

The background of the slide is a photograph of the Gazprom Tower in Moscow, a tall, slender skyscraper with a distinctive pointed top. To its left is a large, modern building with a glass facade and a prominent dome. The sky is blue with some light clouds. The entire image is overlaid with a blue gradient and abstract light patterns.

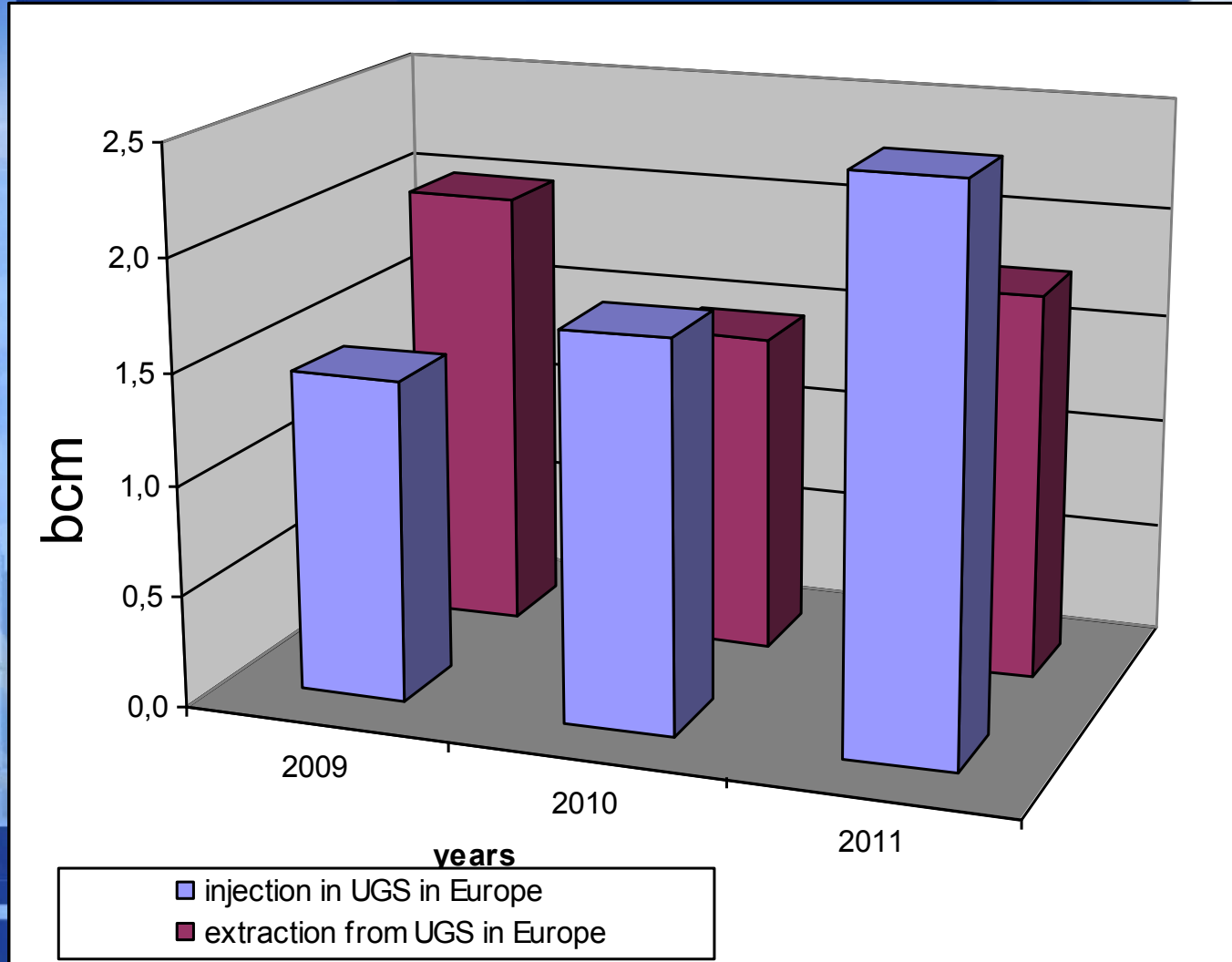
**“Opportunities and
prospects of UGS
projects of Gazprom in
Europe ”**

Nikita Barsuk

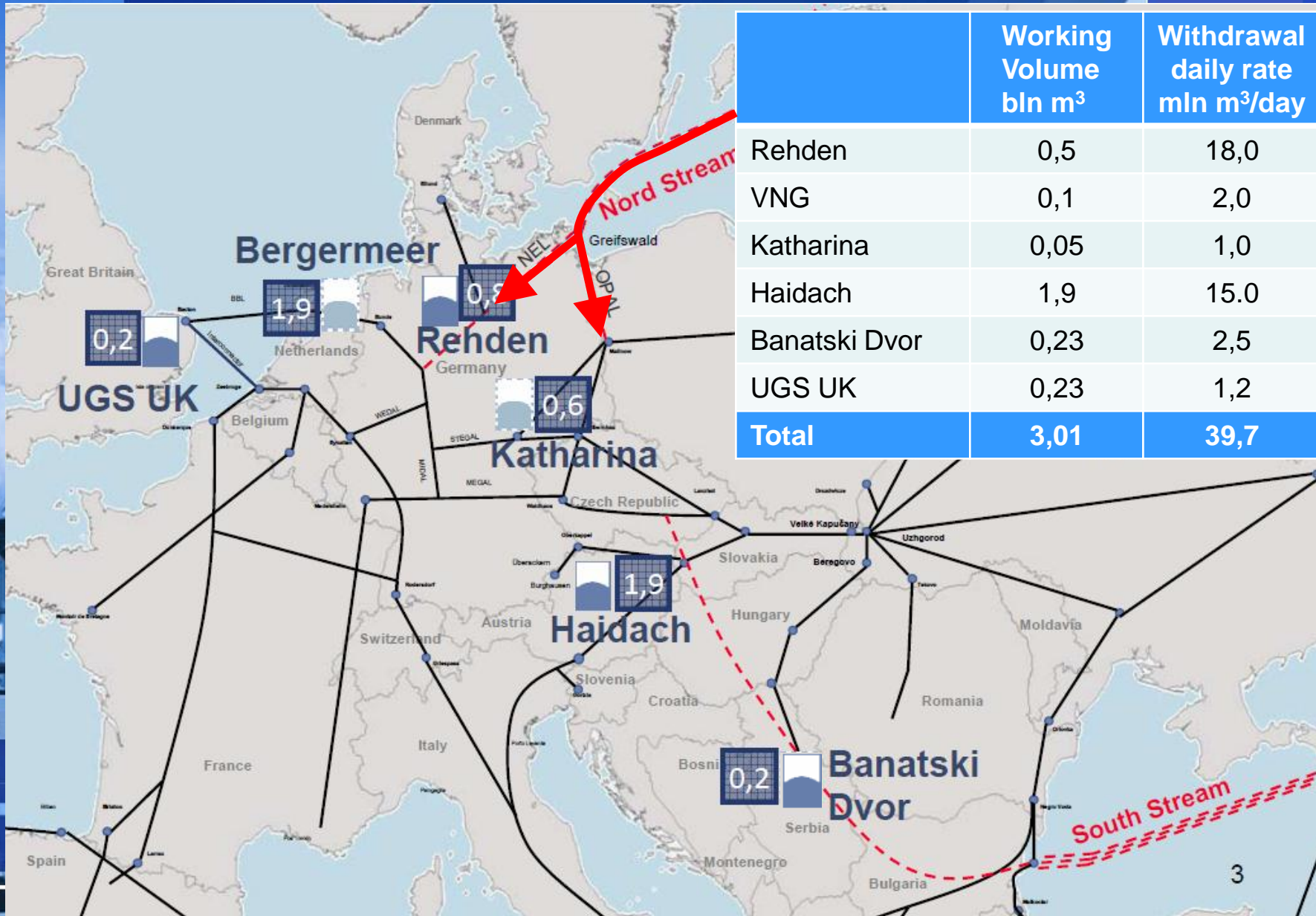
IGU WOC2 Meeting

Bratislava, 23-26 October 2012

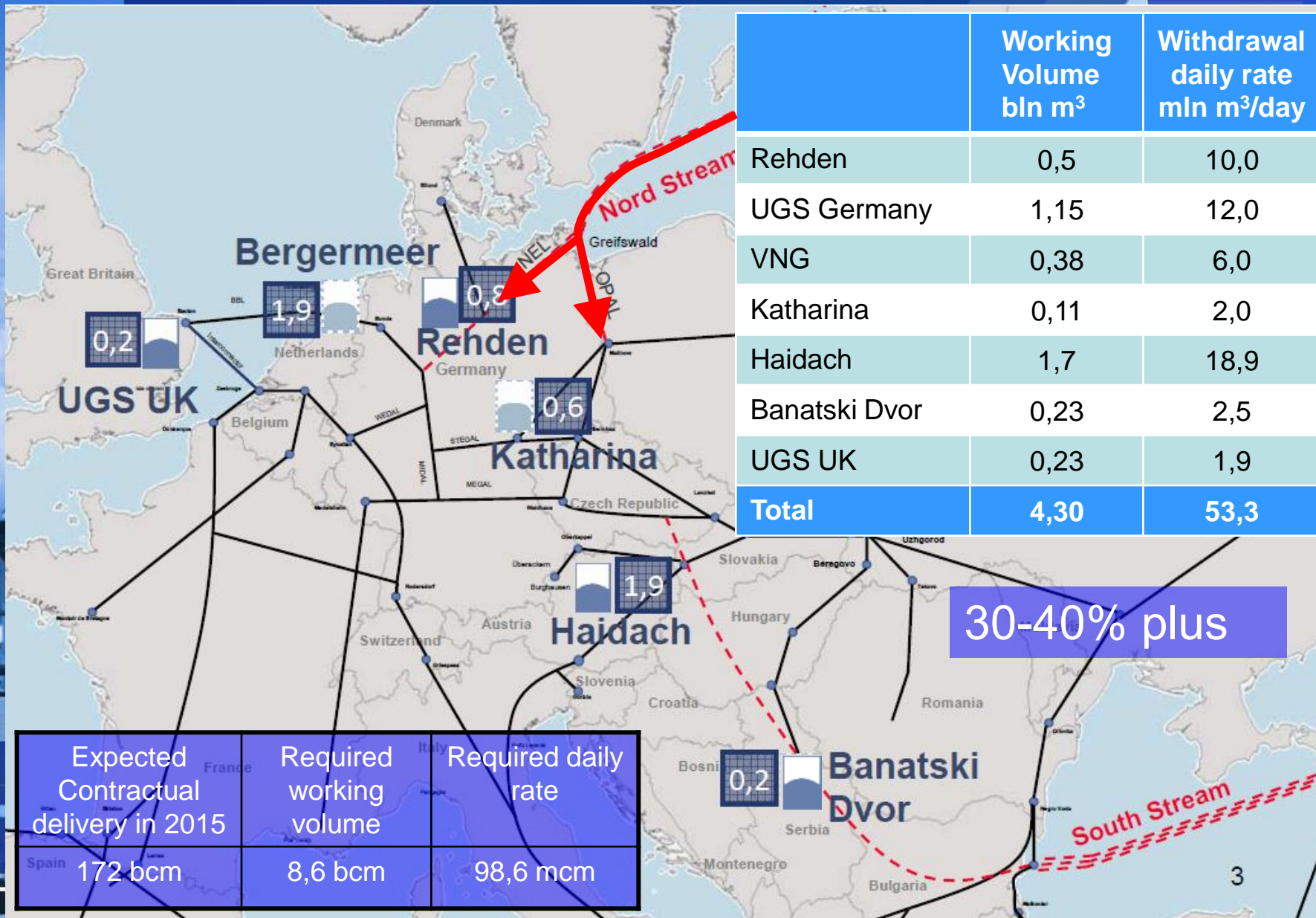
Development of Gazprom UGS capacity in Europe



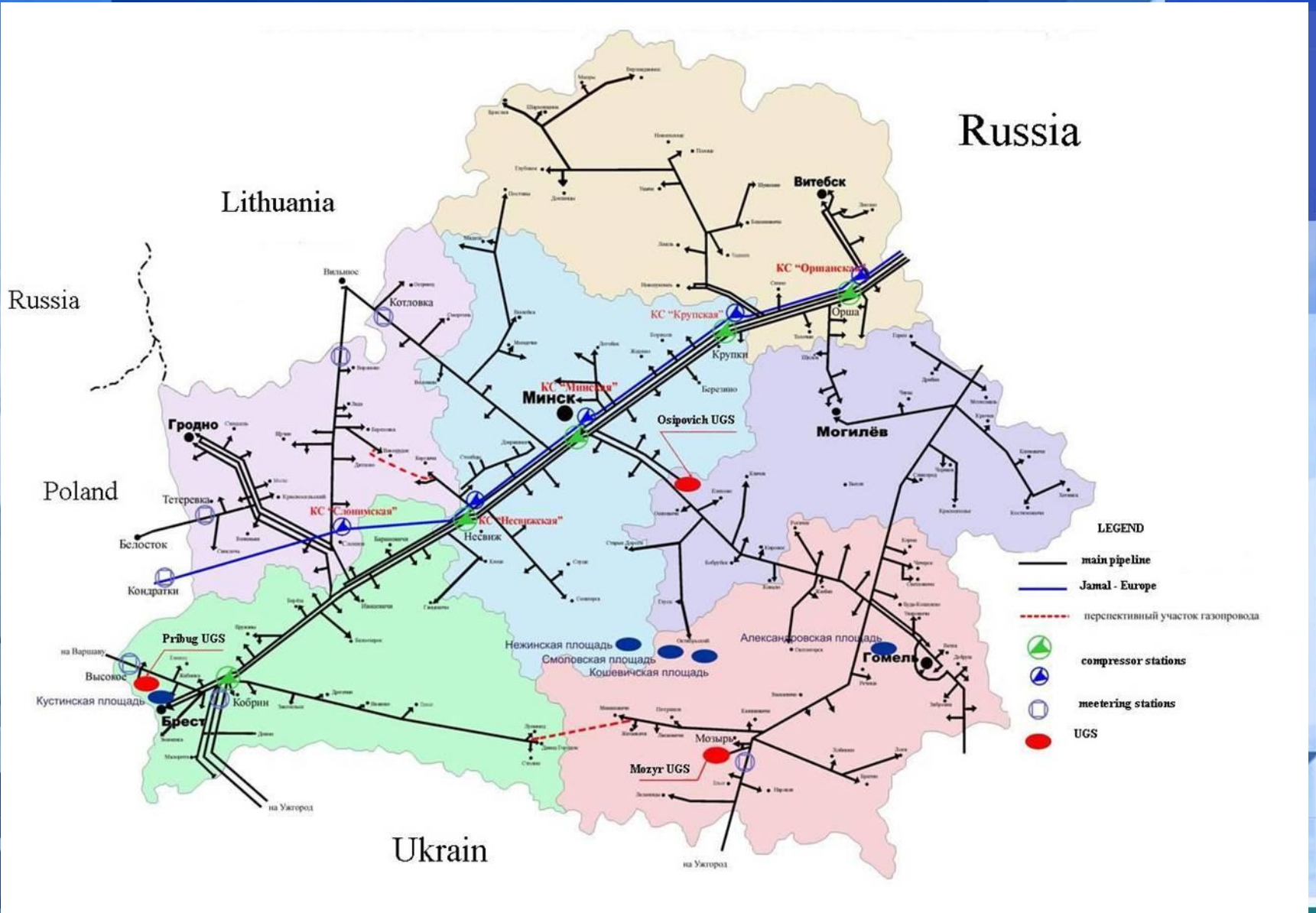
Achieved Gazprom's storages productivity in Europe winter 2011-2012









Readiness of Gazprom's storages in Europe for winter 2012-2013



Beltransgaz UGS

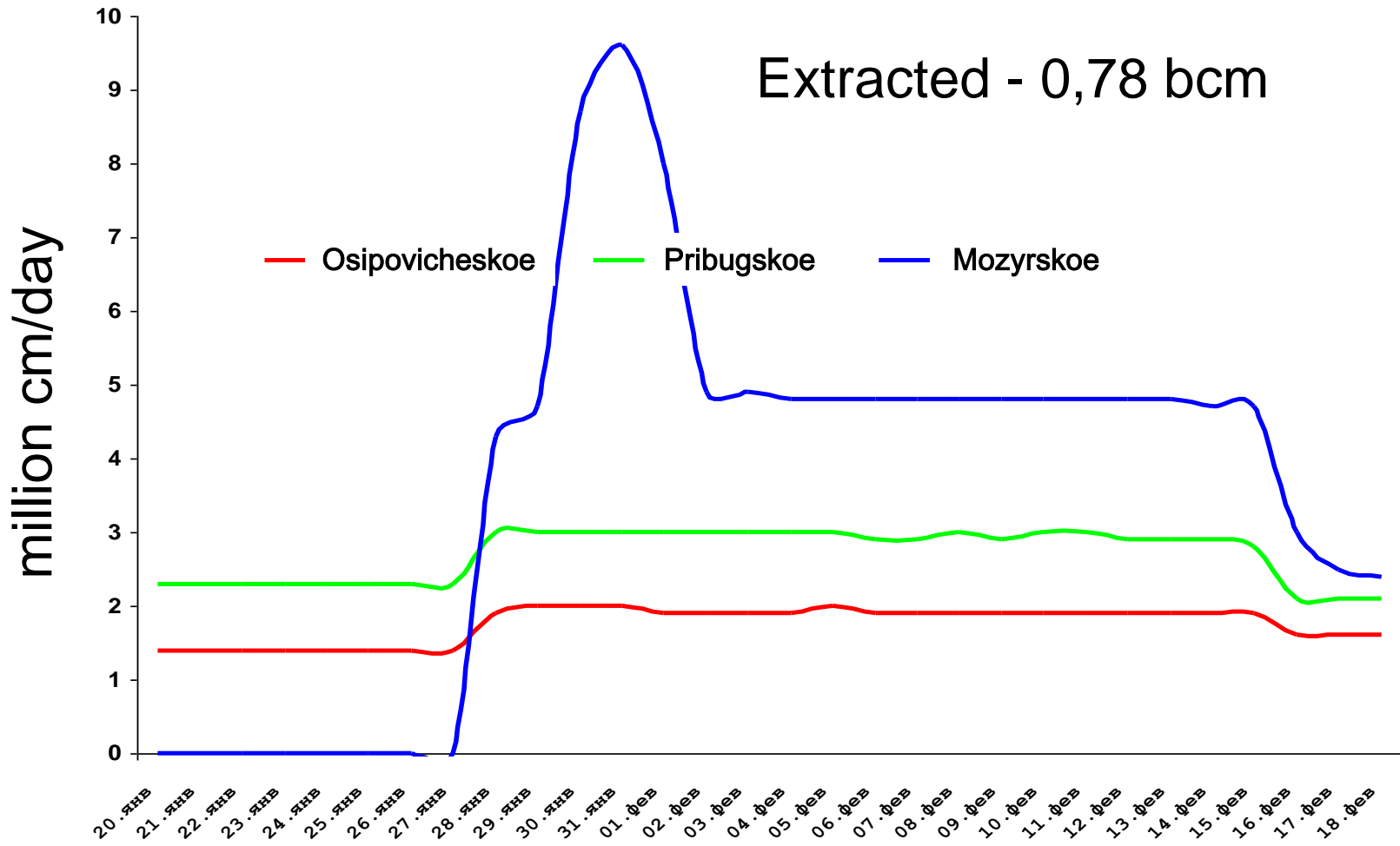


LEGEND

-  main pipeline
-  Jamal - Europe
-  перспективный участок газопровода
-  compressor stations
-  metering stations
-  UGS

Gas withdrawal in 2011-2012 from Belorussian UGS

Extracted - 0,78 bcm



Readiness of Belorussian storages for winter 2012-2013

Osipovicheskoe



Pribugskoe



Mozyrskoe



We expect to have:
Working volume- 0,86 bcm
Daily rate – 18 mcm



Readiness of Latvian UGS Inchukalns for winter 2012-2013



We expect to have:
Working volume - 2,3 bcm
Including gas of Gazprom – 1,6 bcm

Daily rate – 28 mcm
Including gas of Gazprom – 18 mcm



**Full capacity –
55 bln m³/yr**

Second string of the Nord Stream gas pipeline was commissioned on 8 October 2012.

Optimization of operational mode of Nord Stream

For optimization of operational mode of Nord Stream Gazprom now is evaluating an opportunities to create UGS complex comprised by the storage having a considerable working gas capacity (storage in depleted field or aquifer) to smooth out seasonal fluctuations and the storage with a high daily deliverability that will also permit daily or hourly balancing.

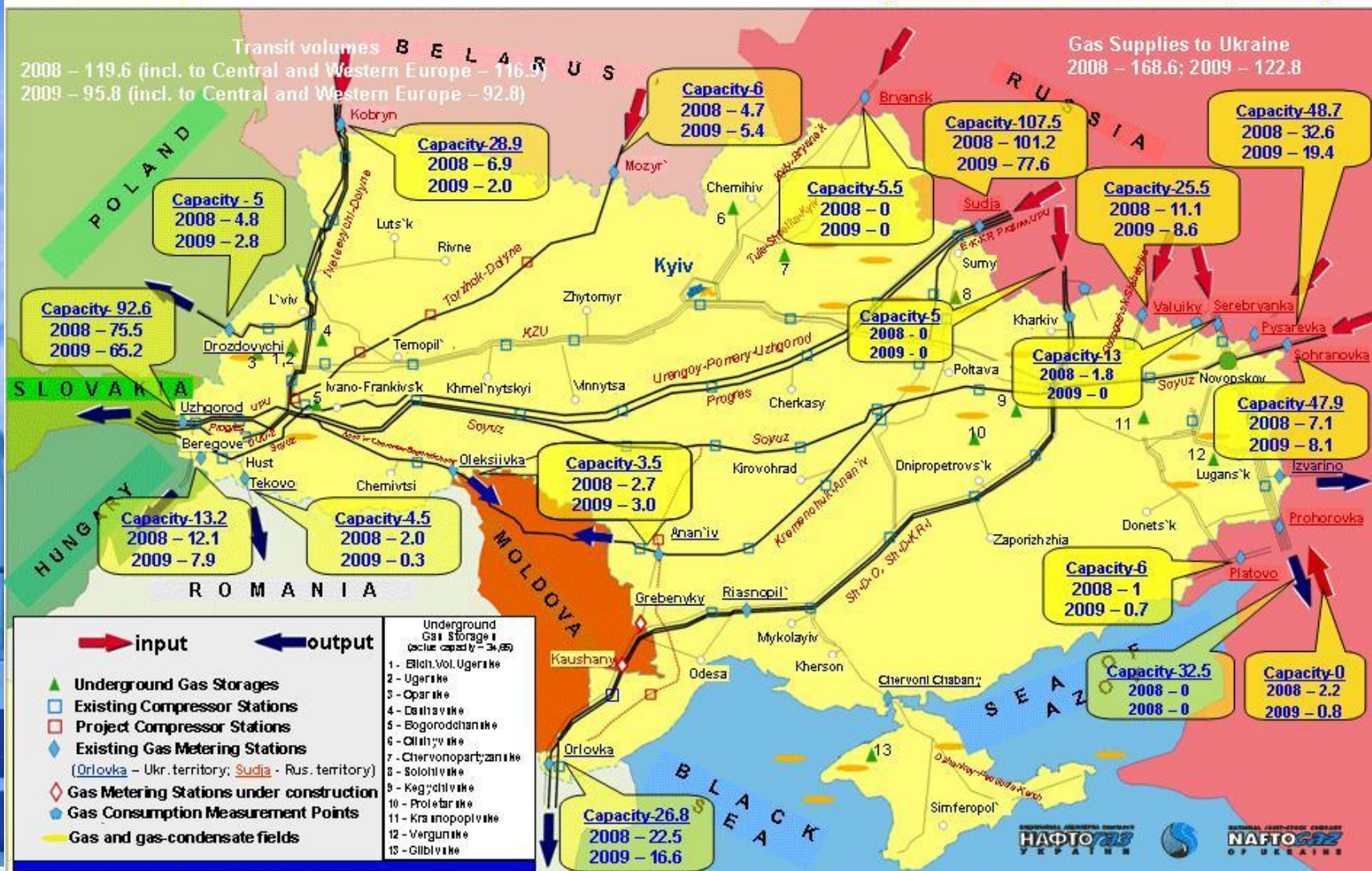
According to VNIIGAZ calculations first one should have capacity near 0,6 bcm of working gas, and the peak-shaver should have daily rate capacity 30-35 mcm to cover 5 days long fluctuations (total volume 180 mcm).

Similar characteristics has UGS Etzel (E.ON) 560/31,4; Harsefeld (EMPG) 129/7,2; Mogilno (PGNiG) 380/20,6; UGS of GDF Suez.



Capacities and Actual Volumes of Natural Gas Transit by Ukrainian Gas Transmission System (years 2008, 2009)
billion cubic meters

Input capacity - 288
Output capacity - 178.5
(incl. to Central and Western Europe - 142.1)

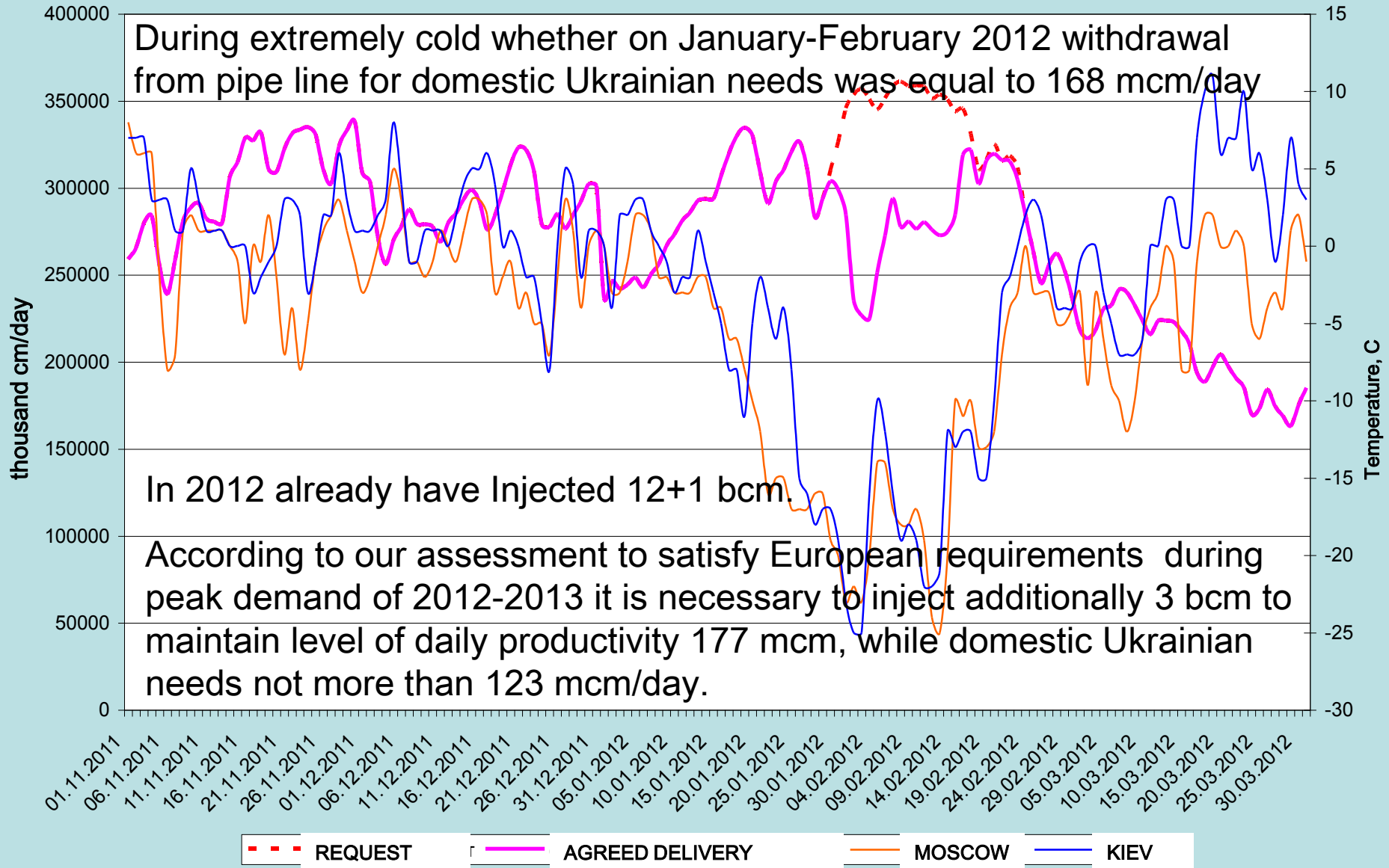




During extremely cold weather on January-February 2012 withdrawal from pipe line for domestic Ukrainian needs was equal to 168 mcm/day

In 2012 already have Injected 12+1 bcm.

According to our assessment to satisfy European requirements during peak demand of 2012-2013 it is necessary to inject additionally 3 bcm to maintain level of daily productivity 177 mcm, while domestic Ukrainian needs not more than 123 mcm/day.



Main principles of Gazprom UGS capacity development:

- ❖ securing of guaranteed gas supply to gas consumers according to contract liabilities;
- ❖ optimal combination of basic UGS and peak shavers;
- ❖ creation of additional gas reserves in UGS for emergency;
- ❖ correlation of operation mode of UGS, transit pipe lines and gas fields.



**Full capacity –
63 bln m³/yr**

**Offshore section
specifications:**

Length – 900 km

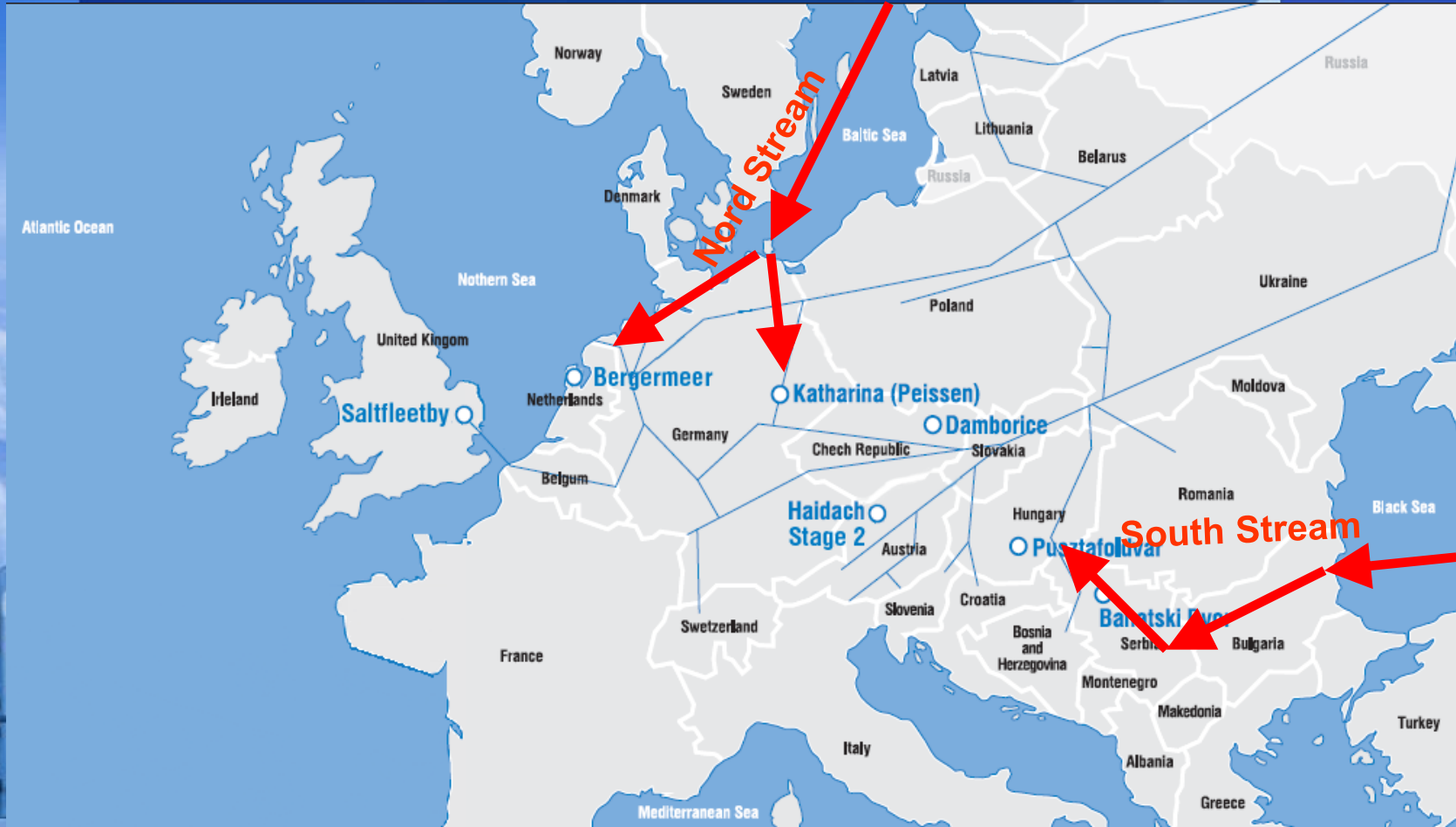
Depth – up to 2,000 m

Feasibility study completion
– early 2011

December 2012 – start of
construction

Startup – late 2015

Promising UGS Projects in Europe



Katharina UGS (salty rocks)



- **Aim of the project:**

- ✓ Securing of gas supply to the customers in Germany, France, Czech Republic;
- ✓ Securing of gas supply security through OPAL and YAGAL pipelines.

- **Structure:**

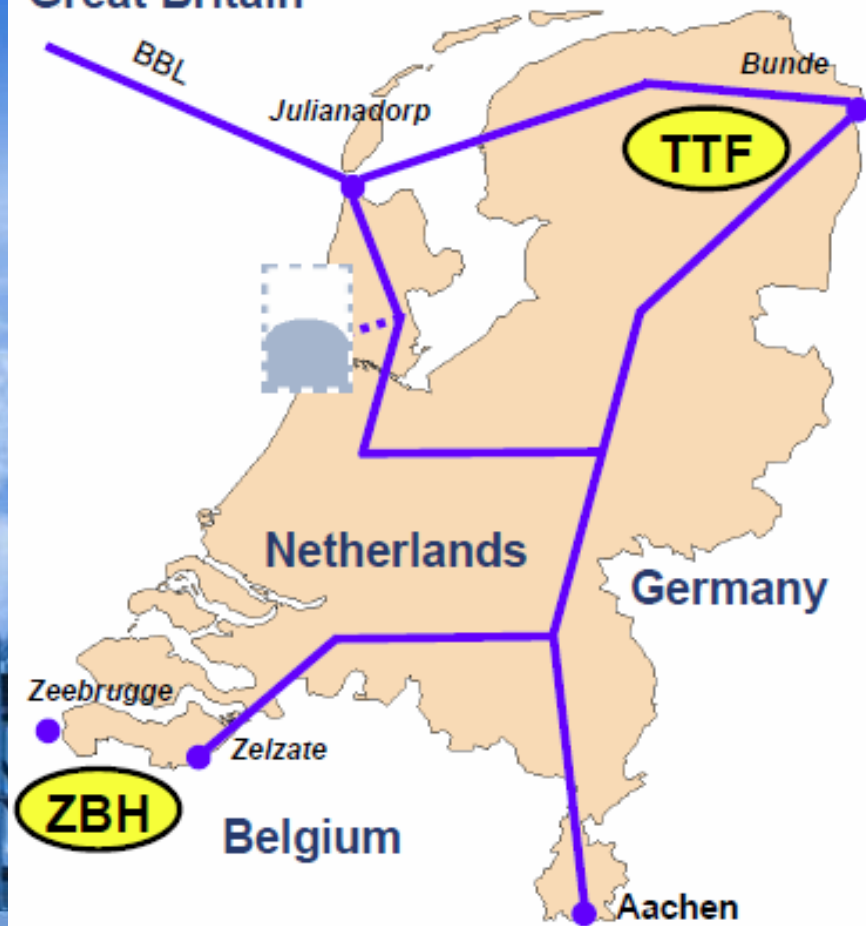
Gazprom	50%
VNG	50%

- **Technical parameters:**

- ✓ Active volume 629 mcm
- ✓ Withdrawal rate 26 mcm/day

UGS Bergermeer

Great Britain



Aim of the project:

Securing of gas supply to the customers in Western Europe through Nord Stream pipeline;
Ensuring of secure operating regime of Nord Stream pipeline.

Gazprom share in the project:

Active volume: 1,9 bcm
Withdrawal rate: 26,4 mcm/day



Damborjice UGS

Working Gas	.10 ⁶ m ³	456
Cushion Gas (total)	.10 ⁶ m ³	444
I/W Rate	.10 ⁶ m ³ /d	4,6 / 7,6
Working Pressure Range	MPa	9,5 – 18,5
CG/WG	-	1,03



Damborjice



**Thank You for Your
attention!**