



GAS MARKET DEVELOPMENT: DESFA STRATEGIC PLANS

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CURRENT CHALLENGES

- **Decrease in gas demand for electricity generation due to competition by RES and coal**
- **Shift to short-term capacity bookings**
- **Threats to Security of Supply due to geopolitical instability**
- **Implementation of Gas Target Model**

PAN-EUROPEAN CHALLENGES

GAS SUPPLIES TO GREECE

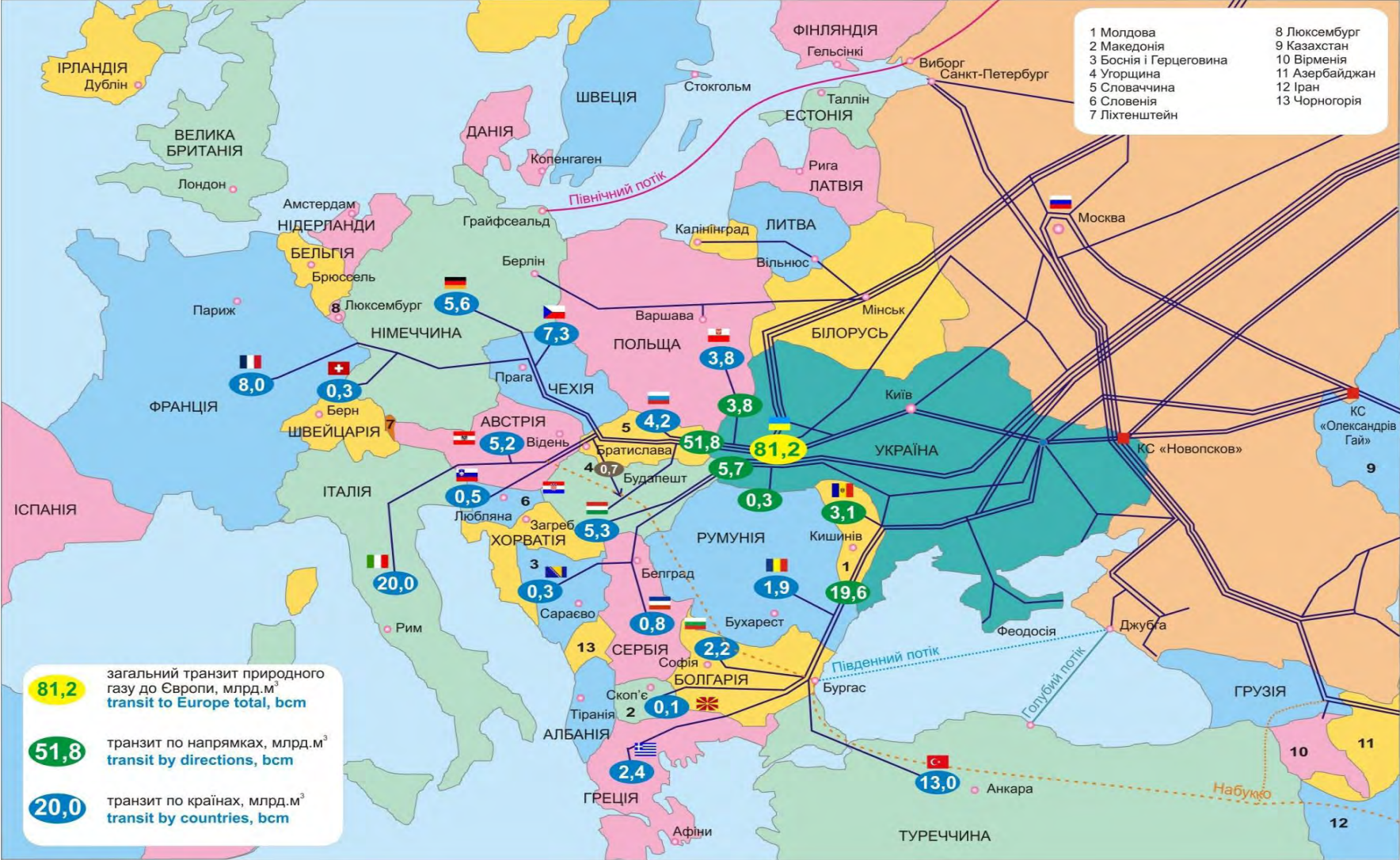
	2010	2011	2012	2013	2014 (forecast)
Gas to electricity generation (bcma)	2,264	2,987	2,803	2,454	1,723
Gas to industries connected to HP grid (bcma)	0,457	0,540	0,440	0,437	0,476
Gas to Distribution grids (bcma)	0,911	0,975	0,872	0,751	0,721
Total Gas market (bcma)	3,632	4,502	4,116	3,642	2,920
Russian gas (%)	53,99%	60,14%	56,61%	67,00%	63,00%
Azeri gas through BOTAS (%)	16,82%	15,12%	14,12%	17,69%	17,00%
LNG (%)	29,19%	24,74%	29,28%	15,31%	20,00%
Market load factor*	58,83%	67,42%	51,61%	53,59%	47,68%
LNG Terminal Utilization Rate (or load factor)**	23,26%	24,41%	26,35%	12,25%	11,71%

*Market load factor = (Annual throughput)/365/(peak daily demand)

**Utilization Rate = Annual throughput / Maximum annual throughput
(i.e. if operating continuously at max. capacity)

LNG utilization rate depends on global LNG prices

BALKAN AREA IS ONE OF THE MOST VULNERABLE IN EUROPE IN CASES OF SUPPLY DISRUPTION FROM UKRAINE



Extract from presentation of Ukrtransgaz to DESFA on 4 July 2014

DESFA STRATEGY

Aims at increasing the utilization rate of the infrastructure through expansion of the gas market

TARGET A: Integration with neighbouring markets

**TARGET B: Expansion to new areas not supplied yet
or new uses of gas**

TARGET C: Diversification of gas supply

TARGET D: Security of Supply

TARGET E: Application of new European regulatory framework (towards the Gas Target Model)

DESFA PROJECTS/ ACTIONS

- 1. Finalization of LNG terminal upgrade (TARGET C, D)**
- 2. Expansion of the Network to new areas (finalization of current projects expected begin. 2015) (TARGET B)**
- 3. Reverse/backhaul flow to Bulgaria, and possibly Turkey, through existing connections (TARGET A)**
- 4. Interconnection with IGB pipeline (TARGET A)**
- 5. Interconnection with TAP pipeline (TARGET C, D)**

DESFA PROJECTS/ ACTIONS (cont.)

- 6. Development of Small Scale LNG applications (TARGET B)**
- 7. Establishment of a wholesale gas market (gas hub)
(TARGET C, E)**
- 8. Application of new Security of Supply Regulatory
Framework (TARGET D)**
- 9. Application of new European Network Codes (TARGET E)**
- 10. Possible cooperation in development of South Kavala
UGS (TARGET C, D)**

REVITHOUSSA LNG TERMINAL IS CURRENTLY UNDER EXPANSION (project finalization expected at end 2016)



Will include capability for LNG uploading from tanks to ships >20.000 m³ cargo

GAS INFRASTRUCTURE DEVELOPMENT IN GREECE



SECURITY OF SUPPLY REGULATORY FRAMEWORK

- **Definition of protected customers and order of disruption**
- **Introduction, for the first time, of demand side measures with compensation of the affected consumers (under RAE coordination)**

but

- **Remains the question who will bear the responsibility and differential cost of spot supplies for the protected customers**

- **Establishment of Early Warning System at E.U. level with participation of Russia and Ukraine**

GAS SUPPLY DISRUPTION AVOIDED AT PRESENT

REVERSE FLOW PROJECT IN THE EXISTING CONNECTION WITH BULGARIA

- **Phase 1 already completed : reverse transport capacity up to 3 mcm/d**
- **Phase 2 under study: will increase transport capacity to the reverse direction up to 5 mcm/d**

INTERCONNECTION WITH TAP PIPELINE

Two points examined: Nea Messimvria and Komotini:

- **Nea Messimvria (downstream the compressor station) offers the highest capacity with the lowest cost**
- **Komotini faces restriction due to the 24'' pipeline Komotini-Karperi**

SMALL SCALE LNG PROJECTS

Under examination

- **Truck loading station on Revithoussa LNG Terminal for supply of gas to industries or industrial areas not connected to the natural gas grid**
- **LNG bunker ships loading station at Revithoussa (1.000 – 20.000 m³ cargo)**

SMALL SCALE LNG PROJECTS (cont.)

- **Satellite LNG storages: Supply of LNG to:**
 - **seaside truck loading stations**
 - **seaside towns not connected to the grid**
 - **islands not connected to the electricity grid for electricity generation**

INVOLVEMENT OF OTHER COMPANIES IS NECESSARY (e.g. Gas Suppliers)

Small scale LNG applications



Small scale LNG applications



DEVELOPMENT OF GREEK GAS HUB

- **Gas Hub to be based first on Balancing Gas (Virtual Hub)**
- **DESFA will launch an application study**
- **Liquidity (which is the main challenge) to increase gradually as new supply projects enter operation phase (esp. TAP)**

DEVELOPMENT OF GREEK GAS HUB (cont.)

- **Very good synergy with South Kavala UGS (future project)**
- **Connection of the gas hub platform with the capacity reservation platform and with the (future) Energy Exchange**
- **Interconnection projects will enable the gas hub to operate for the whole SE Europe region**
- **The project is coordinated by RAE**

THE VISION OF DESFA



Thank you for your attention!

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