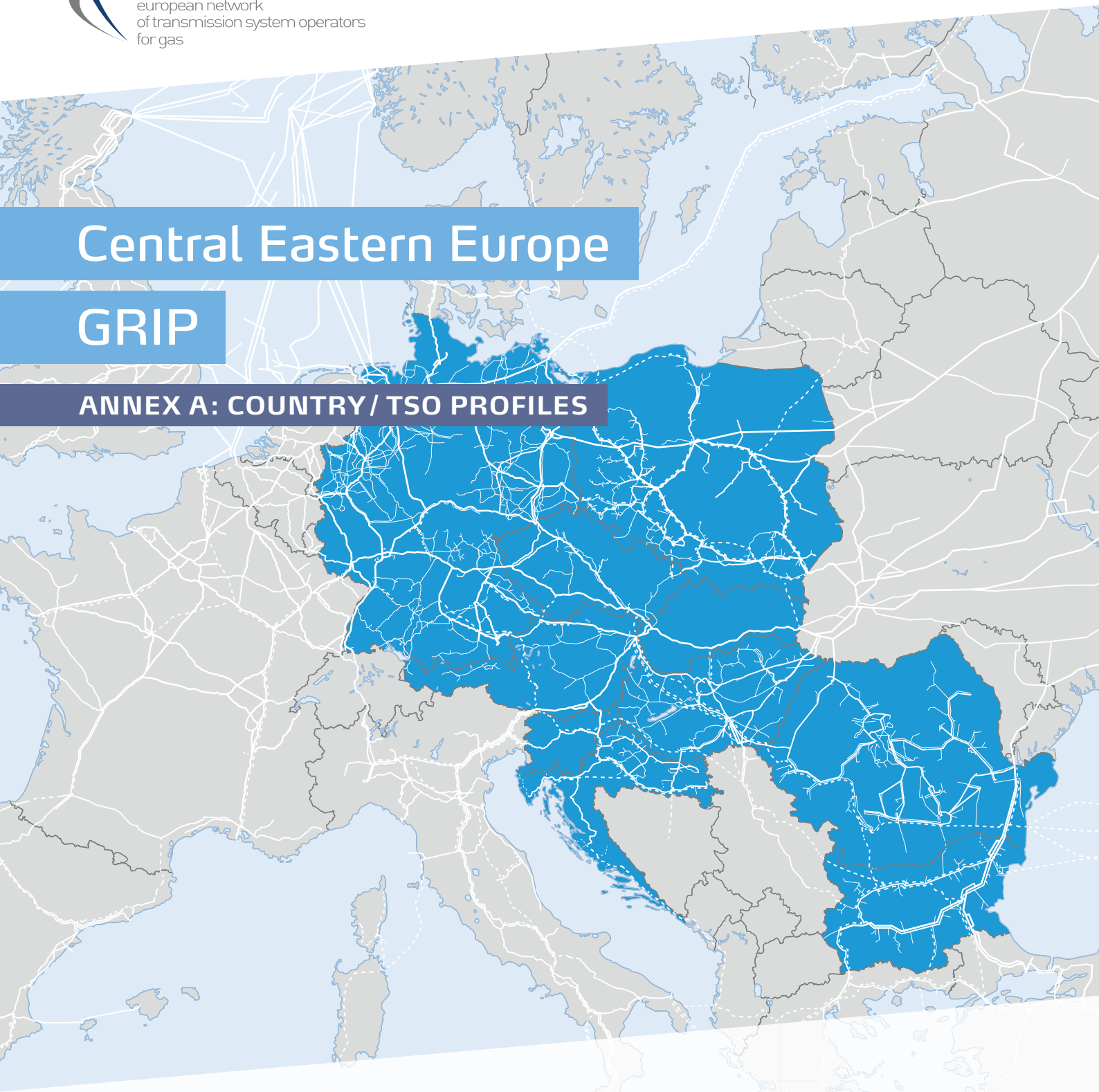
entsog
european network
of transmission system operators
for gas

GAS REGIONAL INVESTMENT PLAN 2014–2023

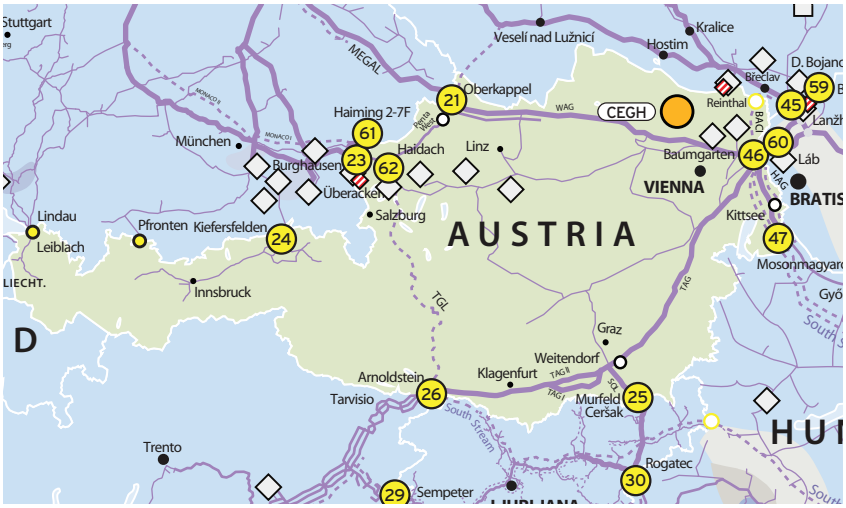


Central Eastern Europe GRIP

ANNEX A: COUNTRY / TSO PROFILES

BOG · GAS CONNECT AUSTRIA · TAG Trans Austria Gasleitung GmbH · BULGARTRANSGAZ · plinacro · NET4GAS · GASCADE · gasunie crossing borders in energy · GOAL · GRTgaz Deutschland · ontras Gastransport GmbH · Open Grid Europe The Gas Wheel · terranets bw · FGSZ LTD. · GAZ system · TRANSGAZ MAGISTRALA ENERGIEI · eustream SLOVAK GAS TSO · Plinovodi Connected through energy

Austria



Existing Gas Infrastructure	
NUMBER OF TSOs	3
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	approx. 1,600 km
TOTAL COMPRESSOR POWER	573 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
GAS CONNECT AUSTRIA	– Baumgarten / Eustream (SK) – Mosonmagyarovar / FGSZ (HU) – Petržalka / eustream, a.s. (SK) – Murfeld / Geoplin plinovodi (SI) – Überackern ABG / Bayernets (DE) – Überackern SUDAL / Bayernets (DE)
BOG	– Oberkappel / Open Grid Europe (DE) – Oberkappel / GRTgaz Deutschland (DE) – Baumgarten / Eustream (SK)
TRANS AUSTRIA GASLEITUNG	– Baumgarten / Eustream (SK) – Tarvisio-Arnoldstein / Snam Rete Gas (IT)
LNG terminals	
	N/A
Storage facilities	
INTERCONNECTED DSOS (All storage facilities are connected to the DSO network (except Haidach, which is connected to German networks). Domestic market capacity is managed by Austrian Gas Grid Management AG (AGGM) in its function as Manager of the Control Area East.)	– Schönkirchen Reyersdorf / GAS CONNECT AUSTRIA – Tallesbrunn / GAS CONNECT AUSTRIA – Thann / GAS CONNECT AUSTRIA – Puchkirchen / RAG – Haidach 5 / RAG – Haidach / RAG / Wingas / Gazprom Export – 1 virtual entry point from OMV Austria Exploration & Production – 1 virtual entry point from RAG
Production facilities	
INTERCONNECTED DSS (All production facilities are connected to the DSO network.)	– 1 virtual entry point from OMV Austria Exploration & Production – 1 virtual entry point from RAG
Directly connected customers	
	– Total: 0 – Gas-fired power plants: 0
Physical TS-DS connections and total number of DSOs in the country	
GAS CONNECT AUSTRIA	– Number of physical TS-DS connections: 1 – Number of DSOs: 1
BOG	– Number of physical TS-DS connections: 6 – Number of DSOs: 1

TRANS AUSTRIA GASLEITUNG	– Number of physical TS-DS connections: 10 – Number of DSOs: 1
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	– CEGH / CEGH
NUMBER OF BALANCING ZONES	1

Demand

HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 91.204 TWh 2011: 95.634 TWh 2010: 102.016 TWh 2009: 91.542 TWh 2008: 93.228 TWh

Network Overview

Austria is one of the main transit countries for Russian gas dedicated to Europe. The main recipients have been Germany and western Europe, which are connected via the WAG and Penta West pipelines, Italy and Slovenia, which are connected via the TAG pipeline (and SOL pipeline respectively) and Hungary, connected via the HAG pipeline. The main IP of Baumgarten acted as a distribution platform, where gas coming along the Ukraine corridor from Slovakia, was transferred towards South-West and West. Also a major part of the Austrian inland demand used to be covered with Russian gas. At this time, the physical flow was east-west along the WAG respectively east-south along the TAG.

Starting in 2005, the WAG pipeline was step by step upgraded to physical reverse-flow ability, and in 2011, triggered by the disruption in January 2009, a physical exit capacity towards Slovakia of finally 700.000 m³(n)/h has been made available, thanks to a co-financing of the European Union (EEPR programme) the physical Reverse Flow Capacity has been upgraded to 925.000 m³(n)/h in 2013 with putting in Operation of the WAG Expansion 3 Project.

In 2011 the Penta West has been made reversible in direction Germany towards Austria. Also in 2011, the TAG pipeline has been upgraded to (partial) reversibility in order to be able to import North African gas via Italy.

Since the end of spring 2009, the reversibility of the WAG was used increasingly and gas flow direction changed from mainly being east-west oriented towards having a neutral point along the WAG pipeline, due mainly to increased imports of cheaper gas from German market (LNG price differential and development of hub trading). Although the Ukraine corridor is still a substantial physical supply source for Austria, the dependency of Austria on it has been reduced, not only serving Austrian interests, but also taking into consideration the supply situation of adjacent countries like Slovakia, Hungary or Slovenia in case of a new crisis.

From 01 January 2013 a new market model has been set into force in Austria, replacing the Point-to-Point principle by an Entry/Exit Model. Furthermore, capacities that have been sold on a „First-Come-First-Served“ principle are being auctioned since 01 April 2013 via the European Auction Platform PRISMA Primary according to the CAM Network Code.

GAS CONNECT AUSTRIA GmbH

WEBSITE	www.gasconnect.at
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	170 km, Operated: approx. 1,600 km
TOTAL COMPRESSOR POWER	40 MW
TOTAL TRANSPORTED ENERGY (in gas)	2012: 93.882 TWh

BOG GmbH

WEBSITE	www.bog-gmbh.at
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	383.5 km
TOTAL COMPRESSOR POWER	106 MW
TOTAL TRANSPORTED ENERGY (in gas)	2012: 134.843 TWh

Trans Austria Gasleitung GmbH

WEBSITE	www.taggmbh.at
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	approx. 1,140 km
TOTAL COMPRESSOR POWER	approx. 475 MW
TOTAL TRANSPORTED ENERGY (in gas)	2012: 280.799 TWh

Bulgaria

Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	2,645 km
TOTAL COMPRESSOR POWER	Transmission: 263 MW Storage: 10 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
BULGARTRANSGAZ	– Negru Voda I & II, III / Transgaz (RO) – Kula / Sidirokastron / DESFA (GR) – Malkoclar / BOTAS (TK) – Zidilovo / GA-MA (MK)
LNG terminals	
	N/A
Storage facilities	
The underground gas storage facility, which is owned and operated by Bulgartransgaz is connected to Bulgartransgaz network	UGS Chiren
Production facilities	
Production facilities in Bulgaria are connected to Bulgartransgaz network in the following entry points:	– GMS Provadia – GRS Pleven
Directly connected customers	
BULGARTRANSGAZ	– Total: 262 – Gas-fired power plants: 0
Distribution systems SOs and total number of DSOs in the country	
BULGARTRANSGAZ	– Number of physical TS-DS connections: 65 – Number of DSOs: 17
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	N/A
NUMBER OF BALANCING ZONES	1

Demand

HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 35.296 TWh 2011: 35.379 TWh 2010: 31.678 TWh 2009: 28.182 TWh 2008: 36.782 TWh 2007: 37.818 TWh

Network Overview

Gas infrastructure of Bulgartransgaz EAD on the territory of the Republic of Bulgaria consists of the national gas transmission network that ensures natural gas to the main part of the Bulgarian users, the gas transmission network for transit transmission ensuring chiefly natural gas transport to Turkey, Greece and Macedonia and the underground gas storage in Chiren (Chiren UGS), directly connected to the national gas transmission network.

NATIONAL GAS TRANSMISSION NETWORK

The national gas transmission network is built in a ring-shaped form of high pressure gas pipelines with a total length of 1,700 km, three compressor stations – CS Kardam-1, CS Valchi Dol and CS Polski Senovets with total installed capacity of 49 MW, cleaning facilities, electrochemical protection system, communications system - copper and optic fibre cables, 240 metering lines to connected users at 115 exit points (AGRS, GMS). Its technical transport capacity amounts to 7,4 bcm/year, and the maximum working pressure is 54 bar.

GAS TRANSMISSION NETWORK FOR TRANSIT TRANSMISSION

The transit gas transmission network comprises high pressure gas pipelines of total lentgh of 945 km with prevailing diameter of DN 1000, six compressor stations – CS Kardam-2, CS Provadia, CS Lozenets, CS Strandja, CS Ihtiman and CS Petrich, with total installed capacity of 214 MW, electrochemical protection system, cleaning facilities, communications system, information system and other ancillary facilities. Its total technical capacity for natural gas transit transmission amounts to 18,7 bcm/year and the maximum working pressure is 54 bar.

UNDERGROUND GAS STORAGE (UGS) CHIREN

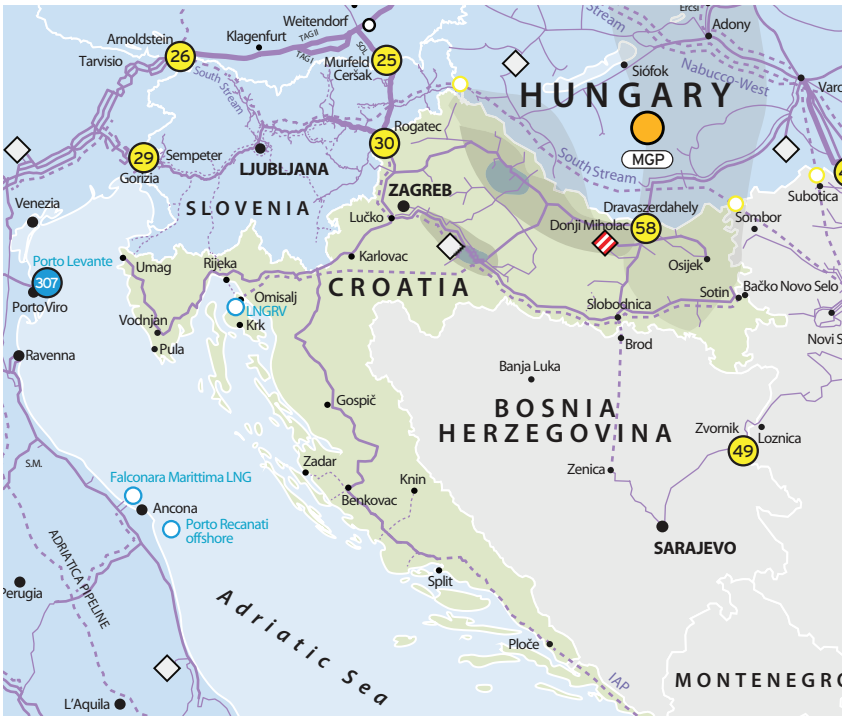
The underground gas storage Chiren located near the city of Vratsa has 22 exploitation wells, a compressor station with a total installed capacity of 10 MW and other technological equipment required to secure the injection, withdrawal and quality of stored gas. The present storage capacity can provide storage for the needs of the home consumers up to 550 mcm^3 natural gas. The withdrawal and injection capacity according to the formation pressures and other factors, is between 1 mcm^3/day (minimum) to 4,2 cm^3/day (maximum) for withdrawal, and 1,5 mcm^3/day (minimum) to 3,5 mcm^3/day (maximum) for injection.

Bulgartransgaz

WEBSITE	www.bulgartransgaz.bg/en
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	2,645 km
TOTAL COMPRESSOR POWER	Transmission: 263 MW Storage: 10 MW
TOTAL TRANSPORTED ENERGY (in gas)	212.040 TWh
UNBUNDLING MODEL	ITO

BULGARTRANSGAZ

Croatia



Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	2,576 km
TOTAL COMPRESSOR POWER	-
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
PLINACRO	– Rogatec / Plinovodi (SLO) – Donji Miholjac (Dravaszerdehaly) / FGSZ (HU)
LNG terminals	
	N/A
Storage facilities	
PLINACRO	– PSP OKOLI / Podzemno skladište plina
Production facilities	
PLINACRO	– CPS Molve (Durdevac) / INA – CPS Etan (Ivanic Grad) / INA – offshore platforms / Pula terminal / INA – Ferdinandovac / INA – Gola / INA – Hampovica / INA – Legrad / INA
Directly connected customers	
PLINACRO	– Total: 24 – Gas-fired power plants: 5
Distribution systems SOs and total number of DSOs in the country	
PLINACRO	– Number of physical TS-DS connections: 157 – Number of DSOs: 37
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	N/A
NUMBER OF BALANCING ZONES	1

Demand

HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 29.7 TWh 2011: 31.46 TWh 2010: 31.13 TWh

Network Overview

At the beginning of the new millennium, in compliance with EU Directive, the reform of the energy sector (and consequently, of the gas sector) in the Republic of Croatia started. On February 1, 2001 Plinacro Ltd was founded as a company for natural gas transmission and trade, at the beginning as a member of INA Group and 100 percent owned by INA.

In July 2001, the Government of the Republic of Croatia brought the package of energy acts, necessary for further reform of the energy sector. In compliance with new acts, primarily with the Energy Act, the gas transmission becomes an energy activity performed as a public service. On March 11, 2002 Plinacro became a 100 percent state-owned company. By establishing Plinacro Ltd, an organisation for introducing natural gas market liberalisation in compliance with EU Directive requirements was founded, providing its consumers with the possibility to choose from different suppliers and free access to the gas transmission system. The Committee for regulation of energy activities by their decision dated December 10, 2003 (class: UP/034-02/03-08/01, reg. no. 371-02/03-04), issued to Plinacro the licence for performance of energy activity – gas transmission, and thereby the company acquired all necessary preconditions for the performance of its main activity.

Since necessary preconditions for the implementation of the open energy market are development and infrastructure building, in April 2002, Plinacro prepared the Plan of Development, Construction and Modernisation of the Gas Transmission System of the Republic of Croatia from 2002 to 2011. The Plan was made on the basis of the Strategy of Energy Development of the Republic of Croatia approved by the Croatian Parliament in 2002.

Plinacro acquired 100 % share in the company Podzemno skladište plina, the main activity of which is underground storage of gas – UGS Okoli on 30 April 2009.

The Plan of Development, Construction and Modernisation of the Gas Transmission System of the Republic of Croatia until 2011, implemented by Plinacro, was the largest investment project in the energy infrastructure.

Due to the long-term security of supply of consumers, Plinacro has been designing and developing its transmission system in such a way so it can be connected to and included in the international gas pipeline grid. Therefore significant means have been invested in the construction of the interconnections which are to connect the Croatian gas transmission system with the gas transmission systems of the neighbouring countries and in that way provide the diversification of supply and possibility for the transit of gas for these countries.

At the beginning of 2013 Plinacro operates 2,576 km of gas pipelines, 10 entry (2 of them are international import points and 1 is UGS) and 157 exit measuring-reduction stations. In 2012. maximum technical capacity of the system was 28.8 x 10^6 m^3/d (276 GWh/d), and the daily peak load of the transmission system was 16,621,000 m^3/day (app. 6 bcm/y).

In 2012 the input of gas from the gas fields on the territory of the Republic of Croatia equalled 1,613 million m^3 of gas which is 21.75 % less compared to the same period in the previous year. As for the import, 1.059 million m^3 of gas was imported through UMS Rogatec (Slovenia), that is, 30.6 % more than in the same period previous year, and 296 million m^3 of gas was imported through UMS Dravaszerdahely (Hungary), which is in comparison to the previous year increase of 364 %.

In 2012 Croatia imported 49.4 % of natural gas quantities needed for the Croatian market, 41.62 % was provided from a domestic production and 8.97 % from the UGS.

Plinacro drew up the first Ten Years Network Development Plan 2014–2023 by mid-2013.

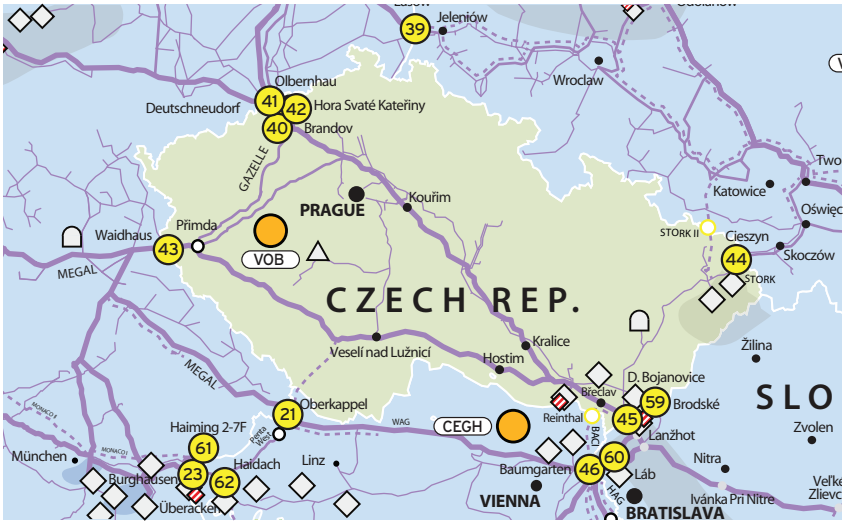
Croatia became an EU member on 1 July 2013.

In compliance with the Third energy package Plinacro commenced a certification procedure in May 2013. Plinacro has chosen the ownership unbundling model.

PLINACRO

WEBSITE	www.plinacro.hr
CURRENT PUBLICATIONS	TYNDP 2014-2023
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	2,576 km
TOTAL COMPRESSOR POWER	–
TOTAL TRANSPORTED ENERGY (in gas)	34.32 TWh
UNBUNDLING MODEL	Ownership unbundling (OU)

Czech Republic



Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	3,813 km
TOTAL COMPRESSOR POWER	297 MW

Inter-TSO connections where capacity is marketed (incl. upstream operators)

NET4GAS, S.R.O.

– Opal (DE) / Brandov (CZ)
[OPAL NEL Transport GmbH (DE) / NET4GAS, s.r.o. (CZ)]

– Brandov (CZ) / Stegal (DE)
[NET4GAS, s.r.o. (CZ) / GASCADE Gastransport GmbH (DE)]

– Olbernhau (DE) / Hora Svaté Kateřiny (CZ)
[GASCADE Gastransport GmbH (DE) / NET4GAS, s.r.o. (CZ)]

– Waidhaus
[NET4GAS, s.r.o. (CZ) / GRTgaz Deutschland GmbH & Open Grid Europe GmbH (DE)]

– Hora Svaté Kateřiny (CZ) / Deutschneudorf (Sayda) (DE)
[NET4GAS, s.r.o. (CZ) / ONTRAS Gastransport GmbH (DE)]

– Cieszyn [NET4GAS, s.r.o. (CZ) / GAZ-SYSTEM S.A. (PL)]

– Lanžhot [NET4GAS, s.r.o. (CZ) / eustream, a.s. (SK)]

LNG terminals

N/A

Storage facilities

NET4GAS, S.R.O.

– UGS Háje / RWE Gas Storage, s.r.o.
– UGS Dolní Dunajovice / RWE Gas Storage, s.r.o.
– UGS Lobodice / RWE Gas Storage, s.r.o.
– UGS Štramberk / RWE Gas Storage, s.r.o.
– UGS Třanovice / RWE Gas Storage, s.r.o.
– UGS Tvrdonice / RWE Gas Storage, s.r.o.
– UGS Uhřice / MND Gas Storage, a.s.
– UGS Dolní Bojanovice / SPP Bohemia, a.s. (currently used for Slovakia only)

Production facilities

NET4GAS, S.R.O.

– No interconnected producer

DSO – JMP NET, S.R.O.

– 1 virtual entry / Moravské naftové doly, a.s.
– 1 virtual entry / Česká naftařská společnost, s.r.o.

Directly connected customers

NET4GAS, S.R.O.

– Total: 6
– Gas-fired power plants: 1

Distribution systems SOs and total number of DSOs in the country

NET4GAS, S.R.O.	– Number of physical TS-DS connections: 93 – Number of DSOs: 6
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	virtual trading point is operated by OTE, a.s.
NUMBER OF BALANCING ZONES	1

Demand

HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 86.326 TWh 2011: 85.646 TWh 2010: 95.138 TWh

Network Overview

NET4GAS, s.r.o. is the transmission system operator in the Czech Republic and ensures natural gas transmission over and into the Czech Republic.

The company was founded in accordance with the requirements of Directive 2003/55/EC which was implemented into the Energy Act. As of January 1, 2006, employees, assets, and activities related to the natural gas transmission were transferred from RWE Transgas, a.s. into the company.

NET4GAS operates gas pipeline system in a total length of 3 813 km with nominal diameters from DN 80 to DN 1400 and with nominal pressures from 4 to 8.4 MPa. The required gas pressure in the pipelines is ensured through compressor stations with a spacing of approximately 100 km. On the northern branch there are CS Kralice nad Oslavou and Kouřim, on the southern branch CS Břeclav, Hostim, and Veselí nad Lužnicí. The total installed output power of the CS is 297 MW. The individual gas pipeline branches are interconnected at the key junction points Malešovice, Hospozín and Rozvadov.

At the entry to and the exit from the CZ the gas is being taken and handed over, i.e metered volume- and quality-wise at the border transfer stations between the CZ and the Slovak Republic at Lanžhot between the CZ and Germany at Hora Svaté Kateřiny - Sayda, Hora Svaté Kateřiny - Olbernhau, Waidhaus and Brandov. Between CR and Poland the gas is taken and handed over at the entry and exit at the BTS Cieszyn.

From the transmission system the gas is further supplied to the distribution systems, underground storage facilities and to the facilities of directly connected customers over 93 transfer stations. All transfer stations are equipped with commercial metering for natural gas volumes. Gas quality (gross calorific value) is measured at 22 node points within the system.

NET4GAS, s.r.o. (s.r.o. = společnost s ručením omezeným ≈ Limited liability company)

WEBSITE	www.net4gas.cz
CURRENT PUBLICATIONS	National Ten-Year Network Development Plan 2014–2023
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	operates 3,813 km
TOTAL COMPRESSOR POWER	297 MW
TOTAL TRANSPORTED ENERGY (in gas)	355.318 TWh
UNBUNDLING MODEL	ITO

Germany

Existing Gas Infrastructure	
NUMBER OF TSOs	17
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	38,125 km
TOTAL COMPRESSOR POWER	2,542 MW
Inter-TSO cross-border connections where capacity is marketed (incl. upstream / downstream operators)	
BAYERNETS	– Überackern (Gas Connect Austria) – Überackern 2 (Gas Connect Austria) – VIP Kiefersfelden - Pfronten (exit zone to Austrian DSOs)
FLUXYS DEUTSCHLAND	– Greifswald (Nord Stream)
FLUXYS TENP	– Bocholtz (Gasunie TS) – Lichtenbusch / Raeren (Fluxys Belgium) – Wallbach (Swissgas & FluxSwiss)
GASCADE GASTRANSPORT	– Brandov-Stegal (NET4GAS) – Eynatten (Fluxys Belgium) – Bunde (Gasunie TS) – Mallnow (GAZ-SYSTEM (ISO)) – Olbernhau (NET4GAS)

GASUNIE DEUTSCHLAND	– Bunde / Oude Statenzijl (H) (Gasunie TS) – Bunde / Oude Statenzijl (L) (Gasunie TS) – Emden (EPT1) (Gassco) – Emden (NPT) (Gassco) – Dornum (Gassco) – Ellund (Energinet.dk)
GASUNIE OSTSEEANBINDUNGSLEITUNG	– Greifswald (Nord Stream)
GRTGAZ DEUTSCHLAND	– Medelsheim (GRTgaz) – Oberkappel (BOG) – Waidhaus (NET4GAS)
GTG NORD	– Bunde / Oude Statenzijl (L) (Gasunie TS)
JORDGAS TRANSPORT	– Dornum (Gassco)
LBTG	– Brandov (NET4GAS) – Greifswald (Nord Stream)
NEL GASTRANSPORT	– Greifswald (Nord Stream)
ONTRAS	– Deutschneudorf (NET4GAS) – Lasów (GAZ-SYSTEM)
OPAL GASTRANSPORT	– Brandov (NET4GAS) – Greifswald (Nord Stream)
OPEN GRID EUROPE	– Bocholtz (Gasunie TS) – Bunde (Gasunie TS) – Dornum (Gassco) – Ellund (Energinet.dk) – Emden (EPT1) (Gassco) – Emden (NPT) (Gassco) – Lichtenbusch / Raeren (Fluxys Belgium) – Kiefersfelden - Kufstein (TIGAS) – Medelsheim (GRTgaz) – Oberkappel (BOG) – Remich (CREOS Luxembourg) – Tegelen (Gasunie TS) – Burghausen (Gas Connect Austria) – Waidhaus (NET4GAS) – Wallbach (Swissgas & FluxSwiss) – Winterswijk (Gasunie TS) – Zevenaar (Gasunie TS)
TERRANETS BW	– RC Basel (Gasverbund Mittelland GVM) – RC Lindau (Vorarlberger Energienetze VNe) – RC Thayngen-Fallentor (Erdgas Ostschweiz EGO)
THYSSENGAS	– Bocholtz-Vetschau (Gasunie TS) – Emden (EPT1) (Gassco) – Emden (NPT) (Gassco) – Lichtenbusch / Raeren (Fluxys Belgium) – Haanrade (Gasunie TS) – Zevenaar (Gasunie TS)
Inter-TSO connections within Germany where firm capacity can be marketed (incl. upstream operators)	
GASCADE GASTRANSPORT	– Reckrod < Open Grid Europe
GASUNIE DEUTSCHLAND	– Emsbüren-Berge < Thyssengas – Wardenburg RG < Open Grid Europe
GRTGAZ DEUTSCHLAND	– Gernsheim < GASCADE Gastransport
ONTRAS	– Steinitz < Open Grid Europe
OPEN GRID EUROPE	– Ahlten < Nowega – Bunder-Tief < Gasunie Deutschland – Drohne GUD / OGE < Gasunie Deutschland – Emsbüren RG < Gasunie Deutschland – Kienbaum < GASCADE Gastransport – Lampertheim I < GASCADE Gastransport – Nordlohne < Gasunie Deutschland – Steinitz < ONTRAS – Wardenburg RG < Gasunie Deutschland – Reckrod < GASCADE Gastransport
TERRANETS BW	– Lampertheim IV < GASCADE Gastransport
THYSSENGAS	– Broichweiden Süd < GASCADE Gastransport – Emsbüren-Berge < Gasunie Deutschland
LNG terminals	
	None

Storage facilities	
BAYERNETS	– Haidach USP – Haiming 2 7F - bayernets – Inzenham-West USP – Wolfersberg / USP
GASCADE GASTRANSPORT	– 1BQA Nüttermoor – 3070 Sp. Rehden – 1BMA Jemgum I – 1BRA Jemgum III
GASTRANSPORT NORD	– Zone UGS-EWE L-Gas
GASUNIE DEUTSCHLAND	– H096 / H097 - UGS Dötlingen – H098 / H099 - UGS Uelsen – H102 / H103 - UGS Harsefeld – H152 / H171 - UGS Etzel – H196 / H197 - UGS Etzel ESG – H199 / H200 - UGS Jemgum EWE – L131 / L132 - UGS Lesum – L133 / L134 - UGS Nüttermoor L
JORDGASTRANSPORT	– H152S / H171S - Etzel EGL – H196S / H197S - Etzel ESE – H203S / H204S - Etzel EKB
NOWEGA	– Empelde
OGE	– Friedeburg-Etzel, Bitzenlander Weg 2 – Friedeburg-Etzel, Bitzenlander Weg 3 – Friedeburg-Etzel, Bitzenlander Weg 4 – Speicher Bierwang – Speicher Breitbrunn – Speicher Epe H – Speicher Epe L – Speicher Eschenfelden – Speicher Etzel – Speicher Gronau-Epe H1 – Speicher Gronau-Epe L1 – Speicher Gronau-Epe L2 – Speicher Hähnlein – Speicher Inzenham West – Speicher Krummhörn – Speicher Stockstadt
ONTRAS	– UGS Bad Lauchstädt – UGS Bernburg – UGS Buchholz – UGS Katharina – UGS Kirchheilingen – UGS Kraak – UGS Peckensen – UGS Staßfurt
TERRANETS BW	– Fronhofen 1 – RC Speicher Fronhofen – RC Speicher Sandhausen – Sandhausen 1
THYSSENGAS	– Jemgum I – KGE Epe – Nüttermoor H – RWE Epe – RWE Kalle – RWE Xanten – Trianel Epe
Production facilities	
GASTRANSPORT NORD	– EZONE-SDS
GASUNIE DEUTSCHLAND	– H072 - Groothusen – H073 - Leer EGM – H075 - Visselhövede MEEG – H076 - Imbrock – H078 - Dötlingen UE H – H153 - Bahnsen – L112 - Dötlingen UE L – L115 - Lehringen RI Luttum – L115 - Lehringen RI Voigtei – L118 - Husum – L119 - Voigtei – L120 - Unterlüß LL – L121 - Thoense H – L141 - Schneeren – L165 - Thoense L
NOWEGA	– Schneeren – Zone Produktion
OGE	– Steinbrink Produktion

Directly connected customers	
TOTAL GERMANY	– Total: approx. 400 – Gas-fired power plants: approx. 50
Physical TS-DS connections and total number of DSOs in the country	
TOTAL GERMANY	– Number of physical TS-DS connections: approx. 1,800 – Number of DSOs: approx. 700
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	2 Virtual Trading Points: GASPOOL and NCG
NUMBER OF BALANCING ZONES	2
Demand	
HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 910 TWh 2011: 897 TWh 2010: 977 TWh
TOTAL TRANSPORTED ENERGY (in gas)	2012: 1.679 TWh

Network Overview

The German transmission system incorporates an H-Gas and an L-Gas grid described in the next two sections.

H-GAS GRID

In the past, most of the gas used in the northern part of this supply area (Schleswig-Holstein, Hamburg) came from Danish fields. With capacity on the rise, however, Denmark has more recently relied heavily on imports from Germany via Ellund (station).

The adjacent region extends from entry points on the North Sea and systems supplying gas from Schleswig-Holstein, Saxony-Anhalt and Thuringia, along with import points and, in part, export points to the south (Czech Republic, Austria) and to the west (Netherlands and Belgium) as far as export points to France and Switzerland.

Major imports reach the area from northwestern Germany and through grids situated to the east and northeast. The main direction of flow then is from the northeast to the southwest. More import points from the western transmission grid are located around Aachen so that supplies from the Netherlands and Belgium may reach Germany through Bocholtz and Eynatten/Raeren, with the latter also serving as an exit point.

The southern portion handles large import volumes from the Czech Republic and Austria as well as export volumes through cross-border points on the French, Swiss and Austrian borders with a transmission grid that has both transit and supply functions.

The eastern part of the supply area (Mecklenburg-Vorpommern, Brandenburg, Saxony-Anhalt, Saxony, Thuringia, Berlin) imports gas via Poland in the east, the Baltic in the northeast, the Czech Republic in the south and, partly, from western Germany. Here again the transmission grid has both transit and supply functions.

L-GAS GRID

These northern transmission systems were built around existing fields in Germany (mostly Elbe/Weser, Weser/Ems) and the Netherlands (Groningen field) from where gas is imported via Oude Statenzijl station. These sources have remained the only ones in the area to this day. Storages with structuring and peak shaving functions are located at Nüttermoor, Huntorf, Lesum and Empelde. The grid has been designed to supply customers from these sources and has limited flexibility.

The western L-Gas grid with its various levels primarily supplies end users. With large numbers of domestic customers, gas sales largely fluctuate with temperatures. Load cases result not only from use as designed but also in intermediate and low-load situations when flexibility on the inlet side is considerable. System supply is through imports from the Netherlands and from German sources in the north. Storages with structuring and peak shaving functions are located at Epe.

GASCADE Gastransport GmbH

WEBSITE	www.gascade.de
CURRENT PUBLICATIONS	http://www.gascade.de/index.php?id=presseinformationen
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	2,300 km
TOTAL COMPRESSOR POWER	490 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profil for Germany
UNBUNDLING MODEL	ITO

Gasunie Deutschland Transport Services GmbH

WEBSITE	www.gasunie.de
CURRENT PUBLICATIONS	Draft German Network Development Plan 2014 under www.fnb-gas.de/de/netzentwicklungsplan/nep-2014/nep-2014.html
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	3,235 km
TOTAL COMPRESSOR POWER	158 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profil for Germany
UNBUNDLING MODEL	ITO

Gasunie Ostseeanbindungsleitung GmbH

WEBSITE	www.goal-tso.de
CURRENT PUBLICATIONS	Draft German Network Development Plan 2014 under www.fnb-gas.de/de/netzentwicklungsplan/nep-2014/nep-2014.html
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	approx. 440 km
TOTAL COMPRESSOR POWER	0 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profil for Germany
UNBUNDLING MODEL	ITO

GRTgaz Deutschland GmbH

WEBSITE	www.grtgaz-deutschland.de
CURRENT PUBLICATIONS	Draft German Network Development Plan 2014 under www.fnb-gas.de/de/netzentwicklungsplan/nep-2014/nep-2014.html
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	1,161 km (pipe in pipe model with Open Grid Europe)
TOTAL COMPRESSOR POWER	296 MW (pipe in pipe model with Open Grid Europe) (ISO, including emergency units)
TOTAL TRANSPORTED ENERGY (in gas)	See country profil for Germany
UNBUNDLING MODEL	ITO

ONTRAS Gastransport GmbH

WEBSITE	www.ontras.com
CURRENT PUBLICATIONS	Draft German Network Development Plan 2014 under www.fnb-gas.de/de/netzentwicklungsplan/nep-2014/nep-2014.html
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	7,249 km
TOTAL COMPRESSOR POWER	38 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profil for Germany
UNBUNDLING MODEL	ITO

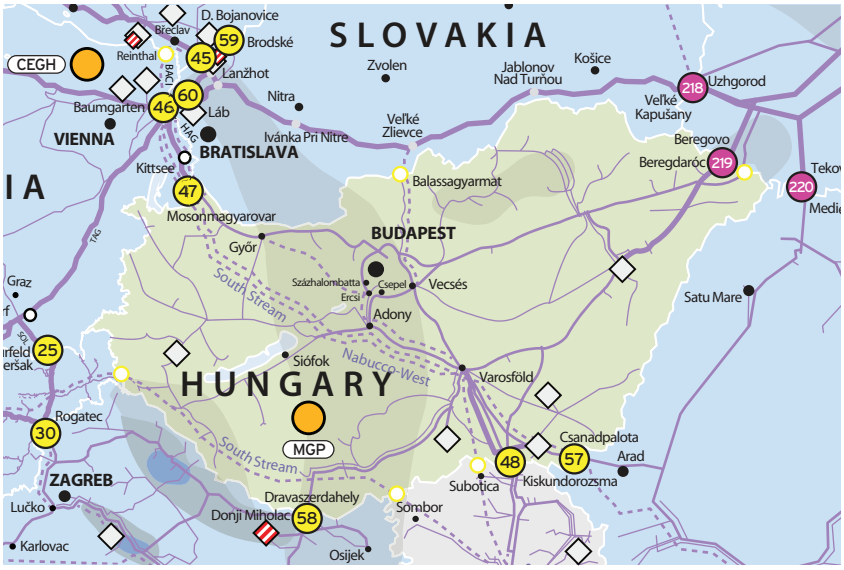
Open Grid Europe GmbH

WEBSITE	www.open-grid-europe.com
CURRENT PUBLICATIONS	Please find the current German wide network development plans and consultation documents under www.fnb-gas.de/en
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	approx. 12,000 km
TOTAL COMPRESSOR POWER	approx. 1,000 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profile for Germany
UNBUNDLING MODEL	ITO

terranets bw GmbH

WEBSITE	www.terranets-bw.de
CURRENT PUBLICATIONS	Please find the current German wide network development plans and consultation documents under www.fnb-gas.de/en
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	1,965 km
TOTAL COMPRESSOR POWER	33 MW
TOTAL TRANSPORTED ENERGY (in gas)	See country profile for Germany
UNBUNDLING MODEL	ITO

Hungary



Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	5,784 km
TOTAL COMPRESSOR POWER	233 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
FGSZ	– Beregdaróc / Ukrtansgas (UA > HU) – Beregdaróc / Ukrtansgas (HU > UA) – Mosonmagyaróvár / Gas Connect Austria (AT) – Kiskundorozsma / Srbijagas (RS) – Csanádpalota / Transgaz (RO) – Drávaszerdahely / Plinacro (HR)
LNG terminals	
	N / A
Storage facilities	
FGSZ	– Zsana / Hungarian Gas Storage – Hajdúszoboszló / Hungarian Gas Storage – Pusztaederics / Hungarian Gas Storage – Kardoskút / Hungarian Gas Storage – Szőreg-I / MMBF
Production facilities	
FGSZ	– Algyő III "0" point / MOL – Babócsa "0" point / MOL – Endrőd "0" point / MOL – Hajdúszoboszló "0" point / MOL – Karcag II (Bucsa) "0" point / MOL – Pusztaederics "0" point / MOL – Szank "0" point / MOL – Kardoskút regional / MOL – Kenderes II inert "0" point / MOL – Babócsa regional / MOL – Tiszavasvári II "0" point / HHE North
Directly connected customers	
FGSZ	– Total: 39 – Gas-fired power plants: 14

Distribution systems SOs and total number of DSOs in the country	
FGSZ	– Number of physical TS-DS connections: 361 – Number of DSOs: 9
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	– MGP I / FGSZ – MGP II / FGSZ
NUMBER OF BALANCING ZONES	1
Demand	
HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 111.950 TWh 2011: 121.684 TWh 2010: 131.233 TWh
Network Overview	
N / A	

FGSZ Ltd. (Natural Gas Transmission Company Limited by Shares)	
WEBSITE	www.fgsz.hu
CURRENT PUBLICATIONS	– 10-year Network Development Plan (voluntary) – Winter Outlook (voluntary) – Summer Outlook (voluntary)
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	5,784 km
TOTAL COMPRESSOR POWER	233 MW
TOTAL TRANSPORTED ENERGY (in gas)	173.145 TWh
UNBUNDLING MODEL	ITO

Poland

Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	10,077 km – transmission network 680 km – Yamal-Europe pipeline (GAZ-SYSTEM S.A. fulfils the function of ISO)
TOTAL COMPRESSOR POWER	140.6 MW – transmission network 400 MW – Yamal-Europe pipeline
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
GAZ-SYSTEM S.A.	– Lasów / Ontras (DE) – Cieszyn / NET4GAS (CZ) – Drozdowicze / Ukrtransgaz (UA) – Wysokoje / Gazprom Bieltransgaz (BY) – Tietierówka / Gazprom Bieltransgaz (BY) – Kondratki / Gazprom Bieltransgaz (BY) – Mallnow / Gascade (DE) – Lwówek / GAZ-SYSTEM S.A. - ISO – Włocławek / GAZ-SYSTEM S.A. - ISO
LNG terminals	
	N/A
Storage facilities	
GAZ-SYSTEM S.A.	– Swarzów / PGNiG – Strachocina / PGNiG – Brzeźnica / PGNiG – Husów / PGNiG – Wierzchowice / PGNiG – Mogilno / PGNiG – Daszewo (Low-Methane Gas) / PGNiG – Bonikowo (Low-Methane Gas) / PGNiG – Mikstat / DPV Service Sp. z o.o.

Production facilities

GAZ-SYSTEM S.A.	– Sanok / PGNiG – Zielona Góra / PGNiG – Odolanów / PGNiG

Directly connected customers

GAZ-SYSTEM S.A.	– Total: 74 – Gas-fired power plants: 7

Distribution systems SOs and total number of DSOs in the country

GAZ-SYSTEM S.A.	– Number of physical TS-DS connections: 879 – Number of DSOs: 17
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	1
NUMBER OF BALANCING ZONES	2

Demand

HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 165.1 TWh 2011: 161 TWh 2010: 159 TWh

Network Overview

Gas Transmission Operator GAZ-SYSTEM S.A. is the company responsible for the transportation of natural gas and the operation of the transmission network in Poland. GAZ-SYSTEM S.A. operates on the basis of a licence issued by the President of the Energy Regulatory Office (ERO) which is valid until 2030. In addition, the company performs the function of an independent system operator (ISO) of the Polish section of the Yamal pipeline.

The transmission system in Poland consists of pipelines with the length of 10,077 km. There are two types of gas transported in the network operated by GAZ-SYSTEM S.A: high-methane natural gas and low calorific natural gas. The high-methane natural gas system covers the whole territory of Poland and serves for the transmission of both imported gas and gas produced in the South-East of Poland. The system is also supplied from high-methane natural gas group E by means of the natural gas mixing facilities in Odolanów and Grodzisk. The network is connected to the Yamal pipeline via the points in Lwówek and Włocławek. The low calorific gas system is located in the Lubusz, Grater Poland and Lower Silesia regions in the West of Poland. The network is supplied by production facilities located in this area.

GAZ-SYSTEM S.A. is currently implementing a wide investment plan. The company is building LNG terminal in Świnoujście (via its SPV, Polskie LNG) and more than 1,000 km of new gas pipelines that will be commissioned in 2014. The most important pipelines will be situated in north-western and central Poland. The development of these investment tasks will enable to foster Poland's energy security through the creation of technical conditions to diversify the natural gas supply. These activities are also conducive to the further liberalisation of the gas market in Poland and enhancement of its competitiveness. In the mid-term perspective (until 2018 and 2023), GAZ-SYSTEM S.A. plans to commission projects aimed at enhancing the transmission system in Poland and constructing new cross-border interconnections with adjacent systems.

Gas Transmission Operator GAZ-SYSTEM S.A.

WEBSITE	www.gaz-system.pl
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	10,077 km – transmission network 680 km – Yamal-Europe pipeline (GAZ-SYSTEM S.A. fulfils the function of ISO)
TOTAL COMPRESSOR POWER	140.6 MW
TOTAL TRANSPORTED ENERGY (in gas)	170.7 TWh
UNBUNDLING MODEL	ownership unbundling

Romania

Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	13,138 km
TOTAL COMPRESSOR POWER	32 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
SNTGN TRANSGAZ SA	– Csanádpalota / FGSZ (HU) – Negru Voda I / Bulgartransgaz (BG) – Negru Voda II / Bulgartransgaz (BG) – Negru Voda III / Bulgartransgaz (BG) – Mediesu Aurit Import / Ukrtransgaz (UA) – Isaccea Import / Ukrtransgaz (UA) – Isaccea I / Ukrtransgaz (UA) – Isaccea II / Ukrtransgaz (UA) – Isaccea III / Ukrtransgaz (UA)
LNG terminals	
	N / A
Storage facilities	
SNTGN TRANSGAZ SA	– Underground Storage Sarmas / Sarmas (RO) / SNGN Romgaz SA – Underground Storage Balaceanca / Balaceanca (RO) / SNGN Romgaz SA – Underground Storage Bilciuresti / Bilciuresti (RO) / SNGN Romgaz SA – Underground Storage Cetatea de Balta / Cetatea de Balta (RO) / SNGN Romgaz SA – Underground Storage Ghercesti / Ghercesti (RO) / SNGN Romgaz SA – Underground Storage Urziceni / Urziceni (RO) / SNGN Romgaz SA – Underground Storage Tg. Mures / Tg. Mures (RO) / DEPOMURES SA

Production facilities	
SNTGN TRANSGAZ SA	– 85 entry points / Romanian territory / SNGN Romgaz SA – 43 entry points / Romanian territory / OMV Petrom SA – 7 entry points / Romanian territory / Amromco Energy SRL – 1 entry point / Romanian territory / SC Raffles Energy SRL – 1 entry point / Romanian territory / Lotus Petrol SRL
Directly connected customers	
SNTGN TRANSGAZ SA	– Total: 232 – Gas-fired power plants: 18
Distribution systems SOs and total number of DSOs in the country	
SNTGN TRANSGAZ SA	– Number of physical TS-DS connections: 870 – Number of DSOs: 39
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	N / A
NUMBER OF BALANCING ZONES	1
Demand	
HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 130.466 TWh 2011: 136.133 TWh 2010: 131.006 TWh
Network Overview	
N / A	

SNTGN Transgaz SA	
WEBSITE	www.transgaz.ro
CURRENT PUBLICATIONS	10 Year Network Development Plan
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	13,138 km
TOTAL COMPRESSOR POWER	32 MW
TOTAL TRANSPORTED ENERGY (in gas)	156.297 TWh
UNBUNDLING MODEL	ISO

Slovakia

Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	2,255 km
TOTAL COMPRESSOR POWER	700 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
EUSTREAM	– Veľké Kapušany - Ukrtransgaz (AU) / Eustream (SK) – Baumgarten - Eustream (SK) / Gas Connect Austria, BOG, Trans Austria Gasleitung (AT) – Lanžhot - Eustream (SK) / Net4Gas (CZ)
LNG terminals	
	N/A
Storage facilities	
EUSTREAM	– NAFTA a.s. (NAFTA is also connected to the DSO – SPP-distribucia, a.s.) – POZAGAS a.s. (not connected to the Eustream transmission system)
Production facilities	
EUSTREAM	– NAFTA a.s. (NAFTA is also connected to the DSO – SPP-distribucia, a.s.)
Directly connected customers	
EUSTREAM	–
Distribution systems SOs and total number of DSOs in the country	
EUSTREAM	– Number of physical TS-DS connections: 8 – Number of DSOs: 53
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	1
NUMBER OF BALANCING ZONES	1
Demand	
HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 53.5 TWh 2011: 57.9 TWh 2010: 60.6 TWh

Network Overview

Since 1972, Eustream has secured the transmission of more than 2 trillion (2,128,000,000,000) cubic meters of natural gas across the territory of the Slovak Republic. The company therefore successfully continues in the tradition of the Slovak gas industry, which dates back over 150 years.

The annual capacity of the transmission system operated and maintained by Eustream is 73 billion cubic meters, which equals roughly 15 times the overall domestic gas consumption of the Slovak Republic. This demonstrates how a large part of our work concerns international gas transit. In 2012, we actually transported 56.5 billion cubic meters of gas.

Thanks to the continual modernization and upgrade of infrastructure, Eustream contributes to ensuring safe and reliable gas supplies to Central and Western Europe whilst doing its utmost to reduce the environmental impact of its activities. In this respect, one of the main challenges we face is to cut carbon emissions produced at the four gas compressor stations we operate.

Eustream allows access to the gas transmission network and offers its customers a wide range of transmission services on a transparent and non-discriminatory basis. The access regime is in full compliance with existing legislation and gas industry standards. The business partners of Eustream include major energy companies from EU and non-EU member states.

Of course, with the Russian-Ukrainian gas crisis in January 2009, European gas history has had to be rewritten and also Eustream, in close co-operation with adjacent network operators, is currently reviewing gas flow directions and cross-border capacities in order to enhance further the security of gas supplies to Europe.

Eustream

WEBSITE	www.eustream.sk
CURRENT PUBLICATIONS	Annual reports
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	2,255 km
TOTAL COMPRESSOR POWER	700 MW
TOTAL TRANSPORTED ENERGY (in gas)	590 TWh / a
UNBUNDLING MODEL	ITO

Slovenia

Existing Gas Infrastructure	
NUMBER OF TSOs	1
TOTAL LENGTH OF TRANSMISSION NETWORK(S)	1.094 km
TOTAL COMPRESSOR POWER	16 MW
Inter-TSO connections where capacity is marketed (incl. upstream operators)	
PLINOVODI D.O.O.	– Murfeld / Ceršak - GAS CONNECT AUSTRIA – Rogatec - Plinacro (HR) – Gorizia / Šempeter - Snam Rete Gas (I)
LNG terminals	
	N/A
Storage facilities	
INTERCONNECTED DSOS	N/A
Production facilities	
INTERCONNECTED DSS	N/A
Directly connected customers	
PLINOVODI D.O.O.	– Total: 151 – Gas-fired power plants: 2
Distribution systems SOs and total number of DSOs in the country	
PLINOVODI D.O.O.	– Number of physical TS-DS connections: 107 – Number of DSOs: 16
PHYSICAL HUBS AND VIRTUAL TRADING POINTS	N/A
NUMBER OF BALANCING ZONES	1
Demand	
HISTORICAL ANNUAL GAS DEMAND OF THE NATIONAL MARKET (final customers)	2012: 9.140 TWh 2011: 9.556 TWh 2010: 11.057 TWh

Network Overview

Slovenian gas transmission system is connected through 3 interconnection points to the Austrian, Italian and Croatian gas transmission system. There is no interconnection between Slovenia and Hungary yet.

Regarding the importance of the gas infrastructure projects, from the viewpoint of the development of the national gas market, harmonization with international projects and safety updates, the system operator divides planned gas infrastructure into 4 groups:

– The first group are priority projects that represent the backbone of the Slovenian transmission system and without which it would not be possible to connect larger industrial consumers or thermo-energetic objects.

– The second group are projects for cross-border gas transmission, which are included in international projects for diversified supply of the European gas market from different production sources in Russia, the Middle East and from LNG terminals.

– The third and fourth group include new construction connecting the gas transmission system with new municipalities and other gas consumers, also including projects that are intended to locally increase the capacity of the transmission system and the security of supply.

Plinovodi d.o.o.

WEBSITE	www.plinovodi.si/
CURRENT PUBLICATIONS	N/A
TOTAL LENGTH OF THE TRANSMISSION NETWORK (this excludes distribution)	1,094 km
TOTAL COMPRESSOR POWER	16 MW
TOTAL TRANSPORTED ENERGY (in gas)	19.390 TWh/year 2012
UNBUNDLING MODEL	ITO

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