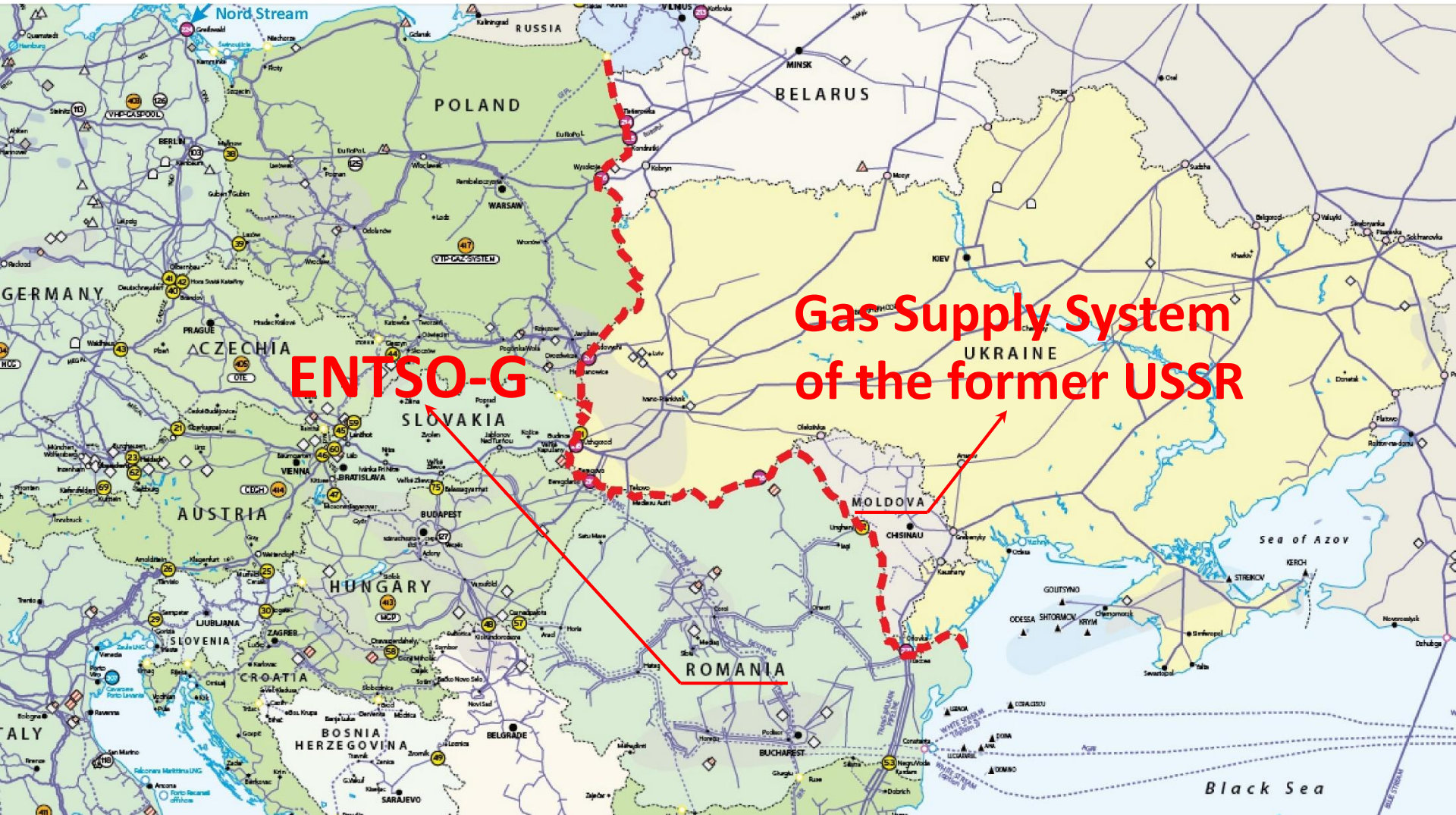


**INTERCONNECTION OF GAS TRANSMISSION SYSTEMS  
BETWEEN ROMANIA AND REPUBLIC OF MOLDOVA:  
CHALLENGES AND PERSPECTIVES**

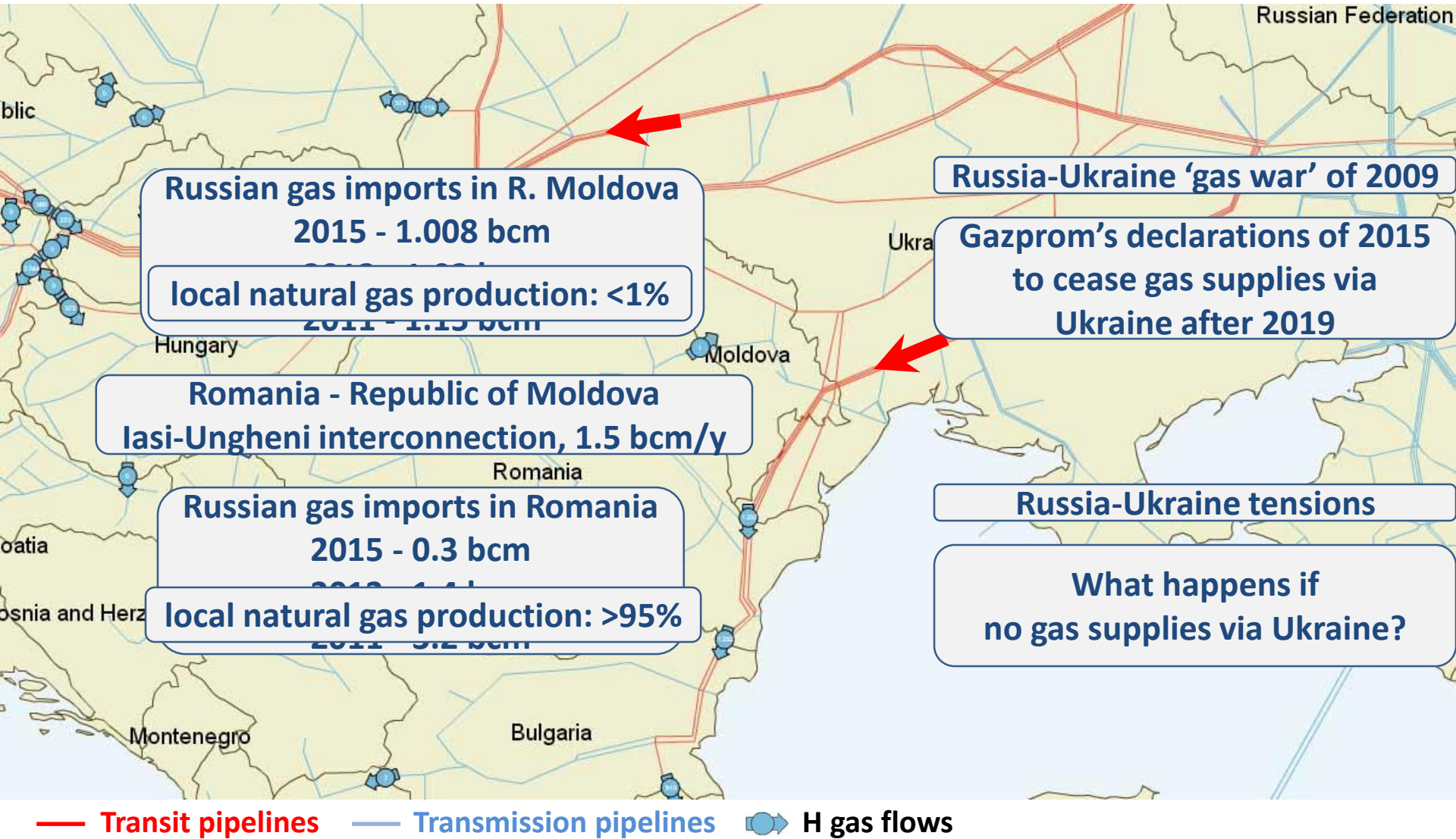
Natalia TIMOFTE, MSc (UK)  
Energy Institute of the Academy of Sciences of Moldova

## Romania and the Republic of Moldova: regional gas transportation systems



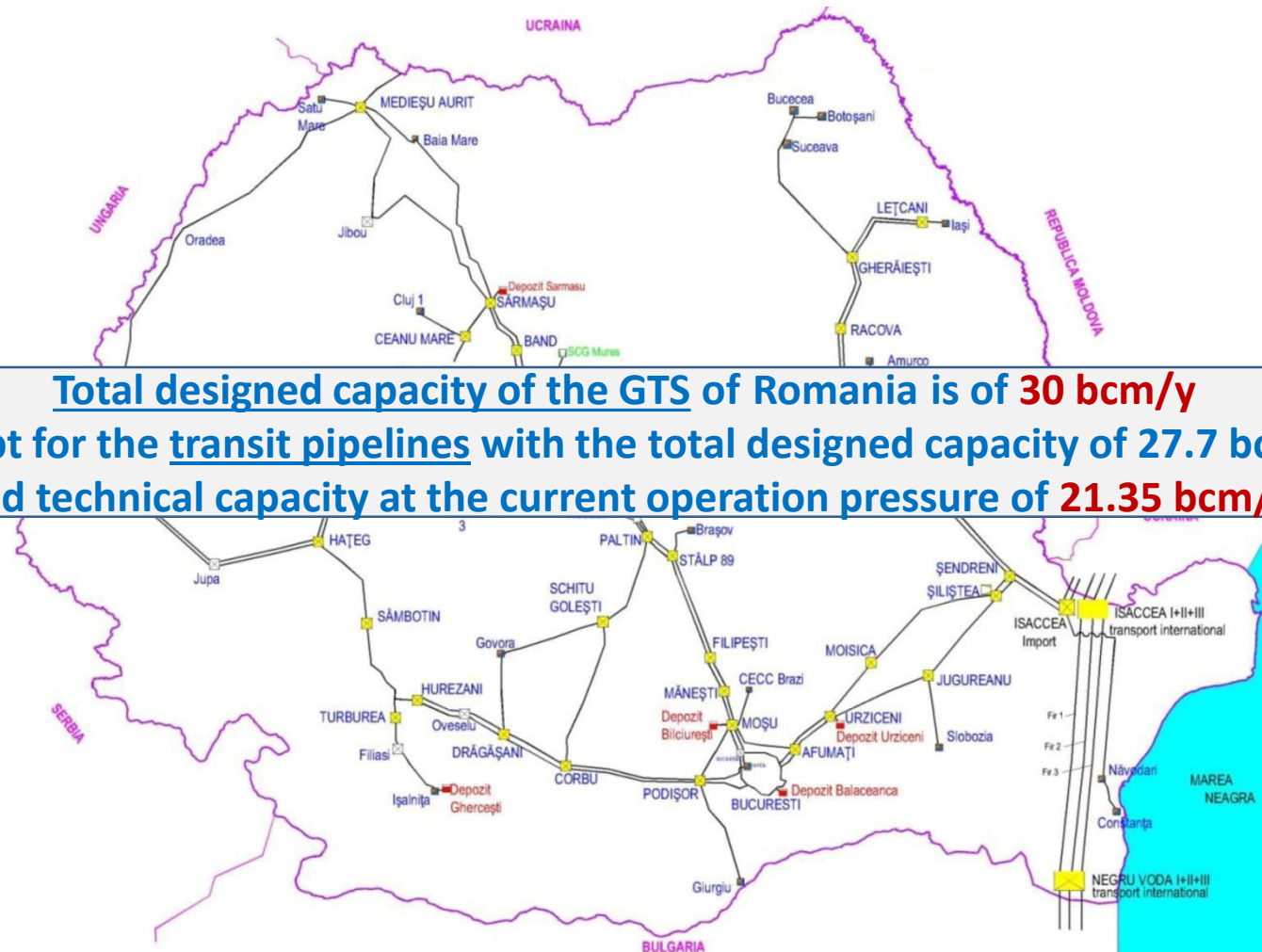
**Ukraine is observer in ENTSO-G**

## Romania and the Republic of Moldova: regional gas transportation flows





## Gas transportation system (GTS) of Romania



**Total designed capacity of the GTS of Romania is of 30 bcm/y except for the transit pipelines with the total designed capacity of 27.7 bcm/y and technical capacity at the current operation pressure of 21.35 bcm/y**

## Cross-border interconnections of the Romanian GTS

Interconnections (10) of the GTS of Romania with neighbor countries:

Import Transit Export:

Tekovo (UA)-Medieșu Aurit (RO):  
Dn=700 mm,  
capacity=4.0 bcm/y

1 with R. Moldova: Iași (export)

Iași (RO)-Ungheni (MD):  
Dn=500 mm,  
capacity=1.5 bcm/y

5 with Ukraine: 4 at Isaccea (Isaccea import and Isaccea I-III transit)  
1 at Medieșu Aurit (import)

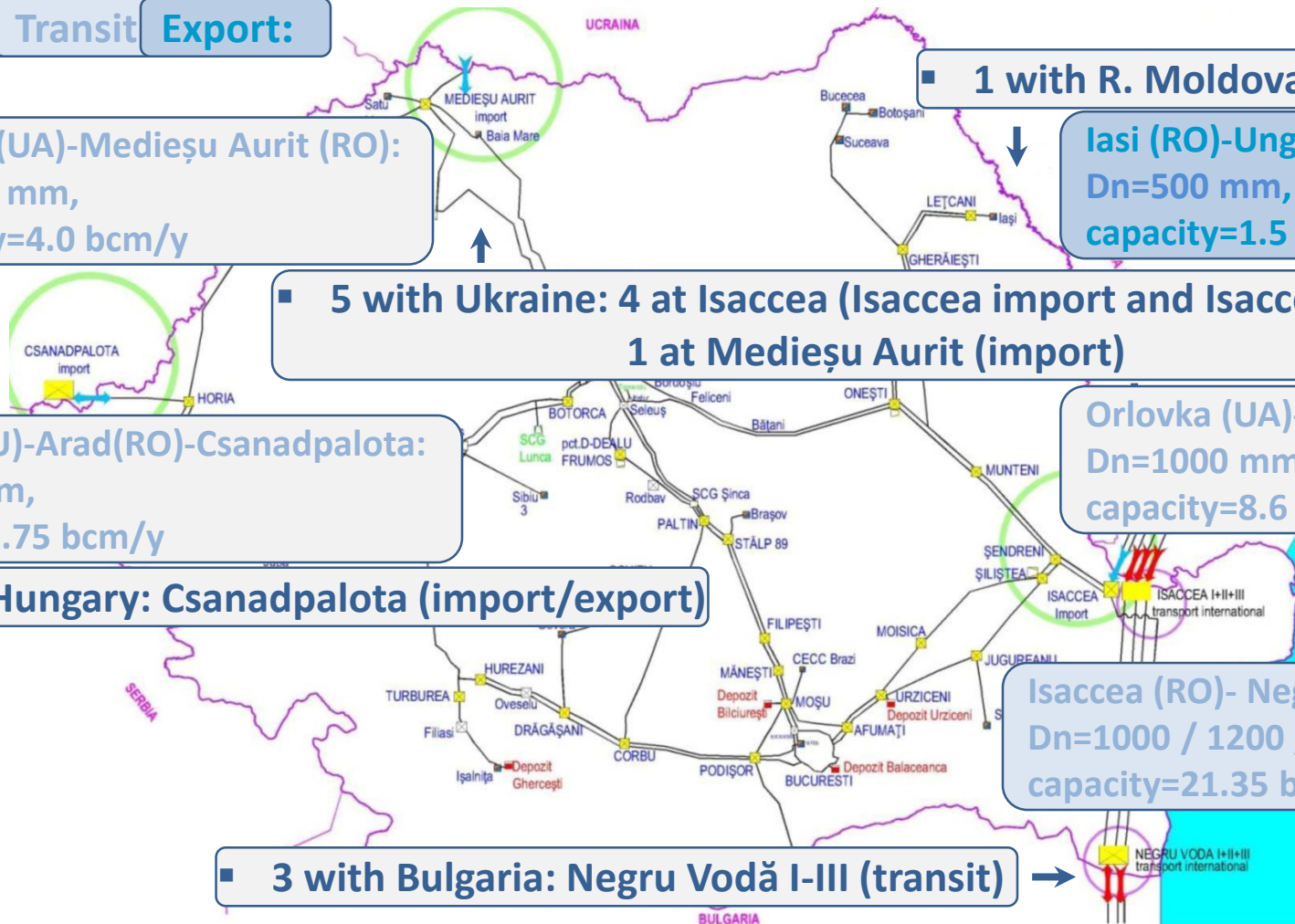
Orlovka (UA)-Isaccea (RO):  
Dn=1000 mm,  
capacity=8.6 bcm/y

Szeged (HU)-Arad(RO)-Csanadpalota:  
Dn=700 mm,  
capacity=1.75 bcm/y

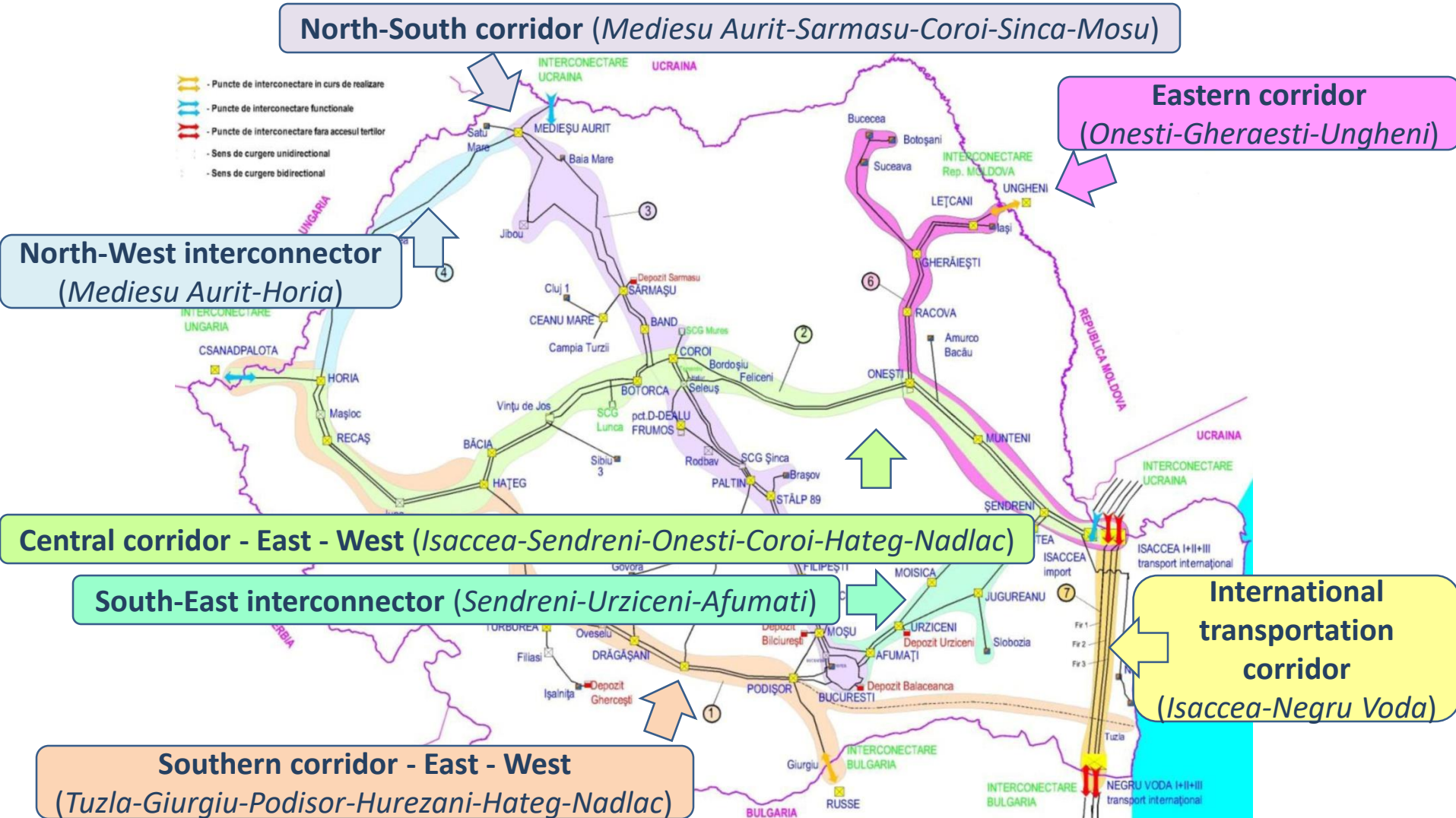
1 with Hungary: Csanadpalota (import/export)

Isaccea (RO)- Negru Vodă (BG):  
Dn=1000 / 1200 / 1200 mm,  
capacity=21.35 bcm/y

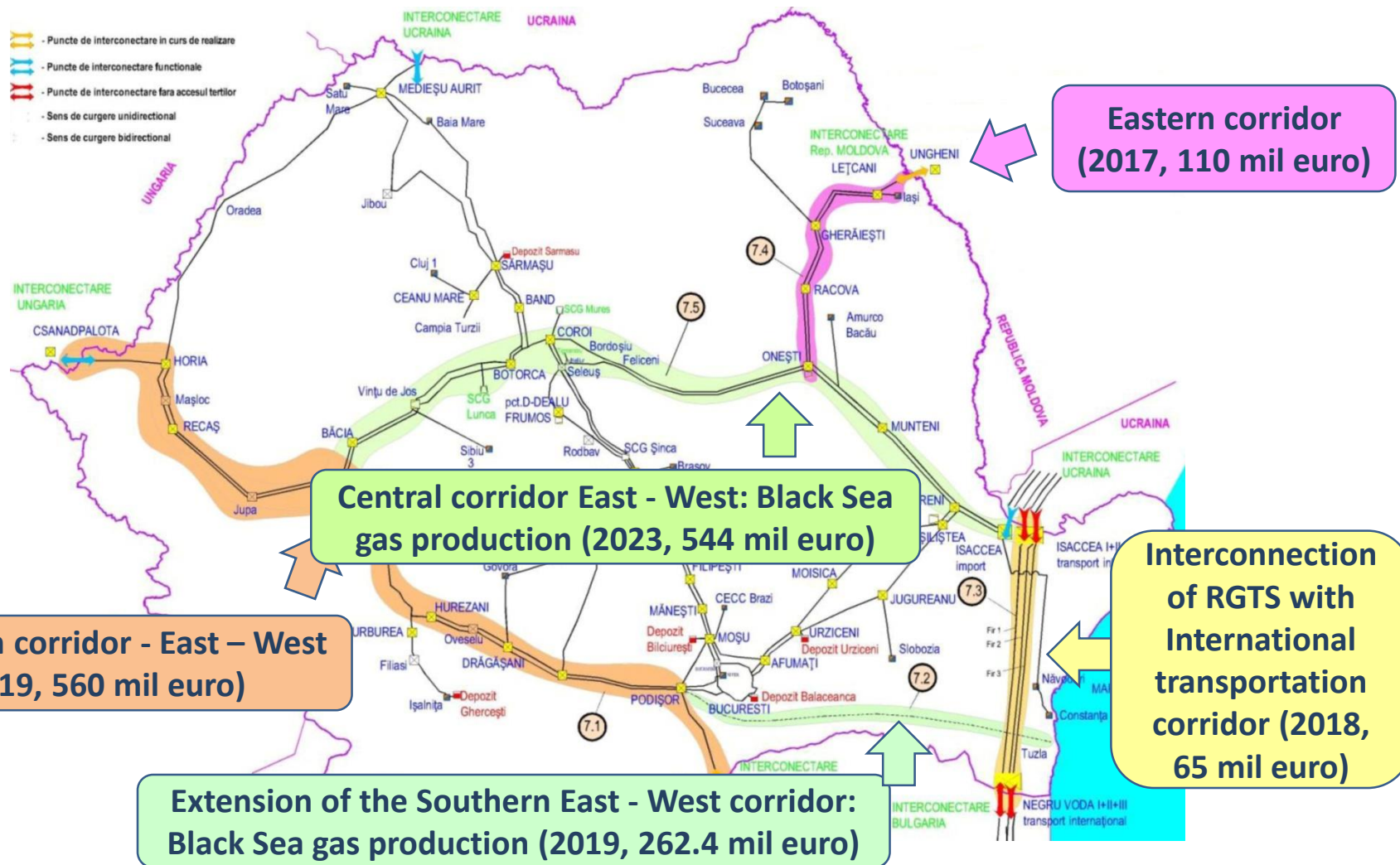
3 with Bulgaria: Negru Vodă I-III (transit)



## Main transportation routes of the Romanian GTS



## Romanian GTs: major development projects









## Gas transportation system of the Republic of Moldova



Ananiev-Cernăuți-Bogorodcianî (ACB), D 1020 mm

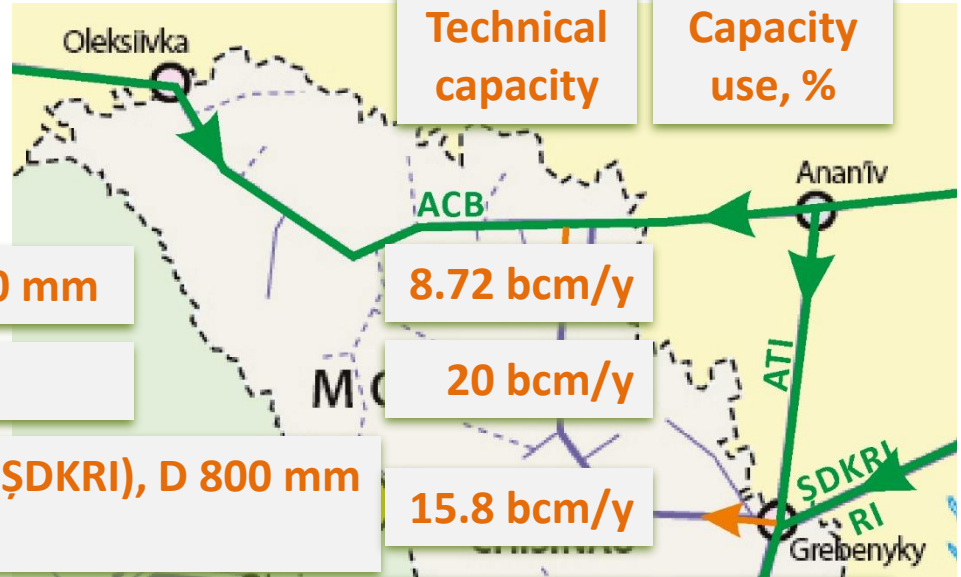
Ananiev-Tiraspol-Ismail (ATI), D 1200 mm

Șebelinca-Dnepropetrovsk-Krivoi Rog-Ismail (ȘDKRI), D 800 mm

Razdelnaia-Ismail (RI), D 800 mm

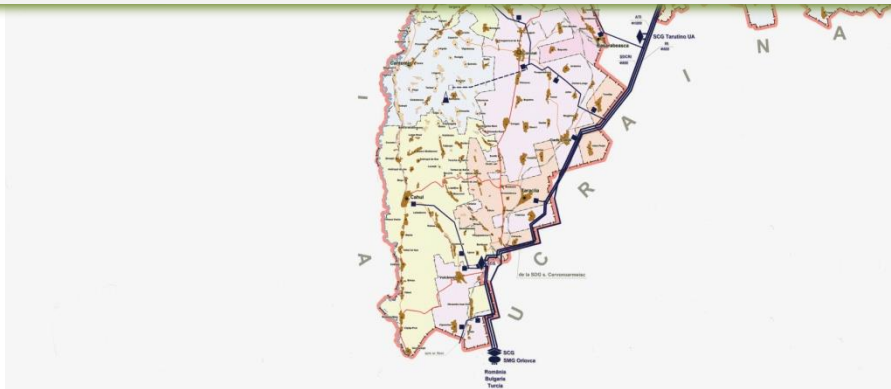
Total via Ukraine

Iași-Ungheni (România), D 1020 mm



44.5 bcm/y about 50

1.5 bcm/y <1











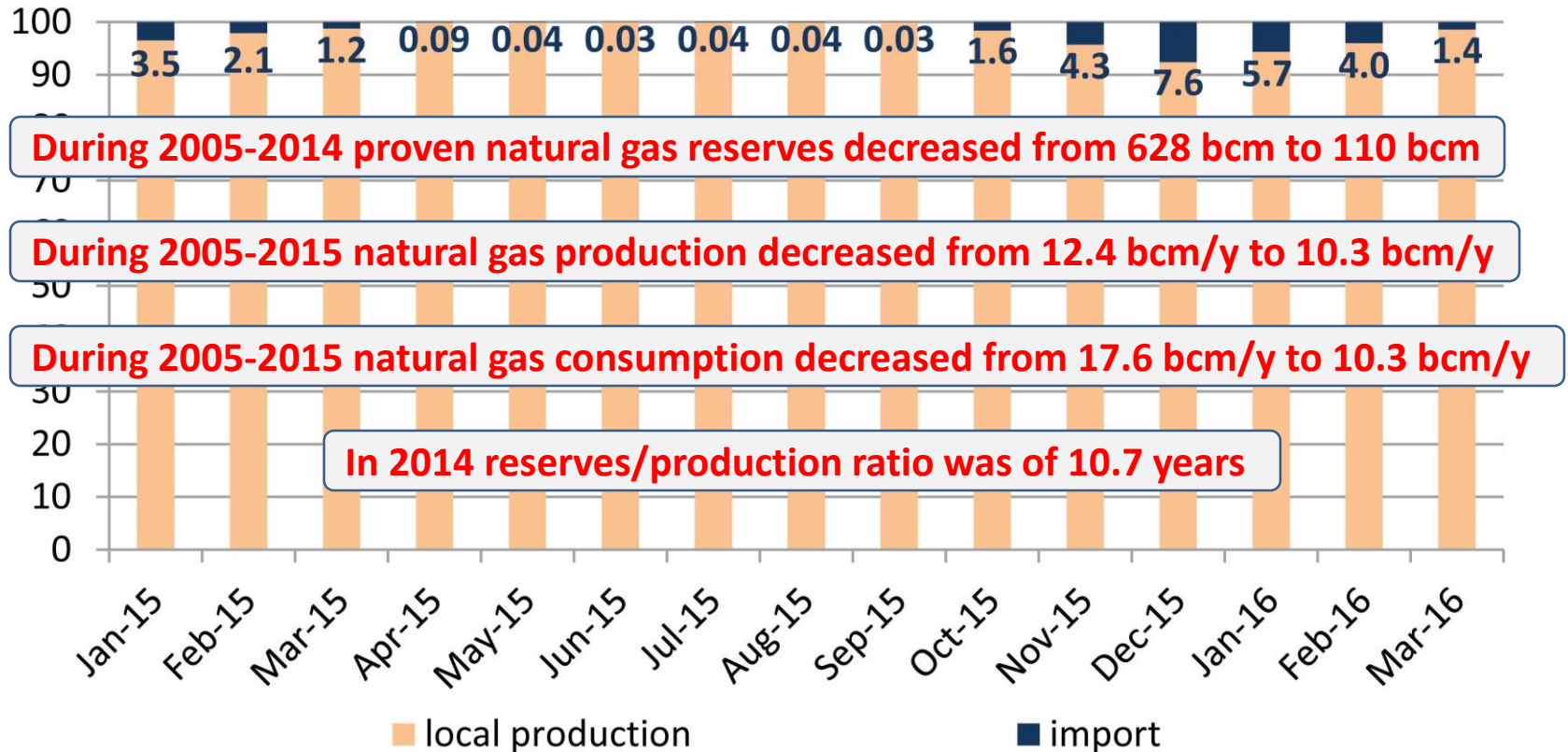
## **Gas market of Romania**

**Romania has the largest natural gas market in the Central Europe**

Structural and institutional reform of the energy and natural gas markets in Romania started after 1989 and resulted in:

- separation of the production, underground storage, transportation and distribution;
- decreased concentration of the natural gas production and import through issuing licenses and authorisations to the increasing number of companies;
- regulation of the non-discriminatory third parties access to the transportation system;
- creation of the national regulatory authority in the filed (in the year 2000);
- gradual liberalisation since 2001 of the natural gas market:
  - 01/01/2007 – full market opening for non-household consumers
  - 01/07/2007 – full market opening for all consumers;
- creation of the centralised natural gas market (year 2013);
- adjustment of the national legislative and regulatory framework to the EU requirements

## Gas market of Romania: natural gas sources (current and underground storage), %



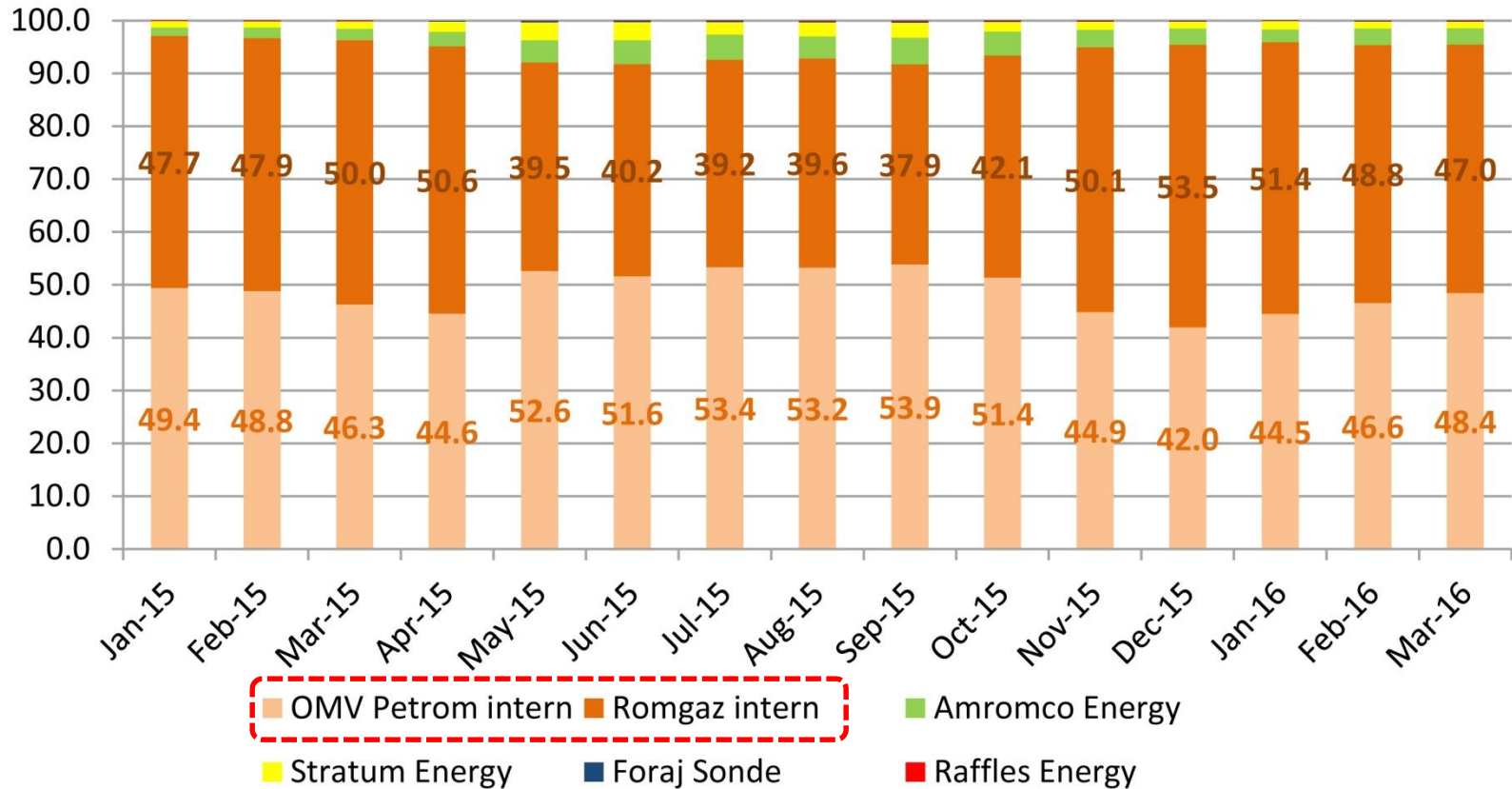
During 2005-2014 proven natural gas reserves decreased from 628 bcm to 110 bcm

During 2005-2015 natural gas production decreased from 12.4 bcm/y to 10.3 bcm/y

During 2005-2015 natural gas consumption decreased from 17.6 bcm/y to 10.3 bcm/y

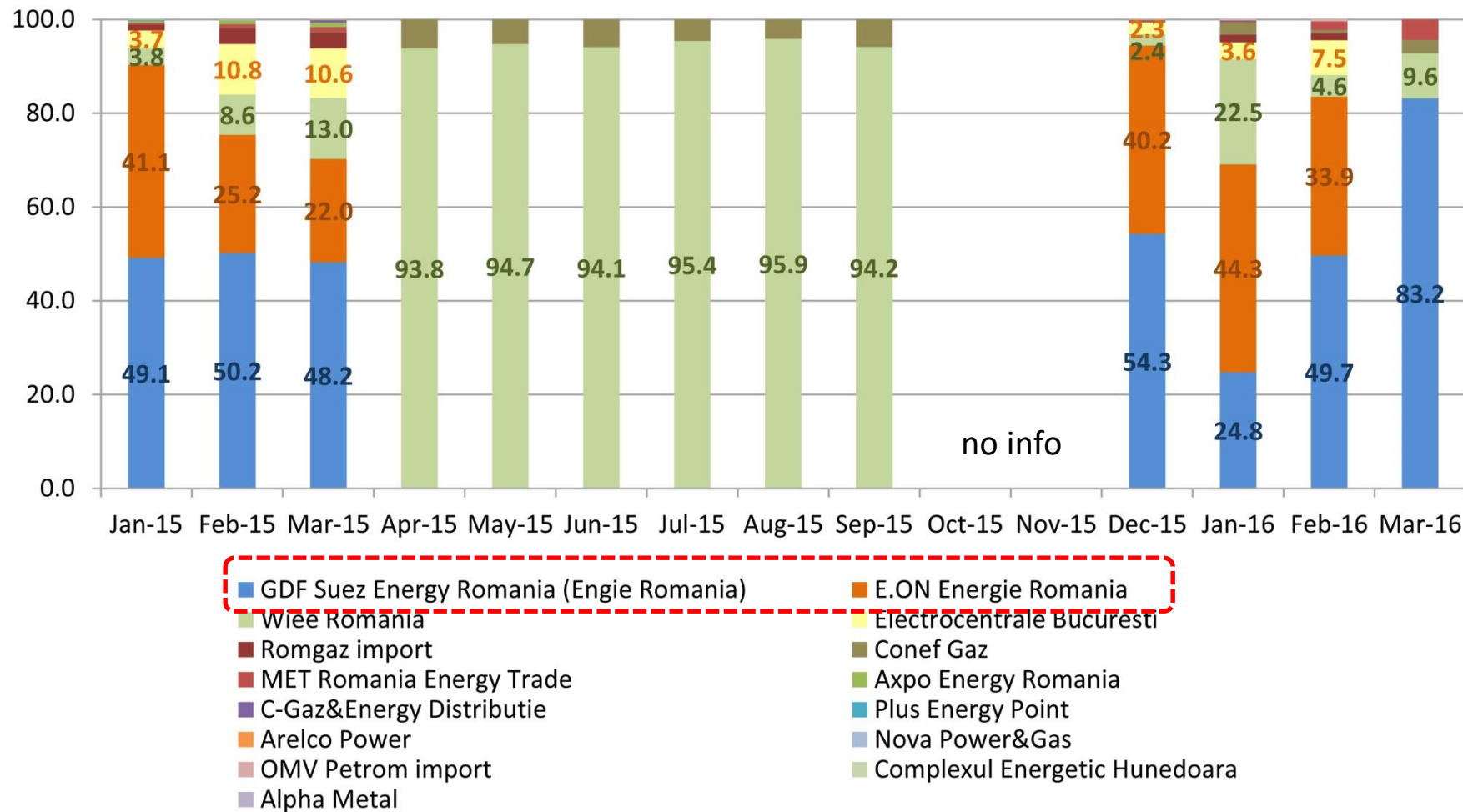
In 2014 reserves/production ratio was of 10.7 years

## Gas market of Romania: natural gas production, %

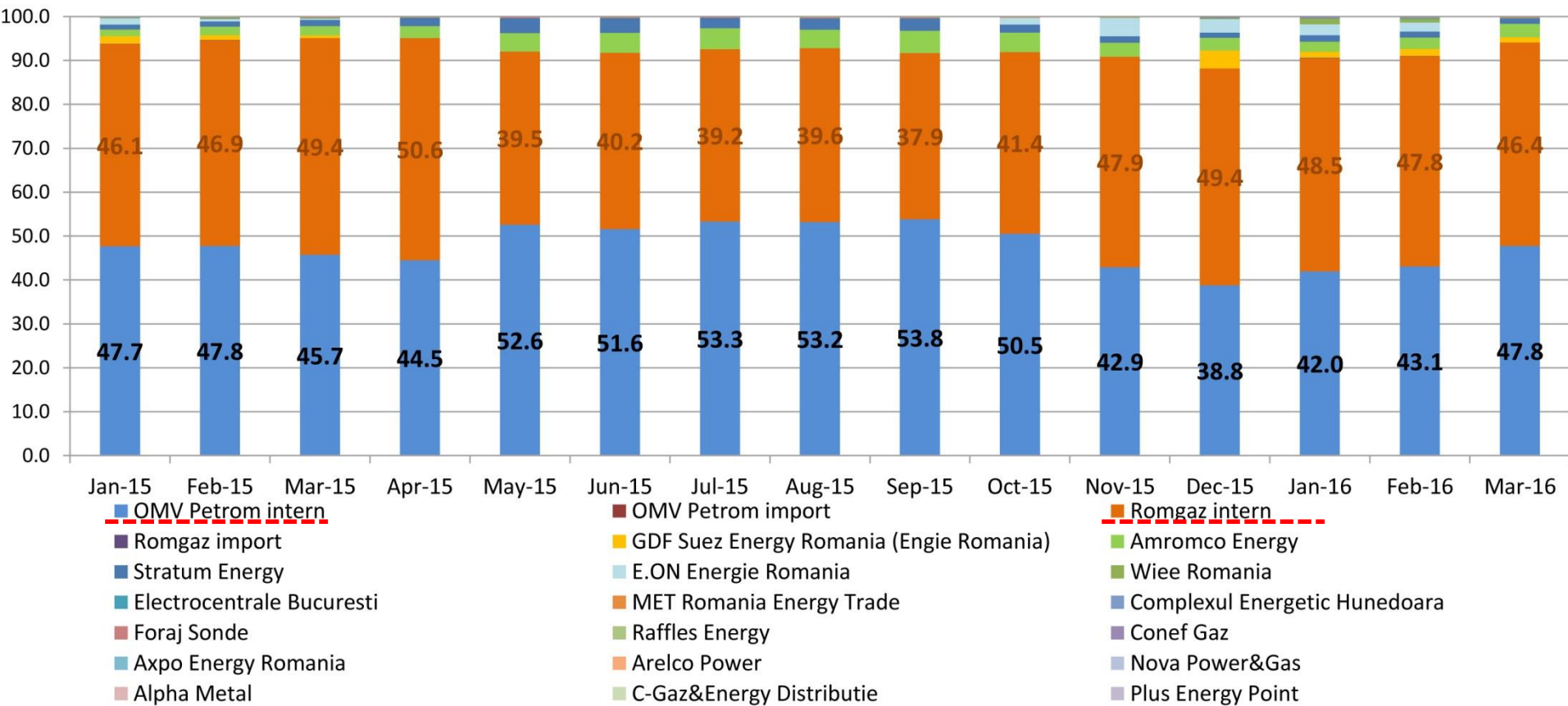




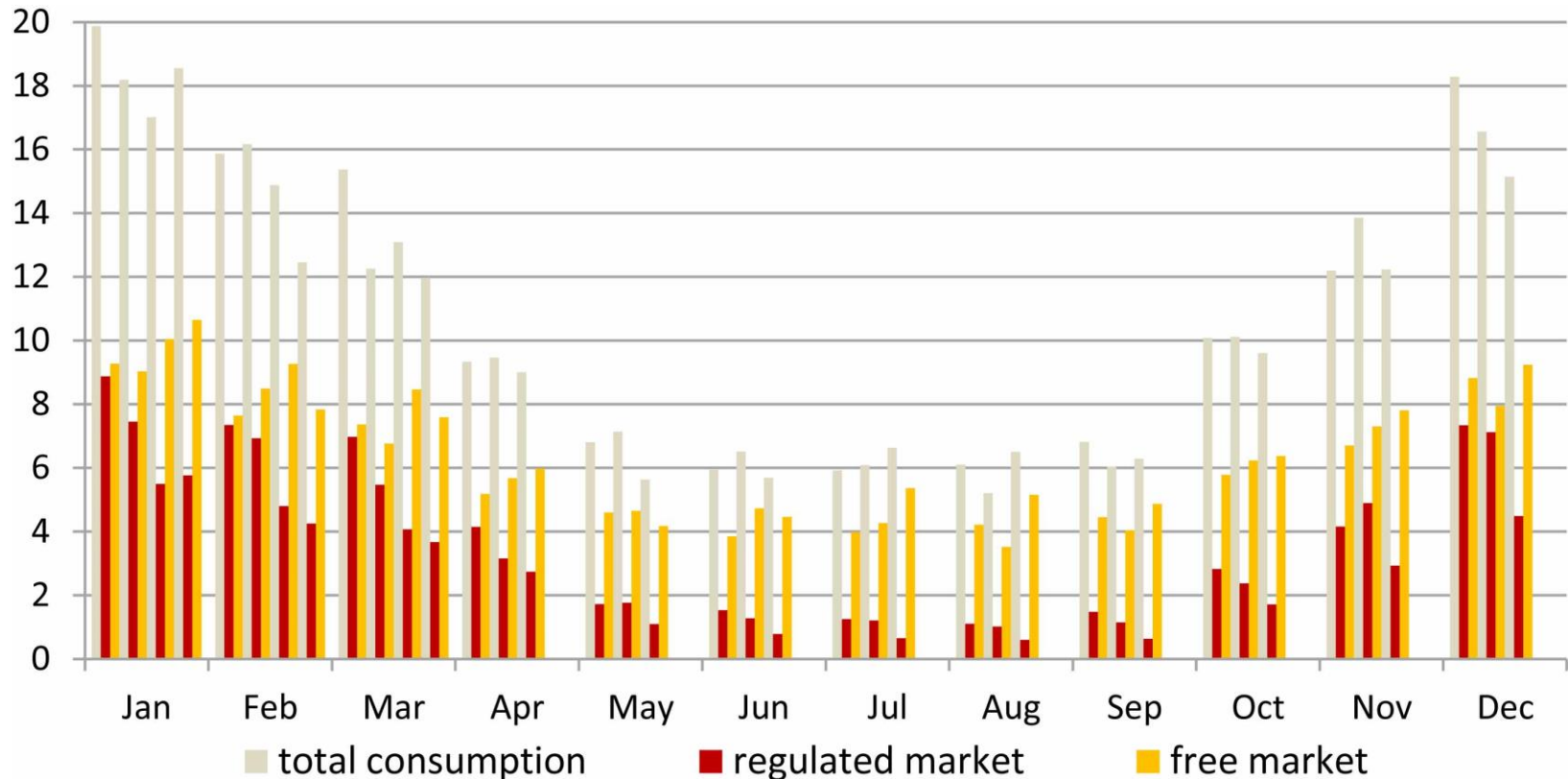
## Gas market of Romania: natural gas import, %



## Gas market of Romania: market shares of all suppliers (local production and import), %

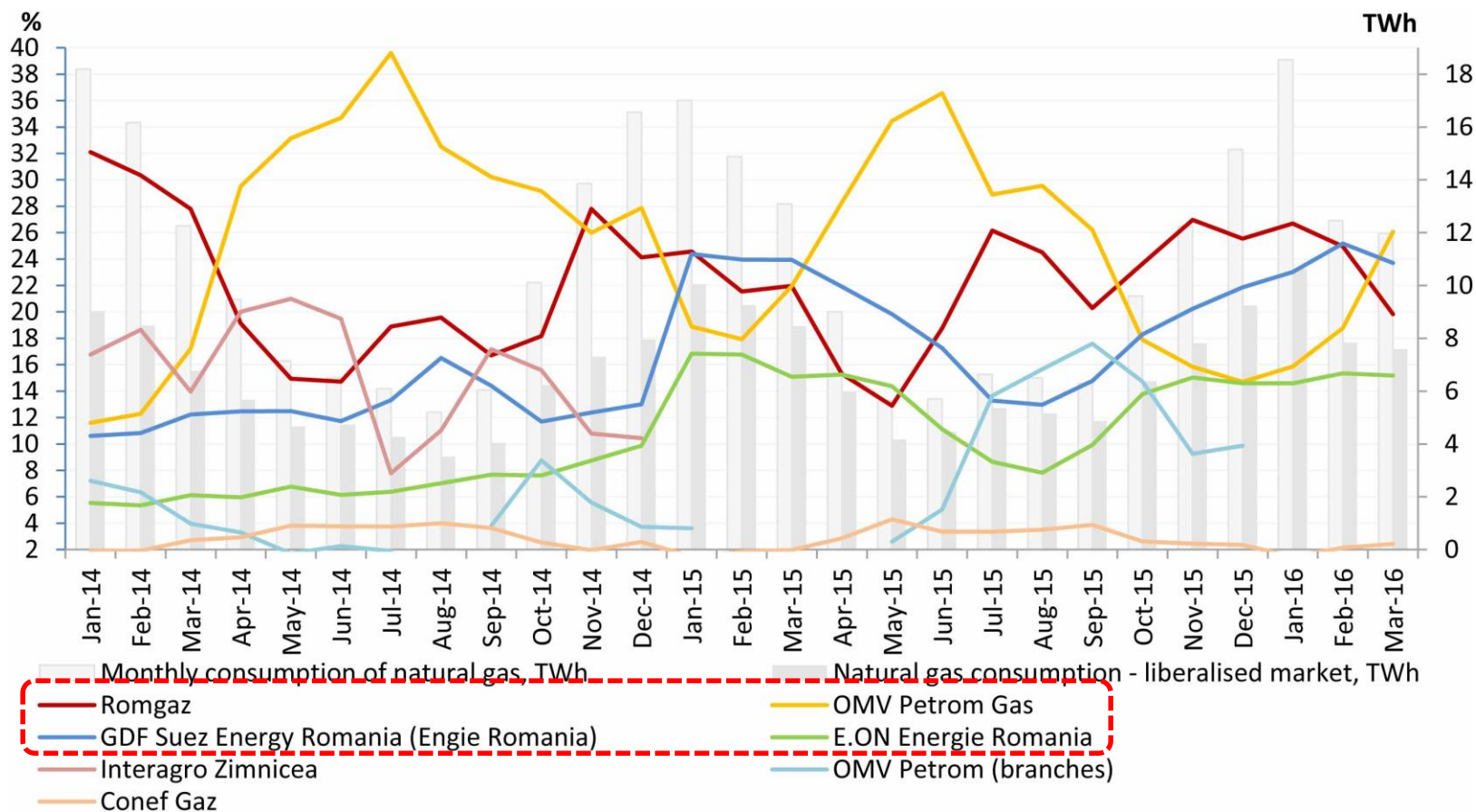


## Gas market of Romania: monthly consumption during 2013-2016, TWh

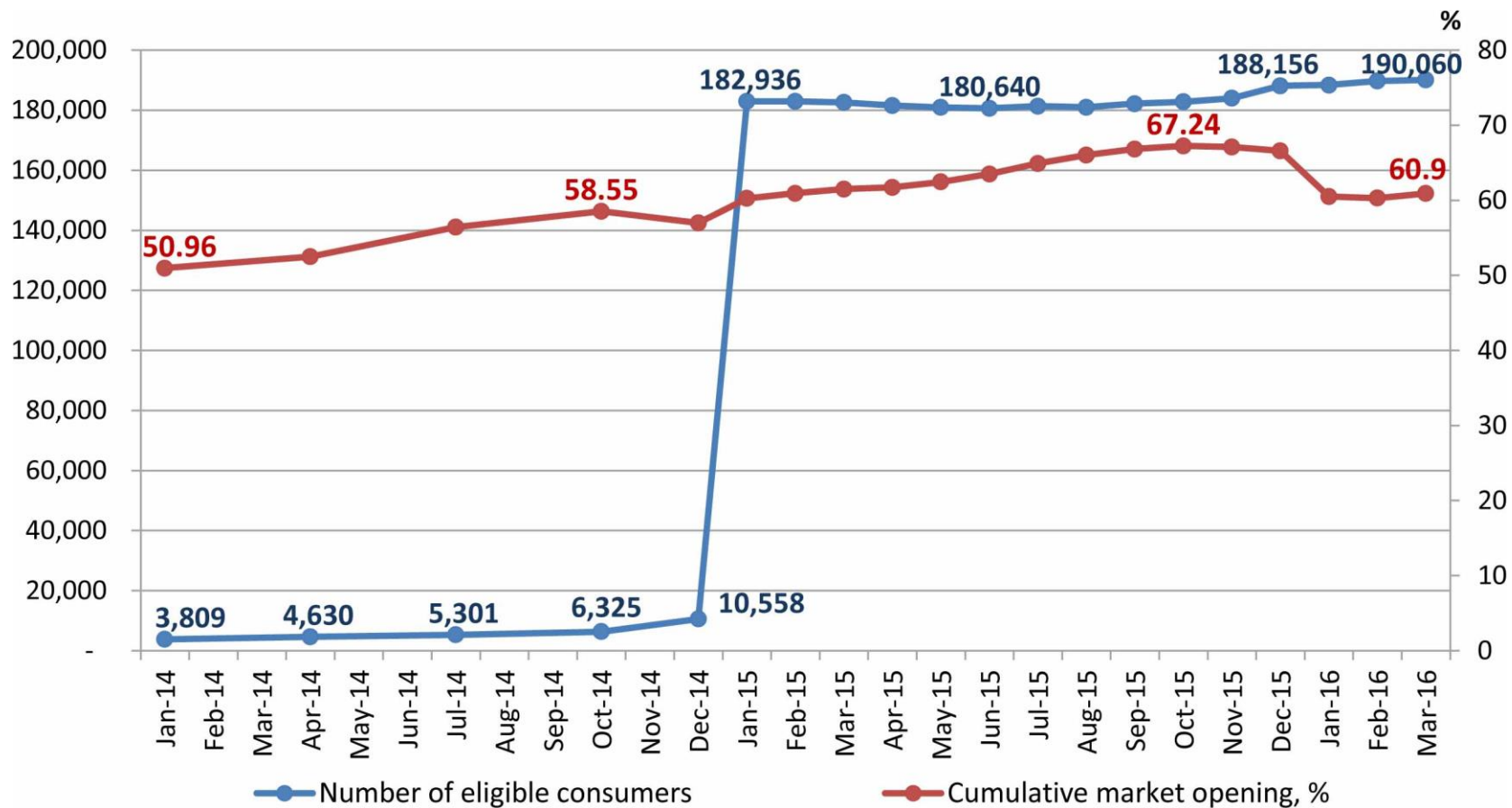




## Gas market of Romania: suppliers' market shares (>2%) within liberalised market

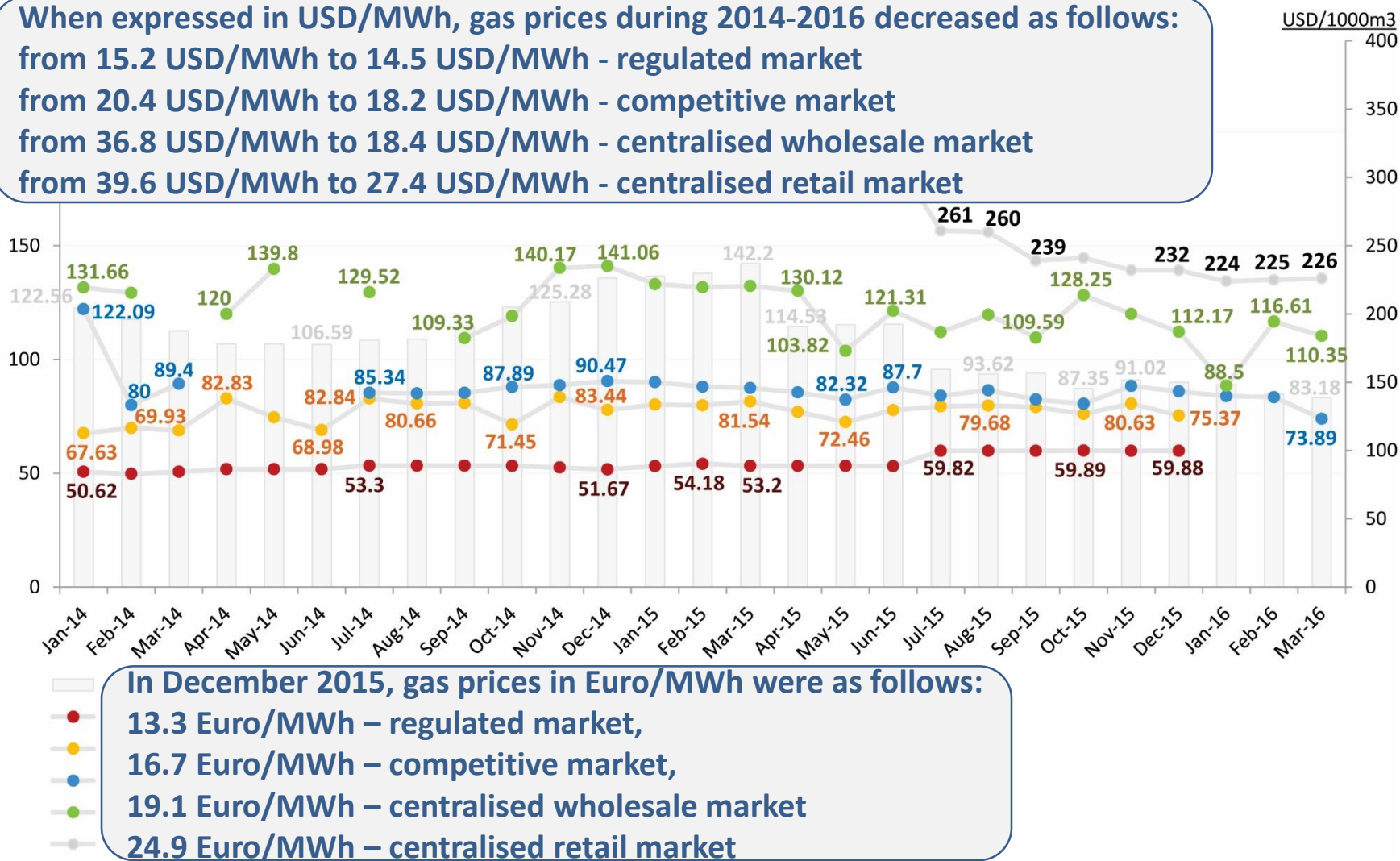


## Gas market of Romania: market opening



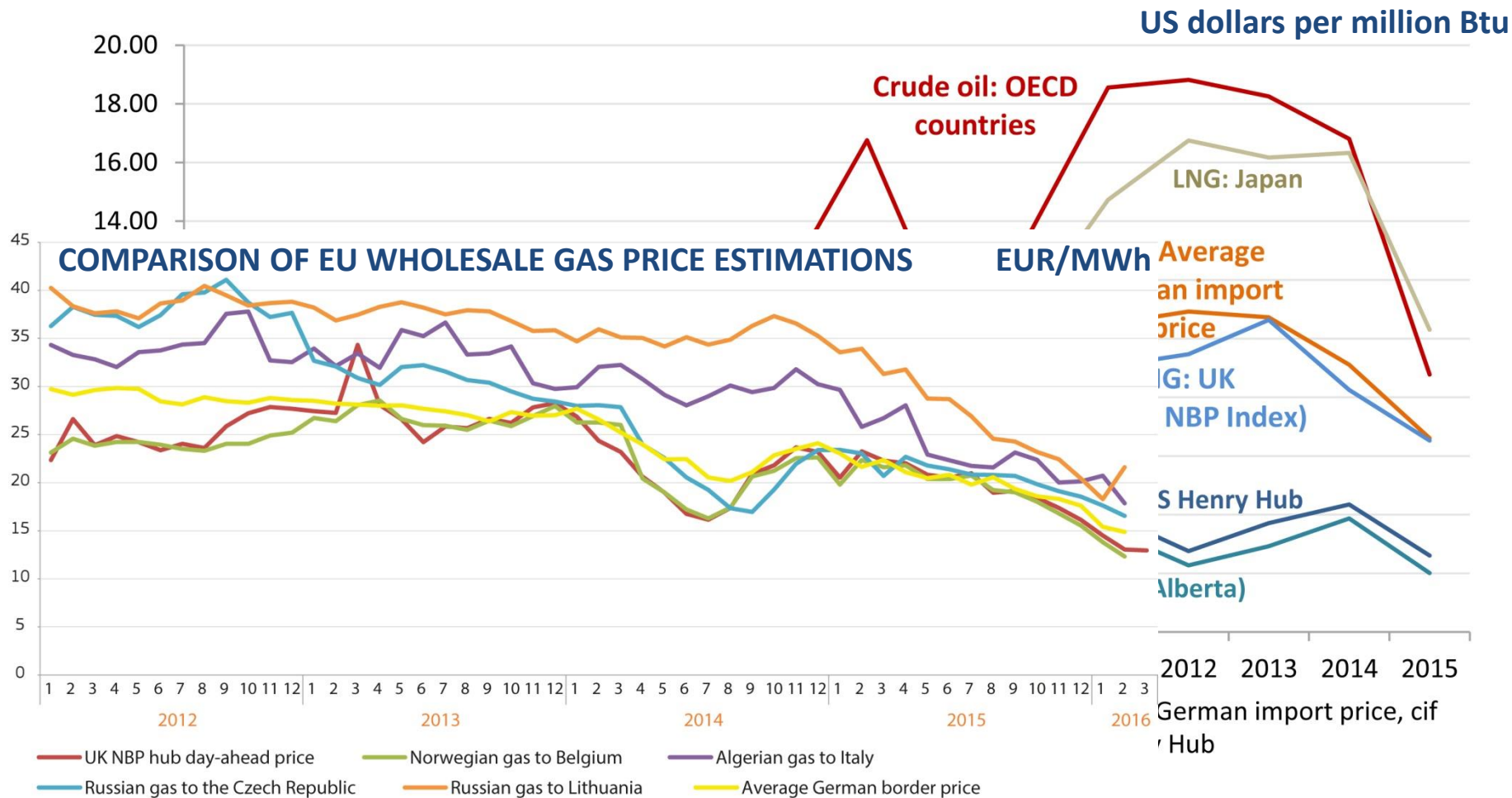
## Gas market of Romania: average weighted prices for natural gas

When expressed in USD/MWh, gas prices during 2014-2016 decreased as follows:  
 from 15.2 USD/MWh to 14.5 USD/MWh - regulated market  
 from 20.4 USD/MWh to 18.2 USD/MWh - competitive market  
 from 36.8 USD/MWh to 18.4 USD/MWh - centralised wholesale market  
 from 39.6 USD/MWh to 27.4 USD/MWh - centralised retail market

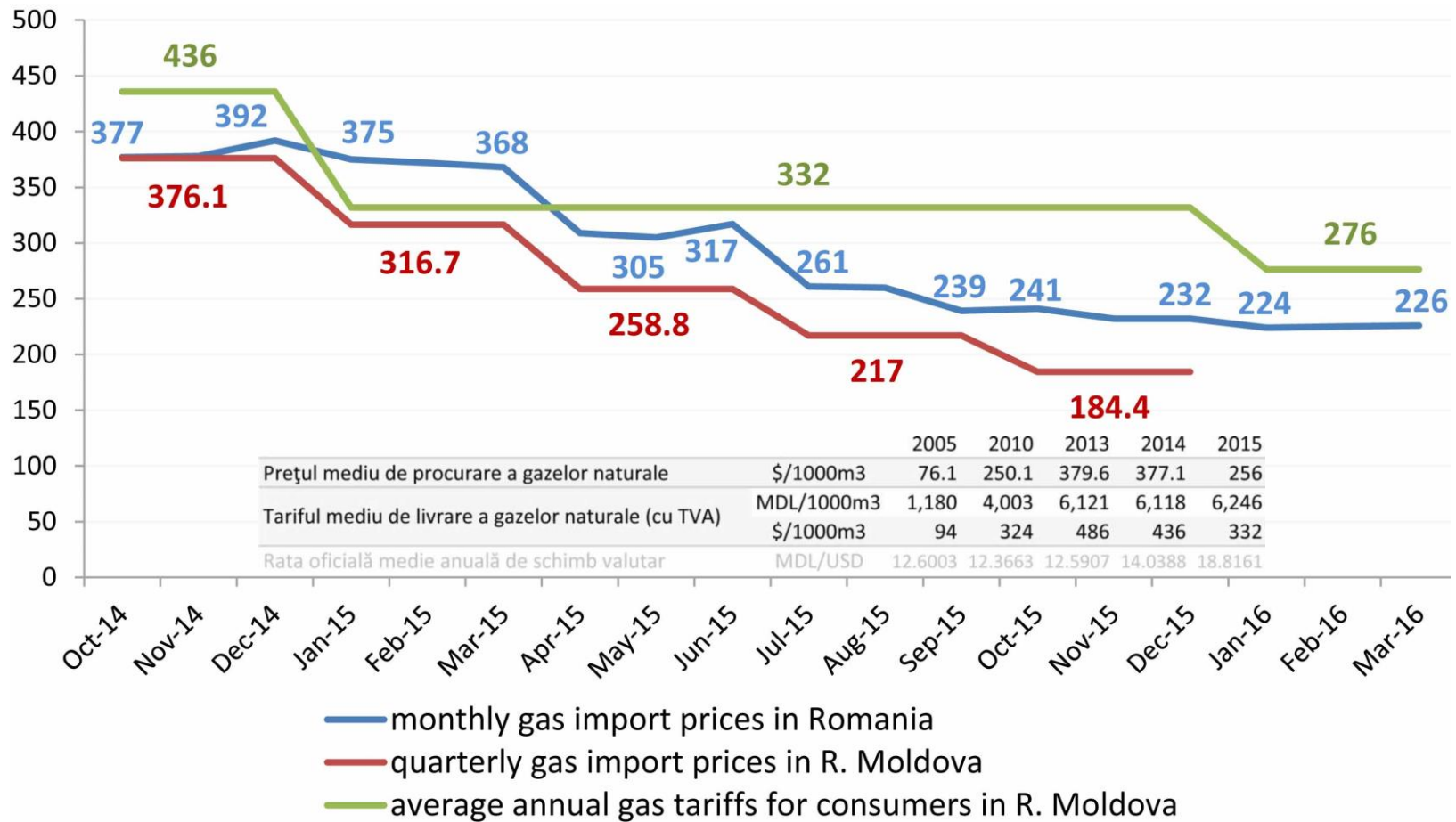




## World and EU gas prices



## Gas import prices vsv tariffs in the Republic of Moldova



		2005	2010	2013	2014	2015
Prețul mediu de procurare a gazelor naturale	\$/1000m3	76.1	250.1	379.6	377.1	256
Tariful mediu de livrare a gazelor naturale (cu TVA)	MDL/1000m3	1,180	4,003	6,121	6,118	6,246
	\$/1000m3	94	324	486	436	332
Rata oficială medie anuală de schimb valutar	MDL/USD	12.6003	12.3663	12.5907	14.0388	18.8161

## **Gas market of Romania: centralised markets for natural gas**

- **PCGN-LN (online auctions and negotiations) - 47 offers - 862 offered contracts**  
standardized in terms of daily load shape and delivery periods,  
delivery periods: 1 week/1 month/1 quarter of the year/1 year (calendar/gas year)
- **PCGN-LP (online public auctions) - 1 offer**  
non-standardized in terms of daily load shape and delivery periods;  
partial/whole offer trading;
- **PCGN-OTC (over-the-counter trading) - 0 offers**  
centralized market with double continuous negotiation for natural gas contracts;  
standardized in terms of type of daily load to be covered, minimum offered quantity  
for trading (1MW), the delivery periods: 1 calendar year/1 gas year/1 half-year/1 gas  
half-year/1 quarter/1 month/1 week/1 day

**13 participants at the end of October 2016:** RWE SUPPLY & TRADING GmbH, S.C. AXPO ENERGY ROMANIA S.A., S.C. C-GAZ & ENERGY DISTRIBUTIE S.R.L., S.C. CPL CONCORDIA FILIALA CLUJ ROMANIA S.R.L., S.C. ENGIE Romania S.A., S.C. E.ON ENERGIE ROMANIA S.A., S.C. MEHEDINTI GAZ S.A., S.C. MET ROMANIA ENERGY TRADE S.R.L., S.C. OMV PETROM GAS S.R.L., S.C. OMV PETROM S.A., S.C. OTTO GAZ S.R.L., S.C. TINMAR GAS S.A., Societatea Nationala de GAZE NATURALE `ROMGAZ` S.A.

## **Gas market of Romania: centralised markets for natural gas (1)**

### **PCGN-LN - 47 offers:**

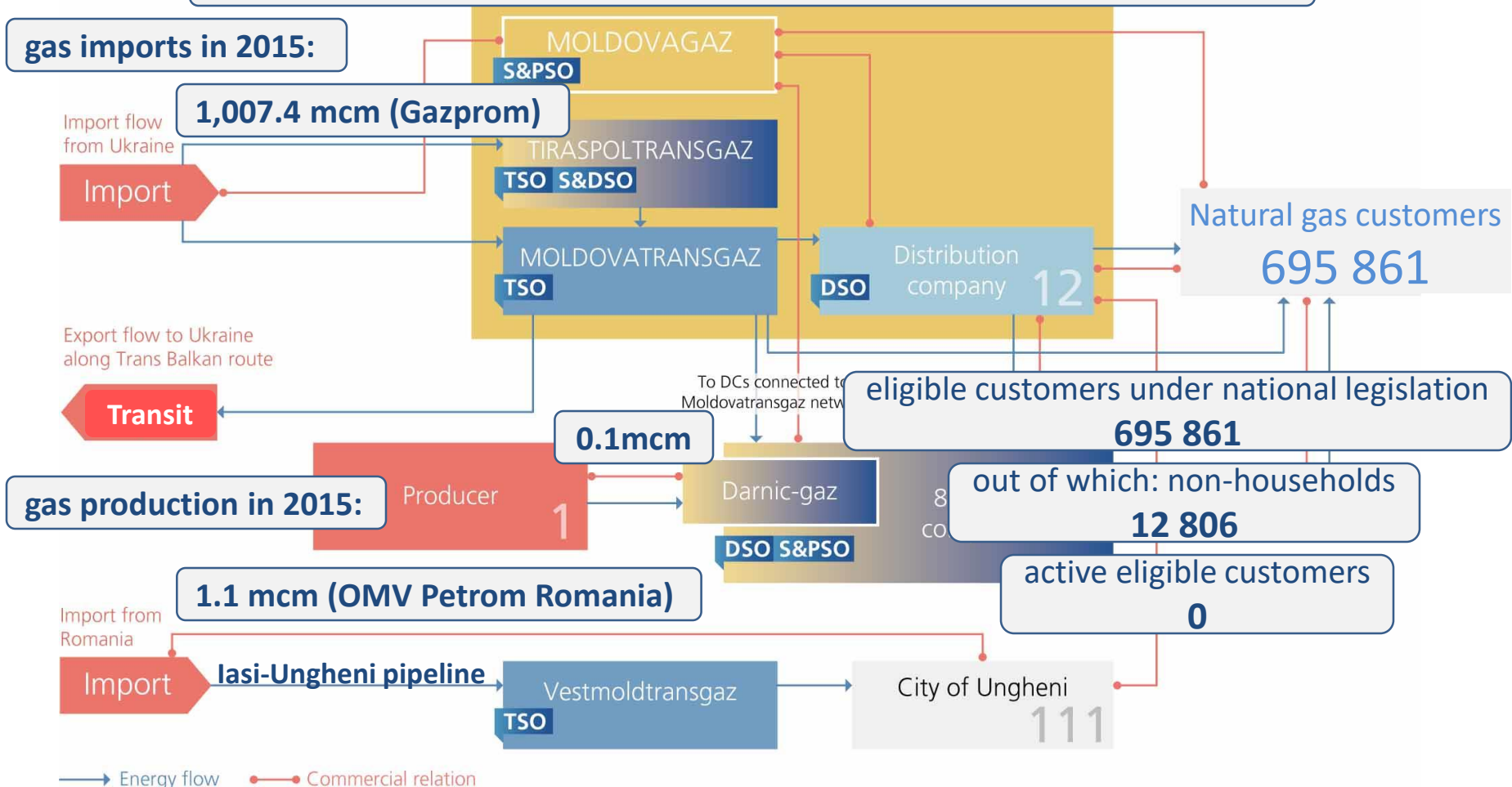
- **34 - sell offers and 13 - buy offers**
- **862 offered contracts (11.86 TWh)**
- **17 offers cancelled**
- **2014: 53.6% of the offered contracts  
41% of the total offered gas quantity**
- starting price **2014** **sell offers:** 82.5-99 Lei/MWh **buy offers:** 80-85 Lei/MWh  
**2015** 84-99 Lei/MWh 72-85 Lei/MWh  
**2016** 74-82 Lei/MWh 60 Lei/MWh
- **all sell offers - locally produced gas**  
delivery periods: 2-one week, 19-one month, 11-one quarter and 2-one calendar year  
**76.6% - OMV Petrom Gas and 23.4% - Romgaz**
- **buy offers: 11 - locally produced gas and 2 - mixed gas (local production+import)**  
delivery periods: 10-one month, 3-one quarter of the year  
**56.3% - E.ON Energie România, 30.5% - OMV Petrom Gas and  
13.2% - GDF Suez Energy România (Engie România)**



## Gas market of the Republic of Moldova

Until today, natural gas supply, transportation and distribution activities are dominated (over 90%) by MOLDOVAGAZ company and its subsidiary companies

Main shareholder in MOLDOVAGAZ is GAZPROM of the Russian Federation



## **Energy Community: gas**

### **Consolidated gas *acquis***

- Consolidated Directive 2009/73/EC of 13 July 2009 concerning common rules for the **internal market in natural gas**
- Consolidated Regulation (EC) No 715/2009 of 13 July 2009 on **conditions for access to the natural gas transmission networks**
- Consolidated Directive 2004/67/EC of 26 April 2004 concerning **measures to safeguard security of natural gas supply**

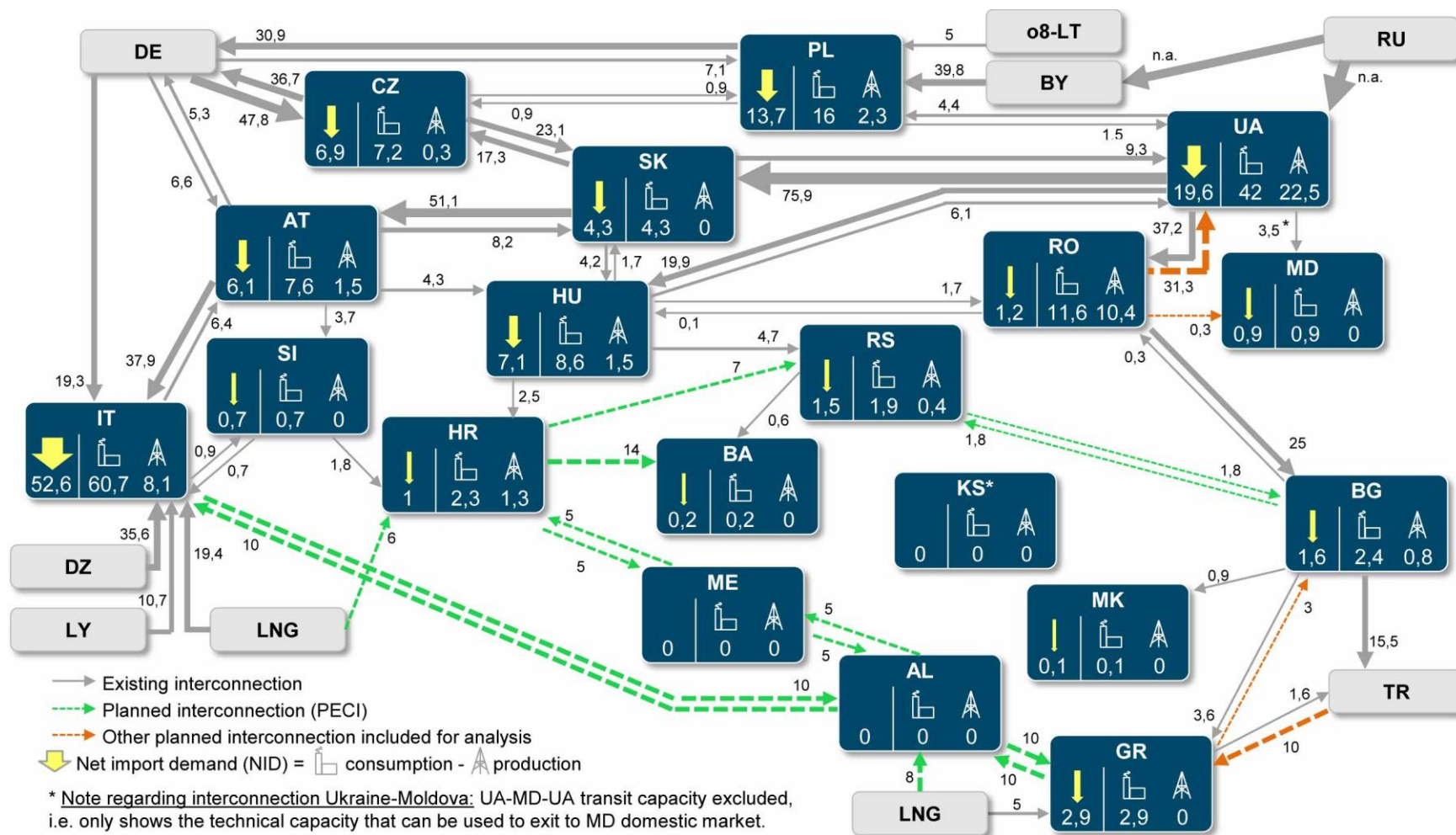
The gas *acquis* establishes the main principles of gas market liberalisation

**Decision 2011/02/MC-EnC** sets separate deadlines for **Article 9 of Directive 2009/73/EC** on the unbundling of transmission system operations, namely of 1 Jun 2016 and 1 Jun 2017 for **Article 9(1) and Article 9(4)** respectively. **Article 11** on certification in relation to third parties is to be implemented no later than 1 Jan 2017.

In view of the unique characteristics of its gas market, **Decision 2012/05/MC-EnC grants Moldova an extended implementation deadline**: as regards the provisions of **Article 9 of Directive 2009/73/EC**, the deadline of **1 Jan 2020** applies for Moldova

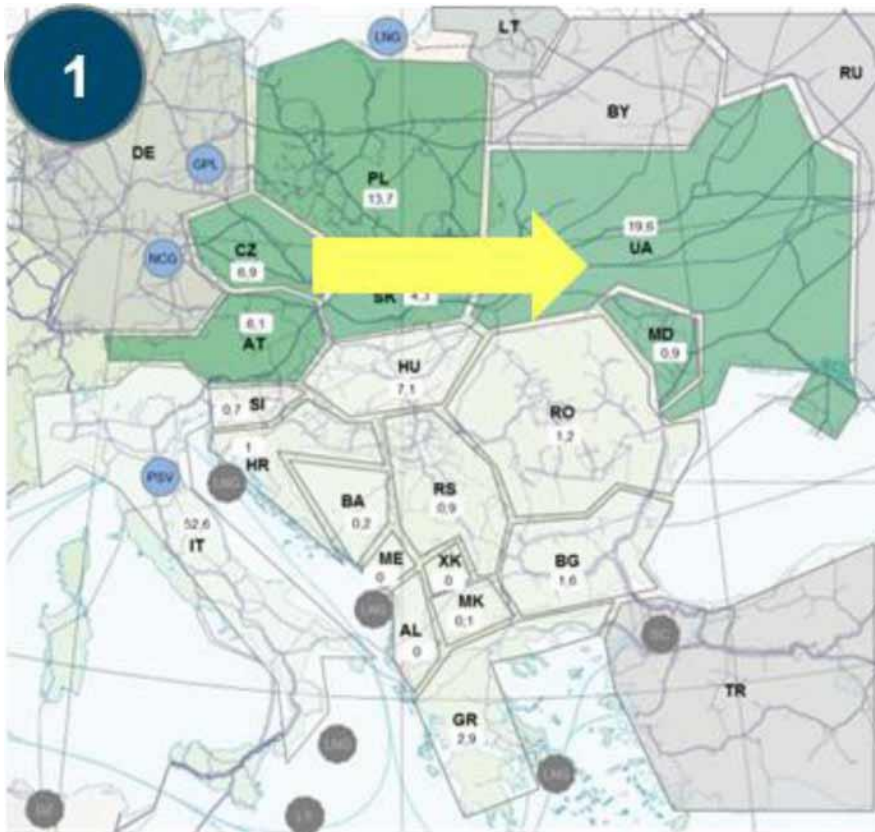
**In May 2016, the Parliament of Moldova adopted a new Law on Natural Gas to transpose the Third Energy Package - Law nr. 108 of May 27, 2016**

## Energy Community: regional market integration options

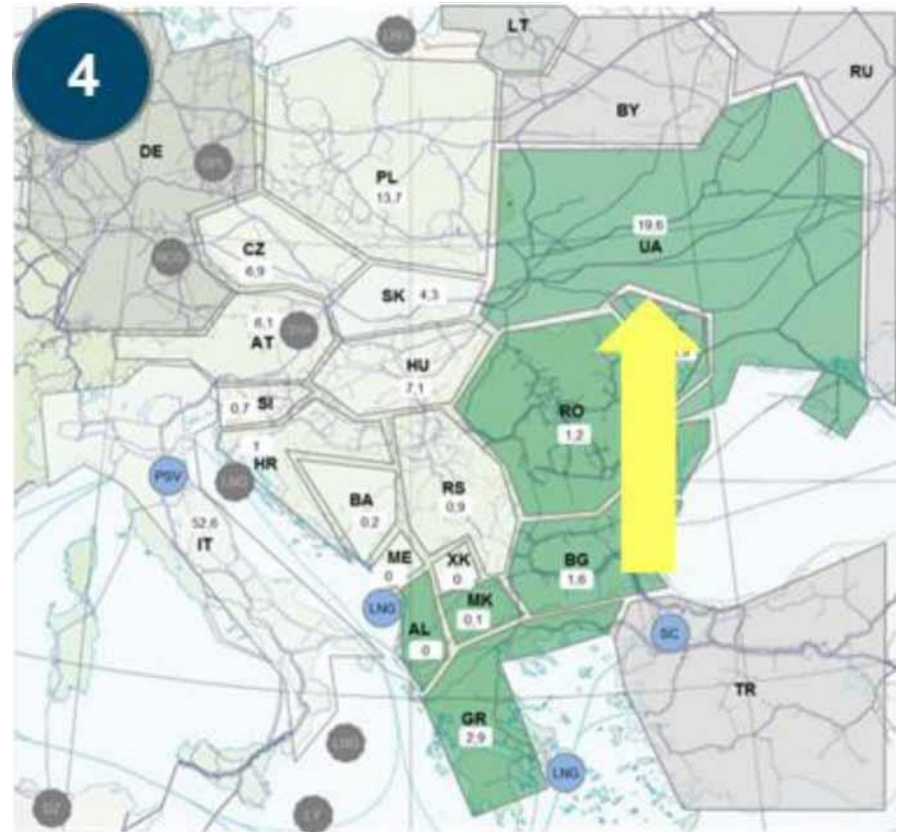


## Energy Community: regional market integration options (1)

Ukraine West

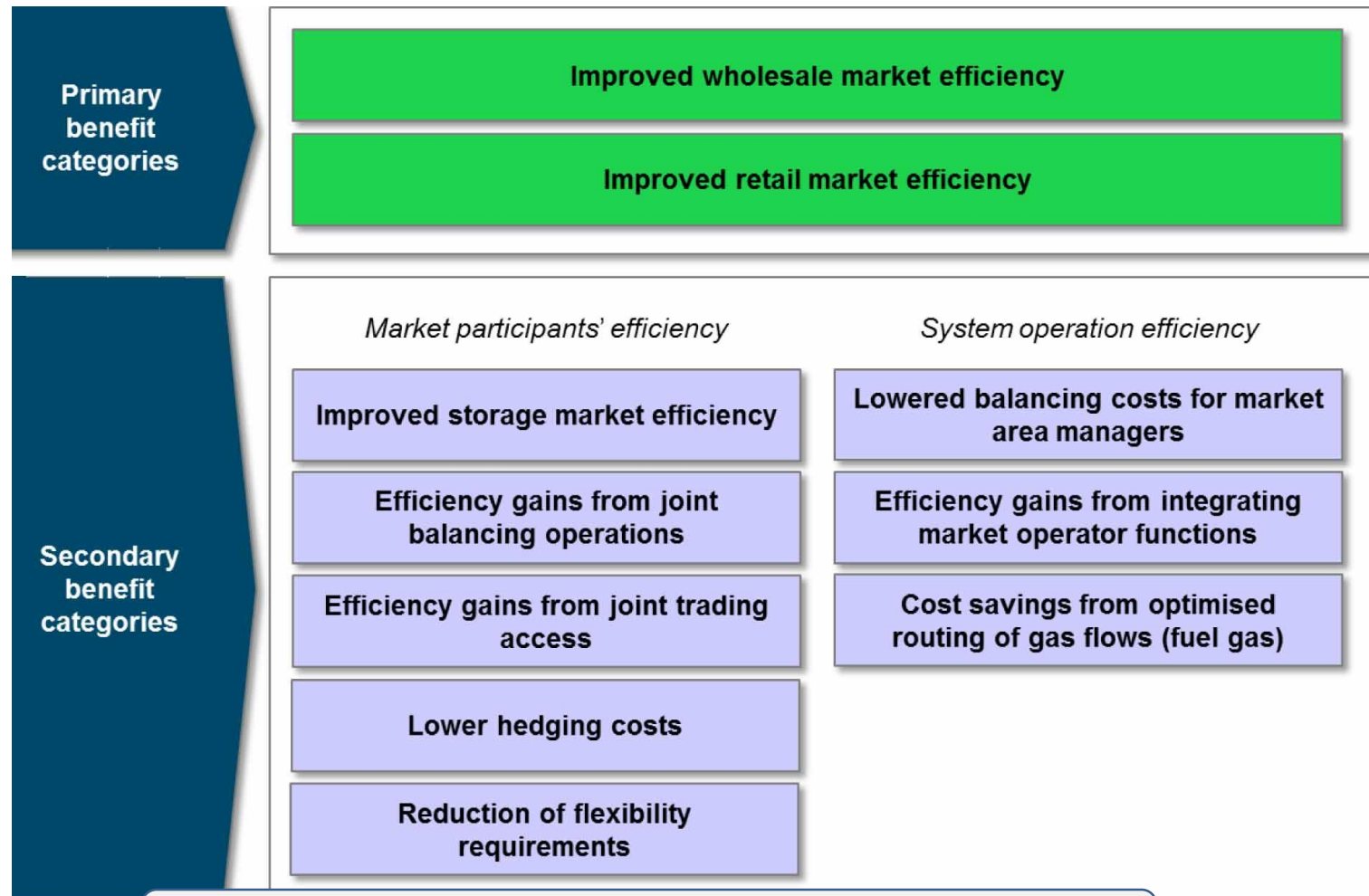


Ukraine South





## Regional market integration: primary and secondary welfare benefits



**Will Romania become a major gas hub in the region ?**

**THANK YOU FOR YOUR KIND ATTENTION!**