

## PREVENTIVE ACTION PLAN

The present plan is drawn upon the requirements of Article 5, paragraph 1 of the Regulation (EU) N° 994/2010 of the European Parliament and of the Council of October 20th 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC and Article 72a para. 1, item 1 of the Energy Act.

### **I. Results of the risk assessment of the gas supply security, prepared under Article 9 of the Regulation**

#### **1. Methodology of the risk assessment**

The applied risk assessment methodology is based on coherent analysis of the following elements:

<b>Situation Assessment</b>	<b>Identifying the risks</b>	<b>Risk analysis</b>	<b>Risk assessment</b>
<b>Description of the system</b>	<b>Source</b>	<b>Possible scenarios and consequences</b>	<b>Measures to mitigate the risk</b>
<b>Establishing the risk assessment criteria</b>	<b>Duration</b>		

The aim is to present the Bulgarian situation adequately, taking into account the specificities of using natural gas in the country, as well as taking into account the expected significant changes concerning the implementation of various infrastructure projects, which will contribute to the change in the supply and demand of natural gas in the medium- and long-term and hence to the related risks to safeguard security of gas supply in the country.

#### **2. Share of gas in the energy mix of Bulgaria**

The primary energy production covers around 55% of the gross domestic energy consumption with relatively unchanged structure during the last years and with dynamics resulting from the consumption dynamics. Around 2/3 of the fuels and the energy are used in plants for the production of electricity and heat, approximately 1/3 are used in oil refineries for the production of oil products and insignificant share is used in briquette plants, blast furnaces and coking plants. The energy produced in result of the transformation is approximately 60% of the input energy. The energy available for end consumption is used for non-energy consumption (mainly in the chemical sector) and for energy consumption. Industry and transport are dominant energy consumers, with 29% and 33% shares of the final energy consumption respectively.

The energy dependence of Bulgaria in 2011 for natural gas was very high – 85.4%. The import of gas for Bulgaria in 2011, including the needed quantities for the work of the compressor

stations in the country, was 2,564 mln m<sup>3</sup> and was provided from Russia – the sole gas supplier of Bulgaria. The country's gas production was 438 million m<sup>3</sup>, provided by "Prouchvane i dobiv na neft i gaz" JSC ("Oil and Gas Exploration and Production" JSC) and Melrose Resources JSC.

The gas consumption in the country for 2011 was 2,994 million m<sup>3</sup>. The main consumers are the commercial companies of Energy and Chemistry industries, whose aggregated consumption equals 1,960 million m<sup>3</sup> or 66% of the consumption in the economy and 65% of the total gas consumption in the country. Important national specificity is that gaseous fuels are used for the production of 52.9% of the produced heat (totals 14.6 TWh for 2011). The share of natural gas in the structure of final energy consumption is around 12%.

### **3. Gas supplies for the Bulgarian gas market are secured by the concluded contracts with:**

- "Overgas Inc." JSC
- WIEE
- OOO "Gaspromexport"
- "Melrose Resources" JSC

The contract terms allow "Bulgargaz" JSC to receive the quantities necessary to meet the customers' demand, including the daily and monthly quantities. The contracts with WIEE and "Overgas Inc." JSC expire at the end of 2012. However in the Memorandum of December 2006, OOO "Gaspromeksport" committed itself to guarantee the supplies of natural gas for the Bulgarian market until 2030. A new contract for deliveries of natural gas for the Bulgarian market from 2013 was signed on 15 November 2012 between "Bulgargaz" JSC and OOO "Gazpromexport". The contract is for a period of 10 years, with the option of renegotiating prices and volumes after the sixth year.

At present, natural gas supply is carried out from one source (the Russian Federation) along one route – through the territory of Ukraine, Moldova and Romania. "Bulgargaz" JSC being the public provider, has at its disposal gas reserves, stored in UGS "Chiren", owned by "Bulgargaz" JSC, as follows:

Year	Quantity (mln m3)
as of 1.1.2009	563
as of 1.1.2010	523
as of 1.1.2011	397
as of 1.1.2012	379

### **4. Natural gas role for the production of electricity and heat, as well as for the industrial sector functioning**

The main consumption of natural gas is for industrial purposes, between 60% and 70%, and we expect this share to maintain during the next years. Out of the total volume of natural gas consumed, the share in the energy sector is between 30% and 40%, with the tendency to increase the electricity-production share. The consumption in the households sector is very low, and the expected increase for the period 2012-2017 is between 1.9% and 2.5% of the total consumption of natural gas in the country.

<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Total ( <i>bcm</i> )	2.900	3.100	3.300	3.900	4.000	4.300
Industry and other sectors ( <i>bcm</i> )	2.840	3.033	3.225	3.804	3.903	4.192
Domestic sector ( <i>bcm</i> )	0.060	0.067	0.075	0.096	0.097	0.108
Consumption share of the domestic sector in %	1.88	2.03	1.97	2.47	2.44	2.51

## **5. Configuration of the network, actual flows of natural gas, including the possibility of physical gas flows in both directions**

„Bulgartransgaz“ JSC is the owner and operator of the ring-shaped gas transmission system with high pressure branches for transport of natural gas to large customers and gas distribution companies in the country. The transmission system includes:

5.1. Gas transmission network for customers in the Republic of Bulgaria (capacity – 8 bcm/year)

- Main gas pipelines and high pressure branches – 1 700 km
- Three compressor stations with total capacity of 49 MW
- 68 stations for decreasing the pressure
- 8 GMS (gas metering stations).

5.2. Transit gas transmission network (capacity – 18.7 bcm/year)

- Main gas pipelines with total length – 945 km and capacity to:
  - Turkey ~ 14 bcm/year
  - Greece ~ 3.7 bcm/year
  - Macedonia ~ 1.0 bcm/year
- Six compressor stations with total capacity of 214 MW;

5.3. UGS "Chiren" with one compressor station with capacity 10 MW

## **6. Natural gas market volume and forecasts for future trends of development**

The gas consumption in the country in 2011 was 2,994 million m<sup>3</sup>, representing 12% increase compared to 2010. The sales dynamics of the gas distribution companies, whose networks are in process of development and expansion, are at focus. In 2011, their sales have increased with 14% compared to 2010.

Forecasts for expected consumption of natural gas in the Republic of Bulgaria for the period 2012-2017									
PERIOD	bln m <sup>3</sup>	Distributed in industrial branches							
Sector	Annual	Energy		Chemical	Metal-lurgy	Construc-tion material s / and cement/	Glass and china	Distribution companies	Others and intangible area
Year	Volume	Total:	including for production of electricity					Total	
2012	2.900	1.081	0.442	0.763	0.093	0.045	0.188	0.455	0.276
average daily in mln m <sup>3</sup>	7 788.414	2903.198	1187.062	2 049.159	249.646	120.884	505.785	1 221.975	737.767
2013	3.100	1.098	0.443	0.835	0.103	0.045	0.263	0.493	0.262
average daily in mln m <sup>3</sup>	8 415.373	2 980.671	1 202.584	2 266.721	279.567	122.674	715.209	1 338.316	712.215
2014	3.300	1.237	0.590	0.853	0.133	0.041	0.268	0.533	0.236
average daily in mln m <sup>3</sup>	9 067.449	3 398.820	1 621.150	2 343.798	366.344	112.785	736.019	1 464.530	645.053
2015	3.900	1.565	0.951	1.056	0.140	0.042	0.268	0.572	0.257
average daily in mln m <sup>3</sup>	10 639.068	4 269.267	2 594.296	2 880.732	381.604	113.582	731.461	1 560.397	702.026
2016	4.000	1.622	1.035	1.052	0.143	0.042	0.268	0.623	0.250
average daily in mln m <sup>3</sup>	10 988.877	4 455.990	2 843.372	2 890.075	392.333	115.938	737.326	1 711.518	685.698
2017	4.300	1.802	1.216	1.066	0.147	0.043	0.268	0.675	0.299
average daily in mln m <sup>3</sup>	11 656.042	4 885.072	3 296.475	2 889.837	398.190	116.290	726.645	1 829.869	811.039

#### 6.1. Main institutions in the energy sector

- **The Minister of Economy, Energy and Tourism** is the public authority which conducts the country's energy policy. The energy policy is set by the Council of

Ministers (CoM) of the the Republic of Bulgaria. The Ministry of Economy, Energy and Tourism, known by this name since mid-2009, after the merge of the Ministry of Economy and Energy with the State Agency for Tourism, through the minister develops and offers to the CoM the strategic guidelines and development programs of the sector. The minister also carries out the function of an owner of the energy companies – state property. (<http://www.mi.government.bg>)

- **State Energy and Water Regulatory Commission** (SEWRC) is an independent specialized public authority responsible for the state regulation of the activities in the energy sector, water supply and sewerage services. The Commission was established in 1999 as State Energy Regulatory Commission. In the energy sector, SEWRC performs monitoring of the energy markets, price and license regulatory control regarding the activities of production, transmission and distribution of electricity, transmission and distribution of natural gas, trading with electricity and natural gas, production and transmission of heat. (<http://www.dker.bg>)
- **Sustainable Energy Development Agency** (SEDA) is a legal entity at state budget support with a status of an executive agency under the Minister of Economy, Energy and Tourism established in 2002 as Energy Efficiency Agency. Its functions are to develop programs and projects to increase the energy efficiency and the usage of renewable energy sources, providing for funds for their co-financing and implementation. (<http://www.seea.government.bg>)

## 6.2. Main gas companies

- **Production** – at this point the production is conducted by **“Melrose Resources” JSC** and **“Oil and Gas Exploration and Production” JSC (OGEP JSC)**.
- **Transmission and storage of natural gas – “Bulgartransgaz” JSC**, a subsidiary of the “Bulgarian Energy Holding” JSC, is a combined operator with scope of business: transmission, transit transmission and storage of natural gas, maintenance, operation, management and development of the underground gas storage, development of programs and activities for conformity with the requirements of the European Union for the gas-transmission business. The company develops pricing policy for connection, transmission and storage of natural gas under the current legislation, administers the gas transactions and organises the balancing of the gas market. Apart from the operative management of the gas transmission system, the company performs engineering, investment and service activities. “Bulgartransgaz” JSC holds licenses for transmission, transit transmission and storage of natural gas issued by SEWRC. (<http://www.bulgartransgaz.bg>).
- **Public Provision - „Bulgargaz” JSC** is a subsidiary of the “Bulgarian Energy Holding” JSC, which holds the only license in the country for public provision of natural gas issued by SEWRC. (<http://www.bulgargaz.bg>)
- **Gas distribution** – there are 5 regional licenses for 101 municipalities and 26 local licenses for 50 municipalities for gas distribution and low pressure supply. The regional licenses are: Black Sea Technology Company JSC (**BSTC JSC**) for the regions of Dobrudzha (19 municipalities) and Mizia (9 municipalities); **“Citygas Bulgaria” JSC** for “Trakia” region (26 municipalities); **“Rilagas” JSC** for region “West” (22 municipalities) and **“Overgas-sever” JSC** for region “Danube” (25

municipalities). Most of the local licenses belong to subsidiaries of “Overgas Inc.” JSC.

## II. Measures, volumes, capacities and time, needed for implementation of the standards for the infrastructure and supply of gas.

### 1. Measures for the implementation of the infrastructure standard

According to Article 6 of the Regulation, the N-1 formula describes the ability of the technical capacity of the gas infrastructure to satisfy total gas demand in the calculated area in the event of disruption of the single largest gas infrastructure during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years.

No later than December 3, 2014, in the event of disruption of the single largest gas infrastructure, the capacity of the remaining infrastructure should be able to supply the required volume gas to satisfy total gas demand in the calculated area for a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years, i.e.  $N-1 \geq 100\%$ .

The results of N-1 formula, calculated for the territory of the Republic of Bulgaria are:

$$N - 1 [\%] = \frac{\sum_{m=1}^7 EP_m + S_{\max} + P_{\max} - I_{\max}}{D_{\max}} \times 100, \quad N - 1 \geq 100 \%$$

Where:

<b>EP<sub>1</sub></b>	Technical capacity of GMS “Negru Voda” 1, in mln m <sup>3</sup> / day
<b>EP<sub>2</sub></b>	Technical capacity for reverse transmission from Greece
<b>EP<sub>3</sub></b>	Technical capacity for reverse transmission from Turkey
<b>S<sub>max</sub></b>	Production from UGS Chiren – the maximum possible
<b>P<sub>max</sub></b>	National production of gas - the maximum possible production
<b>D<sub>max</sub></b>	National demand – peak demand
<b>EP<sub>4</sub></b>	Technical capacity for import through the interconnector Greece-Bulgaria
<b>EP<sub>5</sub></b>	Technical capacity for import through the interconnector Turkey-Bulgaria
<b>EP<sub>6</sub></b>	Technical capacity for import through the interconnector Bulgaria-Serbia
<b>EP<sub>7</sub></b>	Technical capacity for import through the interconnector Bulgaria-Romania
<b>I<sub>max</sub></b>	Technical capacity of the single largest gas infrastructure (At present it is GMS “Negru Voda”, i.e. <b>I<sub>max</sub> = EP<sub>1</sub></b> )

Year	P <sub>max</sub>	S <sub>max</sub>	T <sub>max</sub> (EP <sub>1</sub> )	EP <sub>2</sub>	EP <sub>3</sub>	EP <sub>4</sub>	EP <sub>5</sub>	EP <sub>6</sub>	EP <sub>7</sub>	D <sub>max</sub>	N-1
	mln. m <sup>3</sup> / day										
2013	1,4	4,2	20,3	0,0	0,0	0,0	0,0	0,0	1,4	17,1	40,6
2014	2,2	5,5	20,3	3,5	0,0	8,2	0,0	0,0	1,4	18,0	115,3
2015	3,6	5,5	20,3	3,5	0,0	8,2	8,2	4,9	1,4	18,8	187,4
2016	3,6	6,5	20,3	3,5	0,0	8,2	8,2	4,9	1,4	21,0	172,5
2017	3,6	8,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	21,6	174,8
2018	3,4	10,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	22,8	173,6
2019	3,2	10,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	23,4	168,0
2020	3,6	10,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	23,9	166,2
2021	4,0	10,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	24,8	161,9
2022	4,2	10,0	20,3	3,5	0,0	8,2	8,2	4,9	1,4	24,9	162,0

The calculations using the n-1 formula for the infrastructure standard show that until the end of 2014, in the event of disruption of the single largest gas infrastructure (from Russia through Ukraine), the capacity of the remaining infrastructure (the reverse flow from Greece and the increased country's gas production, as well as through newly constructed reverse interconnectors with Greece and Romania) will be able to supply the required volume of gas to satisfy total gas demand in the country for a day of exceptionally high gas demand.

Eventual disruption of supply could be compensated for to some extent by appropriate measures to reduce the consumption of natural gas.

There are some major projects provided for achieving the infrastructure standard as follows – for modernization of the national gas transmission infrastructure, for modernization of compressor stations through integration of low emission gas turbo-compressor units and projects for the construction of interconnectors.

## 2. Measures for implementation of the supply standard

Under article 8 of the Regulation, the natural gas undertakings have to take measures to ensure gas supply to the protected customers of the Member State in the following three cases:

- extreme temperatures during a 7-day peak period occurring with a statistical probability of once in 20 years;
- any period of at least 30 days of exceptionally high gas demand, occurring with a statistical probability of once in 20 years; and
- for a period of at least 30 days in case of disruption of the single largest gas infrastructure under average winter conditions.

Under Article 2, para. 1 of the Regulation, each Member State when defining the term “protected customers” in addition to all household customers connected to a gas distribution network, may also include:

- a. small and medium-sized enterprises, provided that they are connected to a gas distribution network, and essential social services, provided that they are connected to a gas distribution or transmission network, and provided that all these additional customers do not represent more than 20 % of the final use of gas; and
- b. district heating installations to the extent that they deliver heating to household customers and to the customers referred to in point (a) provided that these installations are not able to switch to other fuels and are connected to a gas distribution or transmission network.

The adopted approach in the Republic of Bulgaria is to consider all the above mentioned as protected customers.

There is no significant increase of the gas consumption in the country expected during the next years, which would cause shortage of resources and failure of supplies to the protected customers.

The usage of natural gas in Bulgaria by the consumers, included in the group "protected customers", is at large mediated by the consumption of heat produced by district heating companies (on average around 4.4 mln m<sup>3</sup>/ day during the winter). The daily direct consumption of natural gas in a cold winter day by public, administrative and household clients connected to the gas distribution network totals around 0.5 mln m<sup>3</sup> natural gas. Thus, in a typical winter day, the total consumption of gas by protected customers is around 5 mln m<sup>3</sup> natural gas.

Whereas, the existing capacities and the volumes in UGS "Chiren" allow to support a maximum daily natural gas production of 3.7 mln m<sup>3</sup> for a period of 30 days. The latter confirms the existence of an objective opportunity to guarantee the supplies of the protected customers in the country in the event of disruption of the supplies from Russia, even by independent local sources – production from UGS "Chiren" and gas fields - to the amount of 5.5 mln m<sup>3</sup>/ day. In the event of extreme temperatures and exceptionally high gas demand, the excess demand can be covered without problems by maximum production and higher import of gas.

The daily production of the underground gas storage is directly correlated with the volumes stored in it. If there is less active gas stored, the possible daily withdrawal rates decrease progressively.

### **III. Obligations imposed on the gas undertakings and on the public authorities related to the security of gas supply, including safe operation of the gas system. Information regarding public service obligation related to security of gas supply**

According to Chapter six "Public obligations" of the Energy Act (EA), the energy enterprises are obliged to perform their activities in the interest of the public and of the separate clients and under the requirements of this act and other normative acts, and thus they are to provide for the security of the gas supply, including protection of the sites which are critical infrastructure in the energy sector, the uninterruptedness and the quality of the electricity, heat and natural gas, the effective usage of fuels and energy, environmental protection, life, health and the personal property of the citizens (art. 69 EA).

The Act empowers (art. 70, para. 1 EA) the Minister of Economy, Energy and Tourism to impose on the energy enterprises additional public service obligations related to:

- o uninterruptedness of the supply of electricity, heat and natural gas;



- environmental protection – in concordance with the Minister of Environment and Water, and the protection of the sites which are critical infrastructure in the energy sector

The additional obligations are imposed by an order, which includes:

- the party upon whom the obligation is imposed;
- the content of the obligation;
- terms and conditions of the obligation;
- other terms.

The public service obligations are designed to be clearly defined, transparent, non-discriminatory, verifiable and to guarantee equal access conditions for the gas companies of the EU to the national consumers.

Under the Energy Act (art. 71), the energy enterprises managing the electric power grid, carrying out transmission of electricity, heat and natural gas or distribution of electricity and natural gas, which provide a public service and which have a dominant position on the market within the meaning given by the Protection of Competition Act, shall be subject to the provisions of the said Act insofar as this does not prevent them, de facto or de jure, from performing the obligations assigned thereto.

The public service obligation of the energy enterprises are imposed on them through their issued licenses. The license comprises special terms, which include:

- obligation for effective usage of the energy and energy resources in compliance with the norms and standards related to energy efficiency and environmental protection;
- obligation for conclusion of insurances – types, covered risks and the amount of the insurance coverage;
- requirements for the construction of the energy facility, when the license is issued before its construction;
- requirements for decommissioning of an energy facility.

The energy enterprises have the right to file claims to SEWRC for compensation of expenses concerning public service obligations imposed on them, including ones related to the security of supply, environmental protection and energy efficiency.

The obligation of the gas undertakings to provide services of public interest is introduced in the EA with art. 69, 70, 71. Under art. 181, item 1 of the EA, the gas contracts are signed at regulated prices for services of public interest, concerning the transmission, distribution and supply of natural gas.

An obligation is introduced for the connection to the gas network of gas distribution networks, production companies, gas storage facilities, facilities for liquefied natural gas and facilities for production of gas from renewable sources, so they could have the technical feasibility to be supplied with natural gas. Also an obligation is introduced that the energy enterprises cannot reject a connection to the network and gas supply without objective technical or other reasons for that – EA chapter XII, section VI. The connection prices are regulated by SEWRC - art. 30, para. 1, item 11, and are formed in a transparent and non-discriminatory manner – EA art. 31.

The requirement for transparency of the general terms of the contracts and the general information is introduced by EA art. 38a – 38e, art. 183a and 173 and the Rules for trade in

natural gas – the general terms are published, thus becoming public, and come into effect 30 days after their publishing.

The requirement that the consumers shall have the opportunity to switch to a new supplier is introduced by EA art. 180 and results from the regulated access to the gas transmission and gas distribution networks for all consumers.

Additional measures for consumer protection are stipulated, as provided for in Directive 2009/72 and Directive 2009/73, applicable in the conditions of full liberalization of the energy markets: it is provided for the public suppliers to function as end suppliers with electricity and natural gas. The end supplier is a licensed energy enterprise supplying with electricity or natural gas consumers for household needs and small and medium-sized enterprises, which have not availed of their right to choose their electricity or gas supplier. The end suppliers are obliged to supply, under public general terms, consumer sites connected to the gas distribution network in the respective licensed territory, when those customers have not chosen another supplier. In those cases the regulation of the prices by the State Energy and Water Regulatory Commission is maintained.

Thus, there is a protection of the uninterruptibility of the supply for the specified consumer categories, who have not exercised their right to choose their supplier.

Besides, due to the absence of actual preconditions for forming a competitive environment on the natural gas market, SEWRC continue to regulate the selling price which the public provider Bulgargaz JSC applies for consumers connected to the gas transmission network, as well as the selling price which the public provider applies for consumers connected to the low pressure network owned by Bulgartransgaz JSC. SEWRC sets price ceilings, for Bulgargaz JSC, when pricing consumers connected to the networks owned by the combined operator Bulgartransgaz JSC, in order to prevent the company from taking advantage of its actual dominant position on the gas market when negotiating the prices. According to art. 30, para. 4 of the EA, this regulation shall continue till the moment when SEWRC finds out the existence of competition creating prerequisites for free negotiation of the prices on market terms.

The energy enterprises, conducting their activities in accordance with the public interest and the interest of the separate customers, have to provide for the security of the supply, the uninterruptibility and the quality of the electricity, heat and natural gas, the effective usage of fuels and energy, environmental protection, the life, health and the personal property of the citizens, also the energy enterprises have the right to conclude transactions at freely negotiated prices on the unregulated market. Pursuant to the spirit of the EA art. 24, para. 1, item 1 and item 2, SEWRC ensures the fair allocation of the economic consequences of market liberalization among all parties to the transactions with electricity and natural gas and ensures equal terms for conclusion of transactions at freely negotiated prices compared to the transactions concluded with the public provider or the end suppliers. Thus, the aim is to guarantee equal terms for all market participants, without ignoring the public obligations by the energy enterprises.

According to the legislation in force, the district heating plants and the autoproducers are obliged to maintain reserves of alternative fuel (heavy fuel oil), which they can use to continue production in the event of disruption the gas supply. The necessary heavy fuel oil reserves are estimated at a bit over 4 thousand tones daily.

## **IV. Other preventive measures**

### **1. Project for modernization of the existing gas transmission infrastructure**

One of the possible risk mitigation measures, especially the technical risk related to safeguarding the security of gas supply, is the implementation of a project for rehabilitation, modernization and expansion of the national gas transmission network for the consumers in the Republic of Bulgaria. After the commissioning of the new interconnections with Turkey, Greece, Romania and Serbia, significant additional volumes of gas will pass through the Bulgarian gas transmission system; the gas will be designated for Bulgaria as well as for the countries from the region. The expected cost of the project is around EUR 250 mln.

### **2. Projects for construction of interconnections**

#### **2.1. Interconnection Bulgaria-Greece**

The construction of the interconnection Bulgaria-Greece /the planned route (around 170 km) of the gas pipeline is Stara Zagora – Dimitrovgrad – Komotini / will be carried out by a Joint Venture Company including Bulgarian Energy Holding JSC and IGI Poseidon (50% Depa and 50% Edison). A Memorandum of Understanding on corporate level was signed on July 14<sup>th</sup>, 2009. Additionally, after the respective ministry approval in the three countries, a joint proposal for grant funding under the European Energy Programme for Recovery was sent on July 15<sup>th</sup> 2009. Consequently the European Commission granted financing up to EUR 45 mln. for the project implementation, which totals around EUR 160 mln. The feasibility study carried out by Jacobs Consultancy UK Ltd. shows that the project is economically, technically and environmentally feasible. The designed capacity of the facility is 3-5 bln. m<sup>3</sup> per annum. The direct effects of the interconnection construction are achieving diversification of the gas supply sources for Bulgaria, ensuring the possibility for gas supply through the Southern Gas Corridor and from LNG sources, expansion of the scope and participation of the country in the second top priority European gas project, part of the Southern Gas Corridor – Turkey-Greece-Italy. The interconnection is expected to be commissioned in 2014.

#### **2.2. Interconnection Bulgaria-Romania**

The project envisages the construction of an interconnection between Bulgaria and Romania. The reversible interconnection totals 25 km at length, 15 km of which on Bulgarian territory, 7.5 km on Romanian territory and 2.5 km – underwater crossing through the Danube River. The maximum capacity of the interconnector is 1.5 bcm/year (direction Bulgaria-Romania), the minimal capacity is .5 bcm/year (direction Romania-Bulgaria), the diameter of the pipe is Dn 500 mm and the operational pressure is Pn 50 bar.

The project is developed jointly by Bulgartransgaz JSC and S.N.T.G.N. "Transgaz" S.A. (Romania).

Its total value is EUR 28 mln. Financing from the European Energy Programme for Recovery was provided in 2010 for EUR 8.9 mln. The project shall be constructed and commissioned by 31 May 2013.

#### **2.3. Interconnection Bulgaria-Serbia**

The interconnection Bulgaria-Serbia will allow for natural gas supply from other suppliers (different from Russia) to the countries of Central and Eastern Europe (CEE) through the Bulgarian national gas transmission system, which will be rehabilitated, modernized and expanded. The project is a Bulgarian priority, with significant influence for the safeguarding of

security of gas supply in the region. The gas pipeline length will be around 50 km on Bulgarian territory and 100 km on Serbian territory. The technical capacity of the pipeline is designed to be 1.8 bcm per annum in both directions. The project value of the section on Bulgarian territory is about EUR 50 mln. The facility is expected to be commissioned in 2015.

#### 2.4. Interconnection Bulgaria-Turkey

The project for interconnection Bulgaria-Turkey will provide for access to the Turkish national gas transmission system, which has six existing entry points and two more are planned to be constructed. Moreover, the interconnection Bulgaria-Turkey will provide for access to Caspian, Central Asian and liquefied natural gas. Bulgaria and Turkey signed a Memorandum of Understanding on 29 January 2010 in support of the project realization. A Pre-Feasibility study for the Bulgarian section of the gas pipeline was conducted by an Inter-institutional working group, formed by the Minister of Economy, Energy and Tourism. A Pre-Feasibility study for the whole project is in process of joint development by Bulgartransgaz JSC and Botas. The interconnection Bulgaria-Turkey is with planned route on Bulgarian territory from CS Lozenetz to GMS Malkoclar with considered capacity of 3-5 bcm/year and with expansion possibility on subsequent stage, according to the development of the large cross-border gas projects.

The first stage project value of the Bulgarian section of the gas pipeline will be EUR 100 mln. According to the preliminary plans, the project is to be developed on stages, where the first stage is to be commissioned in 2014.

### **3. Expedient diversification of the gas supply routes and of the supply sources, aiming at overcoming the identified risks and providing gas supply for all customers**

3.1. Project Nabucco – Bulgaria relies on the close cooperation on the implementation of Nabucco gas pipeline, where at this stage Azerbaijan will be the main gas source, as well as key transit country for the Turkmen gas in the future. The pipeline Nabucco is designed as an alternative for the Russian gas supplies and therefore the project provides for the construction of a gas pipeline with total length of 3 900 km, connecting the rich gas deposits in Turkmenistan and Azerbaijan with the gas hub Baumgarten through the territory of Turkey, Bulgaria, Romania, Hungary and Austria.

In early May 2012, the management of the project company Nabucco Gas Pipeline International proposed a shortened version of the pipeline ("Nabucco West"), which will start from the Bulgarian-Turkish border and end at gas distribution hub Baumgarten in Austria. Thus the length of the pipeline is decreased from 3 900 km to 1 300 km and respectively the needed investments from EUR 8 to about EUR 1 bln. The existing legal framework of the Nabucco project - Intergovernmental Agreement, Project Support Agreements and exemptions granted shall be applied for "Nabucco West". The gas pipeline will be constructed in the already provided corridor of the pipeline on the territory of the EU. For the gas supply from Azerbaijan and Turkmenistan to the Bulgarian-Turkish border the pipeline TANAP (Turkish priority) shall be relied on.

The final decision from the consortium "Shah Deniz 2" for pipeline choice will be made no later than mid-2013. The determination of the final destination for gas supply – Italy or Central Europe, respectively TAP or "Nabucco West", by "Shah Deniz 2" is yet to come.

3.2. South Stream – the pipeline South Stream is designed as an alternative of the supply routes from Russia through Ukrainian territory. After the construction of the North Stream and the realized alternative route of gas supply for the North-western European countries, the

natural extension of the idea is the construction of South Stream for the gas supply of the South and South-Eastern European countries. The project capacity of the pipeline South Stream is 63 bcm/year. According to the project, in its marine part with total length of 940 km, the pipeline will start from the Russian Black Sea shore in the area of Dzhugba and will run through the exclusive economic zones of Russia, Turkey and Bulgaria in the Black Sea. In its land part, the pipeline will run through Bulgaria, Serbia, Hungary and Slovenia, reaching the gas metering station of Arnoldstein on the Austro-Italian border.

At present the South Stream project on Bulgarian territory is in design phase and early stage of EIA. The contract for the design activities and EIA was signed in April 2012 and FID agreement for the South Stream project on Bulgarian territory was signed in November 2012.

#### **4. Expanding the gas storage capacity**

In the period 2014-2017, a project for the expansion of the existent UGS Chiren shall be implemented. The present capacity of the storage can provide storage for consumer needs up to 550 mln m<sup>3</sup> of gas. The production and injection capacity, depending on the pressure layers and other factors, is from 1 mln. m<sup>3</sup>/day to 4,2 mln m<sup>3</sup>/day for production and from 1.5 mln. m<sup>3</sup>/day to 3.5 mln. m<sup>3</sup>/day for injection. The project will be realized at stages in the period 2014-2017.

At the first stage, intended for implementation till the end of 2014, new drills shall be constructed to reach the maximum possible capacity of the existing ground facilities, namely increase of the production capacity to 5.5 mln. m<sup>3</sup> with 650 mln. m<sup>3</sup> of active gas.

At the next stage until 2017, the maximum capacities outlined above shall be reached, by means of new drills and increase of the ground facilities capacity, mainly through substitution of the existing ones.

### **V. Mechanisms for establishing of cooperation with other Member States for development and implementation of joint preventive action plans and joint emergency action plans**

#### **1. Preparation and implementation of joint preventive action plans**

After the preparation of this plan, consultations have been held with the competent authorities on gas supply security matters of the neighbouring EU Member States – the energy regulator of Greece RAE and the Ministry of Economy, Trade and the Business Environment of Romania.

#### **2. Cross-border supplies**

In a time of crises, access to liquefied natural gas can be granted through the re-gasification terminal in Revithoussa (Greece).

#### **3. Cross-border access to storage facilities**

After the integration of the national Romanian gas transmission system and the transit pipeline running through Romanian territory, there will be an option for gas delivery to Bulgaria in case of disruption of the supplies from the transit pipeline from Russia via Ukraine and Moldova. In a crises situation it will be possible to secure up to 2.6 bcm/day from the Romanian own production, gas storages or other sources and to direct these volumes from CS Silistea through the Romanian system (reverse flow) towards the transit pipeline to Bulgaria.

#### **4. Bidirectional capacity**

“Bulgartransgaz” JSC plans a project providing for constant bi-directional capacity of 3.5 mln m<sup>3</sup>/day from Greece to Bulgaria in the interconnection point Kula – Sidirokastro in order to comply with Regulation (EU) No 994/2010 for securing constant bi-directional capacity in the existing interconnection points between the Member States. The volumes could be realized in the event of complete break-off of Russian gas supplies for Bulgaria and the SEE region.

Presently, Turkey does not have the available capacity to supply gas for Bulgaria, even for transportation in reverse direction in the event of a crisis, because the consumption in the country has increased by 20% during the last years, while the forecast was for 5% increase.