Gas Regional Investment Plan

Southern Corridor

2012 - 2021

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Foreword

Beregdaróc compressor station

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The European Union is now importing a major part of its gas demand, 62% in 2011, forecast to rise to 78% in 2021[1] . The importation of gas from outside the EU has been occurring for many years, and as such Transmissions System Operators (TSOs) have been cooperating for decades in order to ensure there is sufficient cross border capacity available. The close interaction and cooperation between European TSOs has been crucial for supporting market integration and developing the security of supply of all Member States.

At a European level the Transmission System Operators have worked together in order to fulfil the European Network of Transmission System Operators for Gas (ENTSOG) obligation to produce the Community-wide Ten-Year Network Development Plan (TYNDP) for the period 2011-2020. This TYNDP was published on 17th February 2011 and is available on the ENTSOG website[2] .

The requirement to promote regional cooperation has now been enshrined in European law through the European Directive 2009/73/EC (Article 7) and further detailed by the European Regulation 715/2009 (Article 12). Transmission System Operators will now publish every two years, a Gas Regional Investment Plan (GRIP) based on regional co-operation, which will contribute towards the fulfilment of tasks listed in the Gas Directive and Regulation[3] .

This Southern Corridor Gas Regional Investment Plan (GRIP) serves to fulfil the requirements of Regulation 715/2009 and its primary objective is to create an awareness of infrastructure developments within the Southern Corridor Region. The Transmissions System Operators (TSOs) of the Southern Corridor region believe that this document will provide useful information to stakeholders and will support informed discussion in assessing the ability of investment projects to answer regional and European market needs, also in terms of diversification of gas supply sources. This is the first such edition of the Southern Corridor GRIP and as such it should be acknowledged that the present publication is intended to present a foundation upon which subsequent reports can be developed. It is anticipated that the format and content of the GRIP will change over time. The Southern Corridor region GRIP working group would welcome any comments, advice or feedback, either through ENTSOG website or at the coordinator's e-mail address (j.florentin@desfa.gr),that will assist in improving the effectiveness of the document in the future. Depending on the feedback received a meeting with stakeholders might be considered.

[1] ENTSOG TYNDP Figures.

[2] Available at : www.entsog.eu/publications/tyndp.html.

[3] The 'Gas Directive' is European Directive 2009/73 EC and the 'Gas Regulation' is European Regulation 715/2009 EC.

Introduction

Beregdaróc compressor station

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The Southern Corridor GRIP provides a specific regional overview of the investment projects in gas infrastructures (transmission, underground storage, LNG and CNG) in the Southern Corridor region from the perspective of the regional gas transmission network operators as well as the one of the third party project sponsors active in the same region.

The aim of this Plan is to provide the market with a valuable outlook of the future energy infrastructure investments in the region, consistently with the ENTSO-G Ten Year Network Development Plan. This first Southern Corridor GRIP, will help interested stakeholders to assess and identify the future gas infrastructure investments and their ability to address in the most efficient way market integration and security of supply in the region and in Europe. The TSOs of the region intend to capture the wider gas market dynamics by looking at aspects such as supply scenarios (i.e. supply options for the Southern Corridor in terms of quantity and time-availability), market integration and especially security of supply on a regional level in the following editions of the Southern Corridor GRIP. The Southern Corridor region consists of the following countries: Austria, Bulgaria, Croatia, Greece, Hungary, Italy, Romania, Slovakia and Slovenia. The region is particularly significant, since it corresponds to the fourth big axis for diversification of gas supply in Europe, identified by the European Commission[4] . The gas transmission infrastructures, expected to be developed along this new supply route, should directly link the regional and European market with over 40 trillion m^3 of gas reserves in the Caspian and Middle East Area.

As highlighted in the last edition of ENTSO-G TYNDP (2011-2020) Azeri gas coming from Shah Deniz II seems to be the most reliable Caspian gas source available to European market. Notably, the supply potential for Europe is based on the provisions of the Intergovernmental Agreement (IGA) between Turkey and Azerbaijan signed on 7 June 2010 regarding the supply of gas to Turkey as well as transit of Azeri gas through Turkey. The IGA stipulates [5] that out of the 16 bcm/y to be made available on annual basis from Shah Deniz II project as of 2018, 10 bcm/y would be earmarked for Europe and 6 bcm/y for Turkey. Even though some of the gas primarily allocated to Turkey may in the end become available for export on to Europe, the supply potential of Azeri gas for Europe should stand, according to ENTSO-G, at 10 bcm/y for the moment.

[4] Communication "Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network" (COM(2010) 677 final, December 17th, 2010. The other three axes are the Northern Corridor from Norway, the Eastern corridor from Russia, the Mediterranean Corridor from Africa.

[5] For the purpose of this GRIP the volumes of gas defined in bcm in the IGA were converted into energy in GWh using the GCV of 11.2 kWh/m^3

The Southern Corridor Region currently encompasses one of the main gas supply corridors from Russian sources to Europe and therefore the transmission systems in the region were designed and are optimized to accommodate gas flows from east to west. As a consequence the demand of the Member States in the region is covered to a great extent by supplies from one source. The TSOs of the Southern Corridor Region look favorably at the development of new interconnections able to link the regional and European market through new routes and, potentially, to new supply sources which could increase the level of market integration within the region. Hence, TSOs are actively working on the appropriate solutions to achieve concrete security of supply and market integration improvements as showed by the large number of FID projects, but also non-FID projects listed in this Southern Corridor GRIP.

Furthermore, the infrastructures currently in the planning stage by third party project promoters, i.e. new pipelines such as Nabucco, ITGI, TAP, IGB or South Stream and new LNG terminals will significantly contribute to the diversification of routes and supply sources both in the Southern Corridor region and in the rest of the EU Member States. These infrastructure developments, together with the completion of the North-South interconnection within South-Eastern Europe will help reduce the vulnerability of the concerned countries to possible future supply disruptions.

Members

Country:	TSO:
Austria	BOG Baumgarten-Oberkappel Gasleitungsgesellschaft GmbH
	GAS CONNECT AUSTRIA GmbH
	TAG GmbH (Trans Austria Gasleitung GmbH)
Bulgaria	Bulgartransgaz EAD
Greece	DESFA S.A. Hellenic Gas Transmission System Operator S.A.
Hungary	FGSZ Natural Gas Transmission Ltd.
Italy	Edison Stoccaggio S.p.A.
	Snam Rete Gas S.p.A.
Romania	Transgaz S.A.
Slovakia	eustream, a.s.
Slovenia	Plinovodi d.o.o.

Observer Members

Croatia	plinacro L.T.D GAS TRANSMISSION SYSTEM OPERATOR	Plinacro L.T.D Gas Transmission System Operator

Non TSO Project Sponsors

Nabucco	NABUCCO GAS PIPELINE	Nabucco Gas Pipeline International GmbH
ITGI	IGI Poseidon	IGI Poseidon S.A.
TAP	TAP Trans Adriatic Pipeline	Trans Adriatic Pipeline AG
South Stream	South Stream Europe's Energy Security	Gazprom, Eni, EdF and 5 J/V between Gazprom and local TSOs
IGB	IGI Poseidon / Bulgarian Energy Holding	ICGB A.D.
Tauerngasleitung Gas Pipeline Project (TGL)	tgl tauern gas pipeline	Tauerngasleitung GmbH
Adria LNG	ADRIA LNG	Adria LNG d.o.o.

Approach on Infrastructure Projects

Steep slope pipeline construction in Corinth branch

© Image courtesy of DESFA S.A.

Gas imports from outside the EU has been occurring for many years, and as such Transmissions System Operators (TSOs) have been cooperating for decades in order to ensure the availability of sufficient cross border capacity. The close interaction and cooperation between European TSOs has been crucial for supporting market integration and developing the security of supply of all Member States.
In South-Eastern Europe most of the countries depend on the imported gas, especially from Russia. For this reason, TSOs and third party project sponsors are actively involved in ensuring the adequate development of cross-border capacity in order to meet future gas demand and to increase security of supply through market integration and diversification of routes and sources.

Therefore, the aim of the TSOs of the Southern Corridor, when drafting this GRIP, is to provide a comprehensive overview of regional TSOs' efforts to coordinate their infrastructural developments in compliance with the obligations of the Gas Directive and Gas Regulation. In addition, as mentioned in the introduction, an overview of gas infrastructural developments, with regional relevance, in the countries of the Southern Corridor Region in the following ten years cannot leave out the projects sponsored by third parties other than TSOs. For this reason, regional TSOs have adopted an open approach, deciding to collect data not only among them but also from third-party project sponsors who either had their projects included in the TYNDP 2011-2020 or agreed with one or more of the region's TSOs to have them included in the present GRIP. This approach ensures an adequate level of flexibility to accommodate changes and new projects compared to the last version of the ENTSO-G TYNDP.

In order to collect all necessary data for this Southern Corridor GRIP 2012-2021, the TSOs of the region prepared a dedicated questionnaire addressed to TSOs and project sponsors. Relevant information was collected on both FID (Final Investment Decision) and non-FID projects. The infrastructure questionnaire was finalized in July 2011 and directly distributed to all TSOs, while third-party project sponsors were contacted through ENTSOG. All concerned parties were asked to provide up-to-date information of projects already included in the ENTSOG TYNDP 2011-2020 and to add new projects, if any. In one case, where no answer was received by a third party project sponsor, the Southern Region TSOs decided to use the same data as in the last edition of ENTSOG TYNDP (2011-2020).

Due to the extensive amount of information provided, TSOs' projects are summarized and presented in the TSOs specific sections rather than having a separate treatment for each project.

Beregdaróc compressor station © Image courtesy of FGSZ

In the following sub-chapter all the infrastructure projects submitted are presented in a short list, separated into FID and non-FID projects and divided by type of infrastructure (transmission, storage, LNG, CNG and other). The list includes only basic project information; the full submissions are available in Annex B (Infrastructure Projects). The capacity data listed below only refer to additional capacity compared to the current situation.

The information reflects the situation on 1 December 2011.

Note: In this document the dot (.) is used as a decimal separator and the comma, (,) as a thousand separator.

FID Projects - TSO's

Transmission				
Country Code	**Name**	**Capacity (mcm/d)**	**Estimated Go-live**	**Remarks**
AT	WAG Expansion 3	5.4-5.58 see Annex B[6]	2013	
AT	TAG Reverse Flow	37.3	2011	
BG, RO	BG-RO interconnection	min. 0.5 bcm/y max.1.5 bcm/y	2012	EEPR project The designed capacity of the Interconnector is 1.5 bcm/y. At the start of capacity allocation procedures, the available capacity will be minimum 0.5 bcm/y and maximum 1.5 bcm/y, subject to the technical and technological conditions existing in the Romanian and Bulgarian transmission systems.
RO	GMS Negru Voda Reverse-flow	5.27 bcm/y	2012	Under construction
IT	Tarvisio Reverse Flow	Increase of reverse flow capacity (IT>AT) up to 17.1	November 2011	Reverse flow (IT>AT) capacity until November 2011 was 8.5 mcm/d
IT	Rete Adriatica	Up to 23.7 in the southern part of Italy	See Annex B	Partially FID (see Annex B)
SK	Slovakia - Hungary interconnector	13.8	2015	EEPR project
SK	Modernization and Upgrade of the Network and Replacement of Technologies due to Environmental Norms		2011-2016	
SK	Storage interconnection	Not Applicable	2011	
SK	Reverse Flow of eustream Transmission System	See Annex B	2011	Reverse flow development at the border with NET4GAS and BOG transmission system operator
SI	M1/1 Ceršak –Kidričevo Pipeline	Increase of cross border capacity (AT-SI) up to 22.9	2011	Full capacity increase depends on other projects
SI	M2/1 Rogaška Slatina–Trojane Pipeline	13.9	2014	Partial building permit in 2011
SI	M2/1 Trojane–Vodice	13.9	2014	Partial building permit in 2011
SI	CS Kidričevo 3rd compressor unit		2014	Building permit acquired

[6] Detailed capacity information is available in Annex B.

Storage					
Country Code	**Name**	**Deliverability (in mcm/d)**	**WGV (in mcm)**	**Estimated Go-live**	**Remarks**
IT	Stogit Enhancement and new developments	37	2.800	Progressive build-up of overall capacities from 2011	Depleted gas fields on-shore
IT	San Potito & Cotignola	6.6	838	May 2013	Under construction
IT	Collalto	7.3	550	May 2011	Commissioning completed

LNG terminals					
Country Code	**Name**	**Annual Capacity (bcm/y)**	**Daily Send-out (in mcm/d)**	**Estimated Go-live**	**Remarks**
GR	2nd Upgrade of Revythoussa LNG Receiving Terminal	Increase from 5.1 to 7.1	Increase from 13.9 to 19.5	2016	Annual capacity corresponds to load factor =1

FID Projects - 3rd Party Projects

Storage					
Country Code	**Name**	**Deliverability (in mcm/d)**	**WGV (in mcm)**	**Estimated Go-live**	**Remarks**
AT	7 Fields Storage Project	20	1,608	2014	Also connected to the German network Third Party project (E.ON Gas Storage)

Revythoussa LNG terminal

Non-FID Projects - TSO's

Transmission				
Country Code	**Name**	**Capacity (mcm/d)**	**Estimated Go-live**	**Remarks**
BG	BG - TK Interconnection (ITB)	I. phase 8.3 II. phase 15.2-25	I. phase 2013 II. phase 2017	
BG	Increase the Transmission Capacity of the Existing Pipelines to GR	13.8	2016	
GR	Komotini – Thesprotia HP Pipeline [Onshore section of the Interconnection Greece-Italy (IGI) Pipeline]	48.7	2016	FID expected in 2013
GR	CS Kipi		2018	Environmental Impact Assessment finalized
HU	Vecsés-Balassagyarmat pipeline	13.8	2015	EERP European Energy Plan for Recovery
HU	Reverse flow on the Romanian-Hungarian interconnection pipeline	4.8	2015	Compressor at Algyő node
HU	Vecsés-Pusztavacs pipeline	13.8	2017	
HU	Városföld-Pusztavacs-Százhalombatta pipeline	19.4 - 30.5	2014-2017	
HU	Slovenian-Hungarian interconnector	3.6	2017	Depend on Open Season, EU funding and approval of Energy Office
HR	Regional Project Ionian Adriatic Pipeline (IAP)	13.7	Not Available	Planned and preparatory works in progress
HR	Main Transit Gas Pipeline Zlobin-Bosiljevo-Sisak-Kozarac-Slobodnica	9.6 - 27.4 see Annex B[7]	Not Available	Planned
HR	LNG Evacuation Gas Pipelines Omišalj-Zlobin-Rupa (Slovenia)	41.0	Not Available	Design and permitting
HR	International Gas Pipeline OMIŠALJ – CASAL BORSETTI (Italy)	41.0	Not Available	Techno-economic study completed
HR	Regional Interconnection Croatia/ Slovenia (Bosiljevo – Karlovac - Lučko - Zabok – Rogatec)	13.7	2017 (I phase)	Planned
RO	Connecting the Constanța LNG terminal to the Gas Transmission System of Romania	Not applicable	2015	depending on the construction of LNG terminal Constanța
RO	Integration of the transmission and transit systems – reverse flow Isaccea	14.6	Not applicable	
RO	East – West Pipeline	22.2	2015	depending on the construction of LNG terminal Constanța
RO	Reverse flow on the Romanian-Hungarian interconnection pipeline	4.86	2013	
SK	PL - SK interconnection	13.7	2017	TEN-E (Project of common interest)

[7] Detailed capacity information is available in Annex B.

Transmission (continued)				
Country Code	**Name**	**Capacity (mcm/d)**	**Estimated Go-live**	**Remarks**
SI	M1/3 SLO-A border crossing	Increase of cross-border capacity (AT-SI) up to 22.9	Not Available	Basic design, National spatial plan Full capacity increase depends on other projects
SI	M3/1 Vodice-Kalce	9.2	Not Available	National spatial plan in process
SI	M8 Kalce–Jelšane	35.3	Depends on Adria LNG terminal	National spatial plan in process
SI	M3/1 Kalce - Šempeter/Gorizia	10.0	Not Available	National spatial plan in process
SI	R15/1 Lendava-Kidričevo + CS Kidričevo – additional compressor unit	3.6	Not Available	Pre-feasibility Study
SI	CS Kidričevo–2nd phase		Not Available	2011 - National spatial plan passed, Basic design prepared
SI	M3 section from CS Ajdovščina to Šempeter/Gorizia reconstruction	6.0	Not Available	Preparing for reverse flow
SI	CS Ajdovščina 3rd compressor unit		Not Available	2011 - National spatial plan passed, Basic design prepared

Storage					
Country Code	**Name**	**Deliverability (in mcm/d)**	**WGV (in mcm)**	**Estimated Go-live**	**Remarks**
BG	Construction of new gas storage facility	9	600	2018	Type: Depleted gas offshore field or aquifer
BG	UGS Chiren	Current 4.3 Projected up to 10	Current 450 mcm Projected up to 1 bcm	2017	
GR	South Kavala storage facility	4	360	Not Available	Annual throughput (in two cycles): 720 mcm
HR	UGS Beničanci	8.256	510	2017 (I. phase)	Planned, pre-feasibility study
IT	Palazzo Moroni	0.8	63	May 2014	EIA process ongoing
IT	Bagnolo Mella	0.5	81	May 2016	EIA process ongoing

LNG terminals					
Country Code	**Name**	**Annual Capacity (bcm/y)**	**Daily Send-out (in mcm/d)**	**Estimated Go-live**	**Remarks**
HR	LNGRV	I. phase 1-2 II. phase2-4 III. phase 4-6	Not available	Not Available	Floating terminal

Other					
Country Code	**Name**	**Annual Capacity (bcm/y)**	**Daily Send-out (in mcm/d)**	**Estimated Go-live**	**Remarks**
BG	Varna CNG import terminal	I. phase (up to 2015) 0.85 II. phase (up to 2016) 1.67 III. phase (up to 2017) 2.5	Not Available	2014-2017	CNG project will be developed in 3 phases

Non-FID Projects - 3rd Party Projects

Transmission				
Country Code	**Name**	**Capacity (mcm/d)**	**Estimated Go-live**	**Remarks**
TK, BG, RO, HU, AT,	Nabucco Gas Pipeline	94.4	2015	EEPR project, TEN-E project
GR, IT	Poseidon Pipeline Project	approx. 30	2017	EEPR project, TEN-E project
GR, AL, IT	Trans Adriatic Pipeline	30.4 (I. phase) 60.8 (II. Phase)	2017	
BG,RS,HU,SI, AT,HR,GR,RO, RS,HU,SI	South Stream Pipeline Project[8]	160.8	2015	
BG,GR	Interconnector Greece Bulgaria (IGB)	9.1 to 15.2	2013/2014	
AT, DE	Tauerngasleitung (TGL) Gas Pipeline Project	31.6	2017	

LNG terminals					
Country Code	**Name**	**Annual Capacity (bcm/y)**	**Daily Send-out (in mcm/d)**	**Estimated Go-live**	**Remarks**
HR	Adria LNG	I. phase 10 II. phase 15	I. phase 1.55 II. phase 2.34	2017	

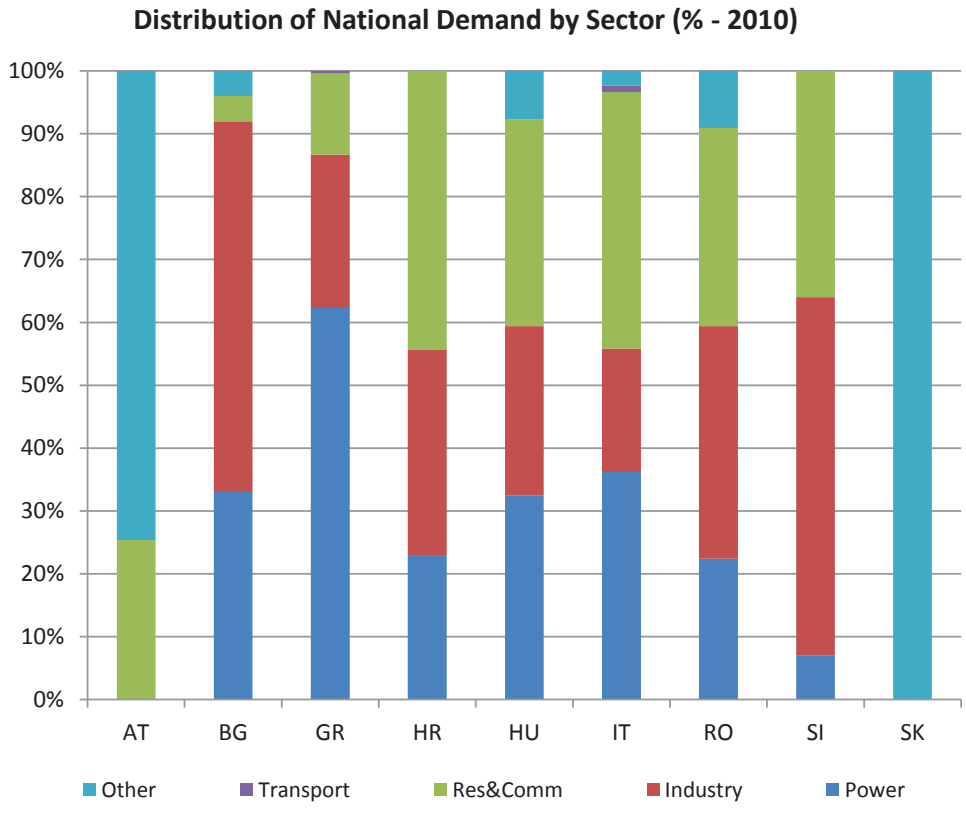
[8] South Stream did not provide updated information on the project. For this reason the data presented here are those included in the ENTSOG TYNDP 2011-2020

Demand and Supply

Beregdaróc compressor station © Image courtesy of FGSZ

Demand

The following graph shows the distribution of the 2010 National Demand per sector in the Southern Corridor region countries.



Note for AT: "Other" includes all sectors except Residential/Commercial

Figure 1: Distribution of National Demand by Sector

Forecasted Annual Demand

As in the rest of the European Union, the demand for natural gas is expected to increase steadily over the next years. Accordingly, the total amount of annual demand for the Southern Corridor region will be approximately 1,463 TWh/y in 2012, and is expected to reach 1,756 TWh/y in 2021, increasing by 20%.

The charts below show the average daily and peak demand per country.

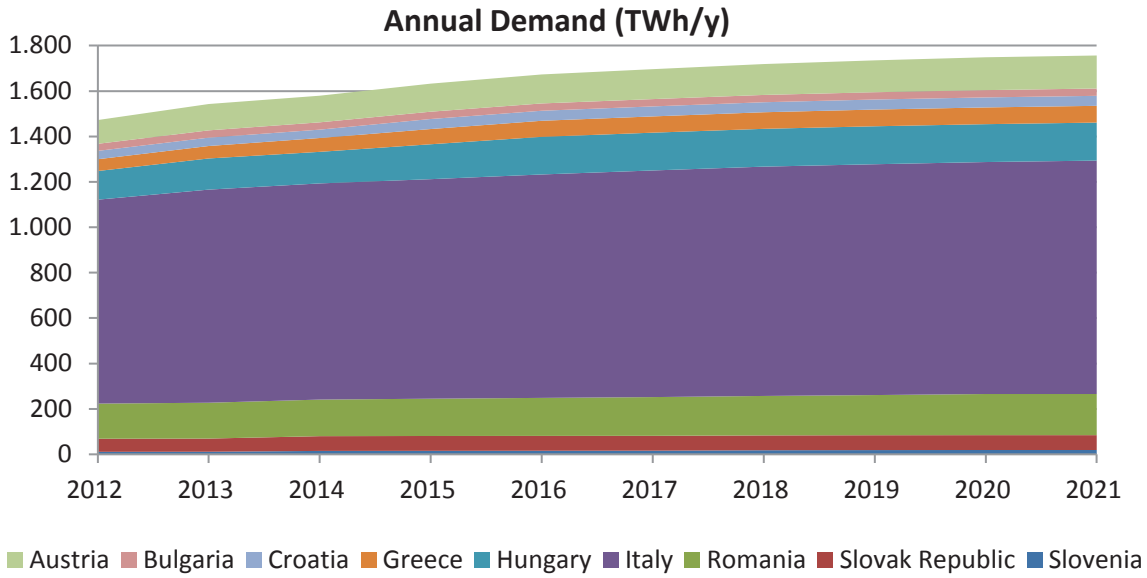


Figure 2: Annual Demand

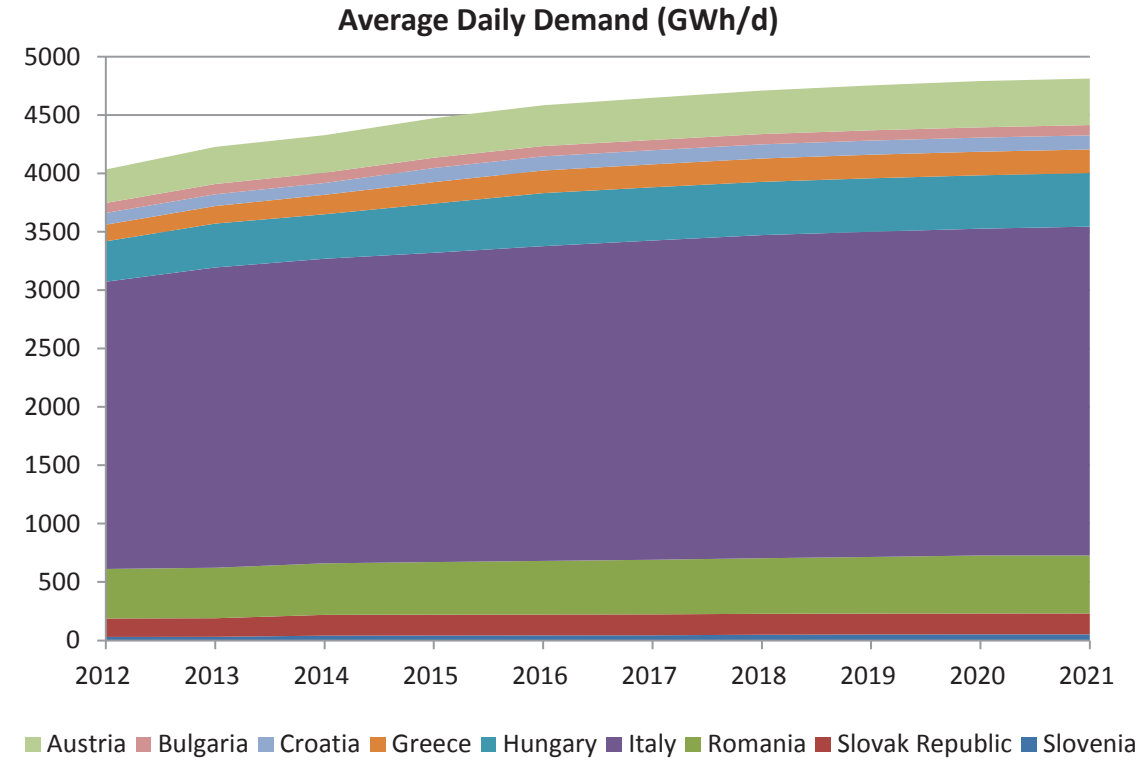
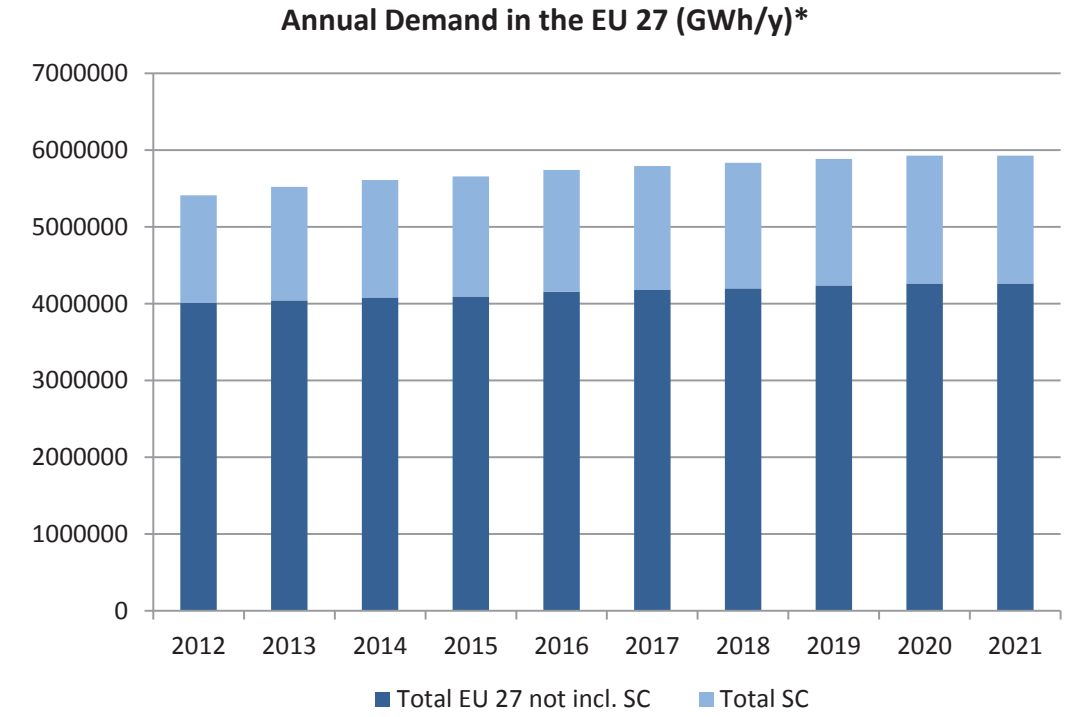


Figure 3: Average Daily Demand

No significant increase of the peak daily demand is foreseen until 2020.



*data from ENTSOG TYNDP

Figure 4: Annual Demand in the EU 27

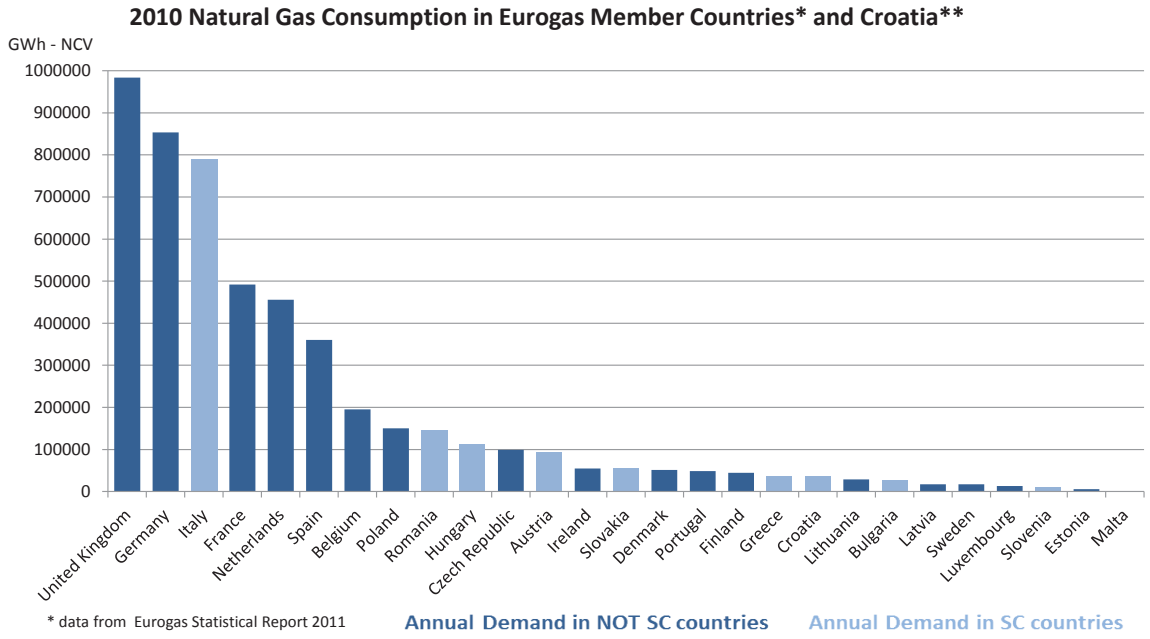


Figure 5: 2010 Natural Gas Consumption in Eurogas Member Countries and Croatia

Peak Daily Demand

Like average demand, the peak demand is also dominated by Italy as the only major consumer in the region. In terms of growth rates, Austria's peak daily demand by 2021 will increase by 48.31%, followed by Hungary with an increase of almost 27.13% . The overall increase of peak demand within the Southern Corridor region is expected to be 12.53% by 2021. The charts below show the peak daily demand per country.

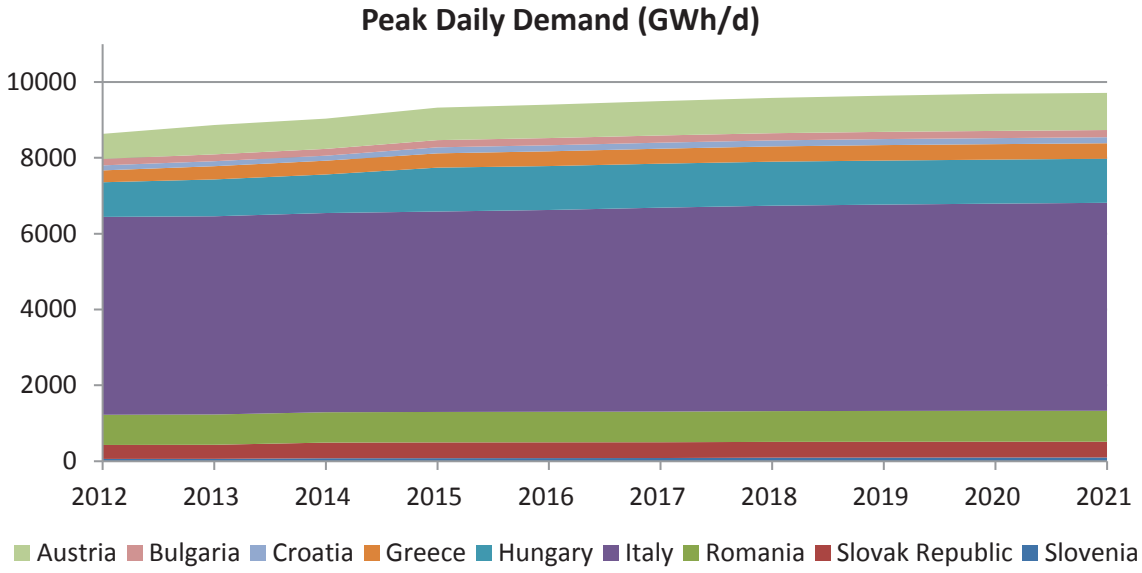


Figure 6: Peak Daily Demand

Supply

Gas from national production plays an important role in some Southern Corridor countries, especially in Romania where coverage of demand by national production is expected to be 71.73% in 2012 and 43.77% in 2021, Croatia (64.44% in 2012 and 35.67% in 2021) and Hungary (32.52% in 2021 and 9.65% in 2021). In 2012 the share of gas from national production has covered 18% of the overall Southern Corridor demand. By 2021, this share will decrease to approximately 11%.

In absolute numbers and with reference to the year 2012, Romania will still be the major producer in the region (42%), followed by Italy (29%) and Hungary (11%). By 2021 the national production in the Southern Corridor region will decrease by almost 30%, Romanian production will represent 41% of the region's production, Hungary 33%, while Italy's share will decrease to 9%.

The development of national production within the Southern Corridor region can be seen in the chart below.

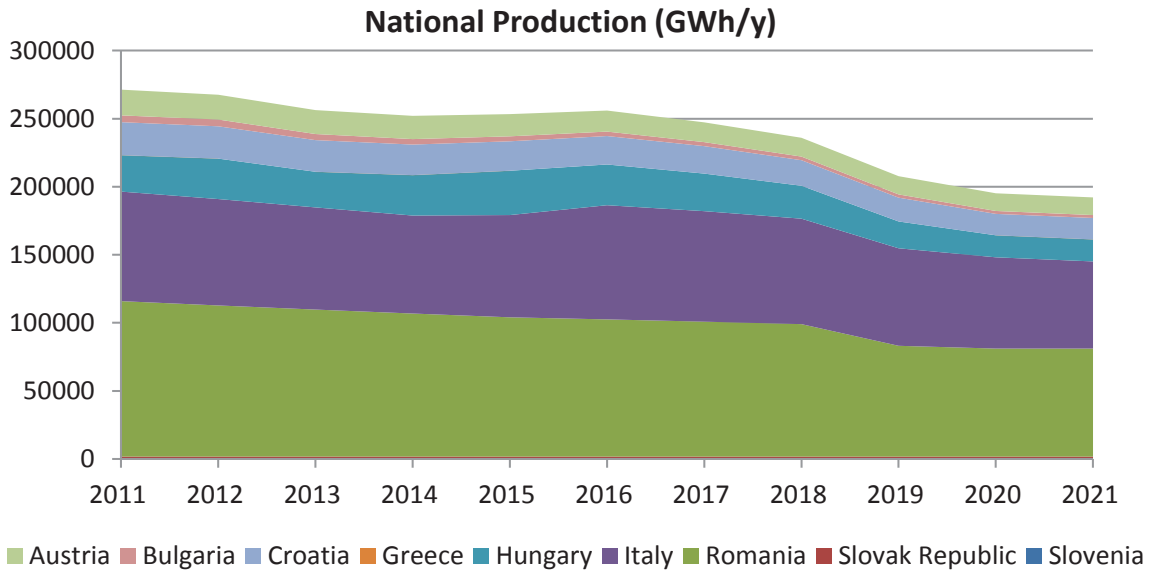


Figure 7: National Production

Conclusions and the Way Forward

The Southern Corridor Region is one of the most diverse regions, as far as natural gas is concerned, since it includes:

- Countries with substantial natural gas production and other that rely exclusively on imports
- Countries that participated in the establishment of the European Economic Community in 1957 and other that joined the European Union half a century later. Consequently some of the countries have an already liberalized gas market while others haven't seen the practical results of the implementation of the relevant Directives and Regulations yet.
- Countries that are key to the transportation of Russian gas to the rest of Europe and other that have no transit function at all.
- Finally, countries with a long presence in the natural gas business and other that imported natural gas for the 1st time in the mid '90s.

Nevertheless, the countries and the gas TSOs of this region share the possibility of participating in the project of transporting natural gas from Central Asia, and maybe later the Middle East, to Europe or being directly affected by it.

This is reflected in the fact that the list of infrastructure projects in this region contains several very large projects, many of them in competition as well as some projects aiming at increasing the import capacity in the region. Such projects are also supported by the existence of non-EU countries in the same geographical area which still have an important potential for the increase of natural gas penetration.

For the above reasons it is foreseen that at the end of the period covered by the present plan the natural gas infrastructure in this region, especially its south – eastern part, will be different than what it is today, offering, among other, a substantial opportunity of growth for the economies of the countries concerned.

As far as demand is concerned it is expected that this will continue to be dominated by Italy while the regional production will come from Romania and Italy with lower contributions from Austria, Hungary and Bulgaria. However the regional production will decrease both in absolute numbers and as a percentage of the regional demand (from 18% in 2012 to 11% in 2021), leaving the region even more dependent on imports.

Beregdaróc compressor station © Image courtesy of FGSZ

On the other hand the security of supply should be enhanced both due to the large amount of transit gas that is expected to cross the region and to the many interconnection and reverse flow projects, together with some storage project developments. The demand and supply analysis that will be included in the next edition of the Southern Corridor GRIP is expected to demonstrate this.

The Southern corridor GRIP 2012-2022 can be regarded as a pilot version of this GRIP. The region's TSOs would like to warmly encourage all interested stakeholders to send their feedback, opinions and comments that will help to further improve following editions of Southern corridor GRIP, as well as to adjust it both to market needs and challenges the Southern corridor region is going to face in the future.

Definitions

Term	Definitions
Average Daily Demand	means the daily gas demand on an average day and is calculated as the annual demand (ENTSOG scenario) divided by 365
Average Daily Supply	means a mix of gas supply sources that ensures the supply demand balance under the Average Daily Demand conditions ; the Average Daily Supply is equal to the Annual Supply divided by 365
Annual Supply	means a mix of gas supply sources that ensures the supply demand balance on annual basis; storage is considered as neutral in the Annual Supply (equal to zero)
Annual Supply Potential	means the ability of a supply source to deliver the identified volume of gas on annual basis
Peak (High) Daily Demand	means the daily gas demand under 1 in 20 climatic conditions
Peak (High) Daily Supply	means a mix of gas supply sources that ensures the supply demand balance under Peak (High) Daily Demand conditions
Main Supply Corridor	means the Supply Corridor over which the respective target area/country is predominantly supplied with gas
Supply Corridor	means a route consisting of transmission capacities necessary to connect a physical gas source with the target area/country to be supplied with gas
Technical capacity	means the maximum firm capacity that the transmission system operator can offer to the network users, taking account of system integrity and the operational requirements of the transmission network (Art. 2 paragraph 1, subparagraph 18 of REG-715)
Transmission	means the transport of natural gas through a network, which mainly contains high-pressure pipelines, other than an upstream pipeline network and other than the part of high-pressure pipelines primarily used in the context of local distribution of natural gas, with a view to its delivery to customers, but not including supply (Art. 2 paragraph 1, subparagraph 1 of REG-715)

Abbreviations

Abbreviation	Full Name
bcm	Billion normal cubic meters (normal cubic meter (Nm^3) refers to m^3 at 0°C and 1.01325 bar)
BiH	Bosnia and Herzegovina
BTS	Border Transfer Station
CA	Caspian
CE	Central Europe
CEE	Central Eastern Europe
CNG	Compressed natural gas
CS	Compressor Station
d	day
DN	Diameter nominal
DS	Distribution System
DSO	Distribution System Operator
EGS	E.ON Gas Storage
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Export Credit Agency
EEPR	European Economic Programme for Recovery
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ENTSOG	European Network of Transmissions System Operators for Gas
EU	European Union
FID	Final Investment Decision
FS	Feasibility Study
GMS	Gas metering station
GRIP	Gas Regional Investment Plan
GWh	Gigawatt hour
h	hour
IAP	Ionian Adriatic Pipeline
IBR	Interconnection Bulgaria-Romania
IBS	Interconnection Bulgaria-Serbia
IFI	International Finance Institution
IFC	International Finance Corporation

Abbreviation	Full Name
IGA	Intergovernmental Agreement
IGB	Interconnection Greece-Bulgaria
IGI	Interconnection Greece-Italy
INA	Industrija Nafte, d.d.
ITGI	Interconnector Turkey-Greece-Italy
ITO	Independent Transmission Operator
ITB	Interconnection Turkey-Bulgaria
IP	Interconnection Point
LLI	Long Lead Items
LNG	Liquefied Natural Gas
LNGRV	LNG Regasification Vessel
KIDSF	Kozloduy International Decommissioning Support Fund
km	kilometre
kWh	kilowatt hour
m^3 (n) /Nm^3	cubic metre (normal)
Max.	maximum
mcm	Million normal cubic meters (normal cubic meter (Nm^3) refers to m^3 at 0°C and 1.01325 bar)
Min.	minimum
mm	milimeter
MOU	Memorandum of Understanding
MOUC	Memorandum of Understanding and Cooperation
MPa	Megapascal
MW	Megawatt
N/A	Not Available, Not Applicable
NP	National production
NRA	National Regulatory Authority
NSRF	National Strategic Reference Framework
NTS	National Transmission System
OPAL	Ostsee Pipeline Anbindungsleitung
OPIE	Operational Programme Infrastructure and Environment
OVIT	National Power Line Company Inc. (http://www.ovit.hu/home_lang-en.html)
PFS	Pre-feasibility study
Ref	Reference Case
REG-715	Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks

Abbreviation	Full Name
REG-SoS	Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC
SC	Southern Corridor
SEE	South East Europe
SF	Structural funds
SO	System Operator
SoS	Security of Supply
TAP	Trans Adriatic Pipeline
TEN-E	Trans European Energy Networks - Energy
TGL	Tauerngasleitung
TPA	Third Party Access
TS	Transmission System
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan
UGS	Underground storage (facility)
UGSS	Unified Gas Supply System
WAG	West-Austria-Gasleitung
WBIF	Western Balkans Investment Framework
WGV	Working gas volume
y	year

Country Codes

Country Code	Full Name	Country Code	Full Name
AL	Albania	**LT**	Lithuania
AT	Austria	**MK**	FYROM
BG	Bulgaria	**NL**	Netherlands
BY	Belarus	**NO**	Norway
CZ	Czech Republic	**PL**	Poland
DE	Germany	**RO**	Romania
DK	Denmark	**RS**	Serbia
FR	France	**RU**	Russia
GR	Greece	**SI**	Slovenia
HR	Croatia	**SK**	Slovakia
HU	Hungary	**TK**	Turkey
IT	Italy	**UA**	Ukraine

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