

Enlarging and Integrating Energy Security

Assessing infrastructure in the electricity and gas sectors

Country Risk Assessment Exercise The gas supply case of Bulgaria

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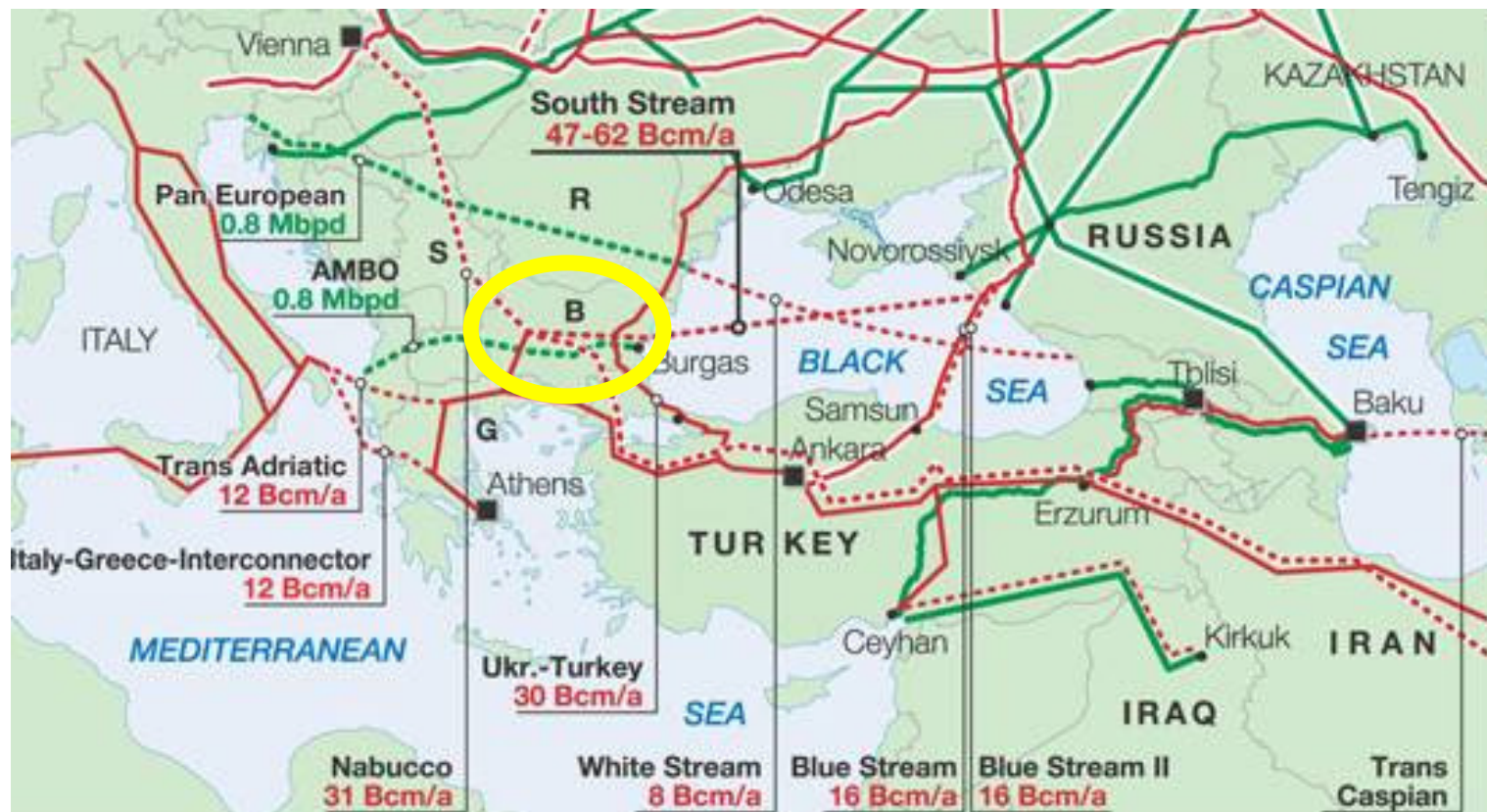
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Contents

1. Bulgaria's geopolitical position in terms of natural gas
2. National energy balances – import and consumption
3. Current transit, transmission, storage, and distribution infrastructure
4. Energy supply risks – risks and possible investments

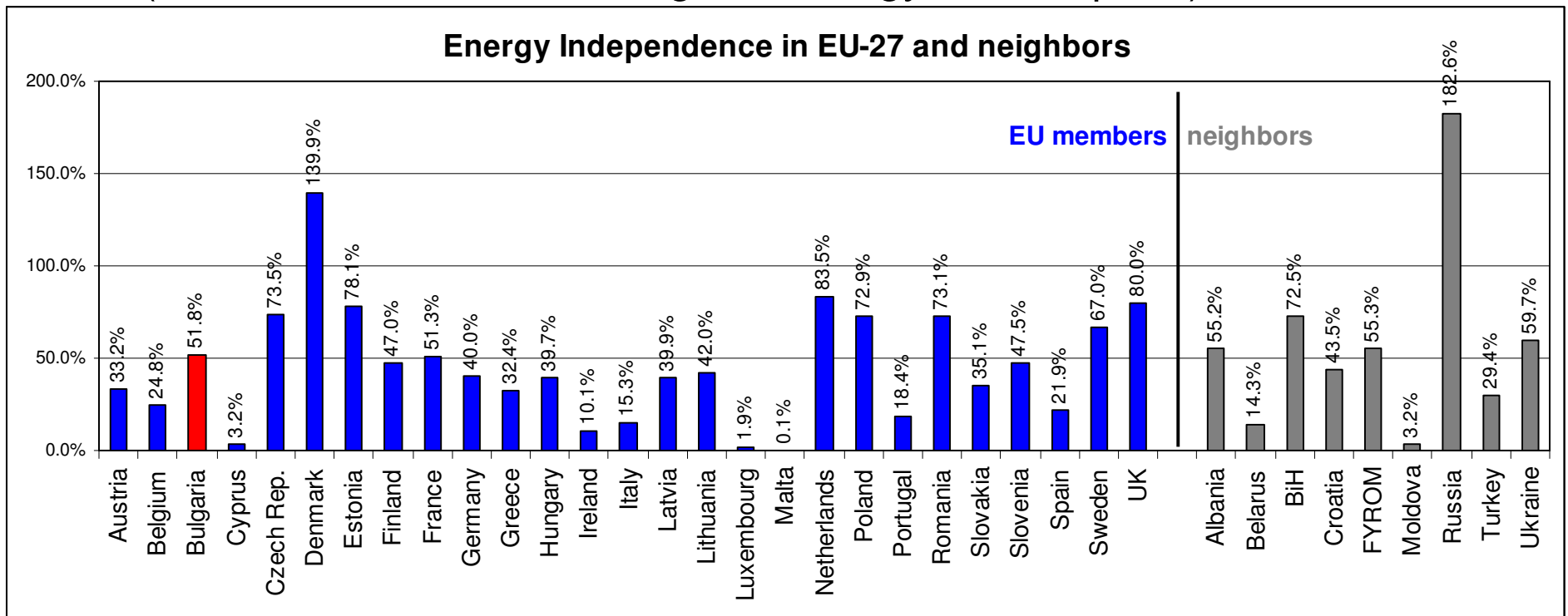
Geopolitical Position

- Situated on the Balkan Peninsula, Bulgaria has a significant role in transiting natural gas from the Middle East and Central Asia to Southern and Central Europe
- More info: “Bulgaria – gas consumer or future gas hub”
(<http://www.europeanenergyreview.eu/site/pagina.php?id=1764>)



National Energy Balances

- **Natural gas** - 12.4% of Bulgaria's gross energy consumption
- **Energy independence** of Bulgaria in the period 2005-2008 is diminishing – from 54.0% to 51.8%. (according to EUROSTAT, **nuclear energy** is considered local resource, even if fuel is imported (nuclear is about 22.2% of gross energy consumption))

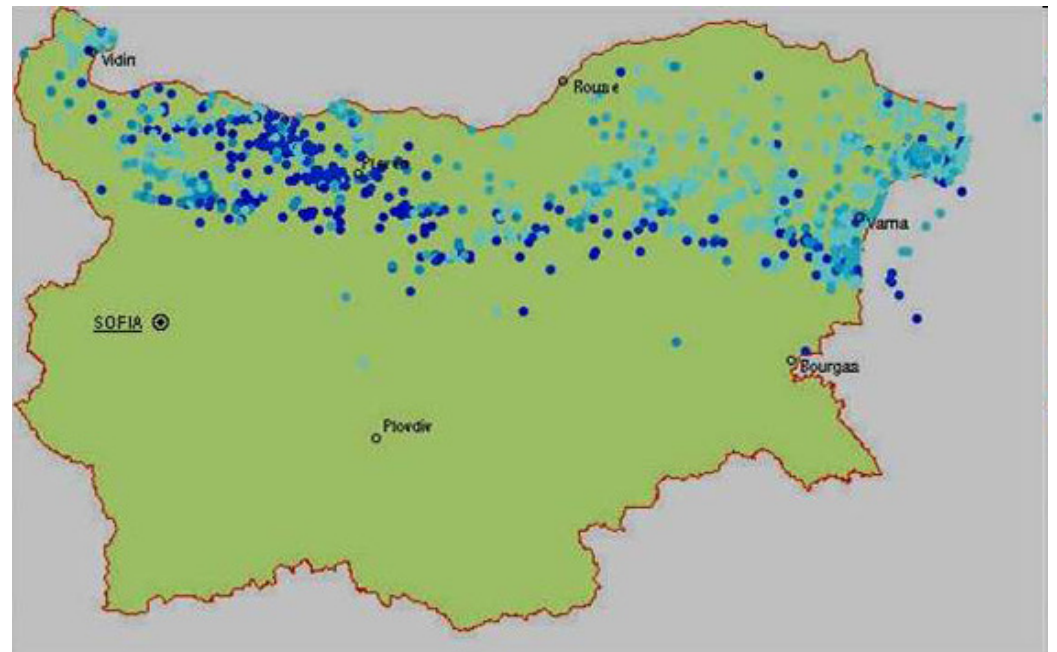


Gas suppliers (& intermediaries?)

	mcm		share (%)	
Type of supplies	2010	2009	2010	2009
1. Imported gas	2480	2475	97.87%	99.64%
1.1. Overgas Inc. AD	2069	2000	81.65%	80.52%
1.2. WIEE	360	429	14.21%	17.27%
1.3. DEPA (Greece)	0	3	0.00%	0.12%
1.4. Gazprom Export	51	43	2.01%	1.73%
2. Local sources	54	9	2.13%	0.36%

Shale gas update

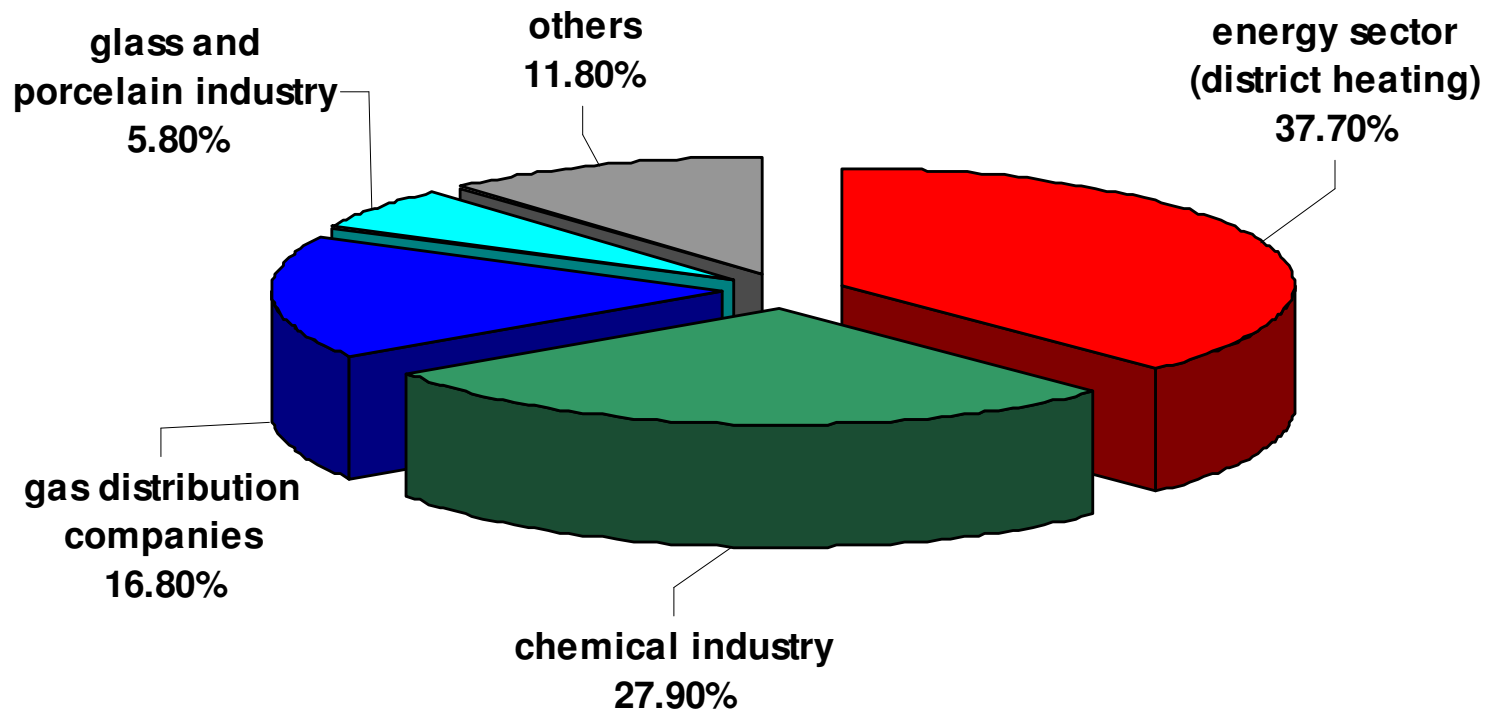
- Chevron pays 30 mln EUR for first shale gas exploration concession
- According to estimates, shale gas reserves may total between 300 and 1000 bcm (enough for 100-300 years with current consumption)
- About 1000 conventional wells have been drilled in Bulgaria until now, “fracking” on this scale will be used for the first time
- Strong negative reaction from environmentalists and some political parties
- More info:
“Shale gas battle in Bulgaria – high stakes for Europe”



(<http://www.europeanenergyreview.eu/site/pagina.php?id=3178>)

Demand-side

Gas consumers in Bulgaria ('2010)



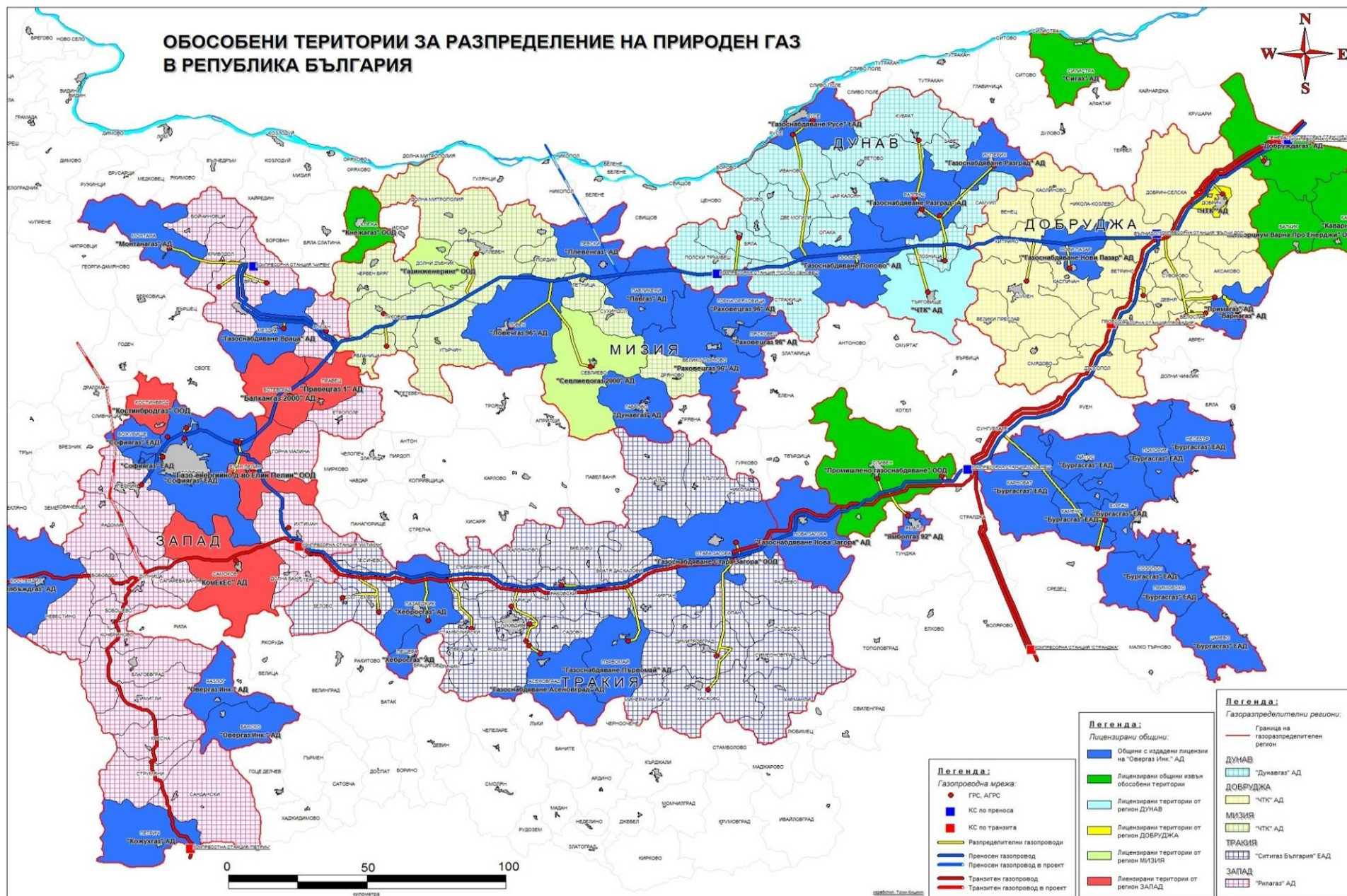
Some additional gas supply & demand figures

- Total piped gas capacity in 2010: **76.7 mcm/day**
 - *(or about 28 bcm p.a.) - this is the gas pipeline from Russia, which supplies gas both for Bulgaria and for transit to neighboring countries. The entry point is at Negru voda (RO-BG border)*
- Total gas production capacity in 2010: **0.15 mcm/day**
- Average gas demand in 2010: **7.29 mcm/day**
- Total storage deliverability in 2010: **5 mcm/day**
- Peak demand (1-in-20): **12.5 mcm/day**
 - *in the beginning of January 2009, just before the Ukraine-Russia supply crisis*

National gas transit and transmission infrastructure (Bulgartransgaz EAD)



National gas distribution infrastructure



Scenarios for possible gas crises

Risk scenarios endangering security of gas supply Description of the risk	Timeframe (choose: short, medium, long term)	Probability (choose: low, moderate, high)	Impact (choose: minor, noticeable, severe)	Costs of the risk (in Million €)	Responsible actor (choose: system operator, supplier, regulatory authority, government authority, other, etc.)
Interruption in gas supply through Ukraine caused by Ukraine-Russia relations (interruption for 15 days)	Short term	Moderate	Severe	About 100 million EUR	System Operator; Supplier
Failure to continue contracts with Gazprom and/or its subsidiaries (no interruption)	Medium term	Low	Noticeable	About 20 million EUR	Supplier; Government Authority

Major bottlenecks & possible investments (1/3)

- **Production**

- **Local sources** of conventional gas are not sufficient to cover more than 5-10% of national consumption. However, there are currently exploration works starting for shale gas

- **Storage**

- Bulgaria has only **one gas storage facility** at Chiren (North-East part of the country). Its capacity does not allow covering of peak daily consumption during winter days. A project for increasing the extraction capacities has been started.
- A **second gas storage facility** will be built at the former gas field of Galata (operated until now by Melrose Resources). The two gas storage facilities should provide better security of supply in terms of storage.

Major bottlenecks & possible investments (2/3)

- **Transmission**

- There are projects for constructing **gas interconnectors** with neighboring countries - Greece, Turkey, Romania, and Serbia. Interconnectors with Greece and Turkey would allow alternative supplies of gas from the Middle East and Central Asia (e.g. Azerbaijan). Bi-directional connections with Romania and Serbia could provide supply security in cases when main supplies are interrupted.
- **Current connections** to Greece, Turkey, and Macedonia are only for transit of Russian gas coming from Bulgaria.
- **The construction of Nabucco and South Stream** pipelines would also improve security of supply in terms of transmission. The EU-supported project Nabucco would bring Caspian and Middle Eastern gas, while South Stream should give access to Russian gas via the Black Sea without third countries on the route.

Major bottlenecks & possible investments (3/3)

- **Distribution**

- Currently about 80% of the municipalities in Bulgaria are **not connected** to the transmission network. Investment in distribution networks started in the beginning of the 1990s and is still going at a slow pace.

- **End use**

- The most important step from the end users side is to guarantee a **reserve fuel** for energy consumption. Unfortunately, some of the gas appliances at end consumers' sites are not able to use reserve fuels.

Thank you for your kind attention!

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