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# Czech Gas Industry and Gazelle Pipeline

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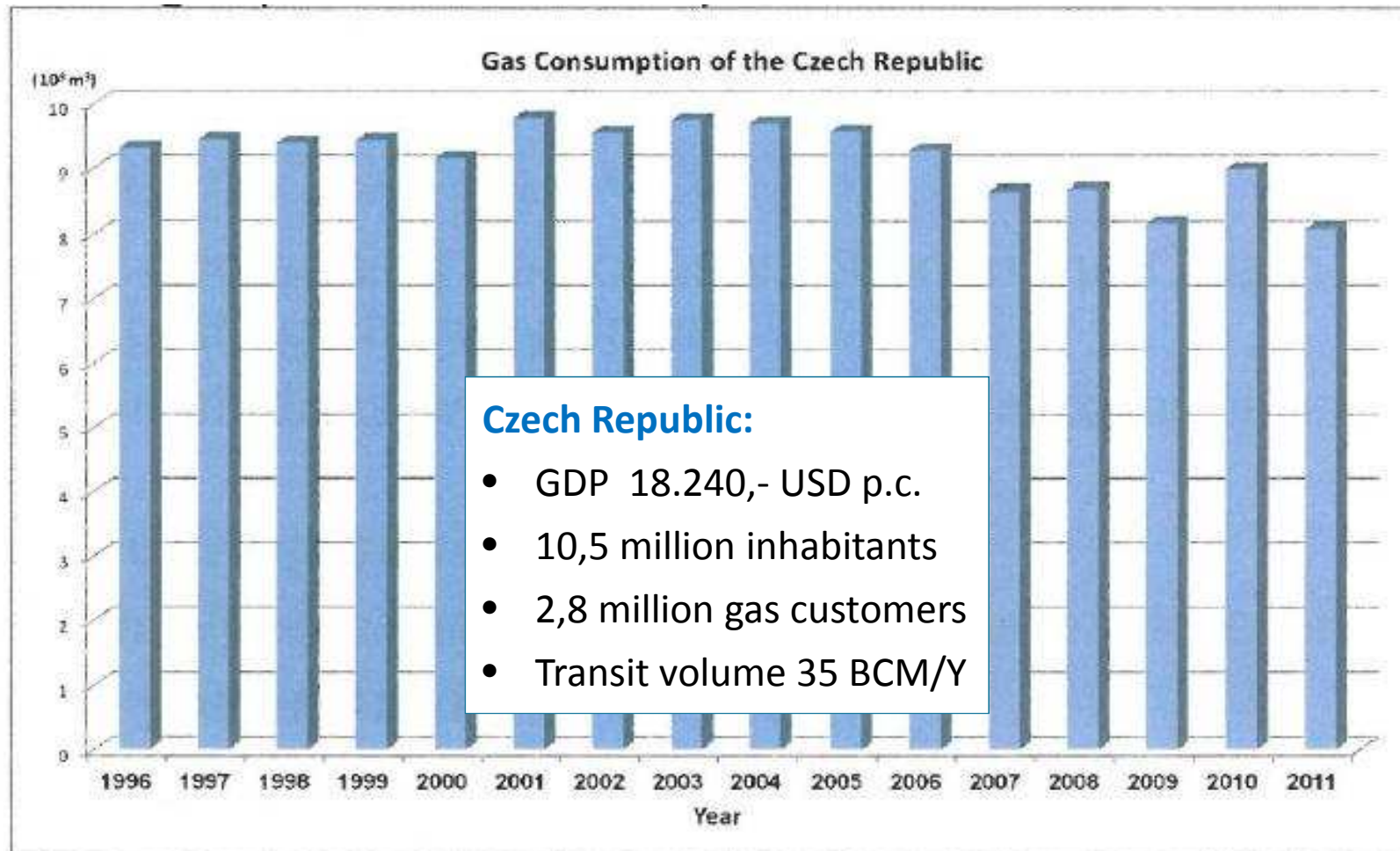




# Czech Republic: Gas Industry Fact Sheet

Sector	Company	Unit	Value	Country's share
Transmission	NET4GAS (Allianz/Borealis)	grid km	3 800	100%
Distribution	RWE	grid km	53 800	87,8%
	E.ON	grid km	3 800	6,2%
	Prague Gas Co. (E.ON>50%)	grid km	3 700	6,0%
Gas Storage	RWE	storage bcm	2,6	76,5%
	MND	storage bcm	0,8	23,5%
Trading	RWE	share %		52%
	Prague Gas Co. (E.ON>50%)	share %		10%
	E.ON	share %		5%
	Vemex	share %		5%
	Other ~200 traders	share %		28%

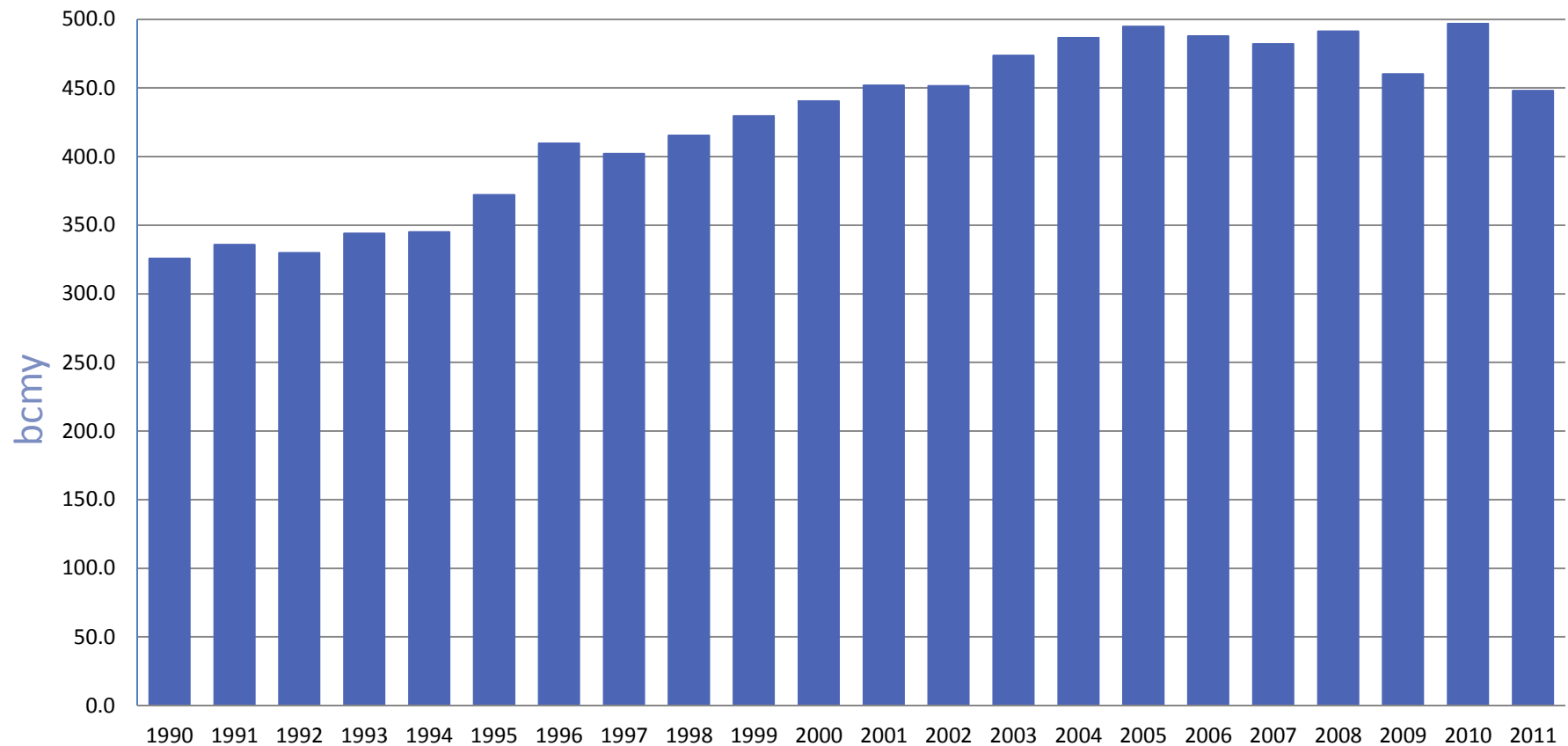
## Natural Gas Consumption (BCMY) Czech Republic 1996 – 2011





## Natural Gas Consumption (BCM/Y) Europe 1990 – 2011

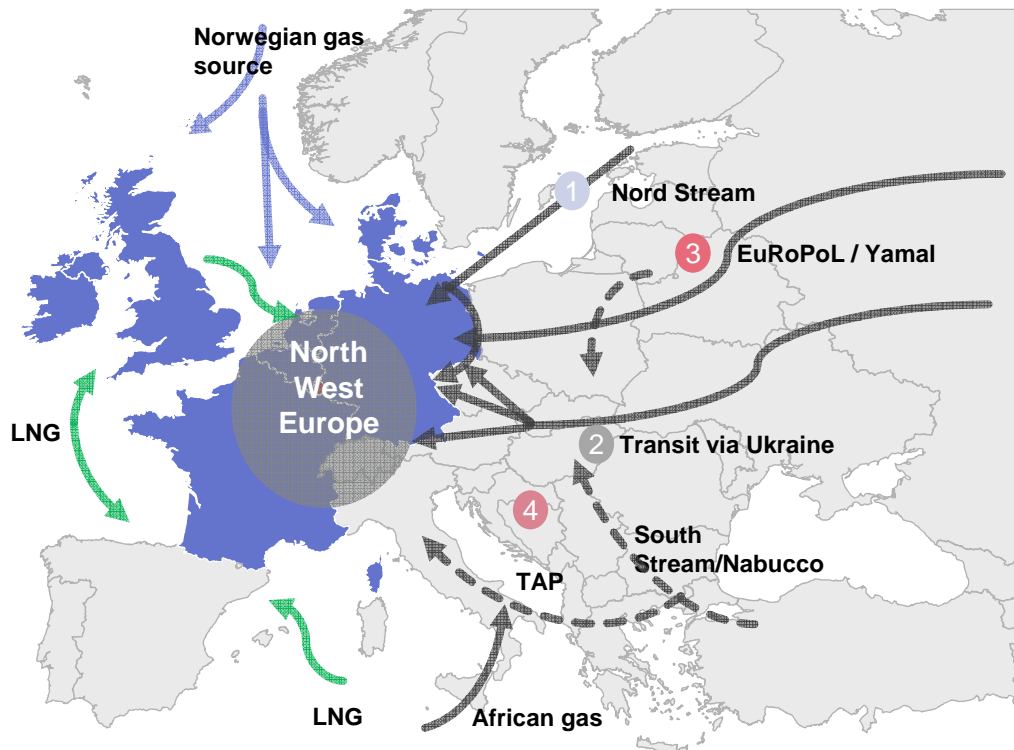
Max. consumption of natural gas: 496,7 BCM/Y - 2010



SOURCE: British Petrol Statistical Review of World Energy, červen 2012

# NET4GAS: a bridge between North-Western Europe, Central Europe and the East

## Import capacities



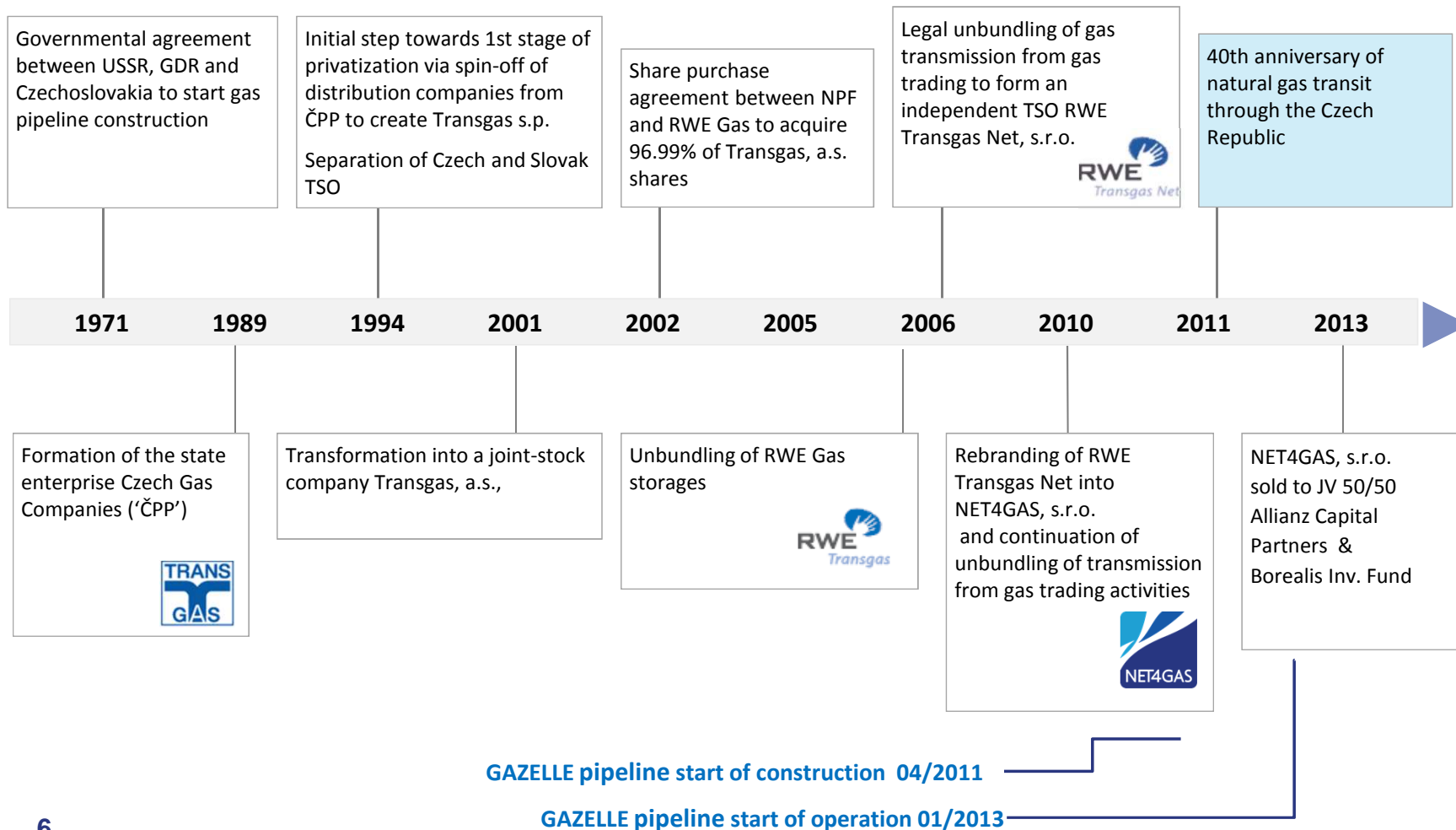
## Import routes

- 1 **Nord Stream I. + II.**
  - Technical capacity 55 bcm/a
  - 1,224 through Baltic sea
  - Owners Gazprom, Wintershall, E.ON Ruhrgas, Gasunie and GDF SUEZ
- 2 **Central corridor (via Ukraine and Slovakia)**
  - Technical capacity 109bcm/a
  - Historical route empowered by important ustorage capacities
- 3 **EuRoPoL/Yamal**
  - Technical capacity 32 bcm/a
  - Via Rusia Byelarus and Poland
  - Strong position of Gazprom through Beltransgaz and JV in EuRoPoL (with Polish PGNiG)
  - Yamal II in question (through Slovakia)
- 4 **South corridor**
  - South Stream is winning, Nabucco lost...



# NET4GAS: transporting gas to the Czech Republic and North-Western Europe for 40 years

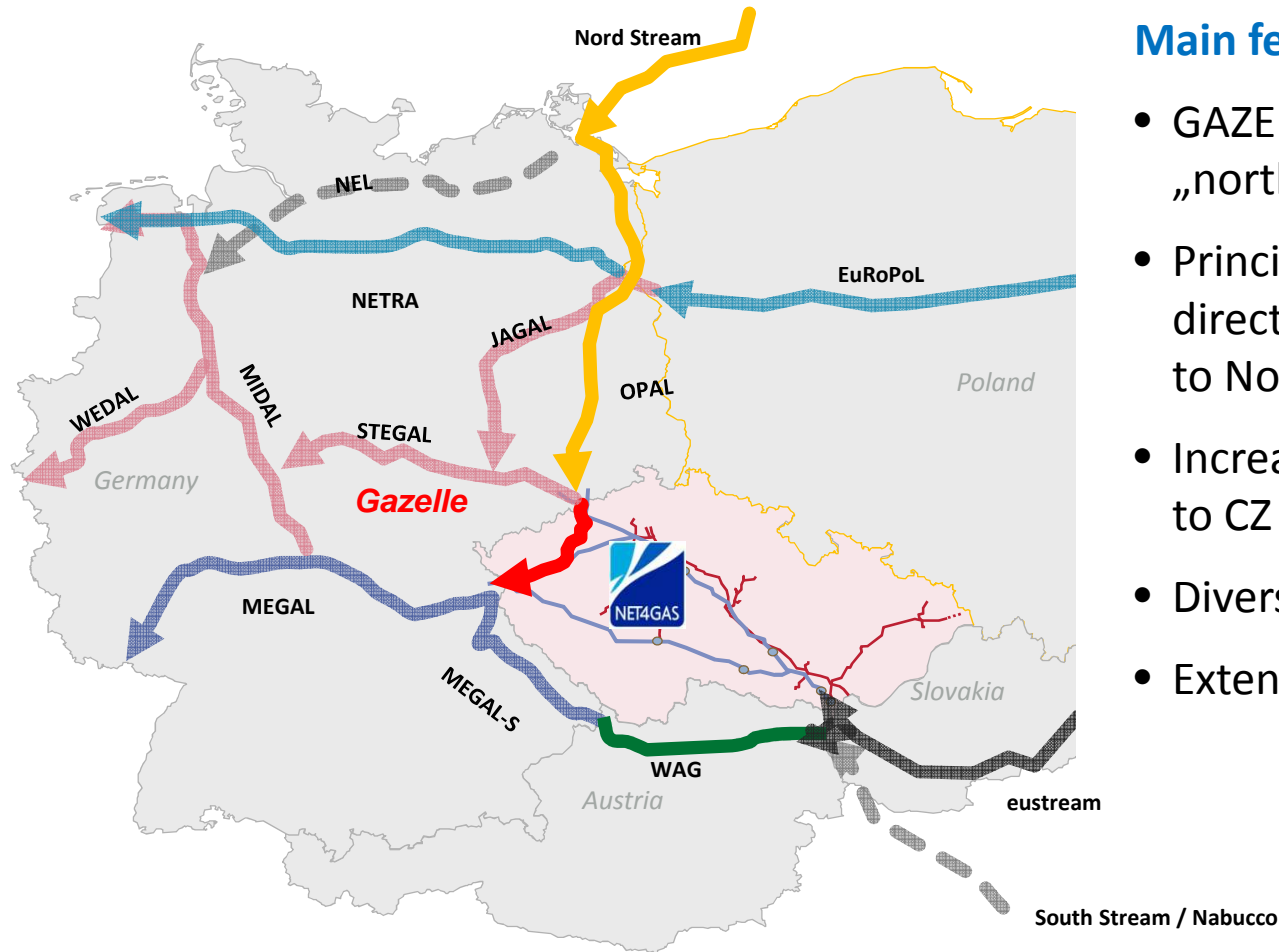
## NET4GAS history



# Six steps to flexibility of NET4GAS grid



# Connecting Markets: the GAZELLE Project



## Main features:

- GAZELLE - a part of a new „northern gas route“
- Principal change of transit direction: from East-West to North-South
- Increased security of supply to CZ and EU
- Diversification
- Extended flexibility



# Nord Stream – OPAL / NEL – GAZELLE

	Nord Stream	NEL	OPAL	GAZELLE
PN [bar]	220 200 170	100	100	85
DN [mm]	1 200	1 200	1 400	1 400
Q [BCM/year]	55 (2 x 27,5)	20	35	30 - 33
LENGTH [km]	2 x 1224	440	470	166
START-UP [year]	1. 2011 2. 2012	2012	2012	2013
INVESTMENT COST [mil €]	7 400	1 000	1 000	400





## GAZELLE – Basic Data

**Annual transport capacity 30 BCM/Y** represents more than tripple of annual gas consumption of the whole Czech Republic.

**Hourly capacity 3,74 MCM/Y** = 38 970 MWh might feed as many CCGT plants as needed to compensate total power output of nuclear power plants to be shut down in Germany.

### **Major risks within preparation and execution:**

- Land owners and easements (**1,035 easement contracts** negotiated and signed)
- Authorization of the construction
- Construction contractor in troubles

**Supported by the government :** the construction was claimed as „public interest“

### **Completed on time & budget**

- Border delivery station      04/2011 – 09/2011 ... 6 months
- Pipeline 166 km                10/2011 – 01/2013 ... 15 months





## GAZELLE – Technical Data

Pipeline length:	166 km
Substations:	1 border delivery station 3 hubs – distribution points 6 section valves
Pipe Diameter:	1400 mm (56")
Pipe Thickness:	18 - 25,5 mm
Pipes' Length:	18 m
Maximal Overpressure:	84 barg
Total pipeline volume:	245 000 m <sup>3</sup>
Total weights of pipes:	120 000 tons
<u>Gazelle crosses:</u>	66 roads 13 railroads 51 water courses





## GAZELLE – Work Execution

- 1 – Surveys, measurements
- 2 – Tree cutting
- 3 – ROW preparation
- 4 – Top soil stripping
- 5 – Pipe stringing
- 6 – Welding (including NDT and repair)
- 7 – Insulations
- 8 – Excavations
- 9 – Pipe lowering
- 10 – Backfilling
- 11 – Hydrotests/stresstests
- 12 – Tie-ins/golden welds
- 13 – Calibration, cleaning, drying





## GAZELLE – Equipment and Manpower

Cranes, side booms:	53
Dozers, excavators:	79
Welding tractors, tents:	107
Trucks, dumpers:	18
Manpower:	650



**Over 1 million man-hours worked-out**





## GAZELLE – Public Acceptance

- Government:** the construction was claimed as of „Public Interest“.
- Authorities:** no significant obstacles, among others due to its „Public Interest“ status;  
significant delay due to seasonal preservation of nature (bird preservation);  
tough dealings with Fire Protection Office
- Regions & Villages:** open approach & frequent communication;  
rather partnering than fighting;  
compensation of damages (i.e. roads).
- Green movements:** no attack thanks to long term good relations;  
NET4GAS is No.1 sponsor of environmental activities in the country.
- Private land owners:** mitigation through a dedicated litigator  
compensation for easements, in principle equal for anyone  
compensation for crop damages  
no expropriation applied



# THANK YOU FOR YOUR ATTENTION

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POZNALI

BYSTE,

ŽE TUDY

VEDE

PLYNOVOD?

WOULD YOU  
RECOGNIZE THERE  
IS A PIPELINE  
SOMEWHERE  
THERE?



Dostatek energie je stále významnějším tématem budoucích dní. Společnost NET4GAS dělá již dnes všechno proto, aby měla Česká republika i v budoucnu dostatek energie ze zemního plynu k topení, vaření i výrobě elektřiny. Proto nyní buduje nový plynovod GAZELA, díky kterému budete mít ještě větší jistotu, že nepřijdete o teplo domova.

[www.net4gas.cz](http://www.net4gas.cz)