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THE STUDY OF  
DEMOCRACY

## BULGARIA'S ENERGY SECURITY RISK INDEX

Policy Brief No. 40, September 2013

### 1. Measuring energy security: significance and policy implications

#### 1.1 Quantifying energy security

Energy is a fundamental component of economic growth and development around the world, and despite the global financial crisis, in a global scale energy demand has continued growing in recent years. Energy security continues to be a **major concern for most countries** and/or economic blocks because key resources are limited and there is relatively **little overlap between the leading energy producers and the major consumers**. Therefore, most countries rely on international trade, which is vulnerable to economic disruptions, and political interventions. Markets for energy resource commodities have increasingly globalised, and events anywhere in the world can affect global supply and prices, even for self-sufficient economies. Energy security risks, therefore pose serious challenges on a global level. But each country and region faces and perceives energy security in a specific manner. **Adequately tackling energy security is a challenge that relies upon precise understanding and quantifying the dimensions of energy security** on national, regional, and international level. In the case of Bulgaria this requires

#### MAIN POINTS

- Energy security is of critical importance to Bulgaria. The biggest identified threat to Bulgarian national security is poverty, and in particular energy poverty. Bulgaria's non-transparent energy sector seriously undermines the country's economic development. Establishing regular sound monitoring mechanisms on energy security could be key for adequate policy-making in the area.
- The *Index of U.S. Energy Security Risk Indicator (IESRI)*, developed in 2012 by the Institute for 21<sup>st</sup> Century Energy at the American Chamber of Commerce shows that since 1980, Bulgaria has had one of the worst energy security risk index scores both nominally and compared to the OECD averages. Its scores over the period averaged about 158% higher than those for the OECD.
- Bulgaria's energy security risk index increased since 2010. This recent deterioration relative to OECD averages is based on the energy expenditure volatility of the Bulgarian economy that according to IESRI has increased more than 10 times in the last 3 years (since 2009), reaching in 2012 one of the highest levels since 1980).
- Among the main risk factors to Bulgaria's energy security is its high dependence on fossil fuels import, in particular in the gas sector. The very high concentration of the Bulgarian gas market (monopoly of supply and distribution) provides ample opportunities for rent-seeking. Bulgaria's involvement in various national, smaller regional, and large international projects can reduce the risks to its energy security if it is based on clear-cut prioritization of preferred options following sound and transparent cost-benefit analysis.

understanding of national specificities, regional characteristics (South-East Europe and the Black Sea Region), and the European Union position.

Delineating specific measurements for energy security is of immense importance to policy making in the area of energy policy, including treating the issues of energy affordability and energy poverty, on national and transnational level. For instance, European countries—many of which are resource poor cite climate change as a main driver of energy policy, while also voicing their concern over their dependence on Russian natural gas. Combining these two policy goals has narrowed the range of options European countries have available to them to address energy security risks, forcing them to often make subpar policy choices. In this sense, understanding the implications of energy security necessities is particularly important in order to shape adequate energy policies priorities on national and pan-European level.

**Quantifying energy security is not trivial and there is very little consensus on what metrics should be used<sup>1</sup>.** One of the efforts, which have gained wide international recognition in quantifying energy security, is the *Index of U.S. Energy Security Risk*, developed in 2010 by the Institute for 21<sup>st</sup> Century Energy.<sup>2</sup> The Index is an annual energy risk indicator, which uses quantifiable data, historical trend information, and government projections to identify the policies and other factors that

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<sup>1</sup> There have been a number of efforts to carry out more detailed analysis with two useful developments being in portfolio optimization for the electricity sector and the development of aggregated energy security indicators. As per the paper from Bouzarovski – Buzar, Stefan, “Energy poverty in the EU: a review of the evidence”, in the case of the latter, these include indicators based on the Shannon index that captures diversity in suppliers in addition to fuel diversity, the Herfindahl-Hirschman Index that incorporates market concentration of suppliers, and the supply demand (S/D) index developed by ECN.

<sup>2</sup> 21<sup>st</sup> Century Energy Institute – U.S. Chamber of Commerce (2012), *International Index of Energy Security Risk: Assessing Risk in a Global Energy Market*

contribute positively or negatively to U.S. energy security. The Index provides a look at energy security retrospectively from 1970 to nowadays, and prospectively from nowadays to 30 years ahead. From this data, policymakers and energy professionals can use the Index to track shifts in U.S. energy security over time and assess potential impacts of new policies. In 2012, the Institute launched the *International Index of Energy Security Risk*, a new tool designed to facilitate a better understanding of global energy markets. The International Index applies the same quantitative analysis used in the US Index to rank the top global energy users in 28 metrics. Unlike the US one, the international index does not provide a forecast but only a historical view. The index is based on a combination of global and national factors which affect energy security: global fuel reserves; fuel imports; national energy expenditure; price and market volatility; energy use intensity; reliability of electricity generation; efficiency of the transport sector and environmental policies. Bulgaria is included in the extended list as one of the world’s 75 largest energy users. The purpose of the annual International Index is to help identifying significant transitions occurring in world energy markets while also monitoring the performance of major energy producers and consumers in coping with the energy security implications of these transitions.<sup>3</sup> In this sense, the energy security index could fill in the niche of an international energy security scoreboard platform that could serve as the stepping-stone for successful and opportune energy policy making on national level. This is particularly true for smaller countries facing steep energy security challenges, as is the case of Bulgaria.

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<sup>3</sup> 21<sup>st</sup> Century Energy Institute – U.S. Chamber of Commerce (2012), *International Index of Energy Security Risk: Assessing Risk in a Global Energy Market*, p. 5

## 1.2 The Case of Bulgaria: Energy Poverty as a Security Risk

Monitoring the energy developments in Bulgaria and accordingly devising energy policy strategies that would adequately address the energy security risks the country is facing is of an immense importance to the economic, social, and political well-being of one of the newest EU member states. Bulgaria is in a unique energy security position in the EU. It is the poorest member-state, which constrains its policy options. It is a small and open economy, which lacks geopolitical weight or position, and is an energy policy taker of the EU as well as of its powerful neighbors Russia and Turkey. Its energy sector is mostly state-owned, badly managed, and heavily dependent on Russian resources and technology. Bulgaria's first ever *National Security Strategy* adopted in 2011, states that the biggest threat to Bulgarian national security is poverty, and in particular energy poverty.<sup>4</sup> Energy security and energy poverty are inter-related as low energy security usually translates into higher prices, or energy supply disruptions, and eventually into energy poverty and vice versa. And Bulgaria has been indicated in a number of studies as the most vulnerable to energy poverty country in the European Union (EU)<sup>5</sup>. Although affected to a lesser extent, the majority of the new EU member states from Southern and Central and Eastern Europe (EU -11<sup>6</sup>), are also

plagued by dangerously high levels of energy poverty.

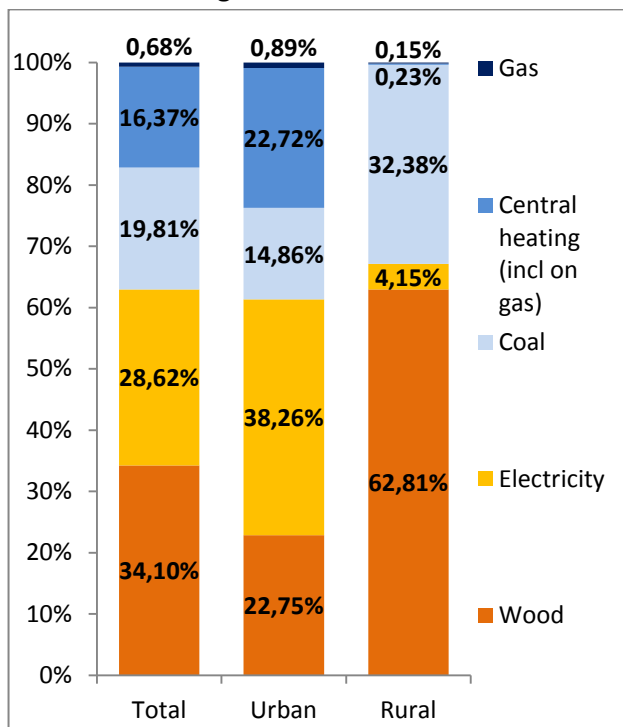
The residents of Bulgaria use disproportionately high amounts of coal and wood, as well as costly electricity to heat their homes, and pay substantial portion of their incomes for energy bills (Figure 1, Figure 2), while also not being able to keep their homes adequately warm. The limited reach of certain types of networked energy infrastructures (particularly gas) means that, in addition to affordability issues, energy deprivation is also predicated upon the spatial and technical limitations associated with switching towards more affordable fuel sources in the households. Some parts of the population have had no option other than using wood and coal for heating. In Bulgaria, switching towards this source of energy has clear positive income dimension. Subsidized household electricity prices, mostly through the de-capitalization of the depreciating existing nuclear power plant in Kozloduy, and through the state guaranteed construction of the Maritsa East II coal-fired power plant, as well as their state-owned parent company the National Electricity Company, has made Bulgarians overly reliant on electricity for heating. Hence, changes in electricity prices have had a disproportionately negative effect on energy poverty of households. This has made rising household electricity prices, the lowest in the EU, an issue of immense political danger.

<sup>4</sup> Bulgaria, Ministry of Economy and Energy, (2011), *National Security Strategy of the Republic of Bulgaria*. Accessed from: [http://www.mi.government.bg/files/useruploads/files/national\\_strategy1.pdf](http://www.mi.government.bg/files/useruploads/files/national_strategy1.pdf)

<sup>5</sup> Bouzarovski – Buzar, Stefan, “Energy poverty in the EU: a review of the evidence”, paper presented at Workshop and Conference on Energy Efficiency – EU Regional Policy, Brussels, Belgium, November 29 – 30, 2011.

<sup>6</sup> EU-11 refers to the 11 former Soviet or Yugoslav block countries from Central and South-East Europe that have become the newest EU member states in the last three waves of EU enlargement – in 2004, 2007, and 2013.

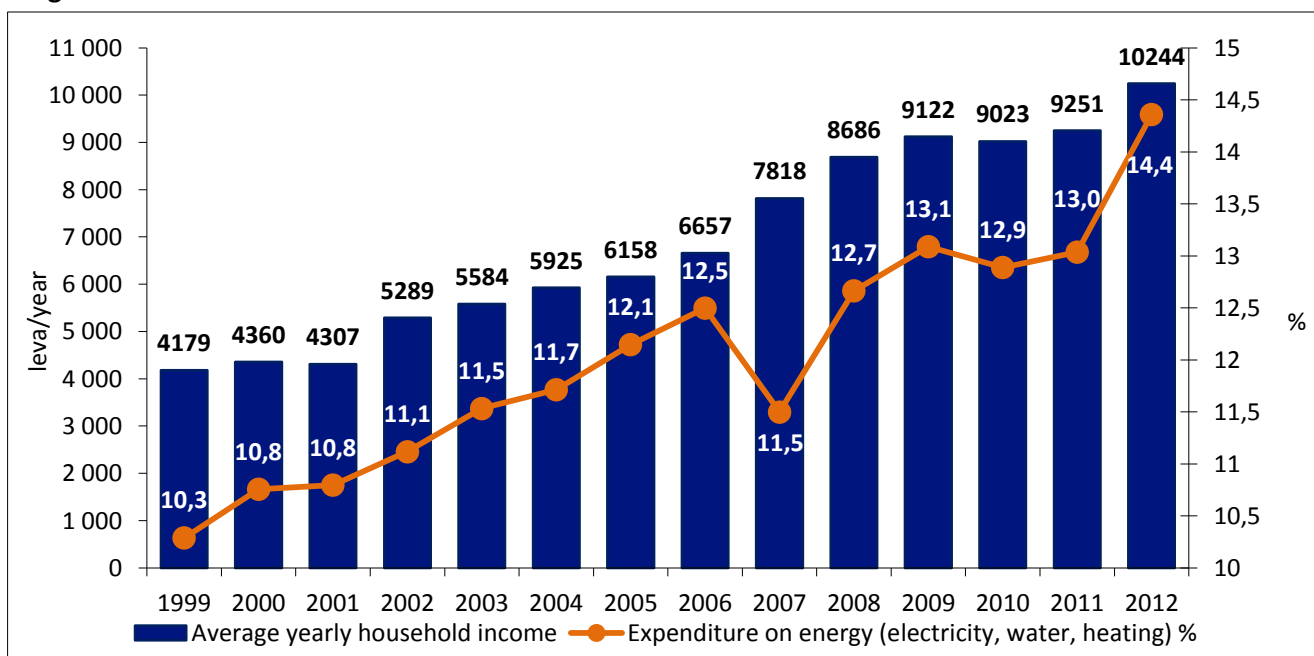
**Figure 1: Main heating sources by type of settlement in Bulgaria**



Source: Bulgarian National Statistical Institute, 2013

The most popular heating fuels in Bulgaria are wood and electricity, used by 31.1% and 28.6% of households respectively. Only 0.7% of households use gas, which is a result mostly of the very high price of gas but also of the cross-subsidized electricity prices for households. The widespread utilization of wood and coal for heating is indicative of energy poverty among the population. According to EU statistics on income and living conditions, more than 30% of households in Bulgaria are unable to keep their homes adequately heated during the cold winter months. This is particularly worrying given that Bulgaria has one of the lowest energy consumption rates for space heating in Europe, with only 0.54 tonnes of oil equivalent per dwelling compared to the EU average of 0.94 tonnes of oil equivalent per dwelling. Furthermore, the average Bulgarian household is spending an increasing proportion of its income on energy sources, including heating and electricity. This implies that despite using comparatively less energy to heat their homes, Bulgarians spend a higher proportion of their incomes on electricity than households in other EU member states.

**Figure 2: Average yearly income per household and percentage of expenditure on energy in Bulgaria**



Source: Eurostat, 2013

## 2. Energy Security Risk Index for Bulgaria

### 2.1 Overview

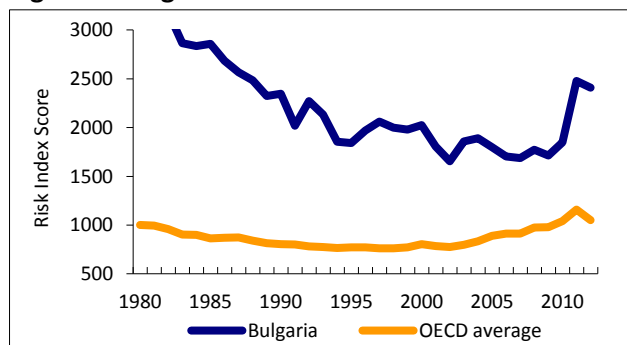
#### Energy Security Risk Summary: Bulgaria

<b>Risk Scores:</b>	
<b>2012 Energy Security Risk Score</b>	<b>1,846</b>
2012 Top 75 Energy User Group Rank	73
Score in Previous Year	1,714
Rank in Previous Year	70
Score in 1980	3,524
Average Score: 1980-2012	2,238
<b>Best Energy Security Risk Score</b>	<b>1,654 (2002)</b>
Worst Energy Security Risk Score	3,524 (1980)
Risk Scores Relative to OECD Average:	
Average Annual Difference 1980-2012	158%
Best Relative Score	75% (2009)
Worst Relative Score	252% (1980)

Source: Institute for 21<sup>st</sup> Century Energy

The International Energy Security Risk Index (IESRI) of the Institute for 21<sup>st</sup> Century Energy opens the possibility to look inside Bulgaria's energy security, adding a historical perspective on its development back to 1980. IESRI results show that since then, the country has had one of the worst energy security risk index scores both nominally and compared to the OECD averages. Its scores over the period averaged about 158% higher than those for the OECD. However, unlike most of the other countries included in the index ranking, in absolute terms, Bulgaria's overall risk has been trending downward throughout the period.

**Figure 3: Bulgaria vs. OECD: Risk Index Score**



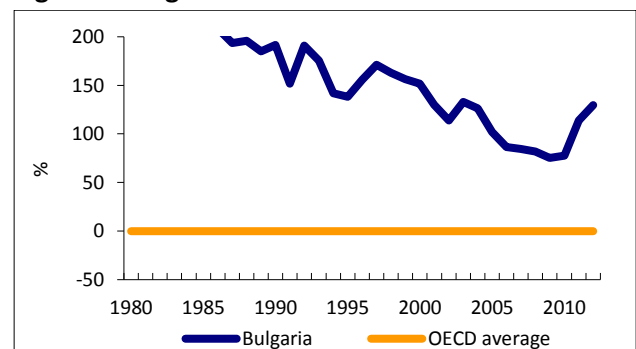
Source: Institute for 21<sup>st</sup> Century Energy

From its peak of 3,524—252% above the OECD average—in 1980, the country's total risk score fell to 1,654 in 2002—still about 114% higher than the OECD average but a considerable improvement. Total risk spiked again in 2010, as a result of the economic crisis in the country, increasing energy poverty and social tensions (Figure 4 – Figure 5). Above all, the relative deterioration of Bulgarian scores are based on worrying results in terms of energy expenditures volatility, which according to IESRI have increased more than 10 times in the years since 2009, reaching in 2012 one of its highest levels since 1980.

Like many other European countries, Bulgaria has no indigenous production of energy resources other than coal. Its import risks for everything except coal have been exponentially higher than the OECD average for most of the period since 1992. As a result, the country's expenditures on fossil fuels imports as a share of GDP, although improving, have over the years remained much higher than the OECD average.

On the positive side, Bulgaria's power sector is quite diverse. It is one of the few countries with capacity diversity scores (though only marginally) better than the OECD average. Typical of an economy in transition, its energy use and emissions per capita measures are better than the OECD ones, and these appear to be improving at about the same rate as the OECD's.

**Figure 4: Bulgaria: Risk Variance from OECD**



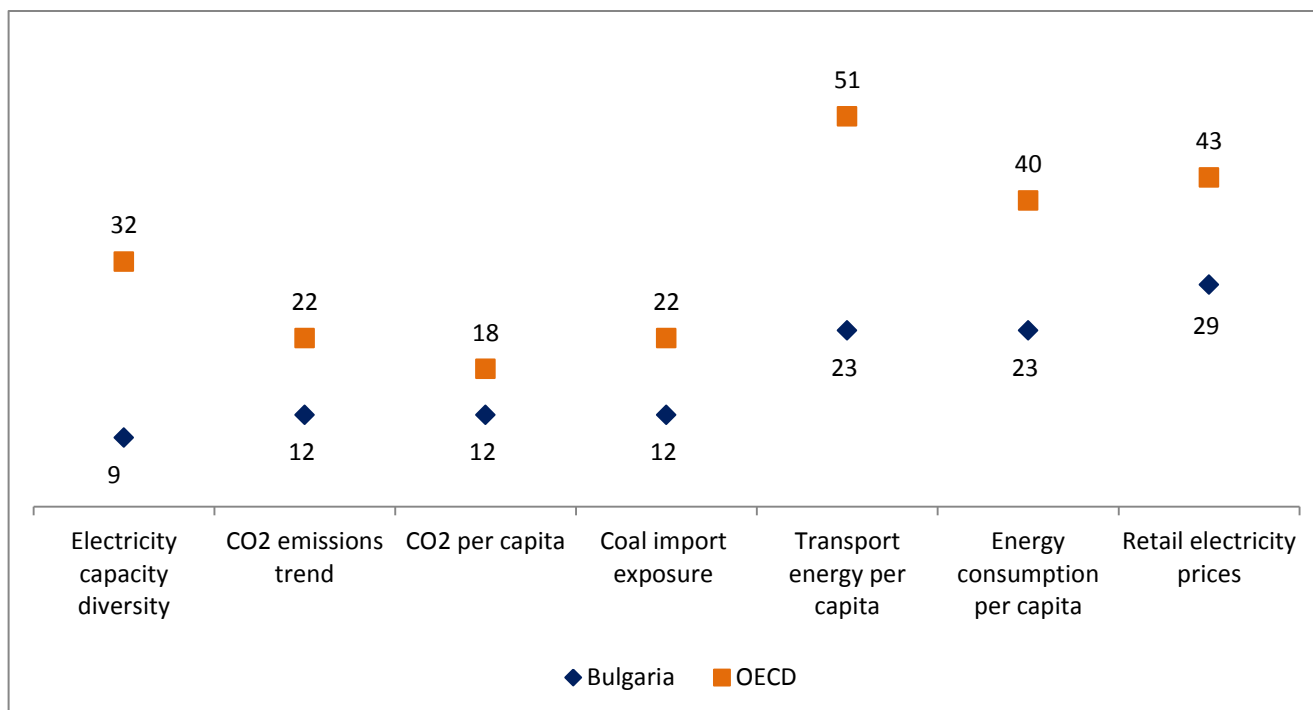
Source: Institute for 21<sup>st</sup> Century Energy

## 2.2 Positive Developments vs. Main Challenges for Bulgarian Energy Security according to the most recent index results

- **Positive results/developments:**

Bulgaria demonstrates lower energy security risks than the OECD average on a number of indicators. However, from a developmental point of view only two of these comparative advantages look sustainable. These are the coal import exposure and the electricity capacity diversity. In coal Bulgaria has the only indigenous energy resource, although it produces only low-grade lignite coal. In electricity generation Bulgaria has developed all options but gas. A key challenge in this respect is keeping up with investment requirements for replacing existing generation capacity, e.g. in nuclear as well as better embedding the respective production in the local industrial and technological environment.

**Figure 5: Index components in which Bulgaria performed better than the OECD average (lower energy security risk levels)**



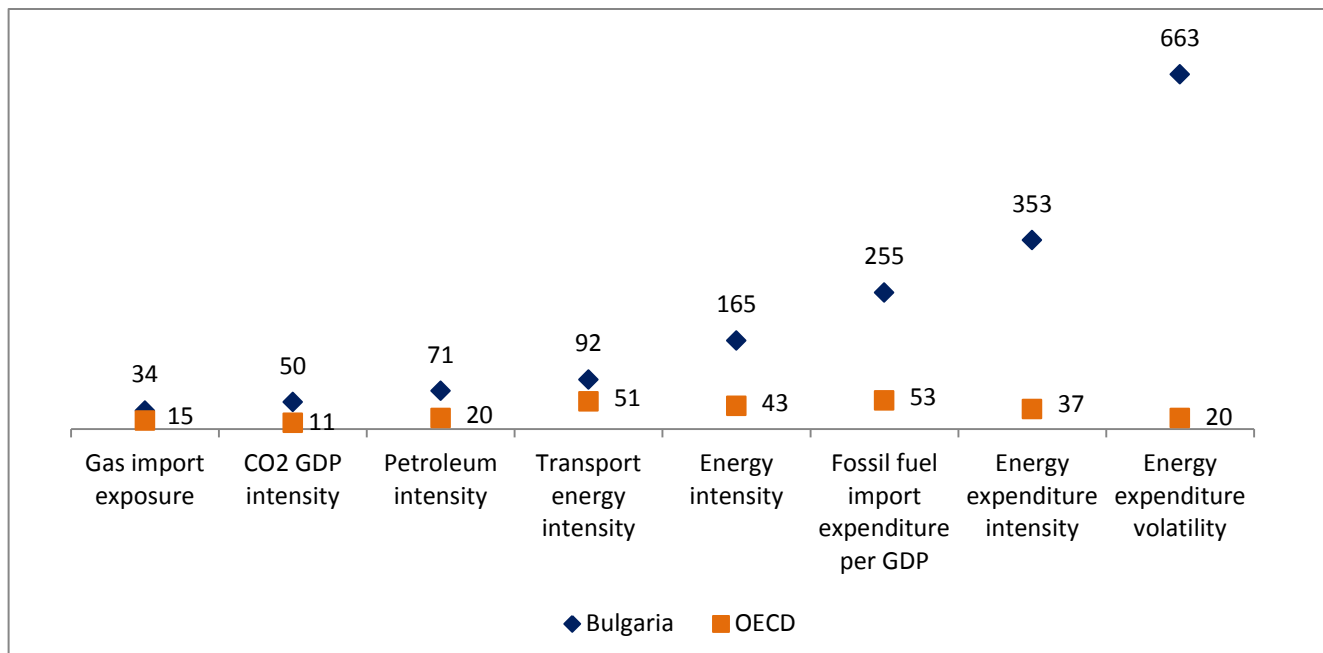
Source: Institute for 21<sup>st</sup> Century Energy

The other demonstrated lower security risk level indicators are typical for less developed countries. CO2 emissions trend and CO2 per capita have been at lower levels because of the steep deindustrialization process of Bulgaria since the collapse of its centrally planned industrial complexes in the 1990-ies. Transport energy per capita and energy consumption per capita have shown better scores as Bulgarians have been forced by lower incomes to use less energy for transport and consumption. The electricity retail prices have been lower because of continuing regulation of the household market. But their rise in 2012, have caused widespread social discontent with substantial negative consequences for the country's security. This discussion comes to show that no single measurement of energy security risk should be regarded in isolation and without clear policy perspective. What is low risk now can turn into a high risk potential in the future due to changing circumstances, social and economic conditions, technological breakthroughs, etc.

- **Main challenges for Bulgarian energy security:**

Similarly higher than the OECD energy security risk indicators also need careful consideration. Due to its very low GDP and the high levels of hidden economy combined with the country's aging energy infrastructure and deep-seated patterns of inefficient energy consumption (both industrial and residential energy use), Bulgaria faces abnormally higher energy security risks on all energy intensity dimensions. These risks however are mostly related to internal inefficiencies and costs and have been generally edging lower with the penetration of market economy rules in the country, yet still at quite unsatisfactory levels. The highest demonstrated risk to Bulgaria's energy security is its high energy expenditures levels and their volatility. Energy expenditures metrics show the magnitude of energy costs to produce a unit of national income and the exposure of consumers to price shocks.

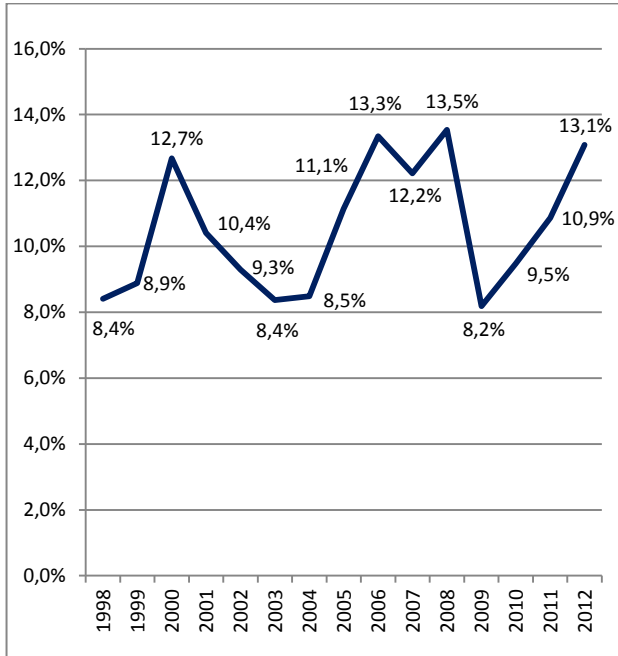
**Figure 6: Index components in which Bulgaria performed worse than the OECD average (higher energy security risk levels).**



Source: Institute for 21<sup>st</sup> Century Energy

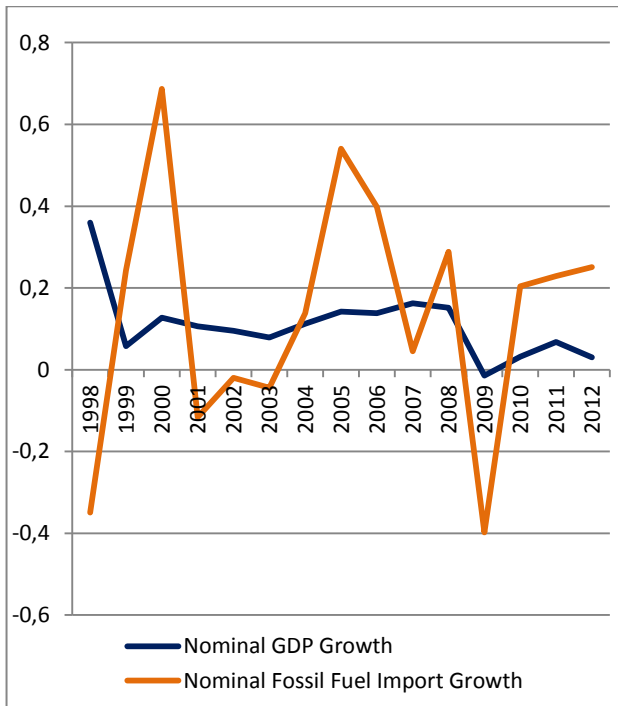
This is reminiscent of the country's high relative energy poverty and the low levels of its GDP. It also reveals the relation between the high exposure to fossil fuel import shocks, the low income levels, and the limited competitiveness of the Bulgarian economy (Figure 9). While gas import exposure energy security risk does not appear that much higher than in the OECD countries, this is mainly due to the disproportionately low level of household gas consumption in the country, which relates to the overreliance of households on electricity for heating. The 2009 gas crisis in Europe has shown that while Bulgaria's economy can handle gas supply disruptions, its effects on households' and industries' trust in government institutions is quite negative. In effect, Bulgaria was among the top three worst affected countries by the gas supply disruption in Europe then. That is why, given the high and rising prices of electricity in Europe, and the country's energy poverty, developing alternative gas supplies and tapping into lower gas prices to help develop household gas and central heating consumption is a viable option for lowering the energy security risks for Bulgaria in the future.

**Figure 7: Nominal Fossil Fuel Import as a % of Nominal GDP (1998-2012)**



Source: BNB/NSI

**Figure 8: Growth of Nominal Fossil Fuel Import vs. Nominal GDP Growth (1998-2012)**



Source: BNB/NSI

### 3. Energy Security and Gas Supply in Bulgaria<sup>7</sup>

#### 3.1 Overview and Gas Transit Arrangements

Bulgaria has only limited capabilities of natural gas production, which has recently been expanded by the discovery of gas in its Black Sea shelf, with more shelf discoveries potentially pending. **Bulgaria meets almost its entire gas demand through imports from Russia through a single pipeline.** The import and transit pipeline systems are physically separated. The transit system has been effectively reserved for Gazprom’s use only by contract until 2030, and is not connected to the national gas transmission pipelines. Under existing contracts, Bulgaria receives payment from Gazprom for the transit of up to 17 billion cubic meters (bcm) annually for Turkey, Greece, and Macedonia. This was more than six times the entire internal demand for 2010.<sup>8</sup> These current arrangements between Bulgaria and Russia for gas supply and transition are limiting from security of supply standpoint while also in clear confrontation of EU’s market liberalization guidelines in regards to open access to pipelines and “take or pay” clauses, utilized by Gazprom. The “take or pay” issue is related to payment of volumes of gas that have not been effectively consumed by Bulgarian side and there has already been a legal precedent against

<sup>7</sup> Information and opinions expressed in this section are predominantly based on the Center for the Study of Democracy (CSD), “Security of Gas Supply: SEE Perspectives and Challenges”, presented at the “Trans-Anatolian gas pipeline: Challenges and Prospects for the Black Sea countries and the Balkans” conference, Istanbul, Turkey, September 28-29, 2012, <http://www.csd.bg/artShow.php?id=16199>

<sup>8</sup> “Gazprom Export – Bulgaria”, accessed July 30, 2013, Accessed from: <http://www.gazpromexport.ru/en/partners/bulgaria/>



Gazprom in that regard in the RWE Transgaz vs. Gazprom case<sup>9</sup>.

### 3.2 Involvement in International Pipeline Projects and Regional Interconnectors

Bulgaria is at the crossing point of two major competing international pipeline projects for new gas supply to Europe and plans the development of as much as four inter-connectors to all of its neighbouring countries with the exception of the FYR of Macedonia. However, the country has so far not provided detailed public **cost-benefit analyses**<sup>10</sup> for the different options and there is no clear cut prioritization or preferred options, which leads to lack of transparency and frequent (perceived) inconsistencies in the Bulgarian position regarding major energy projects. This also creates higher energy security risks and uncertainty about the effects of these projects for Bulgaria's economy.

#### ***Nabucco and Southern Corridor pipelines***

Bulgaria has voiced repeatedly its preference towards the development of the EU's **Southern Corridor** pipelines, and in particular the **Nabucco** project as part of its EU integration project. Through the Bulgarian Energy Holding (BEH)'s 16.67% stake in Nabucco's consortium, Bulgaria is a founding partner in the project to bring to Europe as much as 30 bcm of gas annually. The fact that commercial funding was unlikely to be secured until capacity was booked and future transit fees

budgeted for led to the creation of smaller **Nabucco-West** project. However, it became obvious that a phased development would be necessary with different pipelines delivering the gas to the Turkish-Bulgarian border and another one transferring it across the region. In that context, an intra -'Southern Corridor' competition was created between **other planned Southern Corridor pipelines such as TAP and SEEP** plus eventual connection to the ITGI interconnector system. As the TAP project does not cross Bulgarian territory, it was obvious that if affordable, a connection between Trans-Anatolian gas pipeline (TANAP) and Nabucco-West would be the ultimate Southern Corridor solution for Bulgaria. The project may have also aided the development of a competitive national energy market, through adding competitors to the current sole supplier - Gazprom, and permitting half of capacity to be available for third party access.

On 28<sup>th</sup> of June 2013, the Shah Deniz Consortium (SDC) declared to choose the TAP pipeline for gas transportation after TANAP in Turkey, dealing a heavy blow to the Nabucco idea, and effectively halting the project. This choice is expected to have far reaching implications not only for Bulgaria but also for Central and Eastern Europe and the Southern energy corridor – a cornerstone of energy security for the European Union, Central Asian and Caspian countries in the short to medium term perspective. Although the quantities of potential gas deliveries from Shah Deniz are too small to directly challenge Russian gas dominance, they could tilt critical gas market balances in the SEE with a multiplier effect across Central and Eastern Europe.

<sup>9</sup> Capital daily, "Газпром" изгуби дело по важно условие от договорите си в Европа", 25 October 2012, Accessed from: [http://www.capital.bg/politika\\_i\\_ikonomika/sviat/2012/10/25/1933012\\_gazprom\\_izgubi\\_delo\\_po\\_vajno\\_uslovie\\_ot\\_dogovori\\_te\\_si/](http://www.capital.bg/politika_i_ikonomika/sviat/2012/10/25/1933012_gazprom_izgubi_delo_po_vajno_uslovie_ot_dogovori_te_si/)

<sup>10</sup> Over the last decade, the Center for the Study of Democracy (CSD) has championed the introduction and widespread utilization of internationally recognized energy project management principles and cost-benefit analysis tools such as EITI and COST in Bulgaria. (for more information on EITI initiative in Bulgaria, visit <http://www.csd.bg/artShow.php?id=15111>)

## South Stream

Bulgaria has also subscribed to **the South Stream** gas pipeline from its very beginning although it has so far demonstrated much less willingness to proceed with the project, primarily due to its high and rising costs. There has not been a publicly available cost-benefit analysis of the project, both overall and for its Bulgarian part. The latter is to be constructed by a company equally owned by Russia and Bulgaria, through Gazprom and BEH, which was set up in November 2011, following a 2009 Agreement of Cooperation between the two parties. **Negotiations on the project have been opaque, with Russia applying considerable pressure on the Bulgarian government for firm commitment to starting construction**, while Bulgaria has been dragging its feet in the hope that the “game” is resolved at a higher EU - Russia level<sup>11</sup>. In November 2012, a memorandum of understanding was signed that further clarified an investment structure with some very sensitive aspects. The spike in the price of the project since its inception has led many observers to believe that the project can turn into considerable strain on Bulgaria’s state finances, further exacerbating the country’s energy security risks<sup>12</sup>. The project also holds little promise to improving the affordability aspect of energy security in the country in the future without continuing subsidies from transit towards consumption, as it only provides a new route but the supplier is the same.

<sup>11</sup> Stefanov, Ruslan and Tsanov, Martin “Bulgarian Energy Policy”, *Aspen Review*, (2012), Accessed from: [http://www.aspeninstitute.cz/images\\_upload/files/Aspen%20Review/Bulgarian\\_Energy\\_Policy.pdf](http://www.aspeninstitute.cz/images_upload/files/Aspen%20Review/Bulgarian_Energy_Policy.pdf)

<sup>12</sup> Dnevnik. Bg, „Цената за „Южен поток поставя съмнения за източване“, 11 July 2013, Accessed from: <http://www.dnes.bg/politika/2013/07/11/cenata-za-iujen-potok-postavia-symneniia-za-iztochvane.193358>

## Regional interconnectors and reverse flow connections with neighbouring countries

As Bulgarian influence over major upstream projects remains limited, Sofia, backed by Brussels, has also been increasingly turning its attention to more regional approaches concerning supply, notably interconnectors with Turkey, Romania, Greece and Serbia. Bulgarian diplomacy and companies can have much more influence on such smaller projects, making them an immediate priority in the agenda for achieving higher security of natural gas supply in Bulgaria, and potentially lower prices in the future. In addition **EU has provided 1/4 of the funds for all interconnectors to neighbouring countries, which makes the projects particularly cost effective** for the country though the question of ensuring gas supplies over the planned pipelines remains. As of September 2013, a sub-contractor has been selected for the construction of the reverse flow connection with Romania.<sup>13</sup> The Bulgarian part of the connection is constructed (up to Rousse) and is undergoing test stage. However, for the under-river part, connecting Bulgarian and Romania, only a contract has been signed between Bulgartransgaz EAD (Bulgaria) and Transgaz S.A. (Romania) for project drafting and construction. The project is running behind schedule as it was envisaged the connection to be operational by first quarter of 2013<sup>14</sup>. Reverse flow connection with Greece is in roadmap consulting stage and impact assessment and market interest analysis procedures are taking place in Bulgaria and Greece<sup>15</sup>. As a whole, the construction of the reverse flow gas connection is

<sup>13</sup> Ministry of Energy and Economy, „Доклад за състоянието на енергетиката в република България“, July 2013

<sup>14</sup> Mediapool.bg, “Газовата връзка с Румъния отложена за догодина”, 31 July 2013, Accessed from: <http://www.mediapool.bg/gazovata-vrazka-s-rumaniya-otlozhena-za-dogodina-news209594.html>

<sup>15</sup> Ministry of Energy and Economy, „Доклад за състоянието на енергетиката в република България“, July 2013

going to plan and should be operational by January 2015<sup>16</sup>.

As a whole, **interconnections and reverse flow connections are seen as an essential part of the Bulgarian energy strategy** for lowering energy security risks for the country, for the region, and for the EU. The interconnectors' contribution to Bulgarian security of supply is two-fold: a) allowing for reverse flow emergency supplies in the case of a supply disruption from other sources, and b) enabling the diversification of import in both transit route and supply source. However, the share of pipeline capacity allocation between the countries sharing the interconnectors has not been decided yet, which together with ensuring contracts for the supply of gas have turned into a sticky point in negotiations. The fact that despite EU funding support, it took Bulgaria more than three years after the January 2009 crisis to officially launch the construction of the first of these interconnectors (Bulgaria-Romania) shows that **successful implementation of energy policies in the region face various political challenges**, over and above financial and economic concerns. It is due to this reason that Bulgaria is facing legal action from the European Commission in regards to its failure to make sustainable process in the area of reverse flow connections with neighbouring countries, Romania in particular.

## 4. Bulgaria's Perspectives from an Energy Security Standpoint

The *Energy Security Risk Index* suggests that Bulgaria is currently exposed to two major interrelated energy security risks:

- Energy poverty comes as the most serious energy security risk for the country with pervasive political and economic implications. Rising electricity prices, coupled with the loss of purchasing power during the continuing economic crisis, have led to widespread social discontent in 2012 – 2013, which has ultimately toppled the Bulgarian government in February 2013. This has also resulted in the reversal of EU inspired electricity market reforms for more transparency for final users and more independence for the energy regulator, as politicians have stepped in to guarantee the freezing and even the cutting of electricity prices and the bashing of the regulator. The negative effects from such market defying actions are likely to be far reaching and will increase Bulgarian energy security risks in the long term, trumping short term gains in energy security from lower energy poverty risks. The depression of electricity prices will have one or more negative effects on the sector. It will lead to de-capitalization of enterprises along the value chain, with state-owned enterprises being the most likely ultimate victims, should the government not find an agreeable way to re-negotiate green energy prices and long-term generation contracts. Investors are likely to hold off any on-going or new projects, with the state left as the single decision-maker and sponsor of new generation capacity. Price distortions will keep households hostage to

<sup>16</sup> Mediapool.bg, "Газовата връзка с Румъния отложена за догодина", 31 July 2013, Accessed from: <http://www.mediapool.bg/gazovata-vrazka-s-rumaniya-otlozhena-za-dogodina-news209594.html>

electricity consumption, cannibalizing further on gas consumption and central heating. The energy intensity of the economy will remain a high risk for the energy security of the country. Last but not least, Bulgaria is likely to get into trouble with the European Commission on the implementation of its market liberalization obligations.

- Gas supply diversification and disruption risks are closely related to energy poverty and electricity prices, as this is the most viable options for the Bulgarian economy to receive lower energy alternatives after coal and wood, which are very harmful to the environment and the living environment in settlements.

Although gas supply and diversification risks stand as one of the most pressing challenges to the country's energy security in the next decade it could be expected that relevant mitigation of these circumstances will start in the next 5 years. Bulgaria is involved in various national, smaller regional, and large international projects, which will contribute to higher energy security. But it cannot be realistically expected that the country can realize all of its gas projects in the next decade due to challenging economics. That is why prioritization of projects is very important. In this respect the construction of the interconnectors between Bulgaria and Greece, Turkey, and Romania is of the most immediate significance for the country's gas supply security.

For Bulgaria to strengthen its overall energy security it can follow some proven steps:

- Prioritization of **regional integration** through construction of interconnectors and/or reverse flow extensions of existing pipelines in the region
- **Improving "switchability"** by introduction of interruptible contracts to be made and equipping industry and thermal stations with effective dual-fuel capability
- At least minority stake **privatization of large state-owned energy holdings** might prove viable for bringing in private investors and spurring dynamics in the industry
- Implementation of **internationally recognized rules and guidelines on transparency of energy project management and energy resources' supply governance**, such as the Extractive Industries Transparency Initiative and/or COST principles, as part of the obligatory accounting principles on national level.