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Ukrainian gas market one year after reforms first results and new goals

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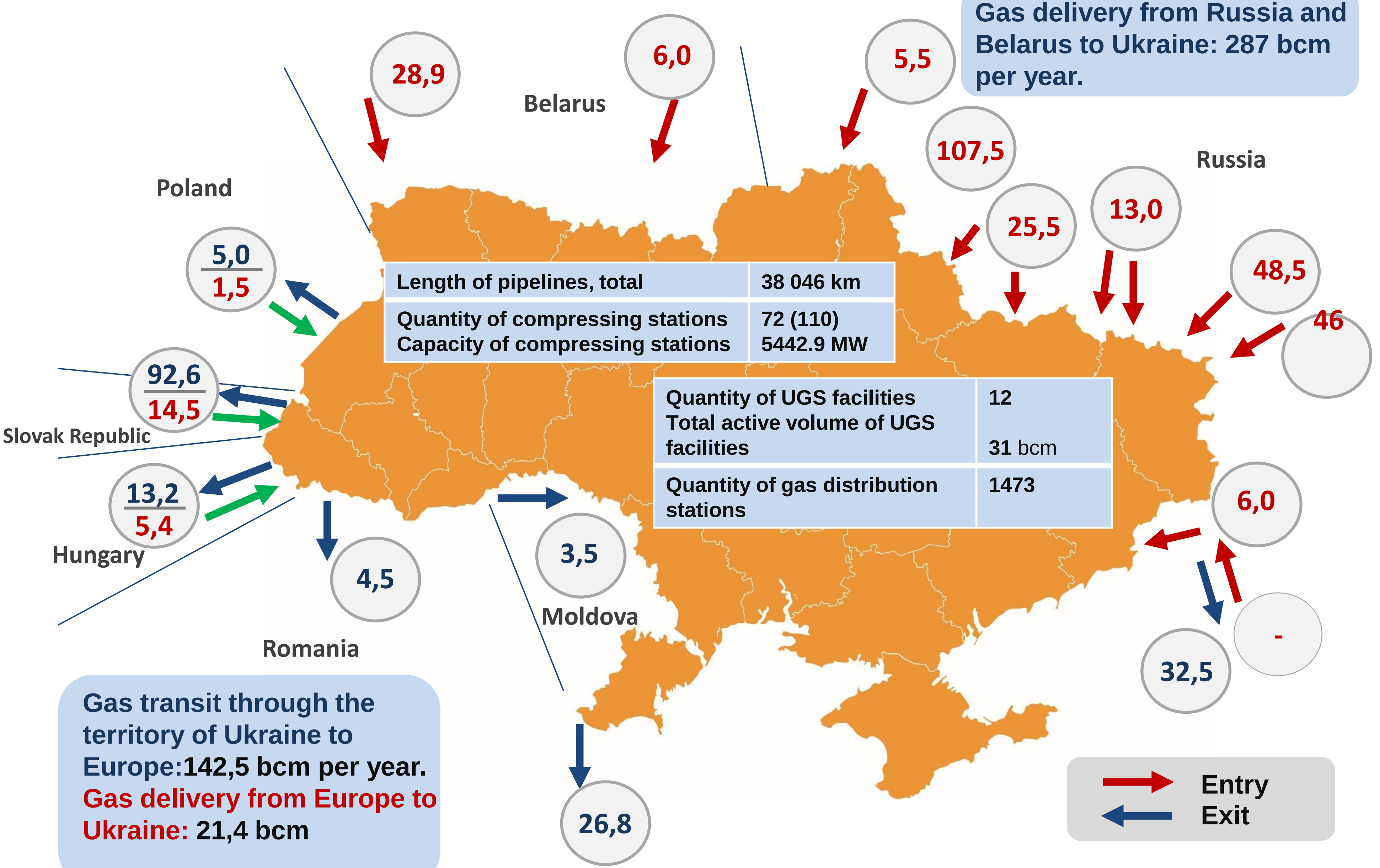
Technical characteristics of GTS and UGS facilities

Gas delivery from Russia and Belarus to Ukraine: 287 bcm per year.



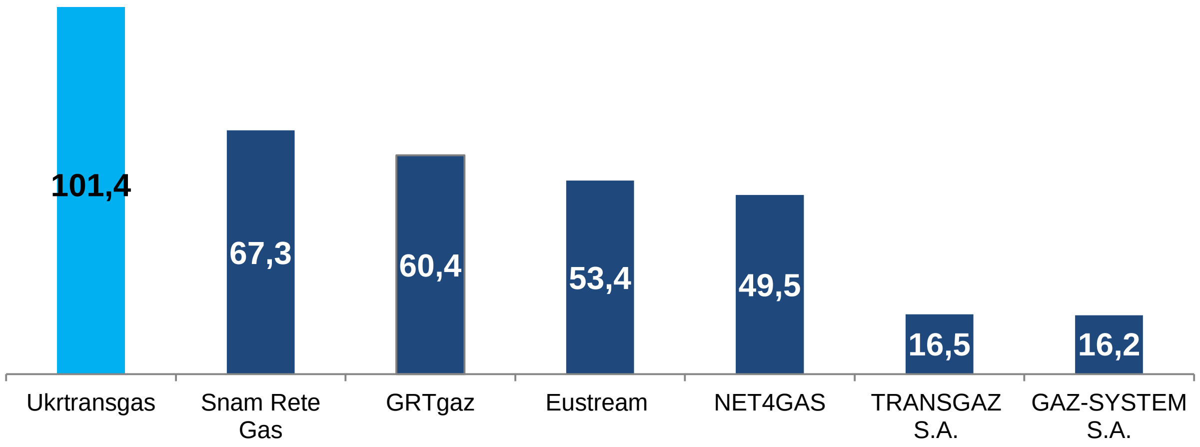
Length of pipelines, total	38 046 km
Quantity of compressing stations Capacity of compressing stations	72 (110) 5442.9 MW

Quantity of UGS facilities Total active volume of UGS facilities	12 31 bcm
Quantity of gas distribution stations	1473

Gas transit through the territory of Ukraine to Europe:142,5 bcm per year.
Gas delivery from Europe to Ukraine: 21,4 bcm

Peer-to-peer comparison

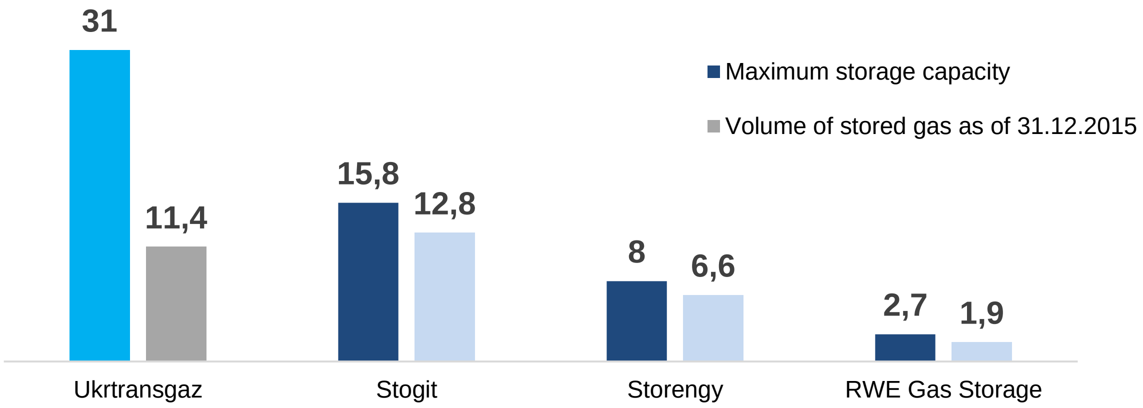
Transportation volume for 2015 (bcm)



**Snam Rete Gas – part of SNAM Group; GRTgas – part of Engie Group; Net4Gas – part of RWE Group*

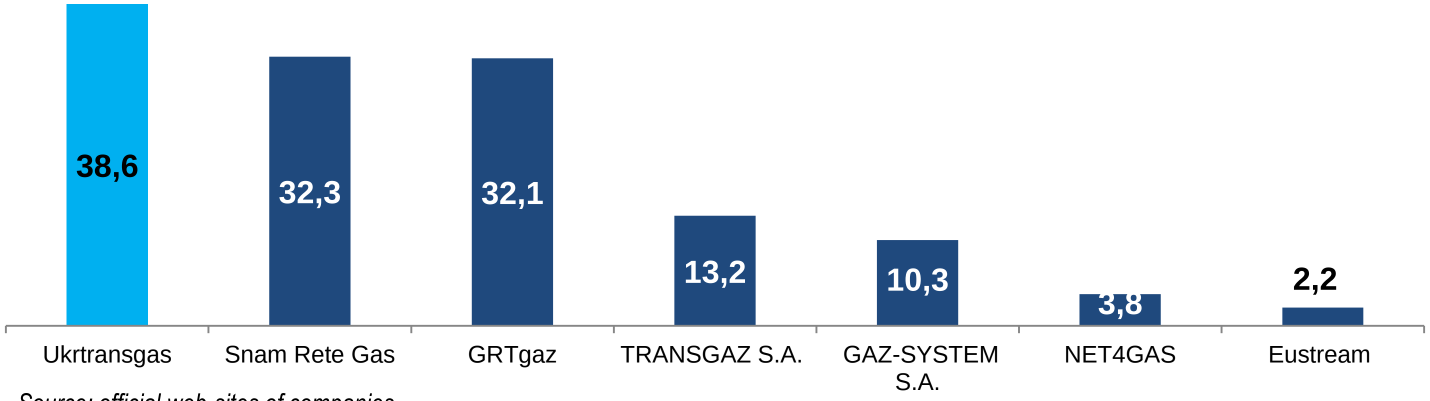
Source: ENTSOG, Naftogaz, official web-sites of companies

Storage volume at the end of 2015 (bcm)



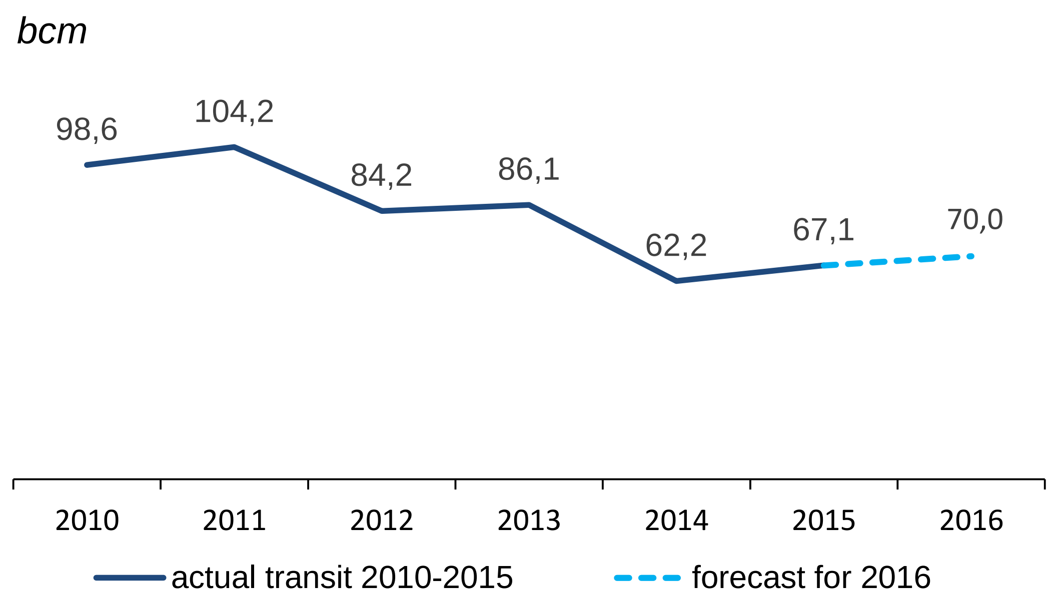
Source: GSE, Main activity – gas transportation

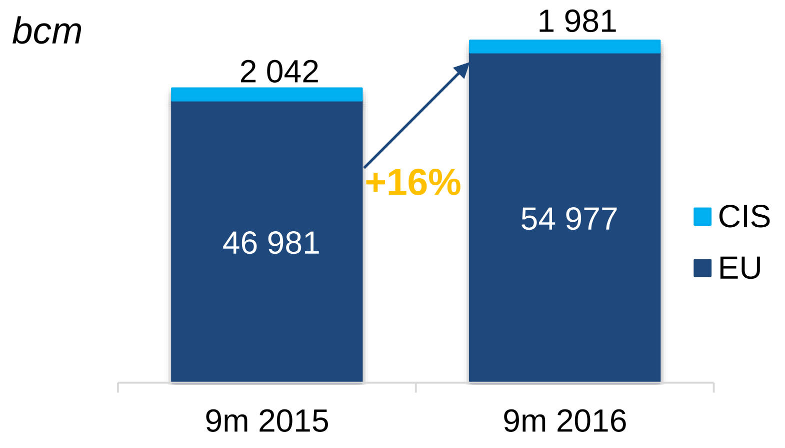
Length of pipelines, 2014 (thousands of km)



Source: official web-sites of companies

Natural gas transit through the territory of Ukraine





Russian gas accounted for 61% of EU pipeline imports in September*:

- It's the biggest since at least 2012. Total increase for nine months comparing to prior year – **14%**
- Gas receipts from Russia, Norway and North Africa in September– **21.3** bcm
- Transit to the EU via Ukraine – **6,6** bcm or **51%** of Russian flow to the EU. Average daily transit – nearly **221** mcm
- Total increase of transit to the EU via Ukraine for nine months comparing to prior year – nearly **17%**
- Transit flow to Slovakia and Poland posted year on year growth - nearly **22%** and **5%** respectively

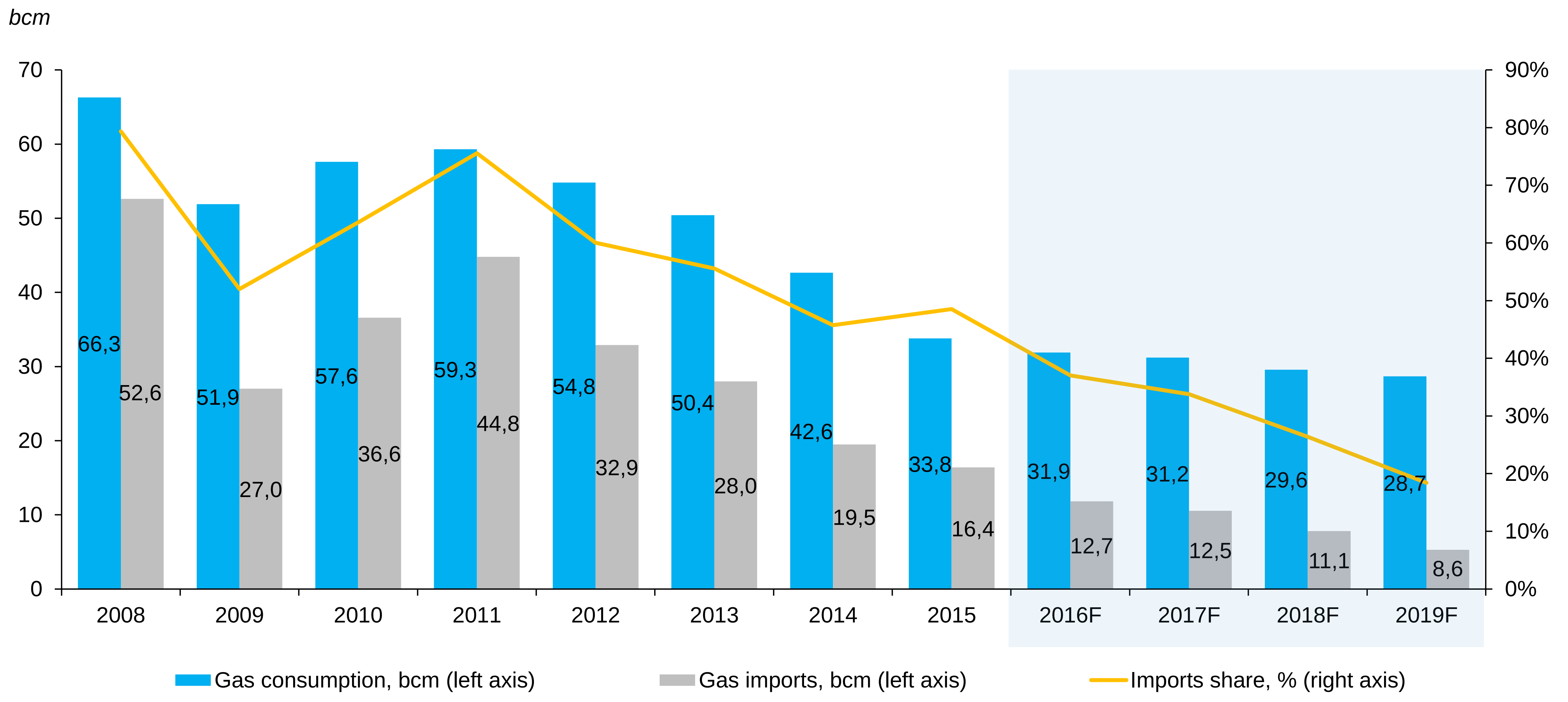
Main threats for CEE countries:

- Nord Stream - 2
- Turkish Stream

Source: Gas Balance in GTS of PJSC "UKRTRANSGAZ"

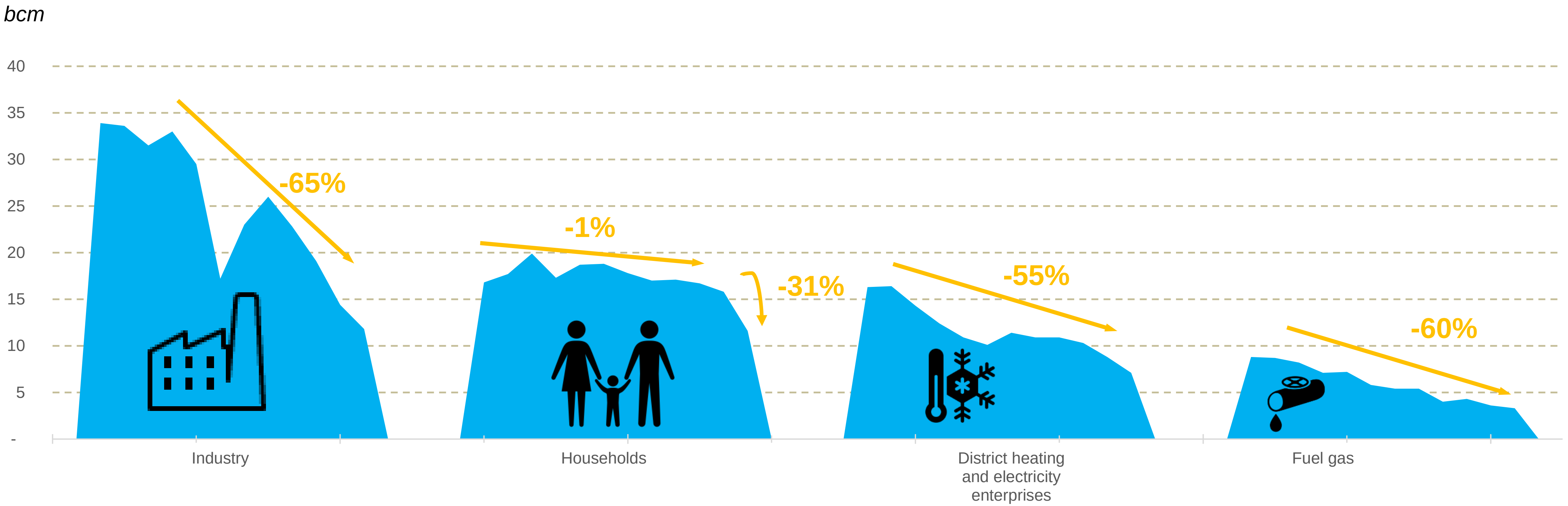
** ESGM 22.193 | 5 October 2016*

Natural gas consumption and imports in Ukraine



Notes: data for 2015-2019 does not include consumption on the temporarily occupied territory of Ukraine

Natural gas consumption dynamics in Ukraine, 2004 - 2015



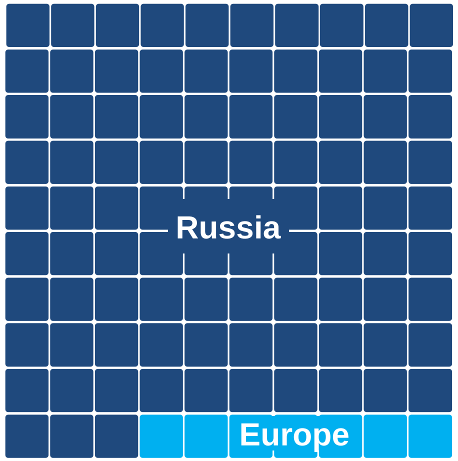
Factors of consumption reduction:

- Increase of gas price
- RF aggression at the East & occupation of Crimea
- Deterioration of economic environment => decrease of industry production
- Natural condition: temperature in heating season
- Regulatory factor (change in standard consumption rates for householders without heat meters)

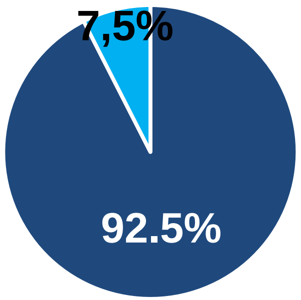
Further reduction of gas consumption is possible due to energy efficiency measurements in commercial and residential sectors.

Structure of imports to Ukraine

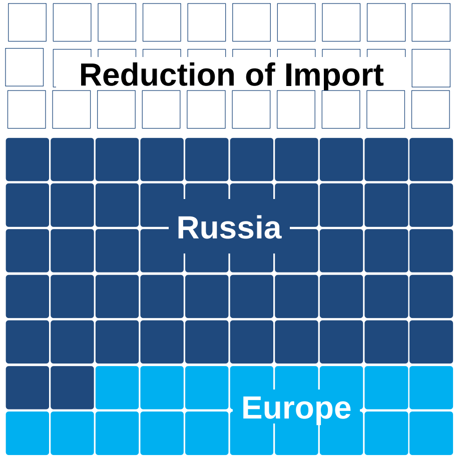
2013



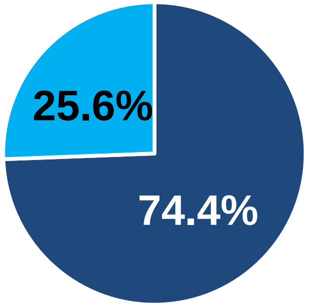
TOTAL	**27.9 bcm**
from Europe	2.1 bcm
from Russia	25.8 bcm



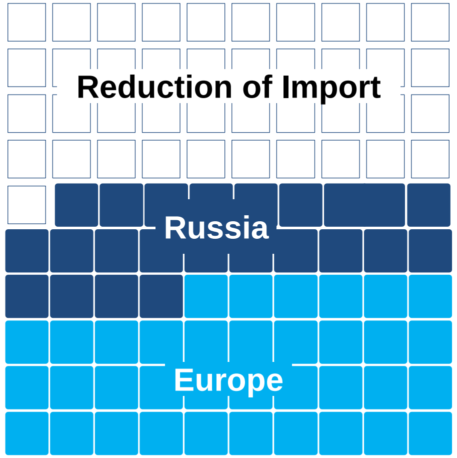
2014



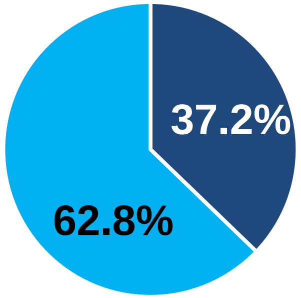
TOTAL	**19.5 bcm**
from Europe	5.0 bcm
from Russia	14.5 bcm



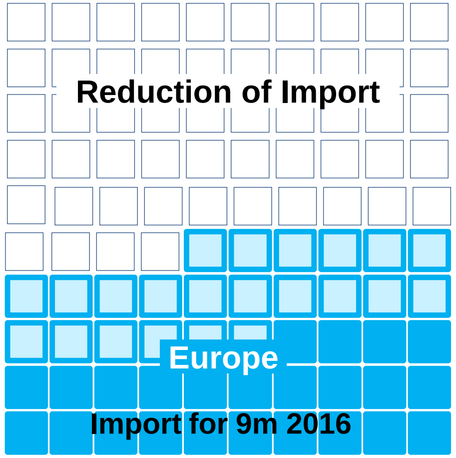
2015



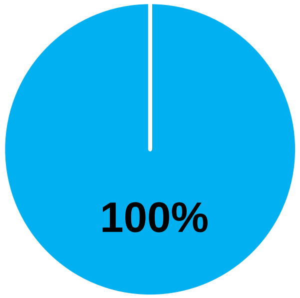
TOTAL	**16.4 bcm**
from Europe	10.3 bcm
from Russia	6.1 bcm



2016 (forecast)

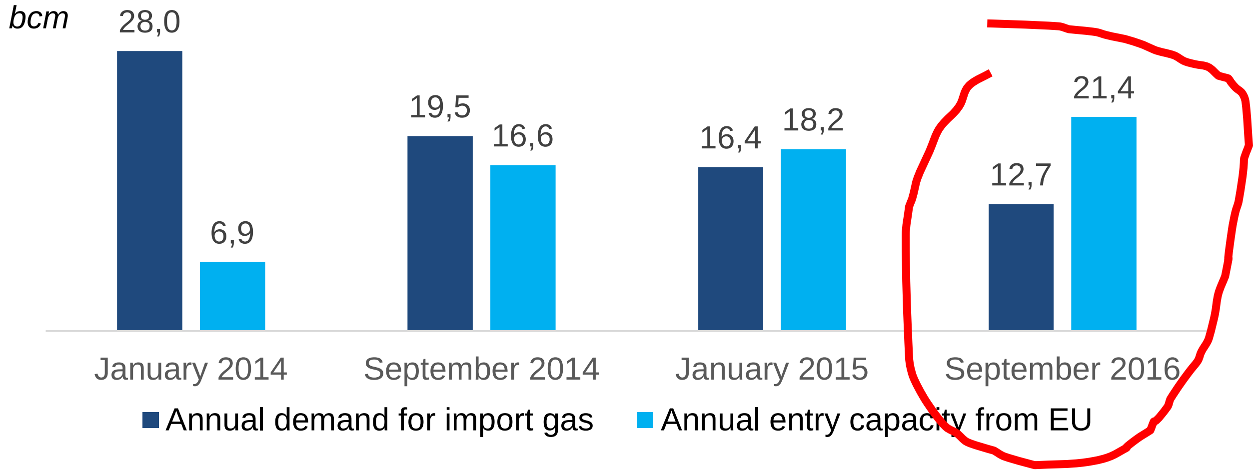


TOTAL	**12.7 bcm**
from Europe	12.7 bcm
from Russia	0 bcm



Utilization of entry capacities to Ukraine at EU border

Annual capacity at EU borders vs Annual demand of import gas



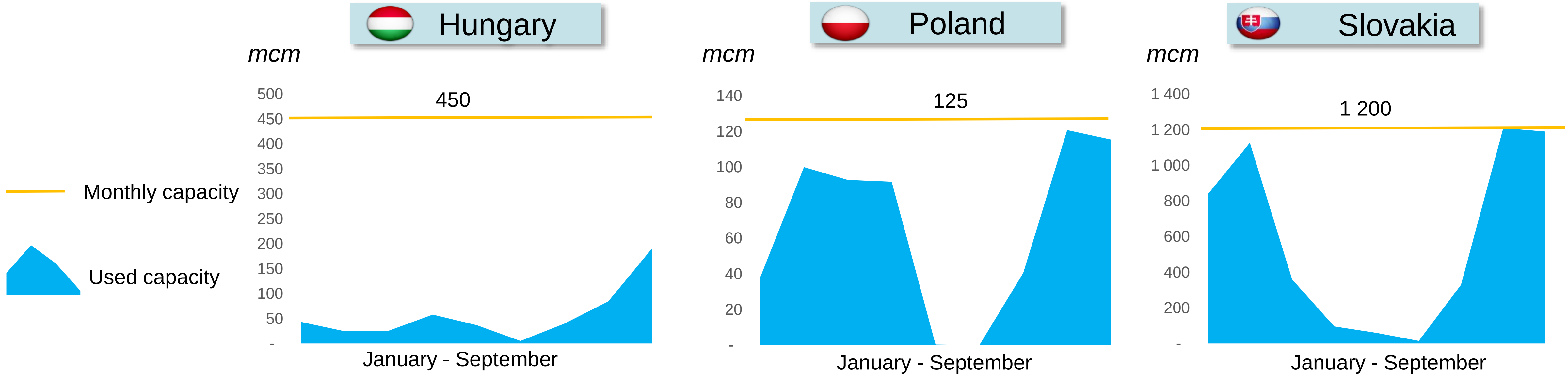
Total possible capacity to EU neighboring countries

bcm / year

EU country	Physical capacity	Virtual capacity*	Utilization of exit capacity from Ukraine to EU country
Poland	1,5	3,7	74%
Hungary	5,4	5,9	45%
Slovakia	14,5	37,7	41%
Total	**21,4**	**47,3**	

*Notes: * estimates based on actual physical gas flows from Ukraine to Poland, Hungary, Slovakia in 2015*

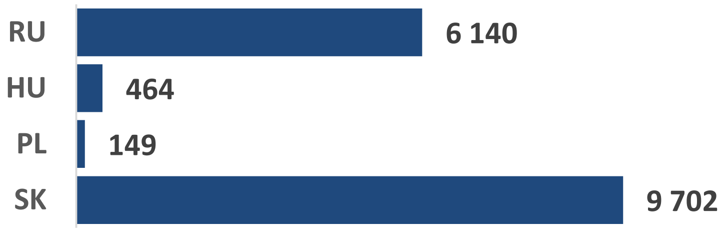
Capacity utilization of physical capacity at EU borders



Structure of imports to Ukraine

Import of natural gas to Ukraine, mcm

12 months 2015

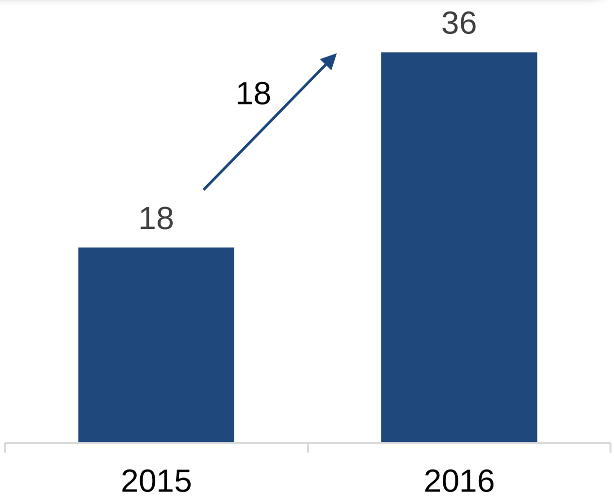


TOTAL 16 455 mcm

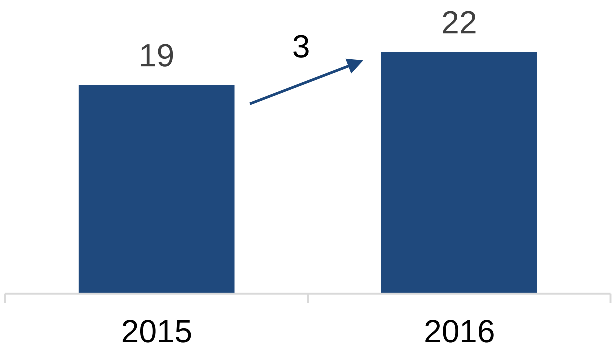
9 months 2016

TOTAL 6 327 mcm

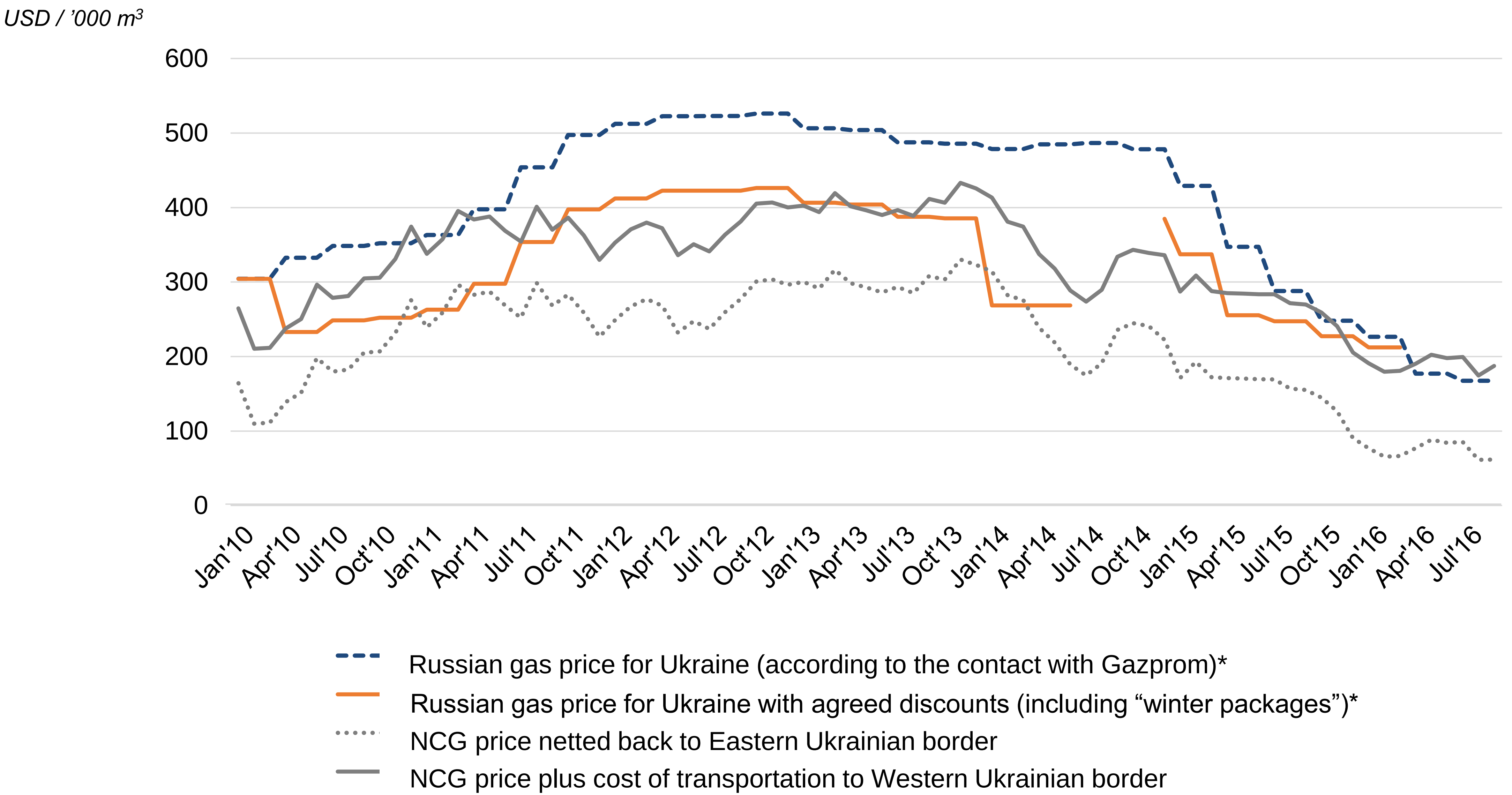
Number of counterparties for importers



Number of importers at EU borders



Russian gas price for Naftogaz and market prices



Source: Bloomberg. Energy conversion for NCG as 1 tcm = 10,41 MWh (GCV) - for calorific parity with Gazprom's price for Naftogaz

** – Gazprom’s price for Naftogaz doesn’t include transportation cost of entry to Ukraine (USD 12,47/1000 m³)*

Market liberalization: ultimate goal until 2018

Key milestones achieved on the way to the open and integrated market

2015: Increase of physical reverse flow form EU by 20% and now amounts 20 bcm/y => entry capacities at the western border exceed import needs

Apr ’15: Adoption of the primary legislation which compliant with the Third Energy Package

Oct ’15: Implementation of OECD Principles for state-owned enterprises is launched at Naftogaz. Independent Supervisory Board in place.

Oct ’15: Ukrtransgaz offered to private companies capacities at cross-border points to import gas from Europe

Nov – Dec’15: Adoption of the secondary legislation which is compliant with the Third Energy Package (Network Codes (CAM, CMP, INT), Rules of Supply, tariffs, Security of supply rules and action plan, etc.)

Nov ’15: Naftogaz ceased gas imports from RF => procurement of 100% of imported gas from the EU

May ’16 Gas price increase in 4 times for households, district heating and budget organizations. Goal pursued => import parity price.

Jul ’16: Adoption of the plan of unbundling of the TSO from the incumbent “Naftogaz”

Nov ’16: Plans to decrease security gas stock from 50% to 10%

Market liberalization: ultimate goal until 2018

To be achieved

Q4 ’16 - Q1 ’17: New law on the independent Regulator (EU complaint)

Q1-Q2 ’17: Complete the unbundling of the TSO & certification

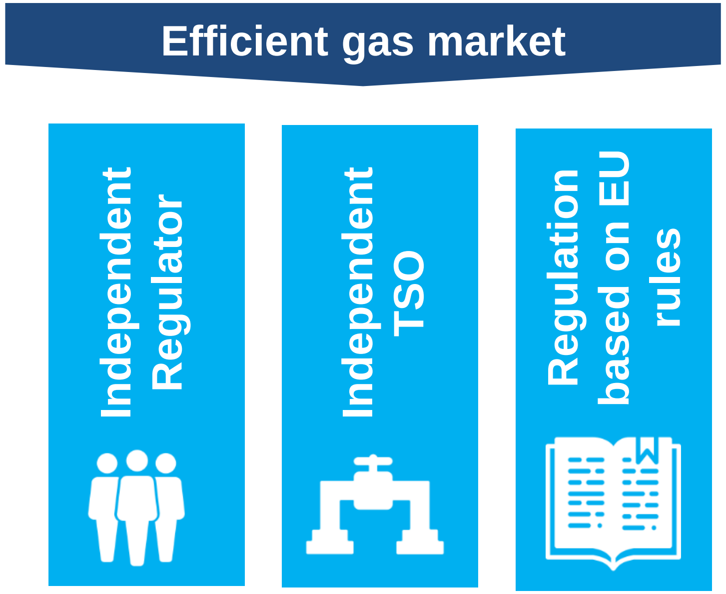
Q2 ’17: Free market gas pricing for all customers of natural gas

Q1-Q3 ’17: Bring relations with Gazprom to the EU market standards via negotiations or Stockholm arbitration procedure

Q2 ’17: Improvement of secondary legislation, including transition from monthly balancing to daily balancing. Opening of a daily balancing market

Q1-Q3 ’17: Transition from m3 to energy measurement units - kWh

Jan ’20: Decrease total import needs to 0-5 bcm/y due to increase of local production & energy efficiency measurements



New opportunities for Western shippers

1. Open gas market for industry segment

- nearly **11 bcm/y**, Naftogaz's share – only 7%
- since Q2 2017 open gas market for all consumers of natural gas => **33,8 bcm/y**

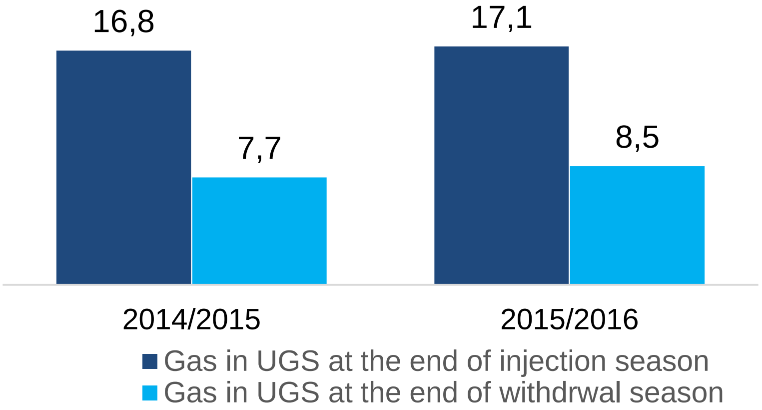
2. Short-haul services

- transportation services between **PL, SK, HU, RO** via Ukraine
- transportation services from border to UGS and vise verse

1200 km vs 60 km

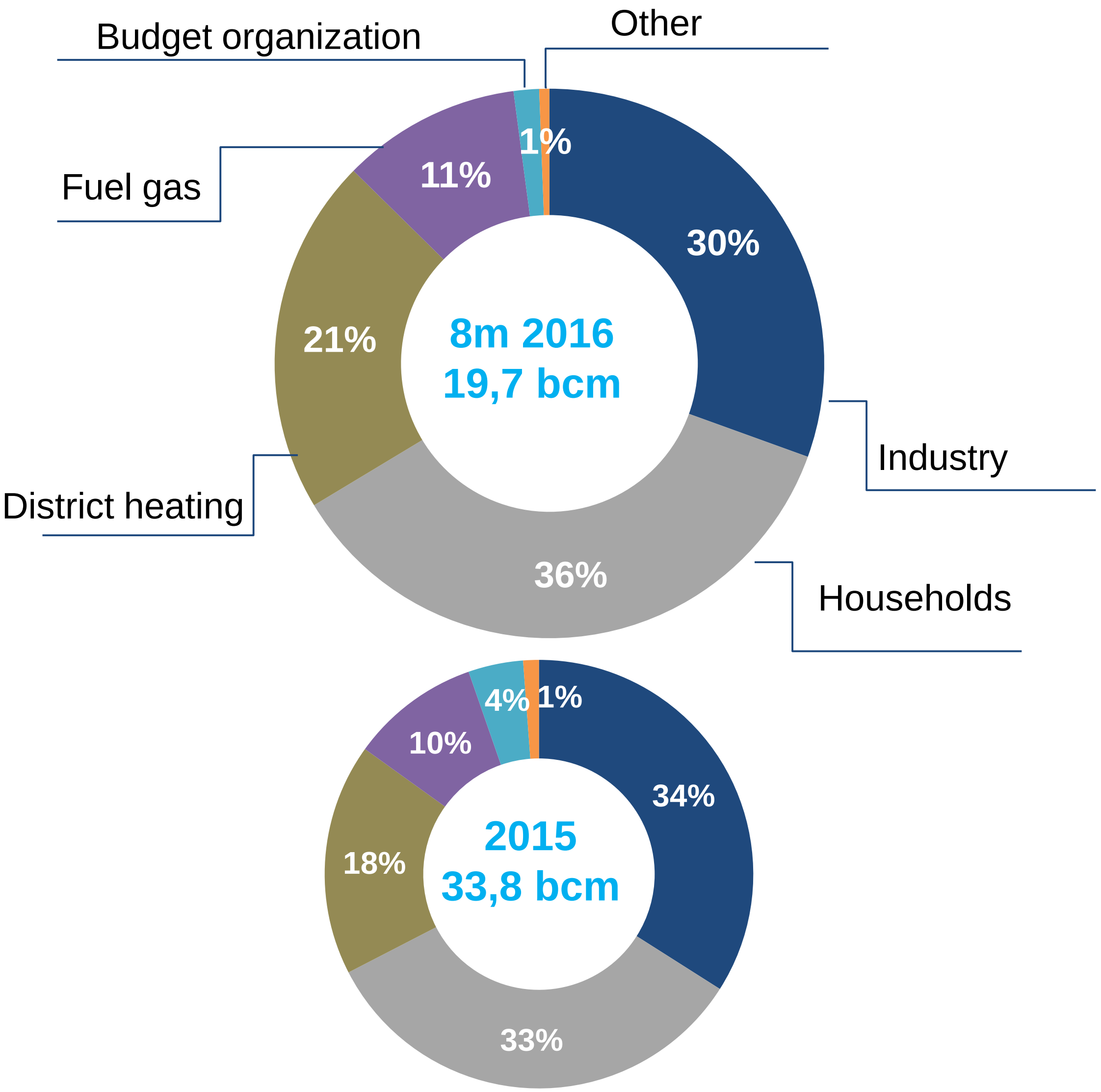
3. Huge available storage capacity

- as for now storages are filled at **46%** (14,4 bcm/30,8 bcm)

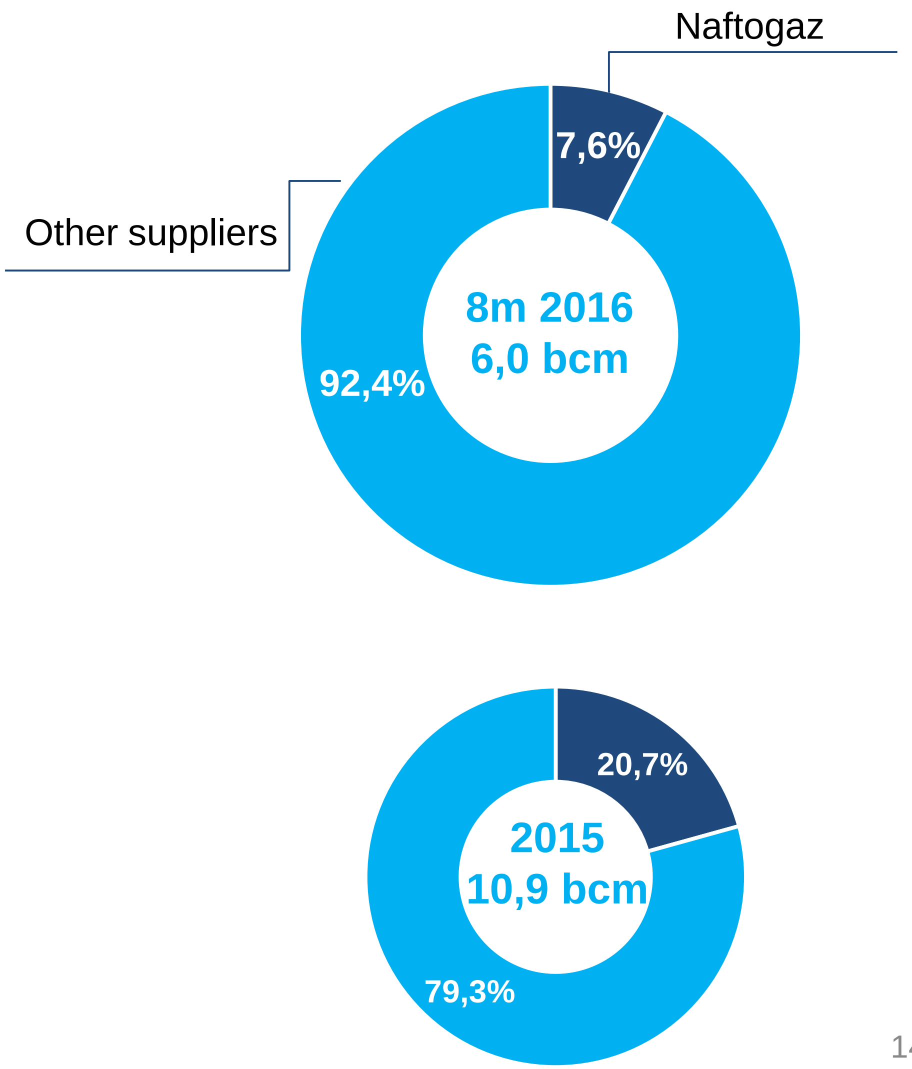


Naftogaz’s share in the non-regulated segment

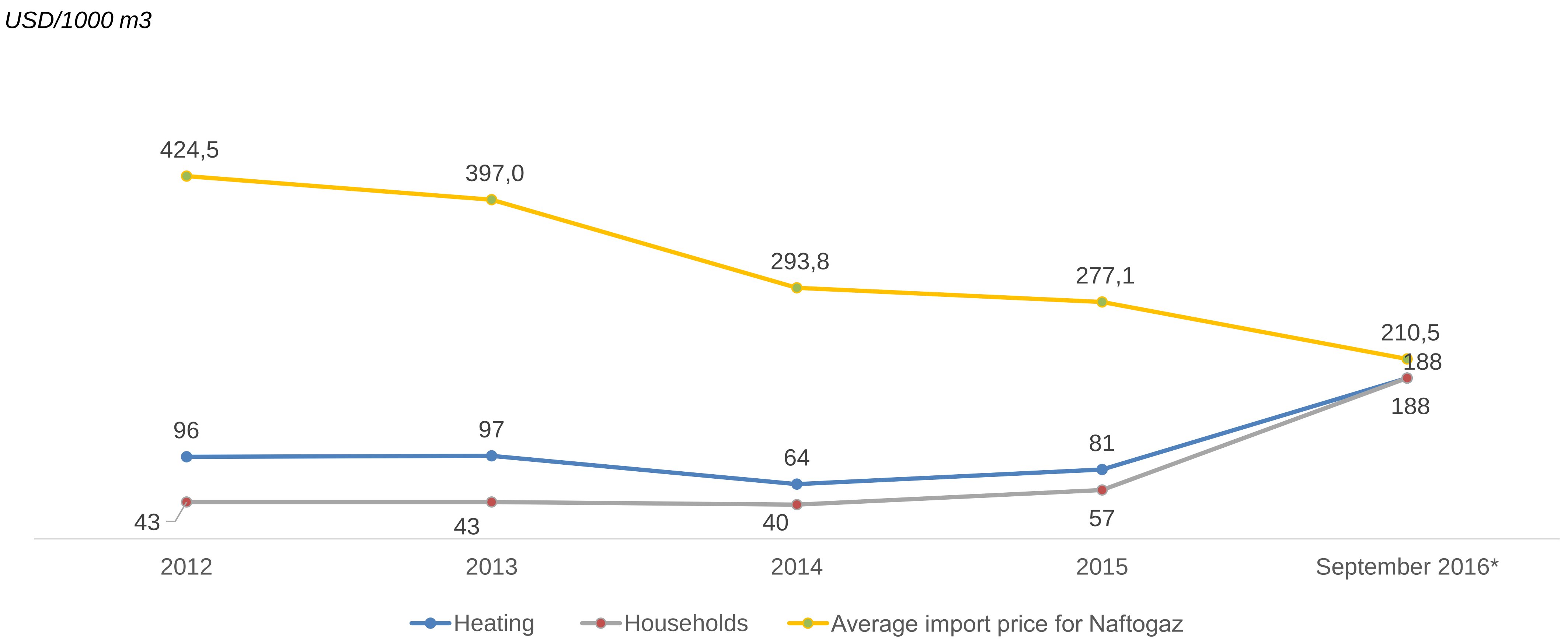
Structure of consumption



Naftogaz’s share in industry consumption



Natural gas price for Naftogaz and Ukrainian population



Average import price include entry tariff to Ukrainian GTS (12 USD/1000 m3)

**Average import price for September is equal to the average import price for 1Q 2016 (there was not import of natural gas in 2Q, for 3Q information is not available as for now)*

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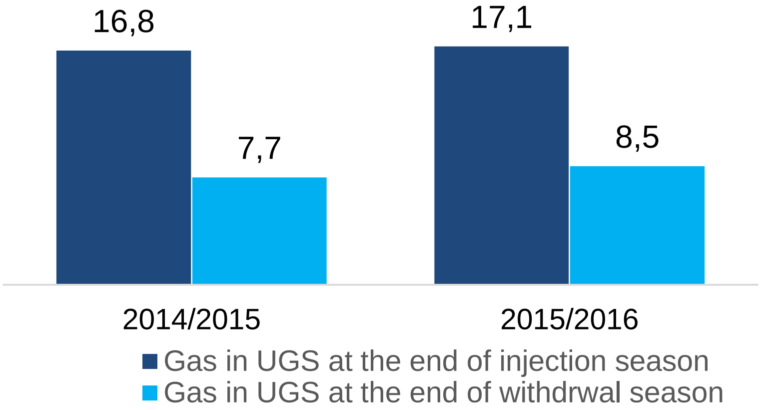
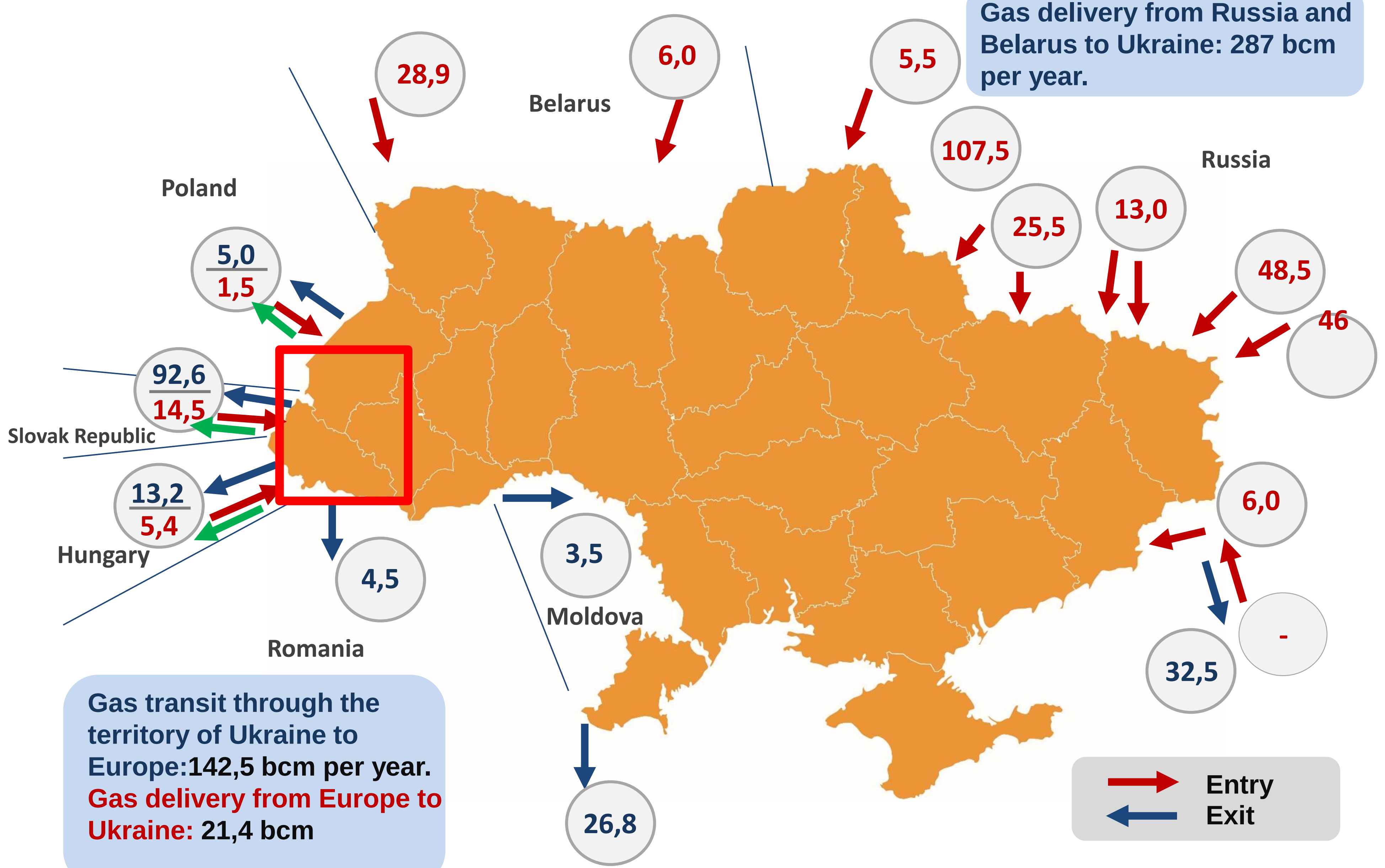


Interconnections of Ukraine

Gas delivery from Russia and Belarus to Ukraine: 287 bcm per year.



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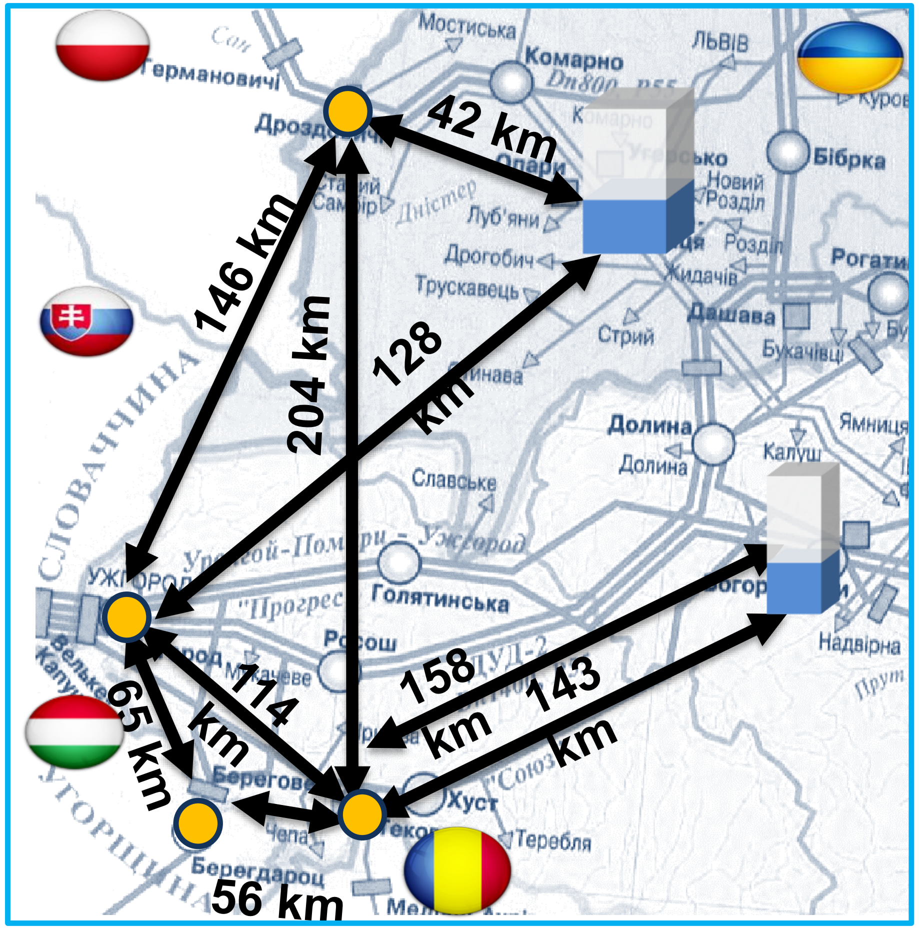
Short-haul routes under assessment



- HU-SK 65 km
- HU-RO 56 km
- PL-SK 146 km
- PL-RO 204 km
- PL-HU 191 km
- SK-RO 96 km

- PL – UGS 42 km
- SK – UGS 128 km
- HU – UGS 158 km
- RO - UGS 143 km

New opportunities for Western shippers

Trans-Balkan Pipeline

- GR-BG-RO-UA
- Capacities available at T-1 pipeline (~2 bcm)
- Reverse flow will be available soon
- Bi-directional from 2019 (up to 5.3 bcm)
- Technically UTG can execute bi-directional flow between Western borders (SK, PL, HU) and Southern borders (RO, BG*, GR*, TR*) up to 20 bcm

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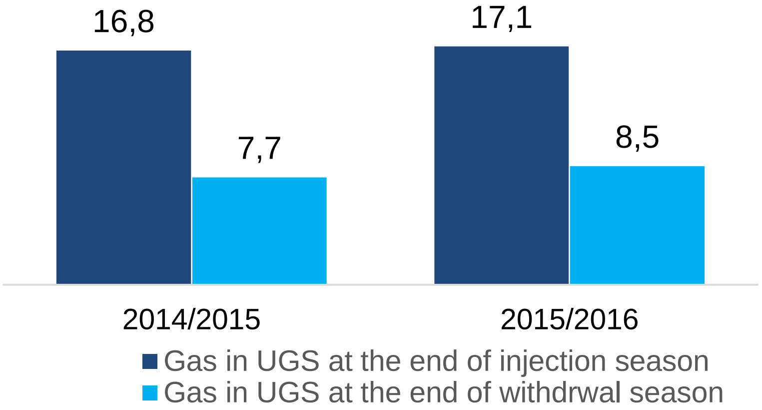
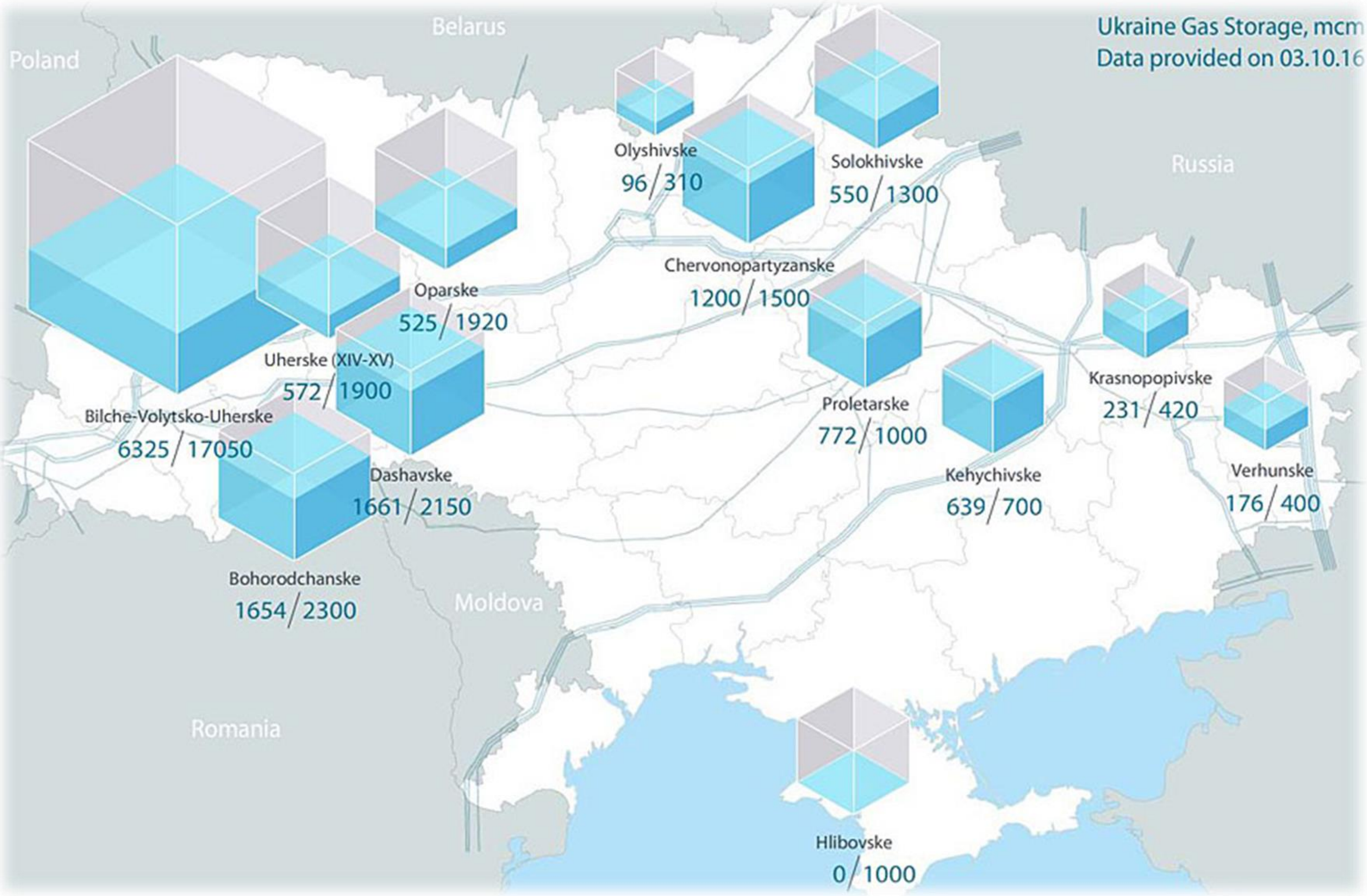


Underground gas storages



30.8bcm

technical capacity

260mln|day

max withdrawal rate

252mln|day

max injection rate

NATIONAL JOINT-STOCK COMPANY NAFTOGAZ OF UKRAINE

Thank you very much for your attention!