an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate underlies in this project phase an accuracy of +/- 25%. The realization of the project is subject to the economic feasibility to be proven by binding long-term booking at the Mosonmagyaróvár entry point</p>		
<p>Capacity impact: This project enables following proposed freely allocable capacity (FZK), created by its corresponding project: Mosonmagyaróvár entry point +1.000.000 Nm³/h (0°C)</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications: CNDP 2018: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments The project is in the budget and timeline.</p>		

Project name:	TAG 2018/01 Murfeld Exit Capacity Increase		
Project number:	TAG 2018/01		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Planning project for additional capacities	Project category:	New project
Implementation time frame:	4,5 years	Economic test according to CAM NC:	No
Planned completion:			
<p>Project objective:</p> <p>The objective of this project is to enable the fore-seen additional technical free allocable capacity of 391,620 Nm³/h (0°C) created by the project GCA 2015/08 "Entry/Exit Murfeld" at the Exit Interconnection Point Murfeld toward Slovenia.</p> <p>The project ensures the modification and extension of the TAG system from Baumgarten station to Weitendorf compressor station in order to allow an increased gas flow into the TAG system.</p>			
<p>Project description</p> <div style="display: flex; align-items: flex-start;">  <div style="margin-left: 20px;"> <p>The following investments are required for the project TAG 2018/01:</p> <ul style="list-style-type: none"> - One additional compressor unit in CS Baumgarten and related equipment - One additional compressor unit in CS Eggendorf and related equipment - One additional compressor unit in CS Grafendorf and related equipment - One additional compressor unit in CS Weitendorf and related equipment </div> </div>			
<p>Project rationale:</p> <p>Satisfy market capacity demand corresponding to the capacity demand expressed by the Slovenian TSO Plinovodi to GCA in the framework of the capacity demand survey of the CNDP 2016.</p>			
<p>Please note in particular:</p> <p>Potential impact on availability of transportation capacity during the execution: YES</p>			
<p>Connection to other projects:</p> <p>The project is in direct connection with the corresponding project GCA 2015/08 "Entry/Exit Murfeld"</p> <p>The realization of the project is amongst other, subject to a positive result of the corresponding economic viability test.</p>			


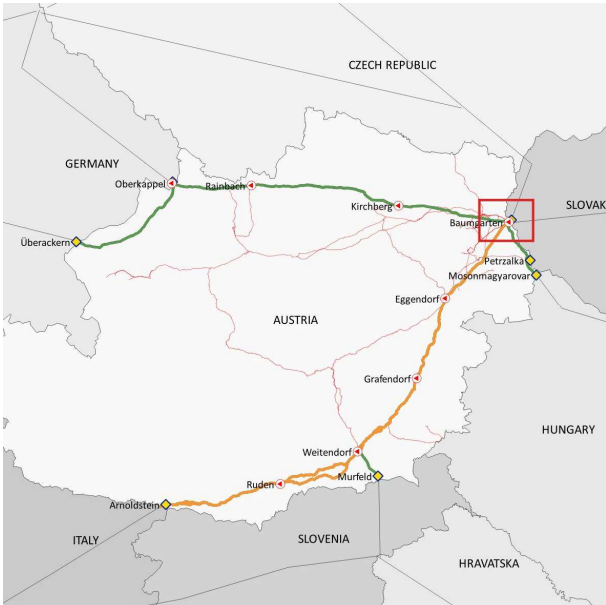
<p>Technical data: The project-related analyses were carried out on the basis of the following additional capacities: Total technical marketable capacity Murfeld exit point 810,620 Nm³/h (0°C)</p>		
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate underlies in this project phase an accuracy of +/- XX%. The realization of the project is subject to the economic feasibility to be proven by binding long-term booking at the Murfeld Exit point.</p>		
<p>Capacity impact: This project enables following proposed freely allocable capacity (FZK), created by its corresponding project: Exitpoint Murfeld +391,620 Nm³/h (0°C)</p>		
<p>Project phase: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: -</p>		
<p>Project status: CNDP 2018: Submission for approval as a planning project</p>		

Replacement investment projects


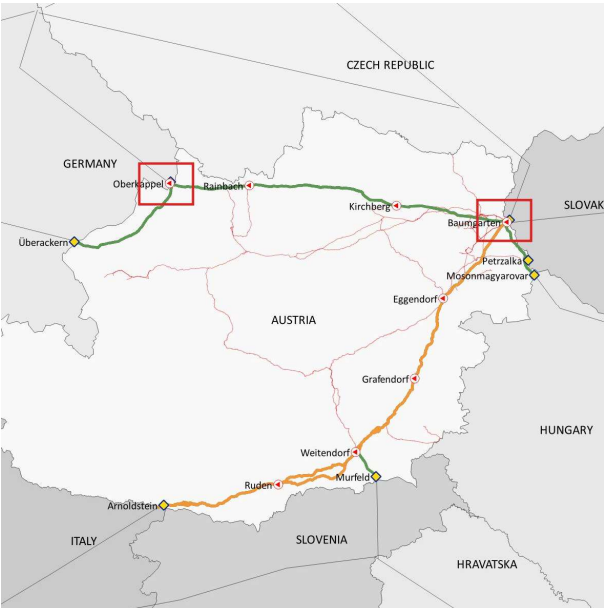
Project sponsor	Project number	Project name	Implementation time frame [years]	Planned completion [date]	Development compared to CNDP 2017 *)
Replacement investment projects					
GCA	2016/E1	110 kV Freileitung		Q4 2021	continuation
GCA	2016/E2	MS3 Reverse Flow		Q3 2020	continuation
GCA	2016/E4	Baumgarten MS3 & Oberkappel – Switch from orifice to ultrasound metering		Q3 2020	continuation
GCA	2016/E5	Revamp Oberkappel		Q1 2021	continuation
GCA	2017/E4	Extension of Baumgarten Substation TAG NOxER II		Q4 2018	continuation
GCA	2017/E5	Replacement of Process Control System at the Rainbach Compressor Station		Q4 2019	continuation
GCA	2017/E6	SOL Revamp		Q4 2018	continuation
GCA	2018/E1	Incident Baumgarten		Q4 2021	new
TAG	2015/R04	NOxER II		Q4/2018	continuation
TAG	2016/R09	Exchange Leaking Valves St.Paul/ Rude/ Ludmannsdorf/ Arnoldstein		Q4/2019	continuation
TAG	2016/R11	Replacement of Gashydraulic Ac-tuators, CS-Baumgarten, Grafendorf and Ruden		Q4/2021	continuation
TAG	2016/R12	SCS Replacement, CS Baumgarten-Grafendorf-Ruden		Q4/2021	amendment
TAG	2017/R01	MS2 Refurbishment		Q4/2019	continuation
TAG	2017/R02-A	Major Overhaul Valve Station Lichtenegg		Q4/2022	amendment
TAG	2017/R02-B	Major Overhaul Valve Station Wielfresen 1		Q4 2022	amendment
TAG	2017/R02-C	Major Overhaul Valve Station Ettendorf		Q4 2021	amendment
TAG	2017/R02-D	Major Overhaul Valve Station Ludmannsdorf		Q4 2018	amendment
TAG	2017/R03-A	Major Overhaul Valve Station Lanzenkirchen		Q4/2020	amendment
TAG	2017/R03-B	Major Overhaul Valve Station Sulmeck-Greith		Q4/2019	amendment
TAG	2017/R03-C	Major Overhaul Valve Station St. Paul		Q4/2019	amendment
TAG	2017/R03-D	Major Overhaul Pigging Station Ruden		Q4/2019	amendment
TAG	2017/R03-E	Major Overhaul Pigging Station Arnoldstein		Q4/2019	amendment
TAG	2017/R04	Substitution Gas Hydraulic Actuators TUCO, CS Baumgarten		Q4/2020	amendment
TAG	2017/R05	Replacement E-Actuators Filter Separators & Metering		Q4/2020	amendment
TAG	2017/R06	DLE 1.5 + 72 hole PT module RC400 in CS-Ruden		Q4 2018	continuation
TAG	2017/R07	Gas Generator BC800 in CS-Baumgarten		Q1 2019	continuation
TAG	2017/R08	Gas Generator RC600 in CS-Ruden		Q4 2019	continuation
TAG	2018/R01	SCS Replacement, CS Eggendorf-Weitendorf		Q4 2021	new
TAG	2018/R02	Major Overhaul Valve Station Ebenthal		Q4 2020	new
TAG	2018/R03	Major Overhaul Valve Station Wettmannstätten		Q4 2020	new
TAG	2018/R04	Major Overhaul Valve Station SS09 Weitendorf		Q4 2021	new
TAG	2018/R05	Major Overhaul Pigging Station Weitendorf		Q4 2021	new
TAG	2018/R06	Major Overhaul Valve Station Reisenberg		Q4 2020	new
TAG	2018/R07	Major Overhaul Valve Station Zöbern		Q4 2021	new
TAG	2018/R09	Sec.1/Sec.2/Sec.3: Corrosion Refurbishment and Repair		Q4 2019	new
TAG	2018/R10	DLE 1.5 + 72 hole PT module BC700 in CS-Baumgarten		Q4 2020	new
TAG	2018/R12	Shut Off Valve MS2, CS-Baumgarten		Q4 2019	new
TAG	2018/R13	Major Overhaul of Valve Stations AZ3-AZ3L Eggendorf		Q4 2020	new
*)	continuation	Continued and approved project without amendments			
	amendment	Continued and approved project with amendments			
	withdrawn	Withdrawn project			
	new	New project			

Project name:	GCA 2016/E1 110 kV Overhead Power Line		
Project number:	GCA 2016/E1		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	11.01.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	Increase security of supply		
Project description	 <ul style="list-style-type: none"> - Construction of a substation in the Oberweiden area - Construction of a 110 kV overhead power line from Untersevenbrunn to Oberweiden <p>Looping of existing underground cables into the new Oberweiden substation by way of system admission to Netz Niederösterreich</p>		
Project rationale:	<p>A significant improvement in security of supply to the compressor station, as power will be supplied from the public 110kV grid at two physically separate locations.</p> <p>Reduction in electrical losses from the underground cables due to the reduced length</p> <p>In future it will be possible to utilise the entire installed capacity at the Baumgarten substation including upstream cabling systems</p>		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		
Technical data:	This project will not create any freely allocable entry or exit capacities.		


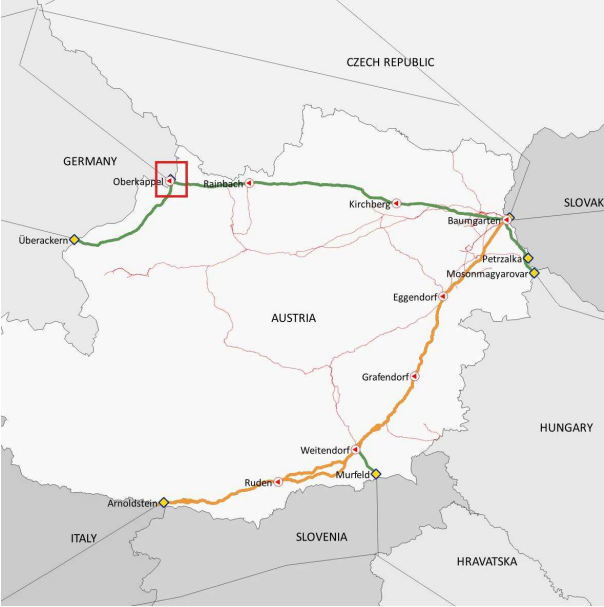
Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase		
Capacity impact: None		
Project phase: Identify & Assess		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: None		
Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments		

Project name:	GCA 2016/E2 MS3 Reverse Flow		
Project number:	GCA 2016/E2		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q2/2020		
Project objective:	Operational correction of MS3 for reverse flow to SK		
Project description	 <ul style="list-style-type: none"> - Installation of control valves supporting bidirectional use - Bypass of the MS3 filter to allow bidirectional use of MS3 		
Project rationale:	<p>MS3 currently serves as an import metering route for gas from the Slovak Republic arriving at Baumgarten via pipelines G00-118, G00-029 and WAG SK. Volume control where required is managed by the WAG compressors.</p> <p>To achieve reverse flow in the WAG (from the WAG to the Slovak Republic), the station inlet and outlet has to be cross-connected in a special operating mode.</p> <p>In this way the flow direction through MS3 during reverse flow remains the same as in normal flow.</p> <p>The cross-connection fittings must, however, be lead-sealed in the presence of the two contractual partners to ensure that MS3 is not circumvented. While organisation of this activity requires additional effort, switching the equipment takes between several hours and an entire day. What is more, in this operating mode the fuel gas required for the station is taken from the line downstream from measurement. This is not permitted at that point.</p> <p>The reverse flow option in the WAG is to be corrected, while meeting these criteria:</p> <ul style="list-style-type: none"> • The need to lead-seal fittings is to be avoided and automatic switching between normal and reverse flow enabled 		


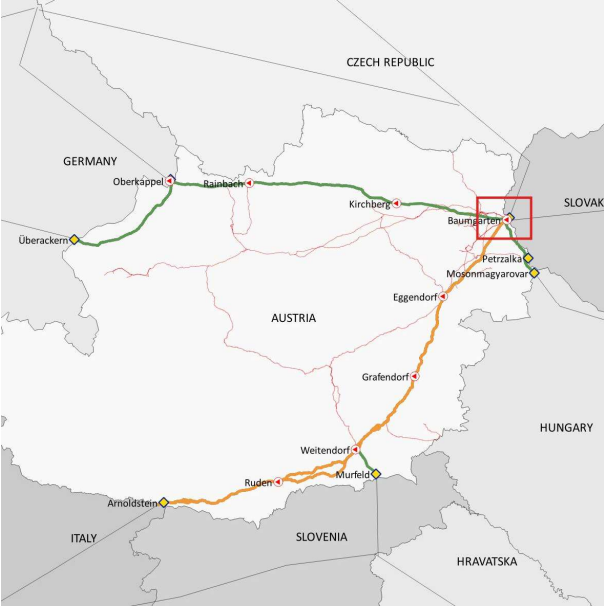
<ul style="list-style-type: none"> • Fuel gas must always be taken from the line within the GCA system • Linepack must be clearly defined during fully bidirectional capacity of the measuring routes • Option of controlling gas volume in normal and reverse flow mode • Potential compression in reverse flow at Baumgarten (only as a future option not yet implemented) 		
<p>Please note in particular: The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.</p>		
<p>Connection to other projects: See technical data</p>		
<p>Technical data: Implementation of projects GCA 2015/07b, GCA 2015/10 and GCA 2016/E4 as specified in the 2016 CNDP will provide additional freely allocable exit capacities at the Baumgarten WAG entry/exit point.</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 10% due to uncertainties in the implementation phase.</p>		
<p>Capacity impact: See technical data</p>		
<p>Project phase: Execute</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Further monitored without amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2016/E4 Baumgarten MS3 & Oberkappel – Switch from orifice to ultrasound metering		
Project number:	GCA 2016/E4		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q3/2020		
Project objective:	Switch from orifice to ultrasound metering at metering station MS3 at Baumgarten and Oberkappel metering station.		
Project description	 <p>Metering station MS3 at Baumgarten filters and meters imported gas from G00-118 and the WAG from Vysoka/SK. The Oberkappel metering station filters, meters and regulates gas from the WAG in the direction of Wildenranna/DE and in the reverse flow direction.</p> <p>The metering technique currently used (orifice metering) is no longer considered state of the art and the station is being converted to use ultrasound meters.</p> <p>In order to avoid capacity restrictions the two stations are converted separately</p>		
Project rationale:	This project is required because the metering technique currently used at both metering stations is no longer considered state of the art.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		
Technical data:	This project will not create any freely allocable entry or exit capacities.		


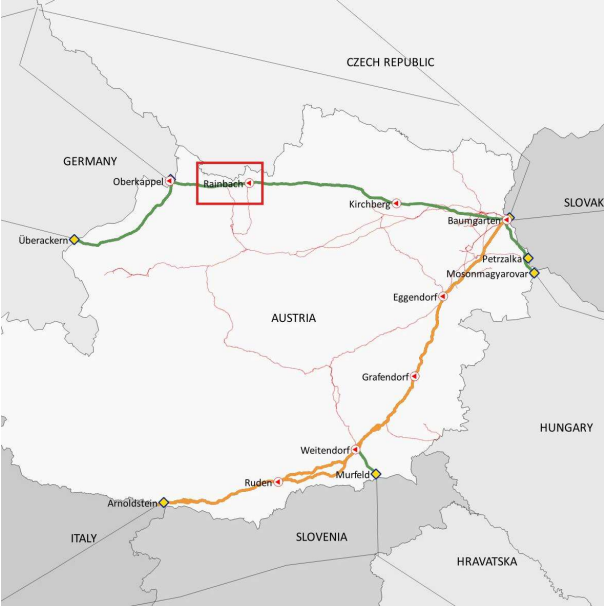
<p>Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Execute</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Further monitored without amendments CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2016/E5 Revamp Oberkappel		
Project number:	GCA 2016/E5		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	3	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q1/2021		
Project objective:	To enable controlled, metered and filtered transport of the capacity of 1,400,000 Nm ³ /h based on the N-1 operating principle.		
Project description	 <p>The existing metering station at Oberkappel (ÜMS OK) serves to reliably transport and meter gas between the WAG1 (Austria) and WAG800 (Germany) pipeline systems.</p> <ul style="list-style-type: none"> - Capacities for Oberkappel at 49 barg excess pressure: <ul style="list-style-type: none"> o Entry OKP: max. 1,400,000 Nm³/h o Exit OKP: max. 1,400,000 Nm³/h o Minimum volume: 15,000 Nm³/h ¿ Design pressure for control 49 bar to design pressure, for the entire volume range. ¿ In refitting the control system, only the marketed capacities are to be considered; potential future capacities are not taken into account. ¿ Design data <ul style="list-style-type: none"> o Design pressure PN 77 o New filter separator FS5 PN90 o New control valves PN90 o 32" header (inlet and outlet) # 1,400,000 m³/h at approx. 15 m/s - Refitting work relates to the entire high pressure gas system including secondary systems such as the process control system, gas analysis, LKS, fire and gas detection systems, and the blow-off system. 		
Project rationale:	This project is required because the technical gas equipment currently used is no longer considered state of the art and does not comply with safety requirements.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		


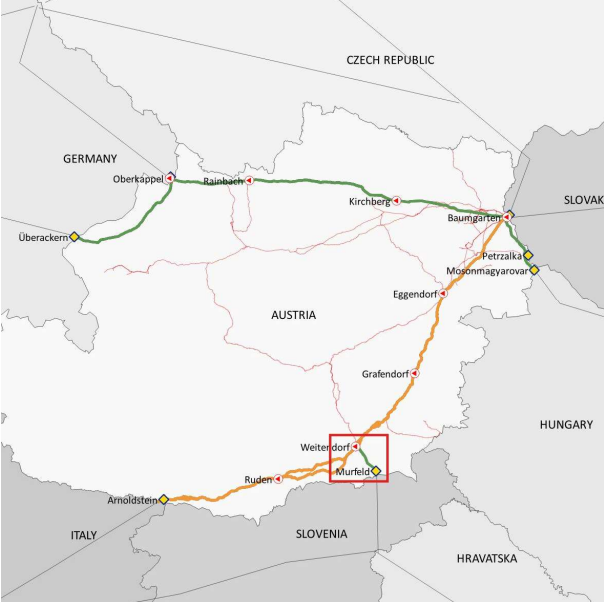
Connection to other projects: No		
Technical data: This project maximises flexibility at Oberkappel.		
Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.		
Capacity impact: None		
Project phase: Execute		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.		
Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitored without amendments		

Project name:	GCA 2017/E4 Extension of Baumgarten Substation TAG NOxER II		
Project number:	GCA 2017/E4		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	2	Date:	11.01.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	Extension of the BMG substation with the addition of a third transformer to ensure security of supply based on the N-1 principle.		
Project description	 <p>As a result of the NOxER II TAG project, about 18 MW of additional electrical power will be required at the BMG compressor station. The electricity will be supplied by the BMG substation, which will be able to supply this amount of power after expansion through the addition of a 110/20 kV transformer, including the required switching and supplementary systems.</p> <p>The BMG substation is jointly used infrastructure, supplying electricity to all power-consuming devices at the BMG compressor station.</p>		
Project rationale:	This project is specifically required due to the fact that increased energy demands cannot be met with existing equipment.		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		
Technical data:	This project will not create any freely allocable entry or exit capacities.		


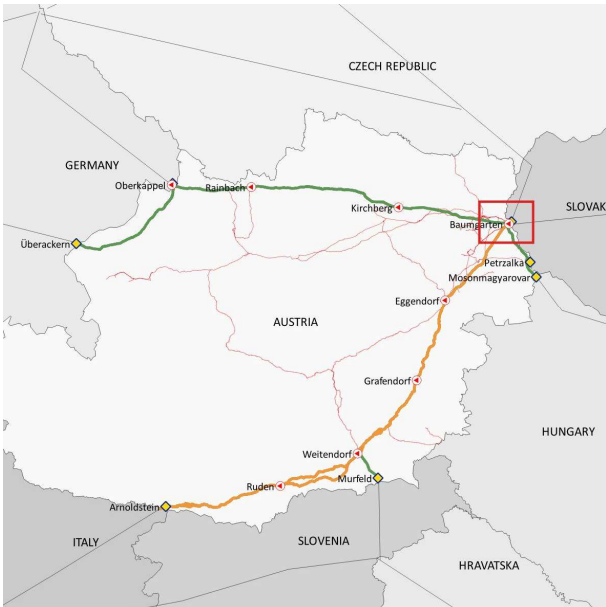
Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 10% due to uncertainties in the implementation phase.		
Capacity impact: None		
Project phase: Execute		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: Planned completion due to the prioritization of measures due to the Baumgarten incident of 12 December 2017.		
Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments		

Project name:	GCA 2017/E5 Replacement of Process Control System at the Rainbach Compressor Station		
Project number:	GCA 2017/E5		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	11.01.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	Replacement of the process control system at the Rainbach compressor station.		
Project description	 <p>The existing process control system (PCS) at the station has reached the end of its service life. The system, a Siemens PCS7, was originally installed in 2004. The industry standard for the service life of a PCS is 10 years, while systems at GCA manage up to 15 years. System availability can no longer be guaranteed because some (hardware and software) components are no longer produced.</p> <p>Commercial availability of structurally identical replacement parts is limited. In some cases, later models require modification of the system, leading to increased cost and risk. This also means that it will in future be difficult or impossible to ensure that the system design complies with applicable standards.</p> <p>Replacement involves the entire PCS, which mainly includes all servers, clients, redundant and fail-safe CPUs, input and output level equipment, as well as network and remote control components. The marshalling cabinets will remain in place for the most part and only be modified.</p> <p>The user software will be adapted to the new configuration, with basic functions remaining the same. Systematic requirements will be implemented, as will be the new GCA standards introduced since the system was originally built.</p>		
Project rationale:	The project is specifically necessary because the existing process control system (PCS) at the station has reached the end of its service life and the availability of the compressor and metering station is no longer ensured.		


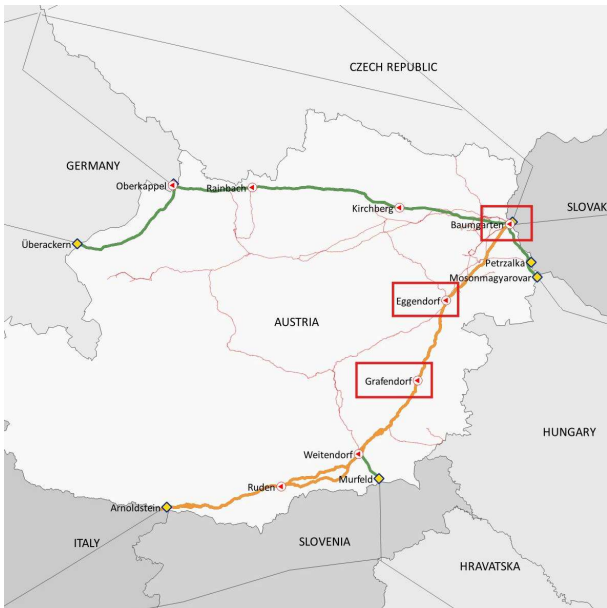
<p>Please note in particular: The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.</p>		
<p>Connection to other projects: No</p>		
<p>Technical data: This project will not create any freely allocable entry or exit capacities.</p>		
<p>Economic data: Planned investment cost XX € (Cost base 2016). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Define</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments</p>		

Project name:	GCA 2017/E6 SOL Revamp		
Project number:	GCA 2017/E6		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	11.01.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	Renewal of the fittings and insulating joints on the SOL pipeline.		
Project description	 <ul style="list-style-type: none"> - Replacement of 19 knife-gate valves - Replacement of leaky outlet bypass fittings at the Murfeld and Weitendorf metering stations - Replacement of insulating joints (incl. recompression) at the inlet and outlet of the Murfeld metering station, the outlet of the Weitendorf metering station, and the inlet and outlet of the Leibnitz SS. - Adaptation of the LKS at the Murfeld metering station, Weitendorf metering station and Leibnitz SS, and repair of two detected faulty points. 		
Project rationale:	<p>In the course of pigging and fitting maintenance, leaks were identified in the knife-gate valves installed in the SOL about 40 years ago.</p> <p>Faulty insulating joints need to be replaced.</p> <p>Faults detected in the LKS during intensive metering in 2014 have to be repaired.</p>		
Please note in particular:	The contents of the technical studies of the project ("confidential supplements") remain unchanged and valid in accordance with the Network Development Plan 2017 of Gas Connect Austria.		
Connection to other projects:	No		
Technical data:	This project will not create any freely allocable entry or exit capacities.		


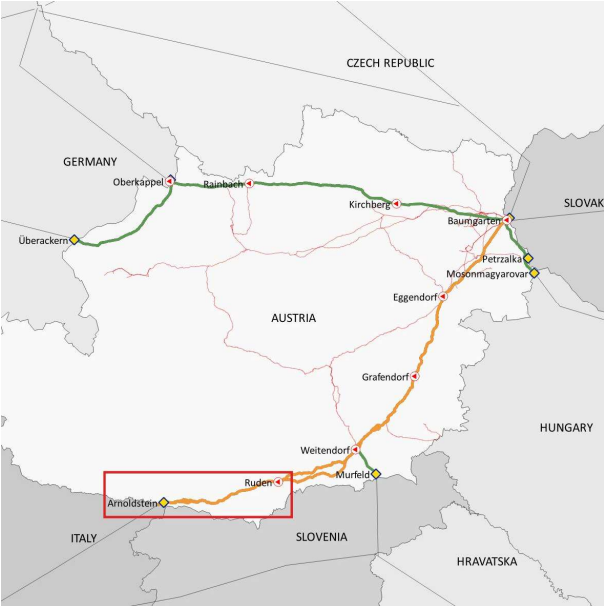
Economic data: Planned investment cost XX € (Cost base 2017). The cost estimate may deviate by +/- 10% due to uncertainties in the implementation phase.		
Capacity impact: None		
Project phase: Execute		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: None		
Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments		

Project name:	GCA 2018/E01 Incident Baumgarten		
Project number:	GCA 2018/E01		
Project sponsor:	GAS CONNECT AUSTRIA GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	The aim of this replacement investment is to completely rebuild the gas hub Baumgarten to its original and fully operational state after the gas fire incident on the 12 December 2017.		
Project description	 <p>Following investments are required for the implementation:</p> <ul style="list-style-type: none"> - TAG AZ reconstruction - Repair of pipeline system G00-018 - Repair of electric substation - Repair of transportation routes MS5 - VSOGG - G00-050 - Repair of transportation route BOP13 middle-pressure - Exchange of VSOGG equipment - New construction MS1 - New construction operations building 		
Project rationale:	<ul style="list-style-type: none"> - Recovery of the total interconnection capacity from PVS2 to PVS1 and all downstream transmission systems - Recovery of the full automation of process control - Recovery of the flexibility and possibility to optimize operation modes in the gas hub Baumgarten - Optimizing the flexibility of the gas hub Baumgarten - Reducing the risks of restrictions due to maintenance measures 		
Please note in particular:	-		
Connection to other projects:	No		


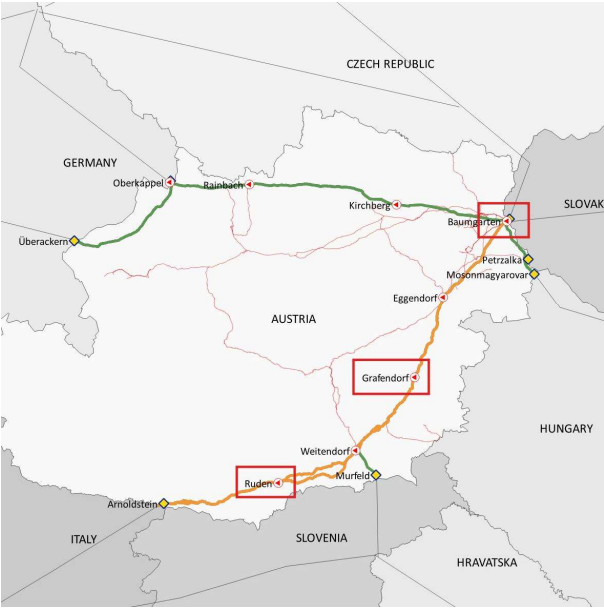
Technical data: There is no change in the existing technical transport capacities.		
Economic data: Planned investment cost XX € (Cost base 2018). The cost estimate may deviate by +/- 25% due to uncertainties in the first planning phase.		
Capacity impact: None		
Project phase: Execute		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: -		
Project status: CNDP 2018: Submitting for approval as a replacement investment project		

Project name:	TAG 2015/R04 NOxER II		
Project number:	TAG 2015/R04		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	<p>The objective of the „NOxER II“ project is the replacement of outdated compressor units plus auxiliaries and involves the compressor stations Baumgarten, Eggendorf, Grafendorf and Ruden. The project is carried out based on public-law decrees.</p>		
Project description	 <p>The following investments are required for the project execution:</p> <ul style="list-style-type: none"> - Removing of 10 FR-3 machines in three sites - Installation of 4 new ELCO-machines in 3 sites - Installation of 3 new E-supply cable systems 		
Project rationale:	<p>Due to a new emission protection law for boiler plants (EGK) as well as due to the age and the reached operation hours (about 100,000) of the installed Frame 3 gas turbines, TAG will take the existing Frame 3 units out of operation step by step in order to reduce the burden with NOx emissions on the TAG system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: YES</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		


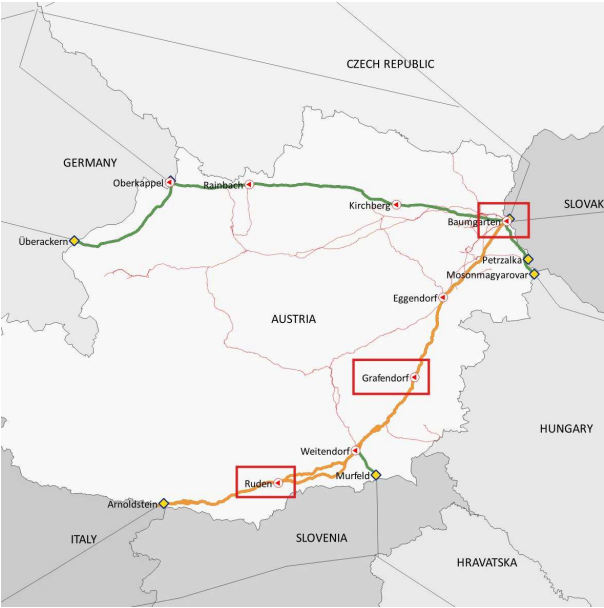
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimate was given with an accuracy of +/- 25%. CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimate is to be understood with an accuracy of +/- 10%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimate is to be understood with an accuracy of +/- 10%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2015: Execution phase CNDP 2016: Execution phase CNDP 2017: Execution phase CNDP 2018: Execution phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2016: None CNDP 2017: Economic data CNDP 2018: None</p>		
<p>Project status: CNDP 2015: Approved as a project under conditions CNDP 2016: Further monitored without amendments CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments The project is in the execution phase. The works are currently on time and in the budget. In Grafendorf, the demolition and dismantling phase is completed, the erection phase is almost completed, the commissioning phase has started. In Baumgarten the demolition and dismantling phase is completed, and the erection phase has started. In Eggendorf, the erection phase is in progress. In Ruden, the engineering is almost completed.</p>		

Project name:	TAG 2016/R09 Exchange Leaking Valves St. Paul/Ruden/Ludmannsdorf/Arnoldstein		
Project number:	TAG 2016/R09		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	The installation of 7 new valves in the pipeline stations St. Paul, Ruden, Ludmannsdorf and Arnoldstein, in order to maintain the tightness in case of closing of the section (6 valves) and in order to dismantle the existing pig trap in Ludmannsdorf (1 valve).		
Project description	 <ul style="list-style-type: none"> - Degassing of the relevant pipeline sections through recompression - Excavation and digging works, exposing of the piping system and valves. - Exchange of the 6 leaking valves - Dismantling of the existing pig trap in Ludmannsdorf - Installation of a new section valve with bypass instead of the pig trap 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES (See also https://www.aggm.at/en/network-information/maintenance-coordination)		
Connection to other projects:	The project will be coordinated with the other projects TAG 2017/R02-XX (Major Overhaul of Valve Stations, Lichtenegg / Wielfresen 1 / Ettendorf / Ludmannsdorf) and TAG 2017/R03-XX (Major Overhaul of Valve Stations Lanzenkirchen / Sulmeck / St.Paul / Ruden / Arnoldstein) in order to carry out the activities in the valve station at the same time. Specifically, Ludmannsdorf in 2018 and St. Paul, Ruden and Arnoldstein in 2019.		


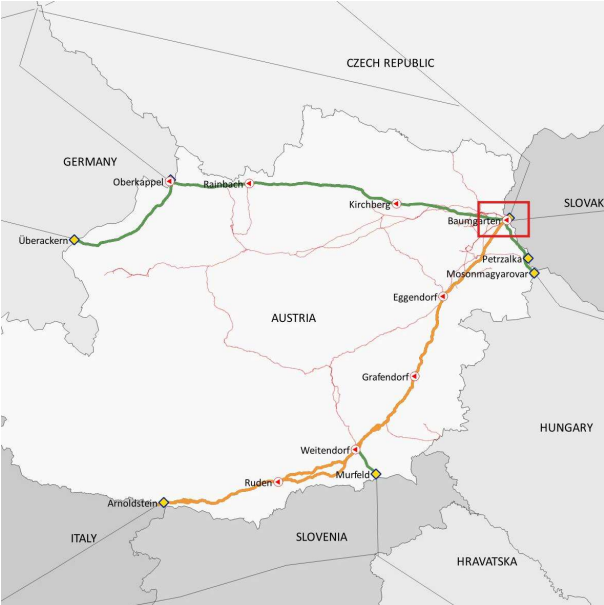
<p>Technical data: SS 12 L – St. Paul: TAG Loop II (40“) – VEOR 1L (main valve) MOS-5 Ruden: TAG 1 (36“) – KVA 10 (pig receiver) SS 14 AL – Ludmannsdorf: TAG Loop – VEOR 1L (40“), VEOR 11L (36“) and VEOR 12L (36“) MOS 7 Arnoldstein: TAG 1 (36“) – MVEO 10 There is no change in the existing technical transport capacities.</p>		
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis. CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy +/- 10%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy +/- 10%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2016: Planning phase Since CNDP 2017: Execution phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2017: Planned completion, project description, economic data CNDP 2018: None</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitored without amendments The project is in execution phase for Ludmannsdorf and in Set-up engineering phase for St. Paul, Ruden and Arnoldstein. The project is strived to be completed in December 2018 for Ludmannsdorf and in December 2019 for St. Paul, Ruden and Arnoldstein.</p>		

Project name:	TAG 2016/R11 Replacement of Gas-Hydraulic Actuators CS-BGT, GFD, RUD		
Project number:	TAG 2016/R11		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:			
<p>Replacement of the existing gas hydraulic to electro hydraulic actuators in the compressor stations Baumgarten, Grafendorf and Ruden.</p> <p>The drive concept will be switched from Gas-hydraulic to Electro-hydraulic, also ensuring substantial reduction of natural gas emissions.</p>			
Project description			
		<ul style="list-style-type: none"> - Exchange Gas-hydraulic actuators by Electro-hydraulic actuators - Electrical connection of the actuator's gears to the switchboard - Integration into SCS (station control system) 	
Project rationale:			
The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.			
Please note in particular:			
Potential impact on availability of transportation capacity during the execution: None			
Connection to other projects:			
No			
Technical data:			
There is no change to existing technical transport capacities, nor in operations nor processes.			


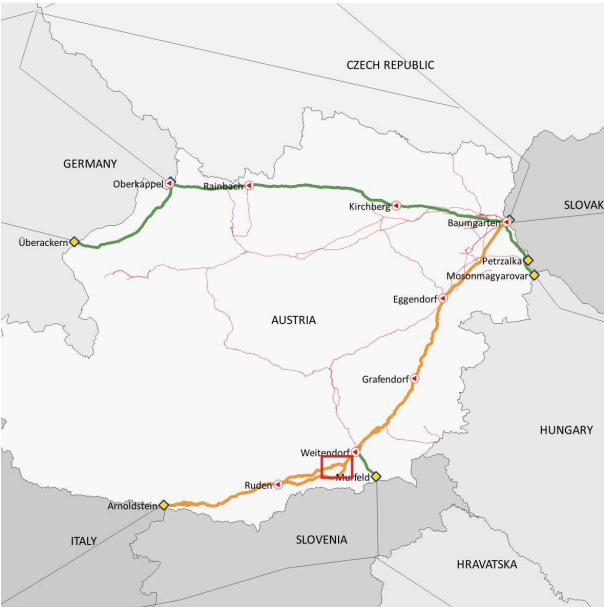
<p>Economic data: CNDP 2016: Planned investment cost XX € (Cost base 2016). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis. CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Since CNDP 2016: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2017: Planned completion CNDP 2018: None</p>		
<p>Project status: CNDP 2016: Approved as a project CNDP 2017: Approved including amendments CNDP 2018: Further monitoring without amendments The technical implementation in the station control system is currently being evaluated together with the Station Control System corresponding project (TAG 2016/R12).</p>		

Project name:	TAG 2016/R12 SCS Replacement, CS Baumgarten-Grafendorf-Ruden		
Project number:	TAG 2016/R12		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:			
<p>Replacement of the SCS (Station Control System) and ESD (Emergency Shut Down) in hardware and software, as well as the replacement of the marshalling cabinets and the operating workstations and servers.</p> <p>In the control room, there is a mimic panel that should be replaced and visualized by a LED flat screen.</p>			
Project description			
		<ul style="list-style-type: none"> - EPCM - Engineering and Site Supervision - System implementation separately for each compressor station - Commissioning separately for each compressor station 	
Project rationale:			
<p>Due to the age of the system and the low availability of spare parts, TAG GmbH needs to replace the existing SCS by a new one in the compressor stations Ruden, Grafendorf and Baumgarten</p>			
Please note in particular:			
<p>Potential impact on availability of transportation capacity during the execution: YES (See also https://www.aggm.at/en/network-information/maintenance-coordination)</p>			
Connection to other projects:			
<p>Possible synergies with the project TAG 2015/R04 NOxER II vs. possible replacement of instruments and valves of those loops that need to be certified due to SIL (safety integrity level) assessment.</p>			
Technical data:			
<p>There is no change in the existing technical transport capacities.</p>			


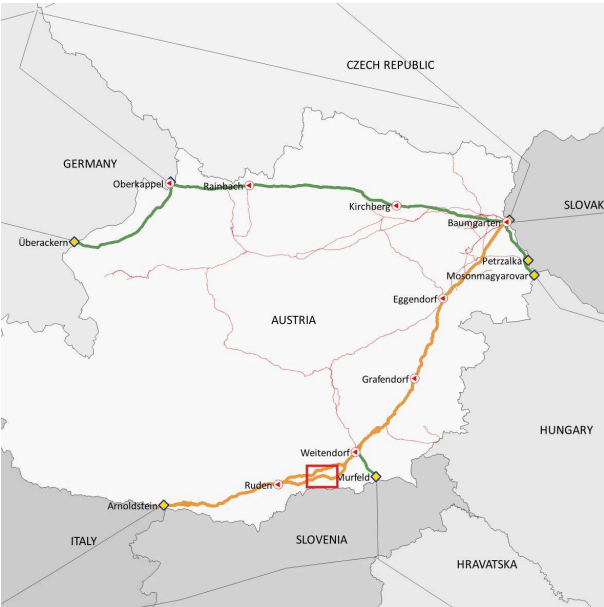
<p>Economic data:</p> <p>CNDP 2016: Planned investment cost XX € (Cost base 2016). (excl. possible replacement of process instruments and valves). The cost estimation is to be understood with an accuracy +/- 25% based on internal estimation.</p> <p>CNDP 2017: Planned investment cost XX € (Cost base 2017). (excl. possible replacement of process instruments and valves). The cost estimation is to be understood with an accuracy +/- 25% based on internal estimation.</p> <p>CNDP 2018: Planned investment cost XX € (Cost base 2018). (excl. possible replacement of process instruments and valves). The cost estimation is to be understood with an accuracy +/- 25% based on internal estimation.</p>		
<p>Capacity impact:</p> <p>None</p>		
<p>Project phase:</p> <p>KNEP 2016: Planing phase</p> <p>Since KNEP 2017: Engineering phase</p> <p>The EPCM was assigned. The tender for the Engineering and the Site Supervision has been completed. Engineering is currently ongoing.</p>		
TYNDP: No	PCI status: No	CBCA decision: No
<p>Project modifications:</p> <p>CNDP 2017: Planned completion, economic data</p> <p>CNDP 2018: None</p>		
<p>Project status:</p> <p>CNDP 2016: Approved as a project</p> <p>CNDP 2017: Approved including amendments</p> <p>CNDP 2018: Further monitoring without amendments</p>		

Project name:	TAG 2017/R01 MS2 Refurbishment		
Project number:	TAG 2017/R01		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	Replacement of the six 30" underground pipeline sections downstream the MS2 metering lines.		
Project description	 <ul style="list-style-type: none"> - Disassembly of the MS2 metering building including the existing measurement shaft/density measurements - Disassembly and replacement of the six 30" underground pipeline sections downstream the MS2 metering building up to the outlet valves of the metering lines - Restoration of a new blow-off system on site 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES		
Connection to other projects:	No		
Technical data:	There is no change in the existing technical transport capacities.		
Economic data:	<p>CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis.</p> <p>CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy +/- 25% on the EPCM basis.</p>		


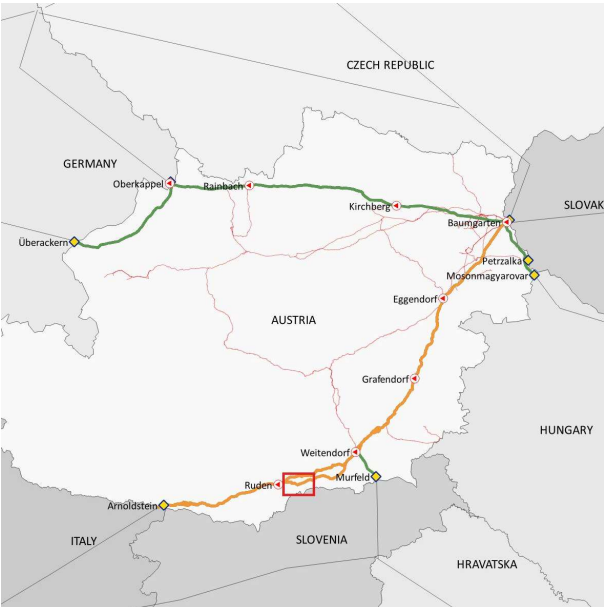
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments The project is currently on schedule and in the budget. The Setup Study was finalized in 2017, the coordination of the time window for plant shut down/tie-in works for piping with further other TAG projects in progress. Civil works, renewal of piping, insulation and underground works are planned to be started and finished in 2019.</p>		

Project name:	TAG 2017/R02-A Major Overhaul Valve Station Lichtenegg		
Project number:	TAG 2017/R02-A		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2022		
Project objective:	The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station along the TAG-pipeline system at valve station Lichtenegg.		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: None		
Connection to other projects:	No		
Technical data:	So far, no reduction of the available transport capacity is foreseen.		
Economic data:	CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.		


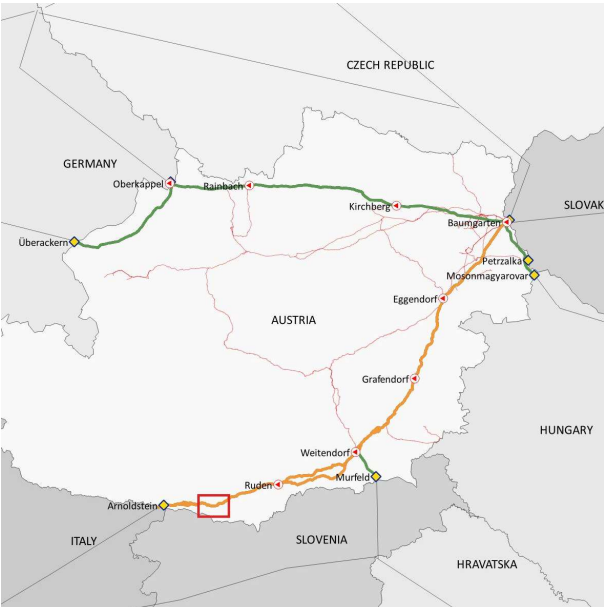
Capacity impact: None		
Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: CNDP 2018: Project scope, economic data, timeline, project name		
Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R02 KNEP 2018: Submission for approval including amendments The set up phase is currently ongoing and will be finished till the end of the year. The project execution will be postponed to 2022. The start of the procurement is foreseen for October 2021.		

Project name:	TAG 2017/R02-B Major Overhaul Valve Station Wielfresen 1		
Project number:	TAG 2017/R02-B		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2022		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station along the TAG-pipeline system at valve station Wielfresen 1.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>So far, no reduction of the available transport capacity is foreseen.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


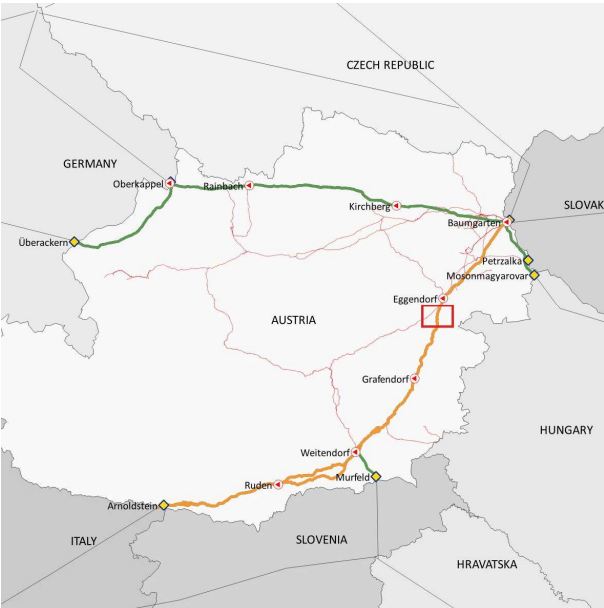
Capacity impact: None		
Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: CNDP 2018: Project scope, economic data, project name		
Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R02 CNDP 2018: Submission for approval including amendments The set up phase will be finalized by end of the year 2021 and the project execution will be finished by end of 2022. The start of procurement is planned in October 2021.		

Project name:	TAG 2017/R02-C Major Overhaul Valve Station Ettendorf		
Project number:	TAG 2017/R02-C		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station along the TAG-pipeline system at valve station Ettendorf.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>So far, no reduction of the available transport capacity is foreseen.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


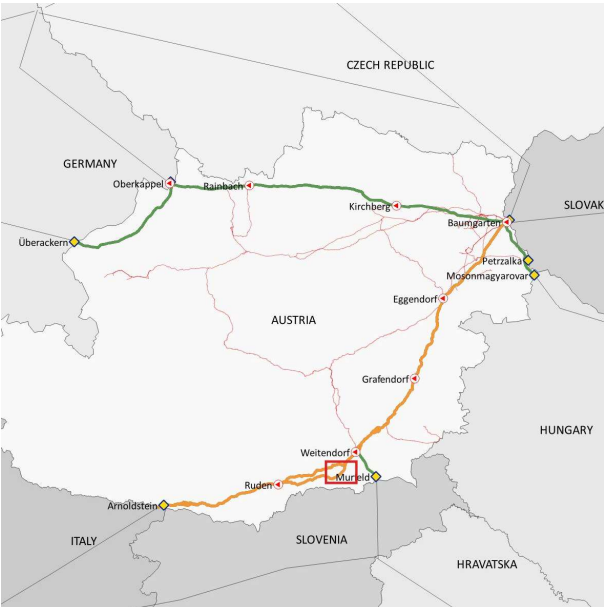
Capacity impact: None		
Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications: CNDP 2018: Project scope, economic data, planned completion, project name		
Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R02 CNDP 2018: Submission for approval including amendments The set up phase will be finished end of the year 2018. The project execution is postponed to 2021. The start of procurement is foreseen for October 2020.		

Project name:	TAG 2017/R02-D Major Overhaul Valve Station Ludmannsdorf		
Project number:	TAG 2017/R02-D		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:	The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station along the TAG-pipeline system at station Ludmannsdorf.		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES		
Connection to other projects:	No		
Technical data:	So far, no reduction of the available transport capacity is foreseen.		
Economic data:	CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.		


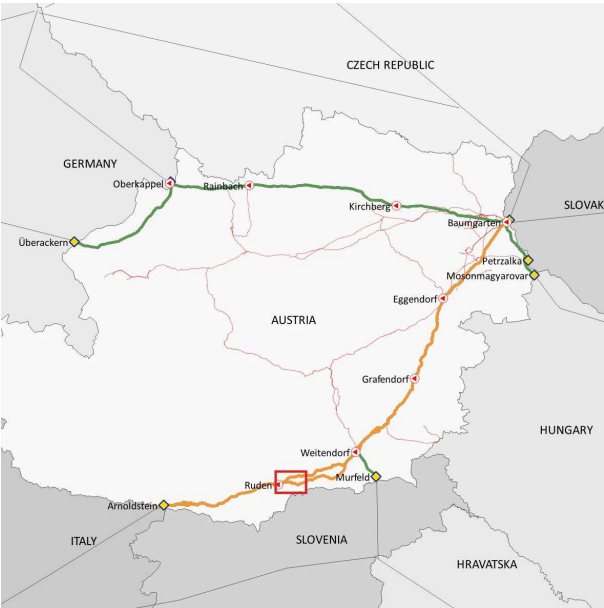
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Execution phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name</p>		
<p>Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R02 KNEP 2018: Submission for approval including amendments The set up phase was finished end of Mai 2018 and the project execution is currently in progress. Start of procurement activities was done from October 2017 and the main work packages are contracted. The construction works have been started and the tie in works will be started by mid of September and will be completed by the mid of October 2018.</p>		

Project name:	TAG 2017/R03-A Major Overhaul Valve Station Lanzenkirchen		
Project number:	TAG 2017/R03-A		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	3	Date:	23.11.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station Lanzenkirchen along the TAG-pipeline system.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>This project is linked up with the project "TAG 2016/R09: Exchange leaking valves St. Paul / Ruden / Arnoldstein / Ludmannsdorf", which foresees the replacement of leaking valves in the valve stations of St. Paul, Ruden and Arnoldstein (2019).</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		


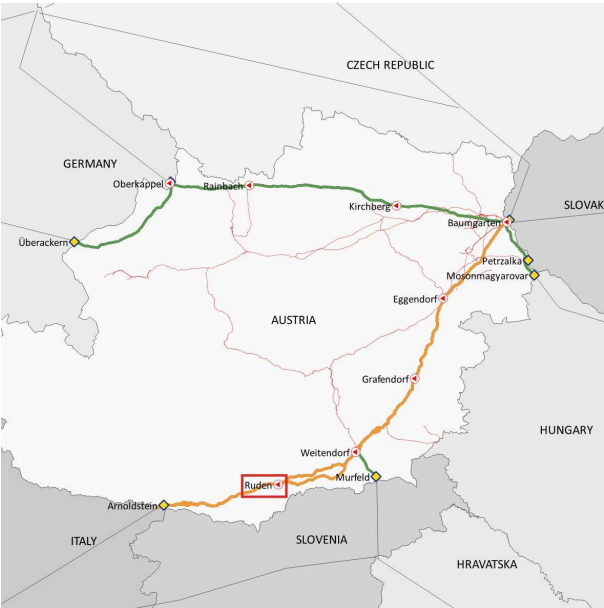
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name, planned completion</p>		
<p>Project status: KNEP 2017: Approved as a project within the aggregate TAG 2017/R03 KNEP 2018: Submission for approval including amendements The set up phase will be finalized by end of the year 2018 and the project execution will be finished by end of 2019. The start of procurement is planned in October 2018.</p>		

Project name:	TAG 2017/R03-B Major Overhaul Valve Station Sulmeck-Greith		
Project number:	TAG 2017/R03-B		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station Sulmeck-Greith along the TAG-pipeline system.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>This project is linked up with the project "TAG 2016/R09: Exchange leaking valves St. Paul / Ruden / Arnoldstein/Ludmannsdorf", which foresees the replacement of leaking valves in the valve stations of St. Paul, Ruden and Arnoldstein (2019).</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:			


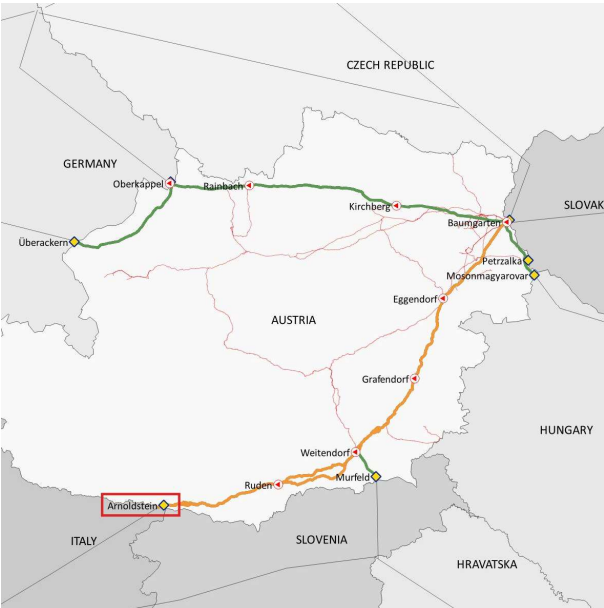
<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name</p>		
<p>Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R03 CNDP 2018: Submission for approval including amendments The set up phase will be finalized by end of the year 2018 and the project execution will be finished by end of 2019. The start of procurement is planned in October 2018.</p>		

Project name:	TAG 2017/R03-C Major Overhaul Valve Station St.Paul		
Project number:	TAG 2017/R03-C		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station St. Paul along the TAG-pipeline system.		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: None		
Connection to other projects:	This project is linked up with the project "TAG 2016/R09: Exchange leaking valves St. Paul / Ruden / Arnoldstein / Ludmannsdorf", which foresees the replacement of leaking valves in the valve stations of St. Paul, Ruden and Arnoldstein (2019).		
Technical data:	There is no change in the existing technical transport capacities.		


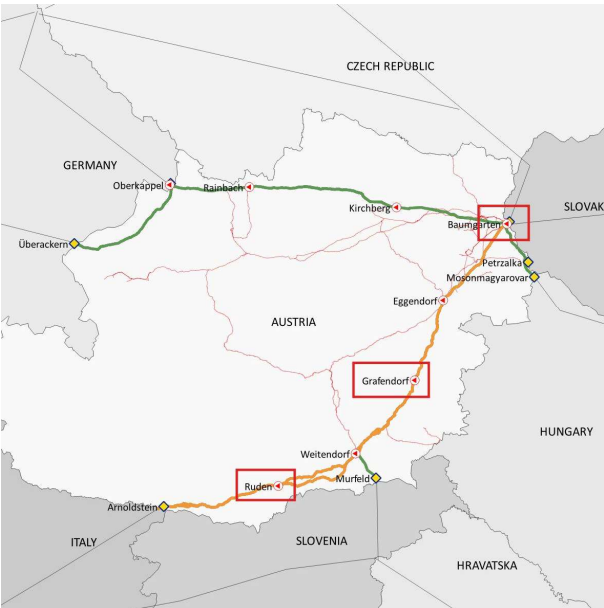
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name</p>		
<p>Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R03 CNDP 2018: Submission for approval within amendments The set up phase will be finalized by end of the year 2018 and the project execution will be finished by end of 2019. The start of procurement is planned in October 2018.</p>		

Project name:	TAG 2017/R03-D Major Overhaul Pigging Station Ruden		
Project number:	TAG 2017/R03-D		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section pigging station Ruden along the TAG-pipeline system.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>This project is linked up with the project "TAG 2016/R09: Exchange leaking valves St. Paul / Ruden / Arnoldstein / Ludmannsdorf", which foresees the replacement of leaking valves in the valve stations of St. Paul, Ruden and Arnoldstein (2019).</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		


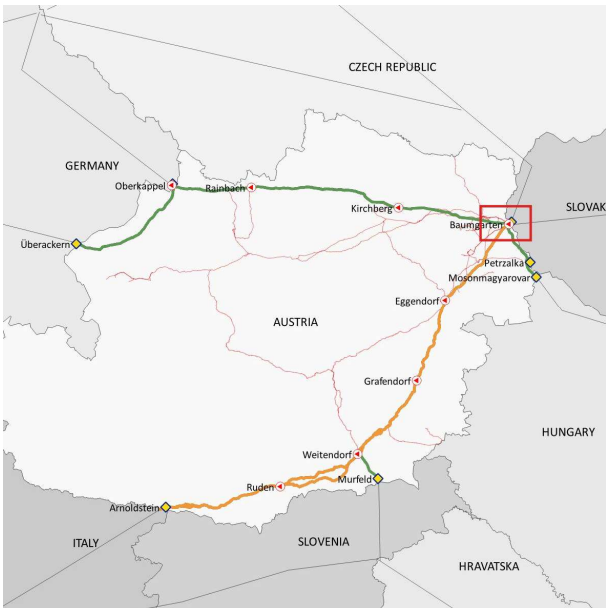
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name</p>		
<p>Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R03 CNDP 2018: Submission for approval including amendments The set up phase will be finalized by end of the year 2018 and the project execution will be finished by end of 2019. The start of procurement is planned in October 2018.</p>		

Project name:	TAG 2017/R03-E Major Overhaul Pigging Station Arnoldstein		
Project number:	TAG 2017/R03-E		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	31.08.2019
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:	The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section pigging station Arnoldstein along the TAG-pipeline system.		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: None		
Connection to other projects:	This project is linked up with the project "TAG 2016/R09: Exchange leaking valves St. Paul / Ruden / Arnoldstein / Ludmannsdorf", which foresees the replacement of leaking valves in the valve stations of St. Paul, Ruden and Arnoldstein (2019).		
Technical data:	There is no change in the existing technical transport capacities.		


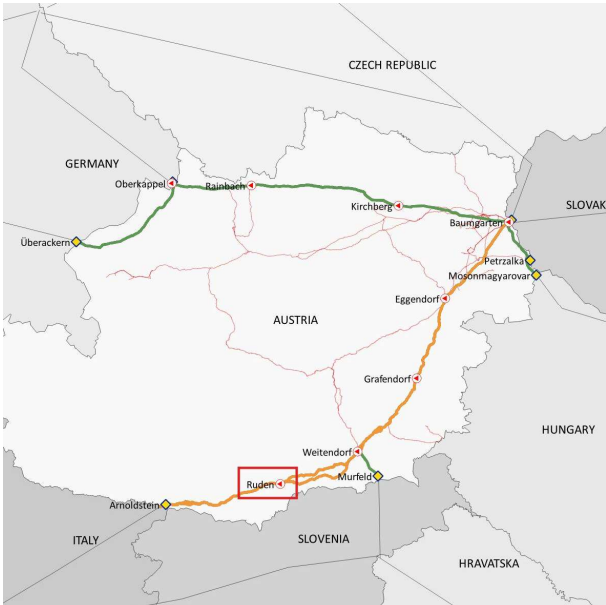
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Project scope, economic data, project name</p>		
<p>Project status: CNDP 2017: Approved as a project within the aggregate TAG 2017/R03 CNDP 2018: Submission for approval including amendments The set up phase will be finalized by end of the year 2018 and the project execution will be finished by end of 2019. The start of procurement is planned in October 2018.</p>		

Project name:	TAG 2017/R04 Substitution Gas Hydraulic Actuators TUCO, CS Baumgarten Grafendorf Ruden		
Project number:	TAG 2017/R04		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	23.11.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
<p>Project objective:</p> <p>Replacement of the existing gas hydraulic to electro hydraulic actuators in the turbo compressors of the compressor stations Baumgarten, Grafendorf and Ruden.</p> <p>The drive concept will be switched from Gas-hydraulic (GOV) to Electro-hydraulic (EHOV), also ensuring substantial reduction of natural gas emissions.</p>			
<p>Project description</p>  <ul style="list-style-type: none"> - Exchange Gas-hydraulic actuators (GOV) by Electro-hydraulic actuators (EHOV) - E/MSR connection of the (EHOV) gears to the switchboard - Integration to SCS (station control system) 			
<p>Project rationale:</p> <p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>			
<p>Please note in particular:</p> <p>Potential impact on availability of transportation capacity during the execution: None</p>			
<p>Connection to other projects:</p> <p>No</p>			
<p>Technical data:</p> <p>There is no change to existing technical transport capacities nor in operations nor processes.</p>			


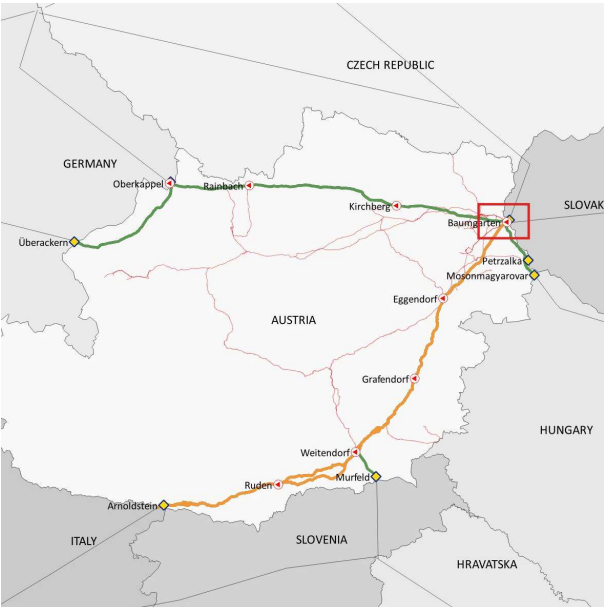
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Planned completion</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Submission for approval including amendments The project is currently on schedule and in the budget. The First Feasibility Study was performed in 2017. After TAG internal review valuating the technical design strategy in Q2 2018, some potential changes were identified. The evaluation of this changes (scope, cost and time) is in process. The technical implementation in the station control system is being evaluated together with SCS project TAG 2016/R12.</p>		

Project name:	TAG 2017/R05 Replacement E-Actuators Filter Separators & Metering Station MS2 CS-Baumgarten		
Project number:	TAG 2017/R05		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	3	Date:	23.11.2018
Project type:	Replacement Investment	Project category:	Continued and approved project with amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	Replacement of the existing electrical actuators by new electrical actuators at the Baumgarten compressor station (in the filter separators and metering route 2)		
Project description	 <ul style="list-style-type: none"> - Exchange of the electric actuators by new electric actuators - Integration to SCS (station control system) 		
Project rationale:	The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.		
Please note in particular:	Possible impact on availability of transport capacities during implementation (Yes/No): None		
Connection to other projects:	No		
Technical data:	There is no change to existing technical transport capacities nor in operations nor processes.		


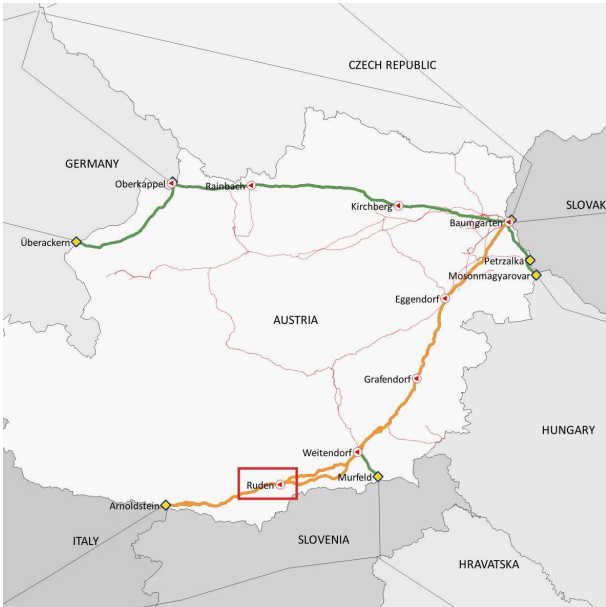
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Planning phase CNDP 2018: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: Economic data, planned completion</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Submission for approval including amendments The basic engineering phase is completed. The new technical standard is being finished. After-wards, the purchasing of the electric actuators will be concluded. The technical implementation in the station control system is being evaluated together with SCS project.</p>		

Project name:	TAG 2017/R06 DLE 1.5 + 72 hole PT module RC400 in CS-Ruden		
Project number:	TAG 2017/R06		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1)	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2018		
Project objective:			
<p>The project goal is to upgrade the existing gas generators of the C400 type PGT 25 DLE 1.0 at the compressor station Ruden to the new technology DLE 1.5 XTend.</p> <p>In addition, the auxiliary systems as the fuel valve skid, vent valves and lines, shut off valves etc. will be changed or adapted to the new design.</p> <p>Furthermore, the old 46 holes casing flange is obsolete. Therefore, the power turbine shall be up-graded to the new 72 holes casing flange type.</p>			
Project description			
		<p>The following investments are needed for the execution of the project:</p> <ul style="list-style-type: none"> - Substitution of the gas-generators - Substitution of the power turbine - Exchange / Adaption of the auxiliary systems 	
Project rationale:			
<p>Instead to perform the upcoming Major Overhaul (50,000 hours) it is foreseen to upgrade the gas generator to new technology DLE 1.5 XTend.</p> <p>This upgrade will allow the reduction of NOx- and CO-Emissions in line with the most recent state of the art technologies. The usage of XTend parts for the gas generator allow to skip the 25,000 running hours service to 50,000 running hour service which will result in a reduction of maintenance cost.</p> <p>The 46 holes casing flange for PGT25 gas turbines is obsolete and no longer in production. In order to guarantee the reliability of the compressor units, the PGT 25 gas turbines with 46 holes casing flange shall be upgraded with the new 72 holes casing flange.</p>			


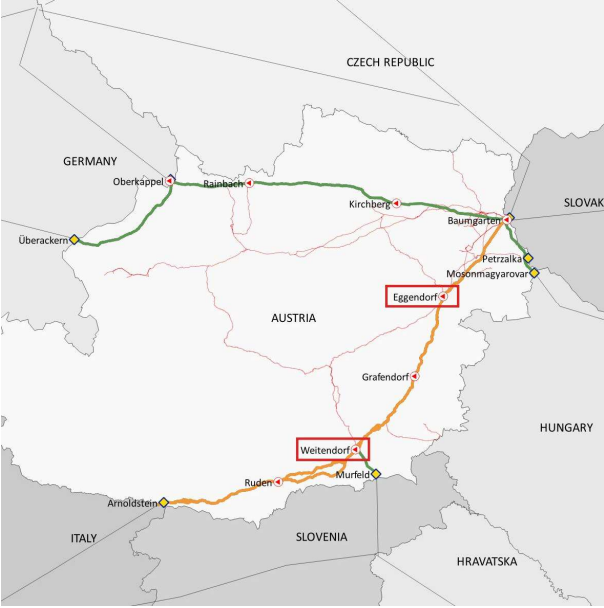
<p>Please note in particular: Potential impact on availability of transportation capacity during the execution: None</p>		
<p>Connection to other projects: No</p>		
<p>Technical data: There is no change in the existing technical transport capacity.</p>		
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy of +/- 10%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Execution phase CNDP 2018: Execution phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments The project is currently on schedule and in the budget. The activities (dismantling of existing Gas Generator and Power Turbine) have started in 05/2018. New Gas Generator and new Power Turbine are on site. Other materials shall be delivered in the next time for installation.</p>		

Project name:	TAG 2017/R07 Gas Generator BC800 in CS-Baumgarten		
Project number:	TAG 2017/R07		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q1/2019		
Project objective:	<p>In the year 2018 a Hot Section Inspection service (25,000 running hour service) on the unit C800 in Baumgarten is planned. The goal of this project is, instead to perform the above-mentioned services to perform a “minor” major overhaul and to upgrade the existing gas generator to the Xtend version.</p>		
Project description	 <ul style="list-style-type: none"> - Gas generator LM2500 base DLE 1.5 XTend® conversion kit • HPT rotor assembly with Xtend stage 1 and 2 blades • HPT S1 nozzle assembly with Xtend™ S1 nozzles • HPT S2 nozzle assembly with Xtend™ S2 nozzles, including <ul style="list-style-type: none"> o stage 1 and 2 shrouds o Interstage shield o Cooling air tube - Overhaul activities - Service bulletin implementation Gas generator work shop activities & test 		
Project rationale:	<p>Instead to perform the upcoming Hot Section Inspection (25,000 hours) it is foreseen to upgrade the gas generator to new technology DLE 1.5 XTend.</p> <p>The upgrade of the gas generator to the XTend version will allow to skip the future 25,000 running hour service to 50,000 running hour service which will result in a reduction of maintenance costs and downtimes effected by maintenance.</p>		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: None		
Connection to other projects:	No		
Technical data:	There is no change in the existing technical transport capacity.		


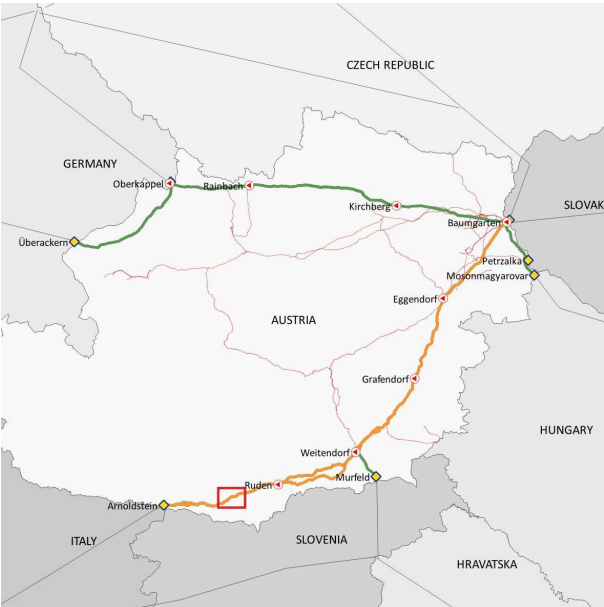
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy of +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Engineering phase CNDP 2018: Engineering phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments The project is currently on schedule and in the budget. The new Gas Generator was delivered in March 2018. Installation is planned during the 2nd half of 2018. The dismantled Gas Generator will be sent to the supplier and upgraded to the XTend. Project finalization is foreseen in Q1/2019.</p>		

Project name:	TAG 2017/R08 Gas Generator RC600 in CS-Ruden		
Project number:	TAG 2017/R08		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	Continued and approved project without amendments
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:			
<p>In the year 2019 a Hot Section Inspection service (25,000 running hour service) on the unit C600 in Ruden is planned. The goal of this project is, instead to perform the above-mentioned services to perform a "minor" major overhaul and to upgrade the existing gas generator to the Xtend version.</p>			
Project description			
		<ul style="list-style-type: none"> - Gas Generator LM2500 Base DLE 1.5 XTend® conversion Kit • HPT rotor assembly with Xtend Stage 1 and 2 blades • HPT S1 Nozzle assembly with Xtend™ S1 nozzles • HPT S2 Nozzle assembly with Xtend™ S2 nozzles, including <ul style="list-style-type: none"> o stage 1 and 2 shrouds o Interstage shield o Cooling air tube - Overhaul activities - Service Bulletin implementation - Gas Generator Work Shop Activities & Test 	
Project rationale:			
<p>Instead to perform the upcoming Hot Section Inspection (25,000 hours) it is foreseen to upgrade the gas generator to new technology DLE 1.5 XTend.</p> <p>The upgrade of the gas generator to the XTend version will allow to skip the future 25,000 running hour service to 50,000 running hour service which will result in a reduction of maintenance costs and downtimes effected by maintenance</p>			
Please note in particular:			
Potential impact on availability of transportation capacity during the execution: None			
Connection to other projects:			
No			
Technical data:			
There is no change in the existing technical transport capacity.			


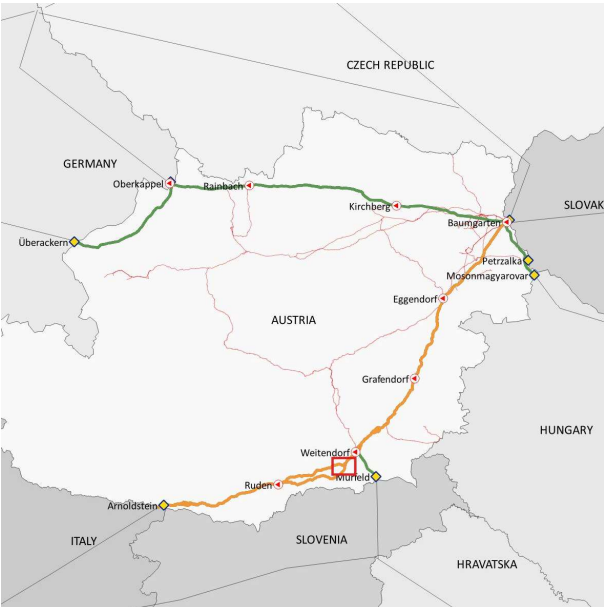
<p>Economic data: CNDP 2017: Planned investment cost XX € (Cost base 2017). The cost estimation is to be understood with an accuracy of +/- 25%. CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy of +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: CNDP 2017: Engineering phase CNDP 2018: Engineering phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications: CNDP 2018: None</p>		
<p>Project status: CNDP 2017: Approved as a project CNDP 2018: Further monitoring without amendments The project is currently on schedule and in the budget. The project is in the Engineering Phase. The purchase order has been issued to the supplier.</p>		

Project name:	TAG 2018/R01 SCS Replacement, CS Eggendorf-Weitendorf		
Project number:	TAG 2018/R01		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	Replacement of the SCS ("Station Control System") and ESD (Emergency Shut Down) in hardware and software, as well as the replacement of the operating workstations and servers.		
Project description	 <ul style="list-style-type: none"> - Engineering and Site Supervision - System implementation separately for each compressor station - Commissioning separately for each compressor station 		
Project rationale:	Due to the low availability of spare parts, SIL upgrade and standardization of all compressor stations, TAG GmbH needs to replace the existing SCS by a new one in the compressor stations Eggendorf and Weitendorf.		
Please note in particular:	Potential impact on availability of transportation capacity during the execution: YES		
Connection to other projects:	Possible synergies with the project "TAG 2016/R12 SCS Replacement CS Ruden-Grafendorf-Baumgarten. The cables now in operation will remain.		
Technical data:	There is no change in the existing technical transport capacities.		


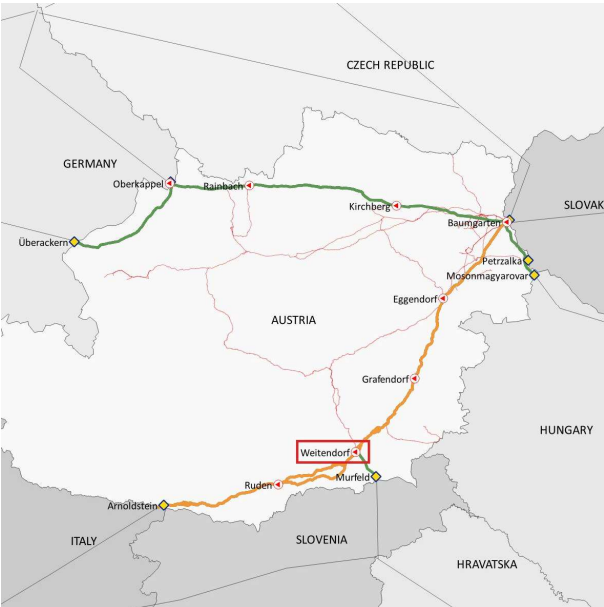
Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) (excl. possible replacement of process instruments and valves). The cost estimation is to be understood with an accuracy +/- 25% based on internal estimation.		
Capacity impact: None		
Project phase: Planning phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: KNEP 2018: Submission for approval		

Project name:	TAG 2018/R02 Major Overhaul Valve Station Ebenthal		
Project number:	TAG 2018/R02		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve station along the TAG-pipeline system at valve station Ebenthal.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


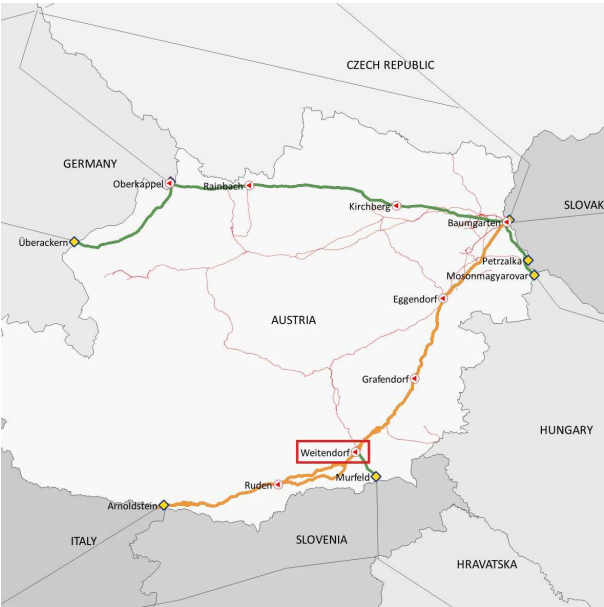
Capacity impact: None		
Project phase: Planning phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval The set up phase will be finalized by end of the year 2018 and the project execution is foreseen for the end of 2020. The start of procurement is planned for October 2019.		

Project name:	TAG 2018/R03 Major Overhaul Valve Station Wettmannstätten		
Project number:	TAG 2018/R03		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations along the TAG-pipeline system at valve station Wettmannstätten.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


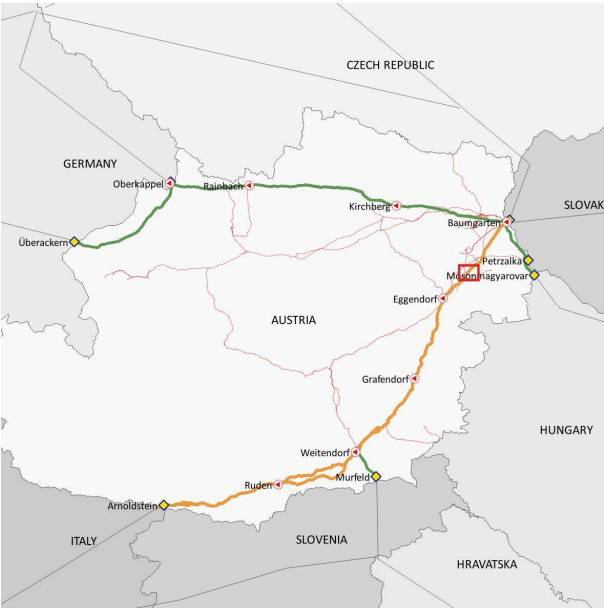
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R04 Major Overhaul Valve Station SS09 Weitendorf		
Project number:	TAG 2018/R04		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations along the TAG-pipeline system at valve station Weitendorf.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


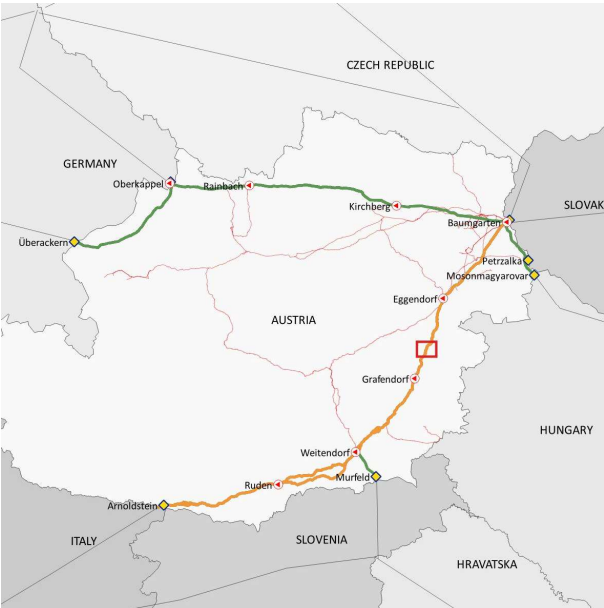
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R05 Major Overhaul Pigging Station Weitendorf		
Project number:	TAG 2018/R05		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:			
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations along the TAG-pipeline system in the pigging station MOS4 Weitendorf.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


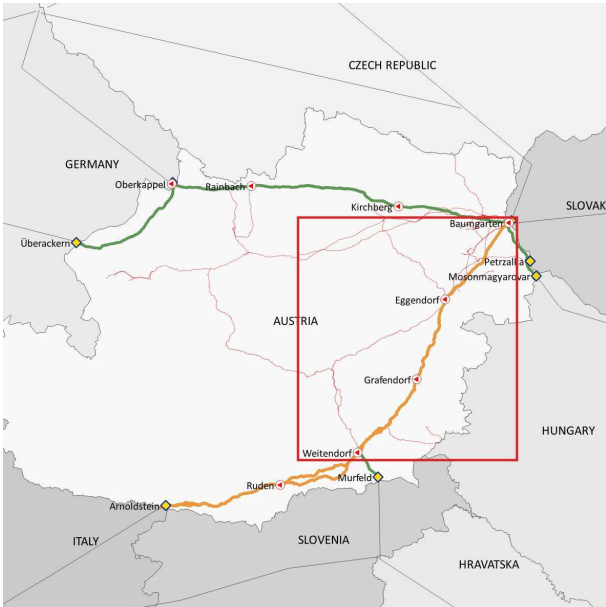
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R06 Major Overhaul Valve Station Reisenberg		
Project number:	TAG 2018/R06		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations along the TAG-pipeline system at valve station Reisenberg.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


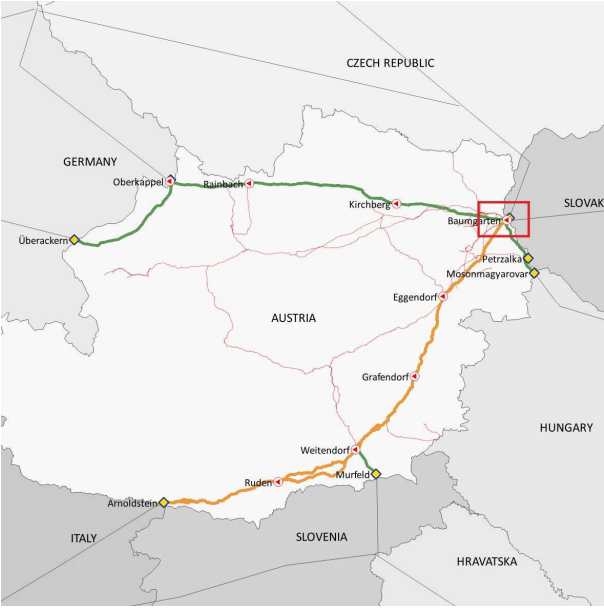
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R07 Major Overhaul Valve Station Zöbern		
Project number:	TAG 2018/R07		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2021		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations along the TAG-pipeline system at valve station Zöbern.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Exchange GOV (gas operated valves) to EOV/EHOV (electro hydraulic valves) - Replacement of the E/I Container - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>No</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		


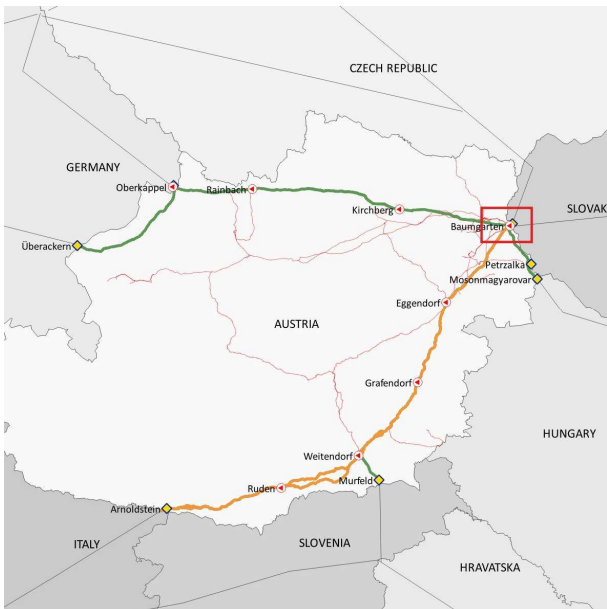
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R09 Sec.1/Sec.2/Sec.3: Corrosion Refurbishment and Repair		
Project number:	TAG 2018/R09		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:			
<p>The last pigging campaign (realized during the summer 2016) indicated the presence of several corrosion damages located on the TAG I, TAG 2 and TAG Loop 2. The potential corrosion damages have been classified in two different classes of priority. The most urgent class of priority was investigated and repaired within 2017. The remaining points with lower priority will follow in 2018 and 2019.</p> <p>If a repair is probably not mandatory for all the detected potential corrosion damages, it is highly likely that some of them should be repaired after further investigation on site. The technical solution to consolidate the section is to apply sleeves with injection of epoxy resin inside where the corrosion is located.</p>			
Project description			
		<p>Following steps have to be executed:</p> <ul style="list-style-type: none"> - On-site investigation - Evaluation of the investigation - Take appropriate measures (reinforcement respectively repair) - Renewal of pipeline insulation 	
Project rationale:			
<p>The last pigging campaign (realized during the summer 2016) indicated the presence of several corrosion damages located on the TAG I, TAG 2 and TAG Loop 2.</p>			
Please note in particular:			
<p>Potential impact on availability of transportation capacity during the execution: None</p>			
Connection to other projects:			
<p>No</p>			


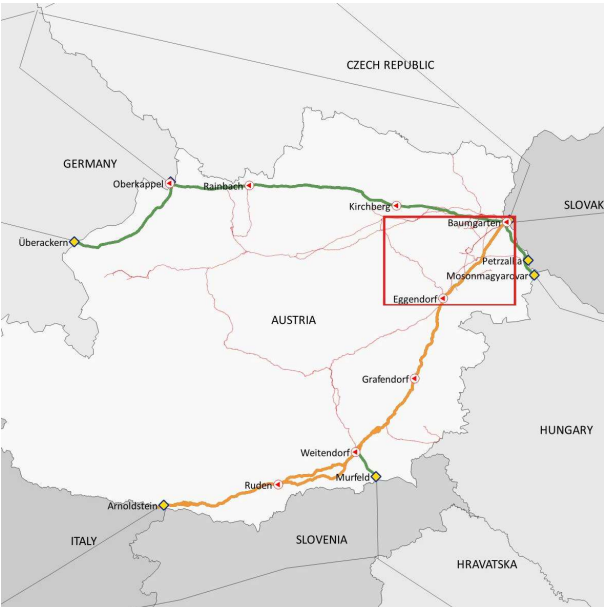
Technical data: There is no change in the existing technical transport capacities.		
Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy of +/- 10%.		
Capacity impact: None		
Project phase: Execution phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval		

Project name:	TAG 2018/R10 DLE 1.5 + 72 hole PT module BC700 in CS-Baumgarten		
Project number:	TAG 2018/R10		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	23.11.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:			
<p>The project goal is to upgrade the existing gas generators of the C700 type PGT 25 DLE 1.0 at the compressor station Baumgarten to the new technology DLE 1.5 XTend.</p> <p>In addition, the auxiliary systems as the fuel valve skid, vent valves and lines, shut off valves etc. will be changed or adapted to the new design.</p> <p>Furthermore, the old 46 holes casing flange is obsolete. Therefore, the power turbine shall be upgraded to the new 72 holes casing flange type.</p>			
Project description			
		<p>Following investments are needed for the execution of the project:</p> <ul style="list-style-type: none"> - Substitution of the gas-generators - Substitution of the power turbine - Exchange / Adaption of the auxiliary systems 	
Project rationale:			
<p>Instead to perform the upcoming Major Overhaul (50,000 hours) it is foreseen to upgrade the gas generator to new technology DLE 1.5 XTend.</p> <p>This upgrade will allow the reduction of NOx- and CO-Emissions in line with the most recent state of the art technologies. The usage of XTend parts for the gas generator allow to skip the 25,000 running hour service to 50,000 running hour service which will result in a reduction of maintenance cost.</p> <p>The 46 holes casing flange for PGT25 gas turbines is obsolete and no longer in production. In order to guarantee the reliability of the compressor units, the PGT 25 gas turbines with 46 holes casing flange shall be upgraded with the new 72 holes casing flange.</p>			

<p>Please note in particular: Potential impact on availability of transportation capacity during the execution: None</p>		
<p>Connection to other projects: No</p>		
<p>Technical data: There is no change in the existing technical transport capacity.</p>		
<p>Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018). The cost estimation is to be understood with an accuracy of +/- 25%.</p>		
<p>Capacity impact: None</p>		
<p>Project phase: Planning phase</p>		
<p>TYNDP: No</p>	<p>PCI status: No</p>	<p>CBCA decision: No</p>
<p>Project modifications:</p>		
<p>Project status: CNDP 2018: Submission for approval</p>		

Project name:	TAG 2018/R12 Shut Off Valve MS2, CS Baumgarten		
Project number:	TAG 2018/R12		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	1	Date:	31.08.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2019		
Project objective:			
<p>Currently there is no possibility to safely separate the meter lines MS2 in CS Baumgarten of TAGG by double block and bleed from the station bypass and therefore the rest of the compressor station. As consequent of it, in case of necessity of works on MS2 or its collector, the TAG Baumgarten station has to be currently put temporary out of operation.</p> <p>The goal of the project is to install a section valve downstream of the MS2 collector and upstream of the compressors, the TAG Baumgarten station by-pass and the interconnections btw. the GCA and TAG systems in Baumgarten (through AZ1, BOP13 and/or MS4).</p> <p>The project enables:</p> <ul style="list-style-type: none"> - More secured works on MS2 as the MS2 collector can be independently fully depressurized through the project - The continuation of gas transport from GCA system to TAG system, or vice-versa in TAG reverse flow, in case of works on MS2. 			
Project description			
		<ul style="list-style-type: none"> - Installation of a new 48" shut off valve downstream the MS2 - New routing of the street in the area around the new valve site - In case of the low covering on the pipe, a new bridge construction in the street for line crossing 	
Project rationale:			
The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.			
Please note in particular:			
Potential impact on availability of transportation capacity during the execution: YES			

Connection to other projects: No		
Technical data: There is no change to existing technical transport capacities nor in operations nor processes.		
Economic data: CNDP 2018: Planned investment cost XX € (Cost base 2018) based on a setup study. The cost estimation is to be understood with an accuracy +/- 25%.		
Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval The Set up-Study was finished in 08/2018, the engineering phase has to be started in 10/2018, the execution on site shall be planned in 04/2019.		

Project name:	TAG 2018/R13 Major Overhaul of Valve Stations AZ3-AZ3L Eggendorf		
Project number:	TAG 2018/R13		
Project sponsor:	Trans Austria Gasleitung GmbH		
Edition:	2	Date:	23.11.2018
Project type:	Replacement Investment	Project category:	New project
Implementation time frame:		Economic test according to CAM NC:	No
Planned completion:	Q4/2020		
Project objective:	<p>The scope of the project is to replace and/or renew instruments, coatings and underground insulations, CPS (cathodic protection system) and enclosures in the section valve stations AZ3 and AZ3L along the TAG-pipeline system in Eggendorf.</p>		
Project description	 <ul style="list-style-type: none"> - Renewing of coatings and insulation on valve and pipe installations (under/above ground) - Renew cathodic protection system - Renewing grounding and lightning protection system - Renewal of pathways and surfaces - Renewal of fence and gates 		
Project rationale:	<p>The investment is necessary to ensure the reliability and safety in operation of the TAG pipeline system.</p>		
Please note in particular:	<p>Potential impact on availability of transportation capacity during the execution: None</p>		
Connection to other projects:	<p>NO</p>		
Technical data:	<p>There is no change in the existing technical transport capacities.</p>		
Economic data:	<p>CNDP 2018: Planned investment cost XX € (Cost base 2018) based on the EPCM contract. The cost estimation is to be understood with an accuracy +/- 25%.</p>		

Capacity impact: None		
Project phase: Planing phase		
TYNDP: No	PCI status: No	CBCA decision: No
Project modifications:		
Project status: CNDP 2018: Submission for approval The project is in set-up engineering phase.		

Appendix 2:



Eustream, a.s. comments on “Koordinierter Netzentwicklungsplan 2018 für die Erdgas Fernleitungsinfrastruktur in Österreich für den Zeitraum 2019-2028“¹ (hereinafter KNEP 2018)

Eustream, a.s. welcomes the possibility to share its position and to comment on the draft of the KNEP 2018 via the consultation process announced by Austrian Gas Grid Management AG as follows:

1. Comment to the point 3.7

The paragraph of the point 3.7 mentions a Study (analysis) on the technical and economic efficiency optimization of the existing infrastructure before taking the FID, or for the planned projects listed in the latest KNEP 2019.

We propose to make this study publicly available.

2. Comment to the point 4.2.4. – Table 5

In the table 5 for the Entry/Exit Reintal is shown requested capacity in the level of 750 000 Nm³/h, however the source of the data is missing. Since the latest Market Demand Assessment Report available on the Gas Connect Austria web site² indicates non-binding demand for this entry/exit point amount on the level of 200 000 kWh/h, which represents approx. 2,4% of the capacity indicated in the KNEP 2018 and considering the market interest for the TRU service, we assume that the value of 200 000 kWh/h is much closer to the real market interest.

We propose to update the table 5 accordingly – to indicate the capacity demand at the level 200 000 kWh/h.

3. Comment to the point 5.1.2.5

We propose to update the section by inclusion of the latest development and the outcomes of the successful allocation procedure for the HUSKAT project. Offered transmission capacities at Hungarian-Slovak border were fully booked for seven - year period and partly for the next years during the October bid submission window. Total amount of bids has exceeded capacity of 4.29 bcm/year for the period from October 2022 to September 2029. The project has passed the economic tests. Based on a positive response from the market, the HUSKAT project will proceed in line with principles and conditions set according to in the Rulebook of Alternative Allocation Procedure being in line with the Article 30 of the

¹ <https://www.aggm.at/netzinformation/netzentwicklungsplaene/knep-1>

² <https://www.gasconnect.at/fileadmin/Fachabteilungen/ST/DE/MDAR-CZ-AT-27Jul2017.pdf>



Commission Regulation (EU) 2017/459. In line with the procedure set in this Rulebook the final confirmations of capacity bookings are expected to be granted by the end of March 2019.

4. Comment to the point 6.4.1 and point 6.5.4

We propose to delete the point 6.4.1 and point 6.5.4 - Bidirectional Austrian Czech Interconnector (GCA2015/01a, TAG 2016/05) (hereinafter "BACI") from the KNEP 2018 based on following reasons:

- Successful implementation of the TRU service. As stated by the gas Connect Austria and NET4GAS, the TRU service, as an alternative to the BACI project, simplifies transaction procedures through establishing a One Stop Shop and reduces transaction costs as TRU facilitates cross-border transmission and access to both market areas. TRU service increases trading flexibility and mitigates potential risks as regards capacities and allocation by the combination of necessary separate capacities into one booking procedure and is implementing in practice the European Union's target to bring markets together in an easy and cost-efficient way. (see web sites of GCA and N4G)
- Potential benefits of the project BACI will not outweigh its costs, as indicated by the results of the Regional group within the process of 3 PCI list development
- Project is not located in the region with isolated markets or bottlenecks, on the contrary it is located in the region with sufficient capacity of already existing infrastructure. The Austria and Czech gas markets are fully correlated to the German market, for both markets the German market works as a price setter. The project is not necessary for fostering the North-South corridor. None of the mentioned countries meets the criteria of isolated markets according to the directive 2009/73/EC article 49.
- The only impact of the project BACI would be an increase of costs, which would be socialized either in Austria or in the Czech Republic, or in both countries. The project will not bring any new gas into the region comparing to the current status, i.e. not increase the transported volumes via Austrian or Czech system. The project could only redeliver transport of Russian gas in the direction North-South currently running also through Slovakia.
- The project BACI will increase source diversification neither in Austria or Czech Republic. In both markets currently traded gas stemming from the same sources transmitted through Germany or Slovakia.
- BACI will not contribute to the sustainability in the meaning of indirect project support to replace coal by gas, for example as a back-up for renewable energy sources, considering the volumes potentially needed and utilization rate and available capacities of the existing infrastructure.



To conclude:

The cost efficient and reasonable alternative how to interconnect Austrian and Czech market exists – successfully implemented TRU service by Gas Connect Austria and NET4GAS with technical support of eustream.

The existing infrastructure between the Czech Republic and Austria does not suffer from any congestion and is capable to serve needs in both directions (CZ->AT and AT->CZ). Since the gas demand of the markets, currently served by the existing interconnection, would not be changed (increased) by the mere construction of such project, the result may only be a 'redirection' of existing gas flows.

This would lead to one of the two following consequences:

1) Utilization of the BACI project would be at the expense of utilization of infrastructure already existing in Austria, the Czech Republic and Slovakia.

2) Project BACI would not be utilized at all.

Naturally, in both scenarios the construction of the pipeline leads to one of the abovementioned infrastructures becoming stranded – be it the project itself or the existing infrastructure in Austria, Slovakia and Czech Republic. There is no guarantee that such a costs will be accepted by the national regulators as reasonable and included into the assets base for tariffs calculation.

Such consequences are in contradiction with any economic rationale and efficient management of public/regulated assets as also recognized by the Regulation (EU) 2017/459 of 16 March 2017, point (2): "Duplication of gas transmission systems is in most cases neither economic nor efficient."

Ultimately, positive impacts of the project would be negligible compared to negative consequences for consumers in Austria, the Czech Republic and the Slovak Republic.

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November 6, 2018**Konsultation zum KNEP 2018**

Sehr geehrte Damen und Herren,

Gerne folgen wir Ihrer Einladung, zum Koordinierten Netzentwicklungsplan (KNEP) 2018 Stellung zu nehmen, und möchten einige Projekte kommentieren. Projekte im Sinne des Ausbaus der Kapazitäten an den Ein- und Ausspeisepunkten von und nach Österreich sind für uns als international agierendes Unternehmen von besonderem Interesse, da internationale Großprojekte wie Nord Stream 2 und Unternehmungen zur Anlieferung von Gas aus südosteuropäischer Richtung wesentlichen Einfluss auf die europäischen Gasflüsse haben und daher entsprechend auch im österreichischen KNEP berücksichtigt werden müssen. Durch erfolgreiche Umsetzung solcher Vorhaben sind erhebliche positive Auswirkungen auf Österreichs Versorgungssicherheit zu erwarten.

Ad. Entry Mosonmagyaróvár

Wie in der Präsentation des KNEP 2018 am 16. Oktober diesen Jahres ausgeführt wurde, werden die PCI Projekte GCA 2015/05 Entry Mosonmagyaróvár und GCA 2017/01 Entry Mosonmagyaróvár Plus weitergeführt, was wir ausdrücklich begrüßen.

Wie im Zuge der Open Season des Produktes „HU-SK-AT“ festzustellen war, besteht ein hohes Interesse an einer Anbindung Südosteuropas an den zentraleuropäischen Markt. Besonders im Hinblick auf die Bedarfserhebung im Zuge des CAM NC Prozesses 2017 zeigte sich besonderes Interesse an der HU-AT Route, dies wurde aber bekanntlich von ungarischer Seite nicht dementsprechend zu einer Auktion gebracht.

Deshalb möchten wir erneut auf die Wichtigkeit und Dringlichkeit einer Umsetzung der direkten Anbindung Baumgartens an die südosteuropäische Versorgungsrouten hinweisen.

Zusammenfassend möchten wir anmerken, dass der KNEP ein sehr schlüssiges Gesamtbild der Berücksichtigung von marktbedingten Bedarfen an Kapazitäten, der Sicherstellung der Versorgungssicherheit und der vorausschauenden Planung künftiger Abnahmeszenarien für Erdgas im heimischen wie im internationalen Umfeld darstellt.

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Wir stehen für künftige konstruktive Gespräche immer gerne zur Verfügung und freuen uns auf eine weiterhin professionelle Zusammenarbeit.

Hochachtungsvoll,

A handwritten signature in blue ink, appearing to read 'Reinhard Mitschek', written over a horizontal dashed line.

Reinhard Mitschek

Senior Vice President Gas Logistics & International Projects

OMV Gas & Power GmbH

A handwritten signature in blue ink, appearing to read 'Michael Woltran', written over a horizontal dashed line.

Michael Woltran

Vice President Gas Innovation & Advocacy

OMV Gas & Power GmbH



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München, 08.11.2018

Stellungnahme zur Konsultation des Koordinierten Netzentwicklungsplans 2018

Sehr geehrte Damen und Herren,

bayernets begrüßt die Möglichkeit zur vorliegenden Konsultationsversion des Koordinierten Netzentwicklungsplanes (KNEP) 2018 Stellung nehmen zu können.

Die Abstimmung mit den angrenzenden Fernleitungsnetzbetreibern in den Nachbarländern ist unseres Erachtens sowohl zur Optimierung des Gasaustauschs als auch zur Kostenminimierung sinnvoll und notwendig.

Die Projekte „GCA 2015/02a“ und „GCA 2015/03“ sind in den Projektsteckbriefen unter dem Projektstatus „Fortführung ohne Abänderung“ fortgeführt, das Projekt „GCA 2018/01“ als neues Projekt zur Genehmigung eingereicht. In all diesen Projekten ist u.a. als Maßnahme die Errichtung einer neuen Verdichterstation in Überackern dargestellt.

Durch Maßnahmen zur Optimierung der Lastflüsse am Netzknoten Burghausen wurden die Voraussetzungen für eine erhöhte Druckbereitstellung am Grenzübergangspunkt Überackern SUDAL durch *bayernets* bereits geschaffen. Gespräche hierüber werden aktuell zwischen den beteiligten Ferngasnetzbetreibern geführt und ein Angebot zur Druckbereitstellung liegt GCA vor. Der Neubau einer Verdichteranlage in unmittelbarer Nähe zum Netzknoten Burghausen ist aus unserer Sicht daher zur effektiven Nutzung der bestehenden Netzanlagen (u.a. Verdichterstation Haiming), aus Gründen der Kostenminimierung sowie aus steuerungstechnischen Gründen nicht sinnvoll.



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Amtsgericht München
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Die im Projekt „GCA 2018/01“ beschriebene Stärkung der Transportfähigkeit des Systems Penta-West stehen wir im Sinne einer höheren Flexibilität zwischen den Grenzübergangspunkten Überackern ABG/Überackern SUDAL und Oberkappel positiv gegenüber.

Für Rückfragen und für die Fortführung von Gesprächen steht *bayernets* gerne zur Verfügung.

Mit freundlichen Grüßen
bayernets GmbH


Richard Unterseer


Tobias Schmidt





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09.11.2018

Stellungnahme zum koordinierten Netzentwicklungsplan und der Langfristprognose 2018

Sehr geehrte Damen und Herren,

wir sind in Deutschland der vorgelagerte Netzbetreiber des Versorgungsraums „Schärding“ und nehmen die Gelegenheit zur Stellungnahme gerne wahr. Die nachfolgenden Anmerkungen beziehen sich auf den angedachten Anschluss des Versorgungsraums Schärding an das österreichische Leitungssystem – insbesondere mit dem Projekt unter Gliederungspunkt 6.4.6 „Penta West Exit Verteilergebiet (GCA 2017/02)“.

Im Rahmen der österreichischen LFP 2017 wurde eine Kapazitätserhöhung um 1.200 Nm³ für den Raum Schärding unverbindlich angefragt. Zum damaligen Zeitpunkt konnte diese Kapazität nicht vollumfänglich auf fester Basis bereitgestellt werden. Mit dem Hinweis, dass es voraussichtlich ab dem Jahr 2019 eine spürbare Verbesserung der Kapazitätssituation geben wird, wurde die angefragte Kapazität auf unterbrechbarer Basis angeboten. Hintergrund war die Kapazitätsbestellung am vorgelagerten Netzkopplungspunkt Tiefenbach, die zum damaligen Zeitpunkt von unserem vorgelagerten Netzbetreiber bayernets nicht auf fester Basis bereitgestellt werden konnte. Der nicht auf fester Basis bestätigte Kapazitätsbedarf wird im Rahmen der Internen Bestellung im deutschen Netzentwicklungsplan bei der Ermittlung des Kapazitätsbedarfs angemessen berücksichtigt.

Mittlerweile sind auf deutscher Seite sukzessive diverse Ausbaumaßnahmen des deutschen Netzentwicklungsplans realisiert, die zu einer deutlichen Verbesserung der kapazitiven Situation führten. Unser vorgelagerter Netzbetreiber bayernets hat uns nach erfolgtem Abschluss des Abstimmungsprozesses der Ferngasnetzbetreiber im Marktgebiet NCG am 08.11.2018 vorab über die Kapazitätsbereitstellung ab dem Jahr 2019 per E-Mail informiert. Die für Tiefenbach bestellte Kapazität wird von unserem vorgelagerten Netzbetreiber bayernets ab dem Jahr 2019 vollumfänglich fest bereitgestellt. Dies ermöglicht uns – nach einem noch durchzuführenden Anlagenumbau in Neuhaus – die von Ihnen zusätzlich angefragte Kapazität in Höhe von 1.200 Nm³ ab 2019 ebenfalls fest darzustellen.

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Seite 2 zum Schreiben vom 09.11.2018


Vor dem Hintergrund, dass wir seit 2007 auf kapazitätserhöhende Maßnahmen für unser Verteilnetz hinwirken, diese auch Eingang in den deutschen Netzentwicklungsplan gefunden haben und entsprechende Investitionen erfolgt sind – um den Kapazitätsbedarf zukünftig zu decken – wären nach unserem Verständnis weitere Infrastrukturinvestitionen auf österreichischer Seite zur Deckung desselben Bedarfs aus volkswirtschaftlicher Sicht zu vermeiden.

Des Weiteren möchten wir darauf hinweisen, dass der NKP Schärding in das mit der deutschen und der österreichischen Regulierungsbehörde abgestimmte, seit Oktober 2015 gestartete Modell zur Differenzmengenabwicklung (DIANE-Modell) eingebunden ist. Durch den Anschluss von Schärding an die Penta West müssten die Vertragspartner des DIANE-Modells die Auswirkungen auf die Differenzmengenbildung und Transportabwicklung neu bewerten und ggf. Anpassungen mit den Regulierungsbehörden abstimmen.

Aufgrund der voranstehenden Anmerkungen bitten wir Sie das Planungsprojekt nicht weiter im Netzentwicklungsplan zu berücksichtigen und von einer Versorgung von Schärding über die Penta West abzusehen. Stattdessen sollte die bewährte Versorgung über Deutschland aufrechterhalten werden.

Für weitere Abstimmungen stehen wir gerne zur Verfügung.

Mit freundlichen Grüßen
Energienetze Bayern GmbH & Co. KG


i.V. Andreas Dörig


i.A. Yvonne Naeve