

THE ENERGY SECTOR IN BULGARIA

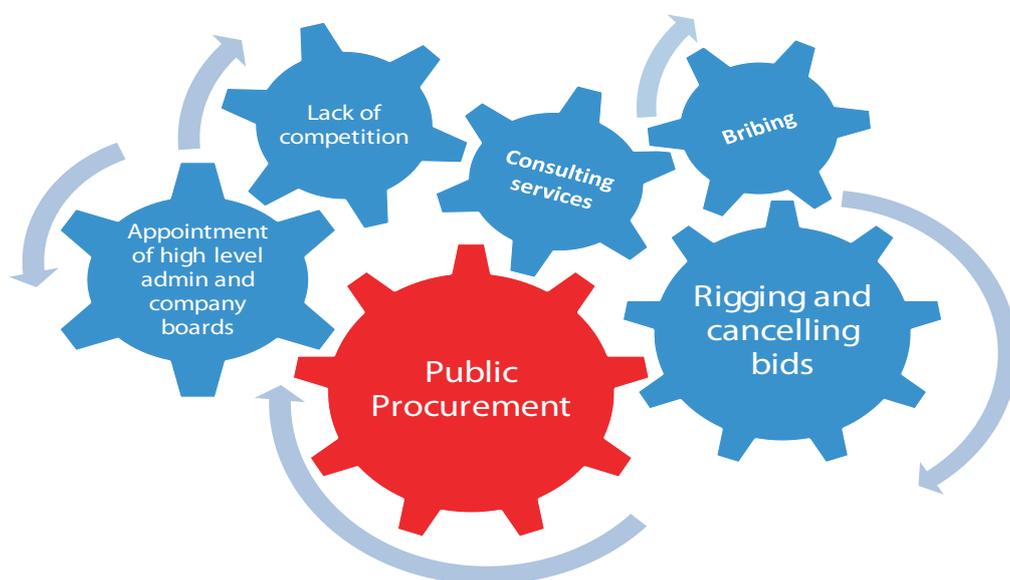
**MAJOR GOVERNANCE
ISSUES**



**CENTER FOR
THE STUDY OF
DEMOCRACY**

THE ENERGY SECTOR IN BULGARIA

MAJOR GOVERNANCE ISSUES



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THE STUDY OF
DEMOCRACY



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CONTENTS

I. Introduction	9
1.1. Energy as a Strategic Sector	9
1.2. Energy Efficiency.	13
1.3. Energy Dependence.	14
1.4. How Green Is Bulgaria?	15
1.5. Pricing: Cost Coverage, Transparency and Fairness.	18
1.6. Going Forward	23
II. The Energy Sector – a Sector of High Corruption Risk	27
2.1. Sources of Corruption Risk.	27
2.2. Public Procurement in the Energy Sector	37
2.3. Forms of Abuse	41
2.4. Abuse in the Consulting and Intermediary Services in the Energy Sector	45
2.5. Anti-Corruption Measures in the Public Procurement in the Energy Sector	48
III. Common Energy Crimes.	51
3.1. Non-payment of Bills	51
3.2. Electric Power Theft.	52
3.3. Power Cables Theft	55
3.4. Crime and Corruption in the Oil Sector.	56
3.5. A Case: Corruption in TPP Sofia	57
IV. Governance Risk Areas	59
4.1. Management of State-owned Energy Companies	59
4.1.1. Public Procurement.	62
4.1.2. Financial Management and Transparency	64
4.1.3. General ‘Risk’ Management.	66
4.1.4. Risks Connected with the Trade of Green House Gas Emissions	67
4.1.5. Export of Electricity	69
4.1.6. The ‘Apex’ of all these Issues Remains: How BEH Manages its Operations and Profitability	69
4.2. Managing the ‘Green’.	72
4.3. Liberalizing Markets: Electricity and Gas.	76
4.4. The 2020 Strategy Revisited	79
4.5. Reduction of Greenhouse Gas Emissions	82
4.6. Increasing of RES Share in Gross Final Consumption of Energy.	84

4.7. Energy Efficiency Improvement	85
4.8. Important Energy Investment Projects	85
V. Recommended Governance Approach	89

LIST OF FIGURES

Figure 1: Goals set by the 2020 Energy Strategy.....	10
Figure 2: Projected capacity increase by National Electric Company (NEC).....	10
Figure 3: Monthly electricity production, consumption and net exports: all Balkan countries except Bulgaria and Albania (GWh).....	11
Figure 4: Annual electricity export of Bulgaria	11
Figure 5: Total production of primary energy – (1 000 toe)	12
Figure 6: Final energy demand by sector (2006).....	13
Figure 7: Energy intensity of the economy – Gross inland consumption of energy divided by GDP (kilogram of oil equivalent per 1000 Euro).....	14
Figure 8: Share of renewable energy – final energy consumption (%).....	15
Figure 9: Stock of passenger cars.....	16
Figure 10: Stock of passenger cars by age	16
Figure 11: Share of biofuels in fuel consumption of transport (%)	17
Figure 12: The ‘triple helix’ of energy sector development – efficiency, sustainability and dependency	17
Figure 13: Electricity prices of final consumption	18
Figure 14: Gas prices of final consumption	19
Figure 15: Break-up of NEC’s 2008 and 2009 sales revenue by consumer type.....	20
Figure 16: Share of NEC’s revenues – regulated and freely negotiated prices 2008	20
Figure 17: Implicit tax rate on energy – Ratio of energy tax revenues to final energy consumption, deflated (EUR per TOE)	21
Figure 18: Hidden costs in the energy sector.....	51
Figure 19: Number of main electricity generating companies and their cumulative market share	59
Figure 20: Number of main natural gas suppliers to final consumers and their cumulative market share	60
Figure 21: Structure of Bulgarian Energy Holding.....	61
Figure 22: Structure of Bulgargaz Holding	61
Figure 23: Investment activities of NEC by year.....	63
Figure 24: 2008 sales, profits and margins	69
Figure 25: Gross generation and final consumption (of transport) by fuel.....	72
Figure 26: Combined Heat Power generation (CHP) – % of gross electricity generation.....	75
Figure 27: Registered market actors	77
Figure 28: Traded volumes at freely negotiated prices.....	77
Figure 29: Liberalized market structure	78
Figure 30: Installed generation capacity (MW)	79
Figure 31: Primary energy production by source	80
Figure 32: Capacity building plans by 2020.....	81
Figure 33: NEC’s projections for RES increase.....	84

Figure 34: NEC's projections for wind capacities increase	85
Figure 35: Complex challenges of the energy sector.....	89

LIST OF TABLES

Table 1:	Structure of Bulgaria's electricity exports.....	12
Table 2:	Nuclear reactors under construction, planned and proposed by July 1, 2009	13
Table 3:	Energy consumption by EU-member states, their net imports and dependence rate in 2008 – Ranked by energy dependency	14
Table 4:	Renewable energy in final energy consumption (2020 target)	15
Table 5:	Investment expenditures of NEC in 2008 and 2009.....	21
Table 6:	Notes on provisions, taken from the consolidated 2008 financial statement of Bulgarian Energy Holding (BEH).....	23
Table 7:	Feed-in tariffs by source approved by the State Regulatory Commission	24
Table 8:	Ranking of energy companies in Top 100 companies (ranked on sales).....	28
Table 9:	Ranking within the energy sector (ranked on sales)	29
Table 10:	Growth of investments in the energy sector 2006 – 2007 (million BGN)	37
Table 11:	Number and value of public procurement contracts in the energy sector (1 October 2004 – 30 June 2006) (BGN)	38
Table 12:	Share of public procurement contracts in the energy sector.....	39
Table 13:	Rate of increase in public procurement.....	40
Table 14:	Public procurement in the energy sector by types of procedures (October 2004 – June 2006).....	44
Table 15:	Expenses for external services.....	48
Table 16:	Electric power losses and cost of theft	53
Table 17:	Theft of power cables from NEC	55
Table 18:	Investments in other companies/projects	62
Table 19:	Planned expenses on PP&E (BGN thousands)	63
Table 20:	'Other' expenses section, BEH 2008 consolidated statement	65
Table 21:	NEC Income Statement 2008.....	66
Table 22:	BEH losses due to exchange rate 2008 compared to 2007.....	66
Table 23:	Provisions – BEH 2008.....	68
Table 24:	NEC's profitability	70
Table 25:	Personnel expenses of BEH	71
Table 26:	Key indicators by source	74
Table 27:	Purchased electricity on regulated and on freely-negotiated price (GWh; %).....	76
Table 28:	Kyoto targets.....	83

LIST OF BOXES

Box 1.	Export of electricity.....	33
Box 2.	Supply of nuclear fuel for Kozlodui NPP	40
Box 3.	Supply of equipment for Maritsa-East 2 TPP	42
Box 4.	The modernization of Kozlodui NPP	43
Box 5.	Belene NPP	44
Box 6.	The Environmental Impact Assessment (EIA) procedure for Belene NPP	46
Box 7.	Procedure for the selection of a consultant for Maritsa-East 2 TPP	47
Box 8.	BEH Net Income and Sales	64
Box 9.	Scrap of material assets, real estate machine and equipment.....	64
Box 10.	BEH currency risk	67
Box 11.	Provisions for excess greenhouse gas emissions BEH	67
Box 12.	Greenhouse gas emissions liabilities BEH	68
Box 13.	Realized losses from trading activities BEH	70
Box 14.	'Green' investors' interest.....	73
Box 15.	2020 Strategy – 2008 draft	81

I. INTRODUCTION

Energy is the lifeblood of any economy: oil, gas and electricity are critical to a functioning and growing nation. For all nations, economic and social well-being depends on safe, affordable and dependable supplies of energy. It becomes very clear, then, that the question of energy security is not just a question of economic security, but of national security as well.

The Bulgarian energy sector is key for the future development of the country's economy. For the past decade energy exports and imports formed on average 12% (16% in 2008) and 21% (22% in 2008) of the value of the country's outgoing and incoming trade flows respectively.¹ Every fourth public procurement contract is concluded in the energy sector, making it one of the biggest taxpayers' money spenders in the country. In 2008, in a single year, the Bulgarian government committed to energy projects, requiring budgetary investments equal in value to the whole EU funds support for the country for the current European seven-year budget period 2007 – 2013.

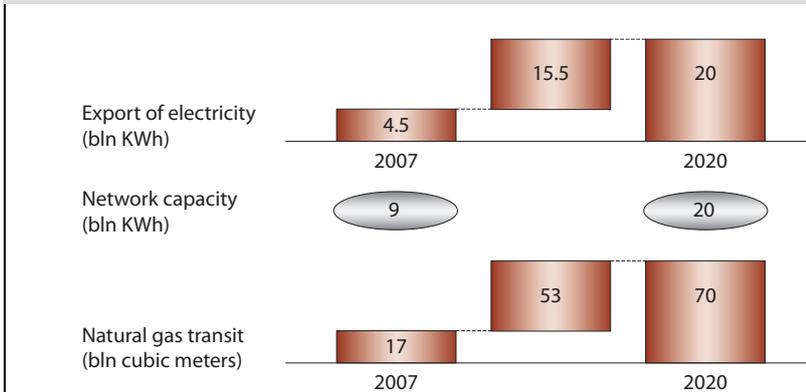
There are also a number of external factors that put pressure on Bulgarian policy makers to pay special attention to the energy sector: **global climate change** and the related European Union (EU) binding targets on capping greenhouse gas emissions, decreasing energy intensity and increasing the share of renewable energy sources (RES); **economic pressures** highlighted by the current economic crisis; **political pressures** caused by foreign geopolitical and economic interests.

1.1. ENERGY AS A STRATEGIC SECTOR

Bulgarian energy sector is relatively small in global terms, but sizeable in the country's industrial portfolio. The sector primarily comprises of electricity generation and transit of oil and gas to western markets. It has traditionally been viewed as strategic for the country's economic development and national security, which partially explains the large investments made in the past 7 – 8 years in building additional capacities, rehabilitating old power plants and expanding the distribution network. Previous governments have seen potential in the growing South East European (SEE) market and the widening energy deficits there. The Bulgarian Energy Strategy 2020 (version – 2008) sets ambitious plans of turning Bulgaria into the leading power exporter in the Balkans.

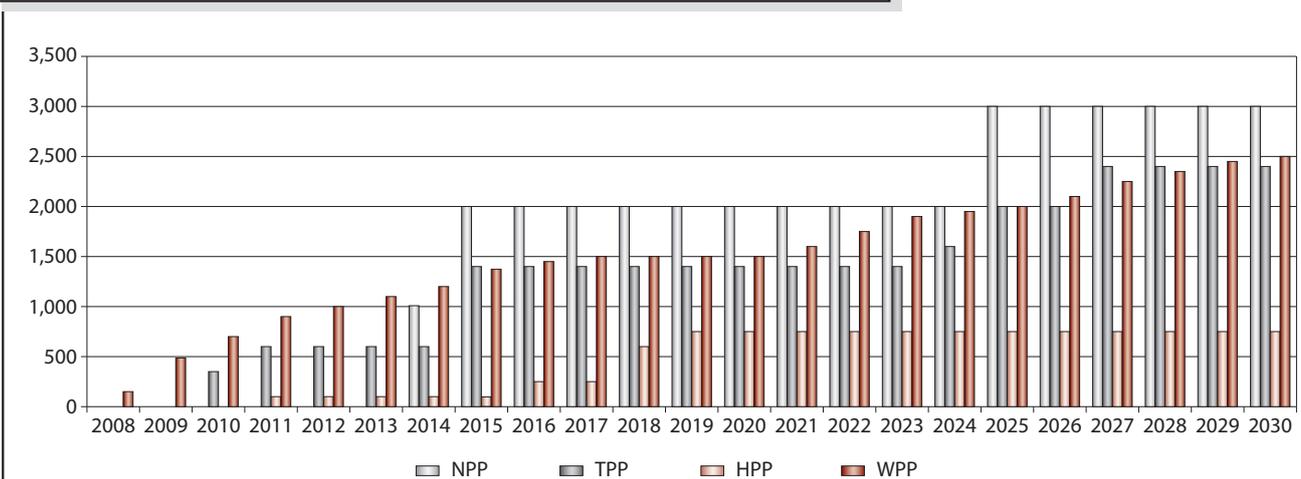
¹ According to Bulgarian National Bank data on final use of exports and imports.

FIGURE 1. GOALS SET BY THE 2020 ENERGY STRATEGY (DRAFT 2008)



Source: Bulgarian Energy Strategy 2020 (2008 proposal)

FIGURE 2. PROJECTED CAPACITY INCREASE BY NATIONAL ELECTRIC COMPANY (NEC)



Source: National Electric Company (NEC) Annual Report 2008

However, available data² shows that already in mid-2007 there is shrinkage of the net export balance of electricity in the Balkan countries, excluding Bulgaria. This process, already under way before the onset of the financial crisis in SEE (actual economic impact of the financial crisis was not felt in SEE before the late fall of 2008) will most likely continue in the next 1 – 2 years. On one hand the **effects of the crisis** seem to ‘lag’ behind approximately 6 months in SEE. Therefore, further shrinkage of disposable income can be expected, as well as increase of energy poverty³ and higher percentage of households switching to biomass, i.e. wood and briquettes for heating in the upcoming heating seasons. Another factor that influences the decrease in energy net export in the region is the improving of **energy efficiency**. As many SEE countries

² Balkan Energy News.

³ Energy poverty is defined as ‘spending more than 10% of household income on energy and water bills’.

are traditionally far from best practice when it comes to household and industrial energy intensity, they are forced to step up their energy efficiency measures in order to meet their 2020 targets. However, what will have the biggest effect on the process of closing of the energy deficiency gap in the Balkans is the fact that **many traditional importers from Bulgaria are now planning or already building their own power plants** – nuclear, traditional and renewable.

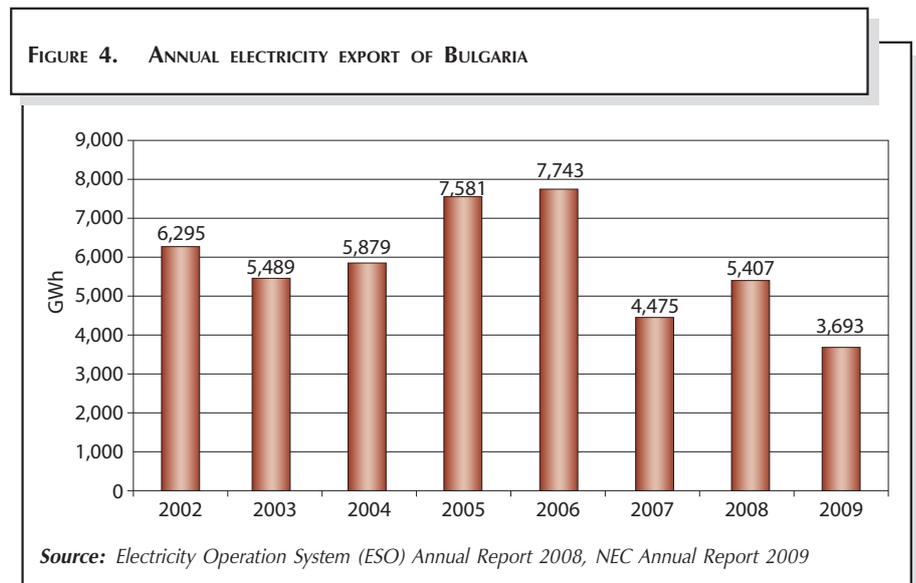
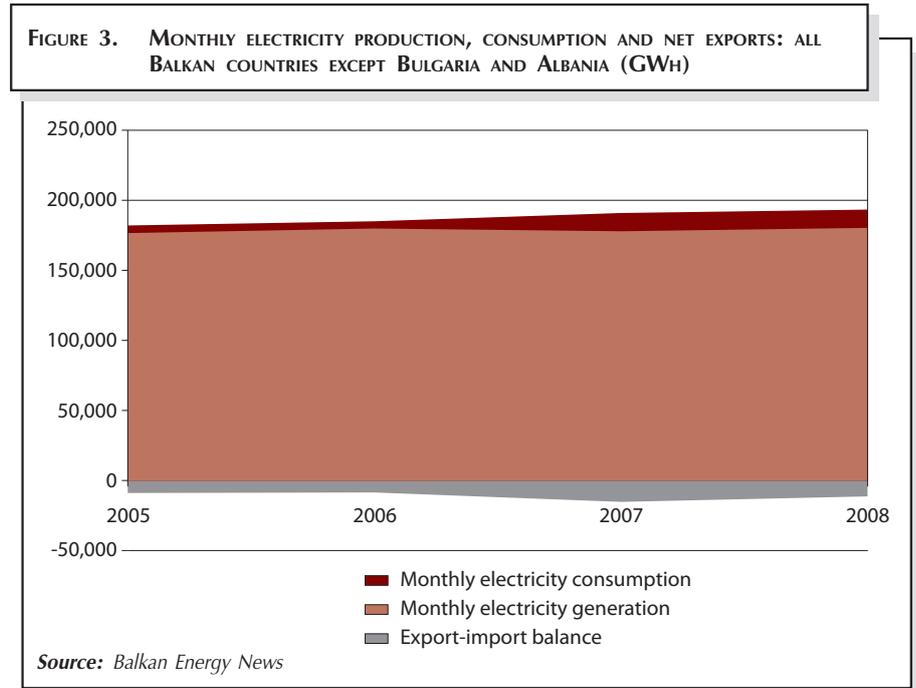
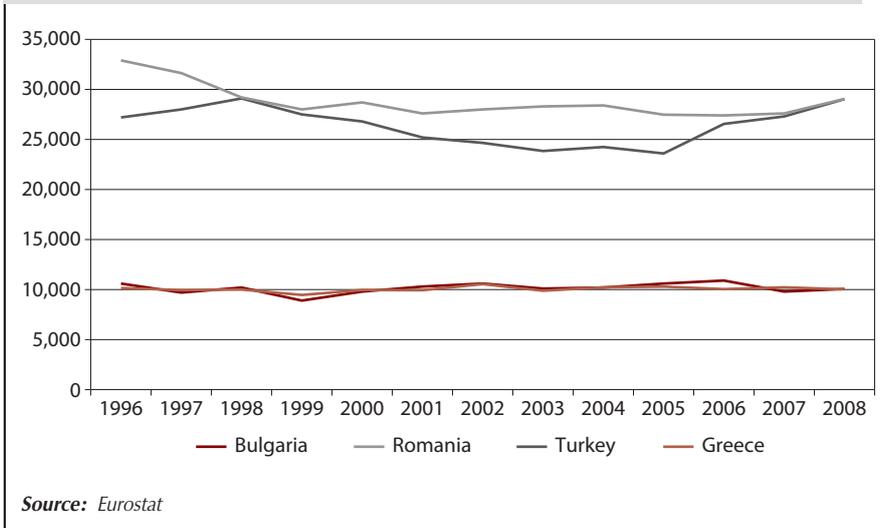


FIGURE 5. TOTAL PRODUCTION OF PRIMARY ENERGY – (1 000 TOE)



Bulgaria’s neighbors, of which Greece is Bulgaria’s main export market with 50.21% as of 2008, are increasing their generation capacities.

TABLE 1. STRUCTURE OF BULGARIA’S ELECTRICITY EXPORTS

2009 export structure

	GWh	%
Bulgarian-Greek border	2,318	62.77
Bulgarian-Serbian border	616	16.68
Bulgarian-Romanian border	149	4.03
Bulgarian-Macedonian border	610	16.52
Total	3,693	100

Source: NEC Annual Report 2009

Putting the large ongoing and planned capacity investments in Bulgaria in the perspective of a potentially shrinking export market, it might be more cost-efficient and environment-beneficial to channel public funds into energy efficiency programs – both industrial and household-focused.

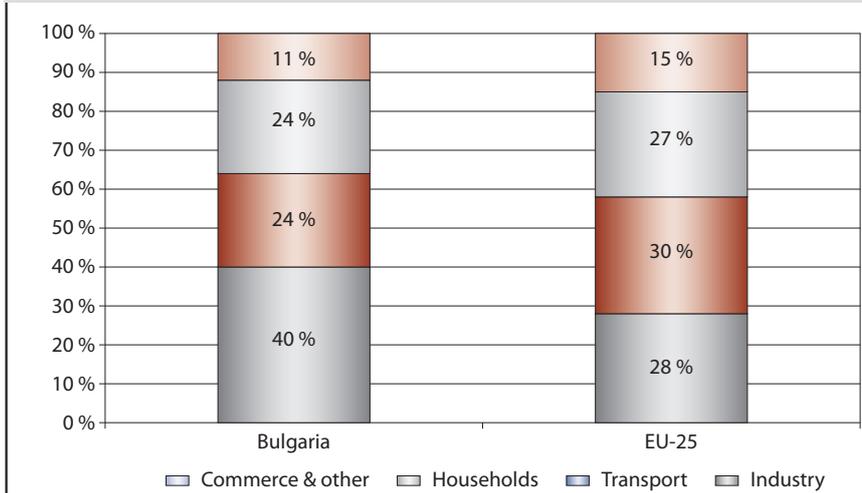
TABLE 2. NUCLEAR REACTORS UNDER CONSTRUCTION, PLANNED AND PROPOSED BY JULY 1, 2009

World Ranking:	Country:	Amount:
19	Bulgaria	0 (planned: 2, proposed: 0)
20	Czech Republic	0 (planned: 0, proposed: 2)
23	Hungary	0 (planned: 0, proposed: 2)
29	Lithuania	0 (planned: 0, proposed: 2)
32	Poland	0 (planned: 0, proposed: 5)
33	Romania	0 (planned: 2, proposed: 1)
34	Slovenia	0 (planned: 0, proposed: 1)
40	Turkey	0 (planned: 2, proposed: 1)
41	Ukraine	0 (planned: 2, proposed: 20)

Source: Europe's Energy Portal (www.energy.eu)

1.2. ENERGY EFFICIENCY

FIGURE 6. FINAL ENERGY DEMAND BY SECTOR (2006)



Source: Eurostat

Bulgaria consistently ranks as **the most energy intensive economy in the EU** – measured by ‘gross inland consumption of energy/GDP’. Some analysts are willing to deflate the figures given by Eurostat with the presumption that official GDP does not account for a large share of gray economy (estimates⁴ show that gray economy could amount to up to 30%). However, even if such adjustment is applied the energy intensity of Bulgaria would still be much higher than the average EU-27.

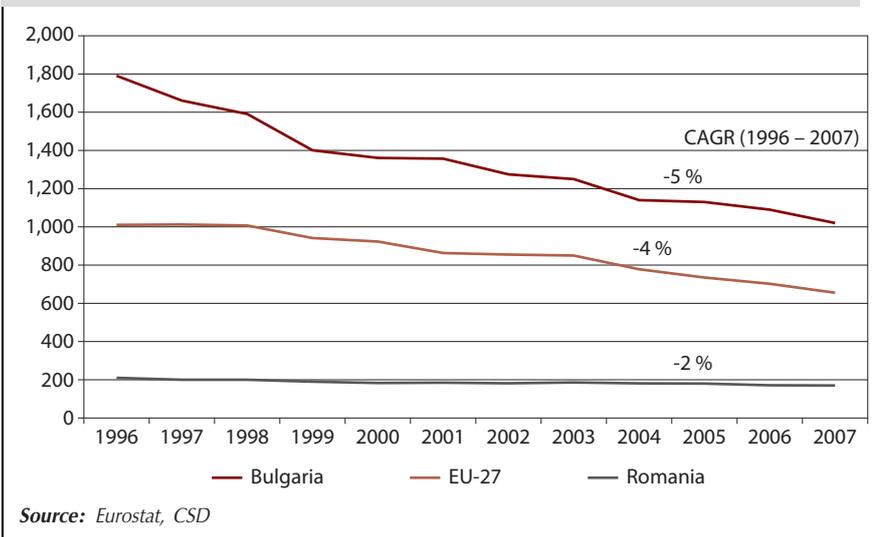
Energy consumption in Bulgaria is driven primarily by the **industrial sector**, especially energy-intensive sectors such as metallurgy and the energy sector itself.

Bulgaria improves its energy efficiency with a higher rate than that of EU – 27, and if sustained it will allow the country to reach the EU

⁴ *The Hidden Economy in Bulgaria*, Center for the Study of Democracy, 2004.

mandated target of 20% decrease by 2020. Neighboring Romania has a similar success in improving its energy efficiency, although coming from a much lower starting point.

FIGURE 7. ENERGY INTENSITY OF THE ECONOMY – GROSS INLAND CONSUMPTION OF ENERGY DIVIDED BY GDP (KILOGRAM OF OIL EQUIVALENT PER 1000 EURO)



Historically the GDP growth has outstripped energy demand growth, therefore reducing the energy intensity. The energy intensity of the industrial production sector, after a fall in the 1997 – 2002 period has been on the increase. Inefficient use of energy, particularly in the **power sector, where transmission losses are significant**, has been blamed for that – industrial energy intensity in Bulgaria remains with 40% higher than EU average of (0.13 koe/\$95).⁵

1.3. ENERGY DEPENDENCY

TABLE 3. ENERGY CONSUMPTION BY EU-MEMBER STATES, THEIR NET IMPORTS AND DEPENDENCY RATE IN 2008 – RANKED BY ENERGY DEPENDENCY

Rank	EU Member State	Gross Energy Consumption	Net imports	Energy Dependency
10	Greece	31.5	24.9	71.90%
13	Slovakia	18.8	12.0	64.00%
14	Hungary	27.8	17.3	62.50%
15	Germany	349.0	215.5	61.30%
16	Finland	37.8	20.9	54.60%
17	EU27	1825.2	1010.1	53.80%
18	Slovenia	7.3	3.8	52.10%
19	France	273.1	141.7	51.40%
20	Bulgaria	20.5	9.5	46.20%
21	Netherlands	80.5	37.2	38.00%

Source: Europe's Energy Portal (www.energy.eu)

The country is highly dependent for its energy supplies on foreign sources, especially Russian gas, which was severely felt in the recent 'gas crisis' (2008/2009) when disputes between Ukraine and Russia lead to gas shortage in some of the coldest months of the year. The 2020 Energy Strategy (draft 2008) shows energy dependency of up to 70%, which is much higher than the figures given by Eurostat (46%). This is due to different methodology, which counts nuclear energy production as indigenous. However, considering that the only supplier of nuclear fuel, with long-term binding contracts is Russia, then the 70% figure seems more realistic. In Section

⁵ Kilogram of oil equivalents; Source: Ministry of Economy, Energy and Tourism – Agency for Energy Efficiency, National Long-term Program for Energy Efficiency until 2015, 2005

If the nuclear fuel contract is discussed in detail – how the supplier was chosen and why Bulgaria pays approximately 20% premium to the current market price.

1.4. HOW GREEN IS BULGARIA?

TABLE 4. RENEWABLE ENERGY IN FINAL ENERGY CONSUMPTION (2020 TARGET)

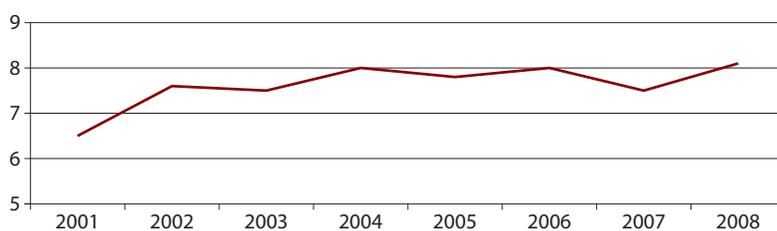
	EU Member State	2006 Figure	2020 Target	% To cover:
1	United Kingdom	1,5 %	15 %	13,5 %
2	Ireland	2,9 %	16 %	13,1 %
3	Denmark	17,2 %	30 %	12,8 %
4	France	10,5 %	23 %	12,5 %
25	Bulgaria	8,9 %	16 %	7,1 %
26	Romania	17,0 %	24 %	7,0 %
27	Czech republic	6,5 %	13 %	6,5 %

Source: Eurostat

Compared to most EU member states Bulgaria seems to be faring well in the prospects of achieving its 2020 target of 16 % for the share of Renewable Energy Sources (RES) in its final energy consumption. Relative to its indicative target Bulgaria has one of the smallest 'gaps' to fill. There is also a solid projected increase of capacity, mainly from large wind and hydro projects that are in the pipeline for 2009 and 2010 (discussed in Section IV). However, a closer look at RES shares since 2002, will show that the country is making little progress with data wavering between 7.5% and 8.5%. This trend actually puts Bulgaria in

the 'under-achiever' group, with an increasing number of experts questioning the certainty of attaining the 16% 2020 goal.⁶

FIGURE 8. SHARE OF RENEWABLE ENERGY – FINAL ENERGY CONSUMPTION (%)



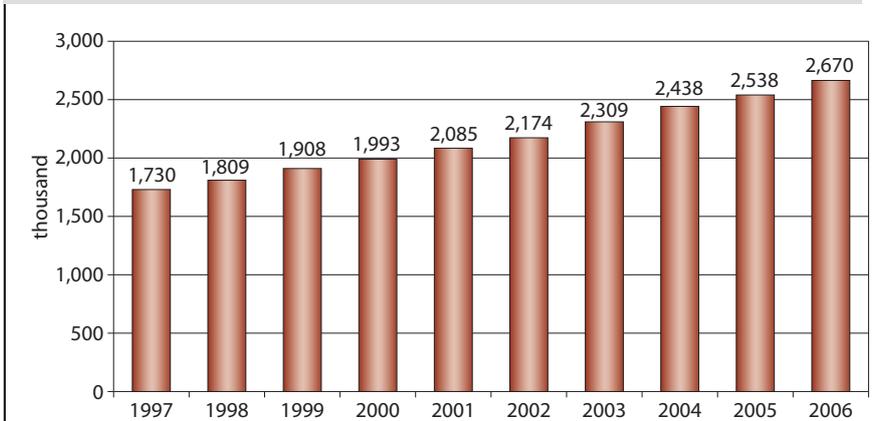
Source: National Energy Balance, NSI (2009)

Bulgaria also ranks at the bottom in terms of **biofuels consumption**. The increase in the standard of living and disposable income in the last few years has led to dramatic increase in personal vehicles (many of them old and fuel-inefficient), as well as to increase in annual mileage covered by them, hence to total increase of fuel consumption, but the share of biofuels remains negligible. Further research and

investments are needed in the right type of biofuel production that is cost-effective and does not distort general agricultural production.

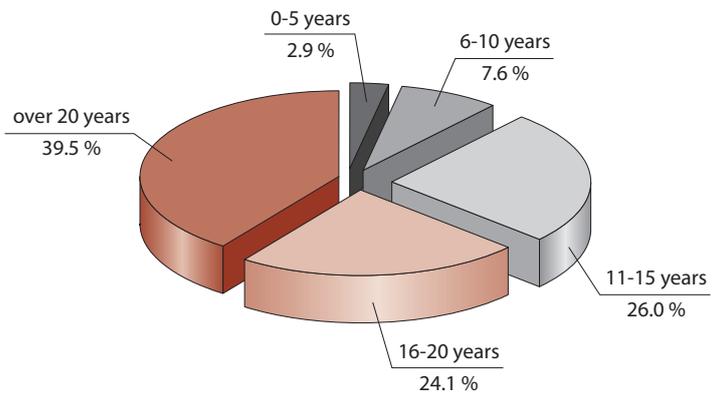
⁶ Center for the Study of Democracy, interviews with experts conducted July – December 2009.

FIGURE 9. STOCK OF PASSENGER CARS IN BULGARIA



Source: Energy Charter Secretariat: In-depth Review of Energy Efficiency Policies and Programs (Bulgaria 2008)

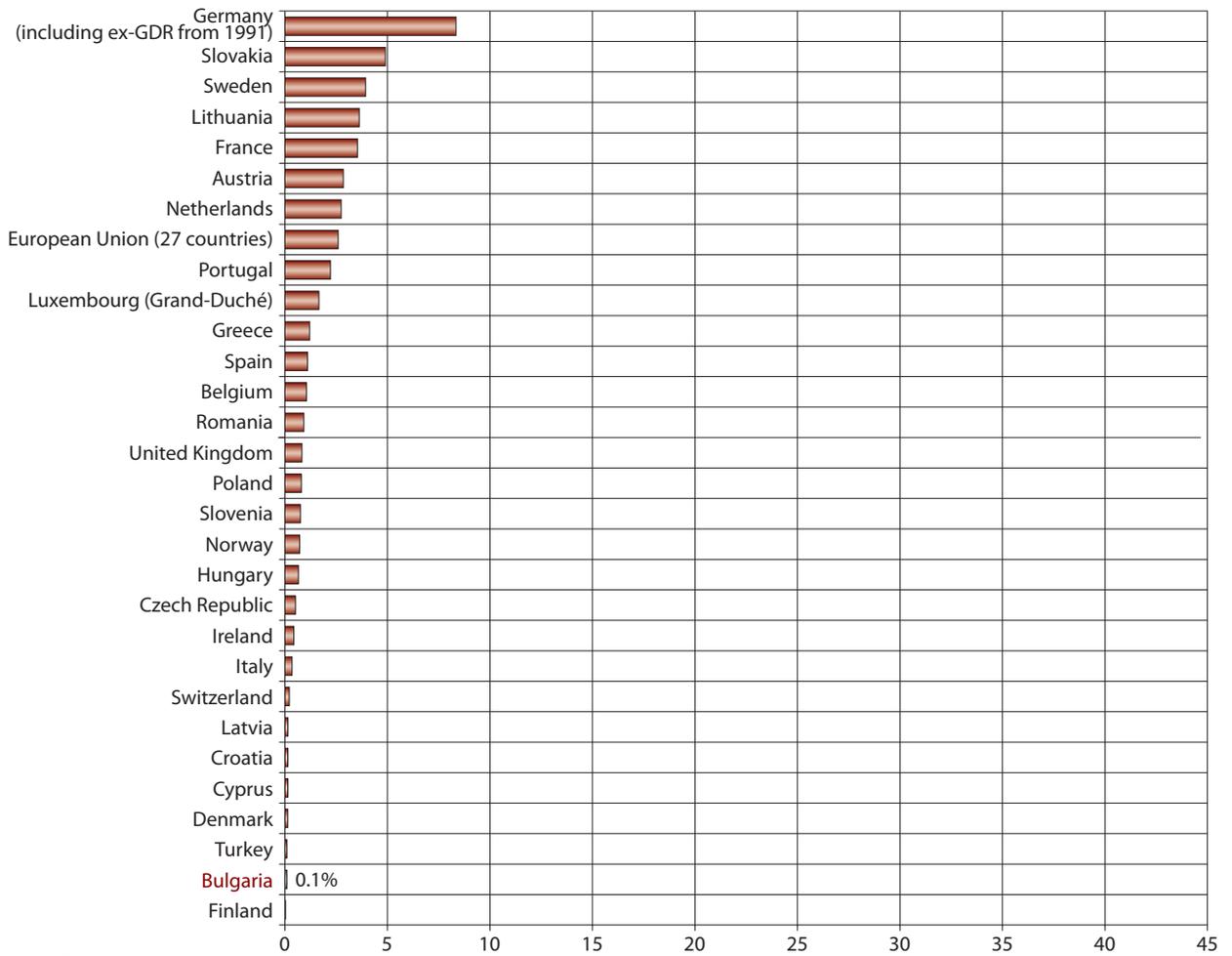
FIGURE 10. STOCK OF PASSENGER CARS BY AGE



Source: Energy Charter Secretariat: In-depth Review of Energy Efficiency Policies and Programs (Bulgaria 2008)

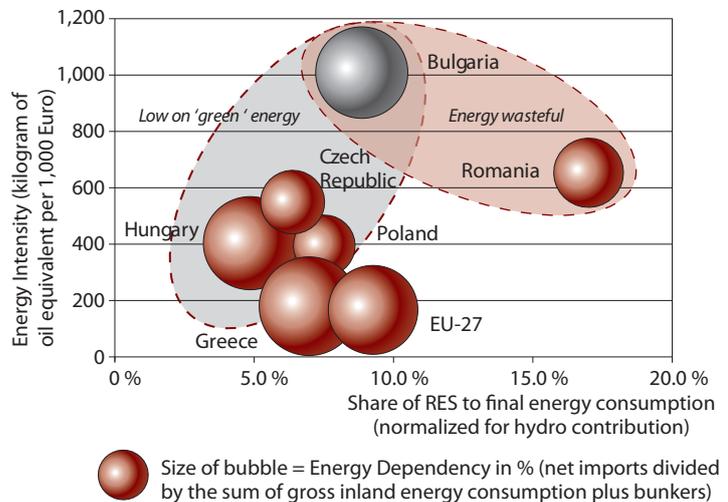
The overall conclusion is that Bulgaria needs to ‘catch up’ compared to other SEE countries and EU-27 in a number of areas: decrease in energy intensity, increase in ‘green’ production and decrease in dependency on foreign energy sources. Bulgaria could be seen as an outlier when those multiple factors are taken into account – it is the most energy intensive economy in the EU, highly energy dependent and a follower in its RES share.

FIGURE 11. SHARE OF BIOFUELS IN FUEL CONSUMPTION OF TRANSPORT (%) (2007)



Source: Eurostat

FIGURE 12. THE 'TRIPLE HELIX' OF ENERGY SECTOR DEVELOPMENT – EFFICIENCY, SUSTAINABILITY AND INDEPENDENCY (2007)

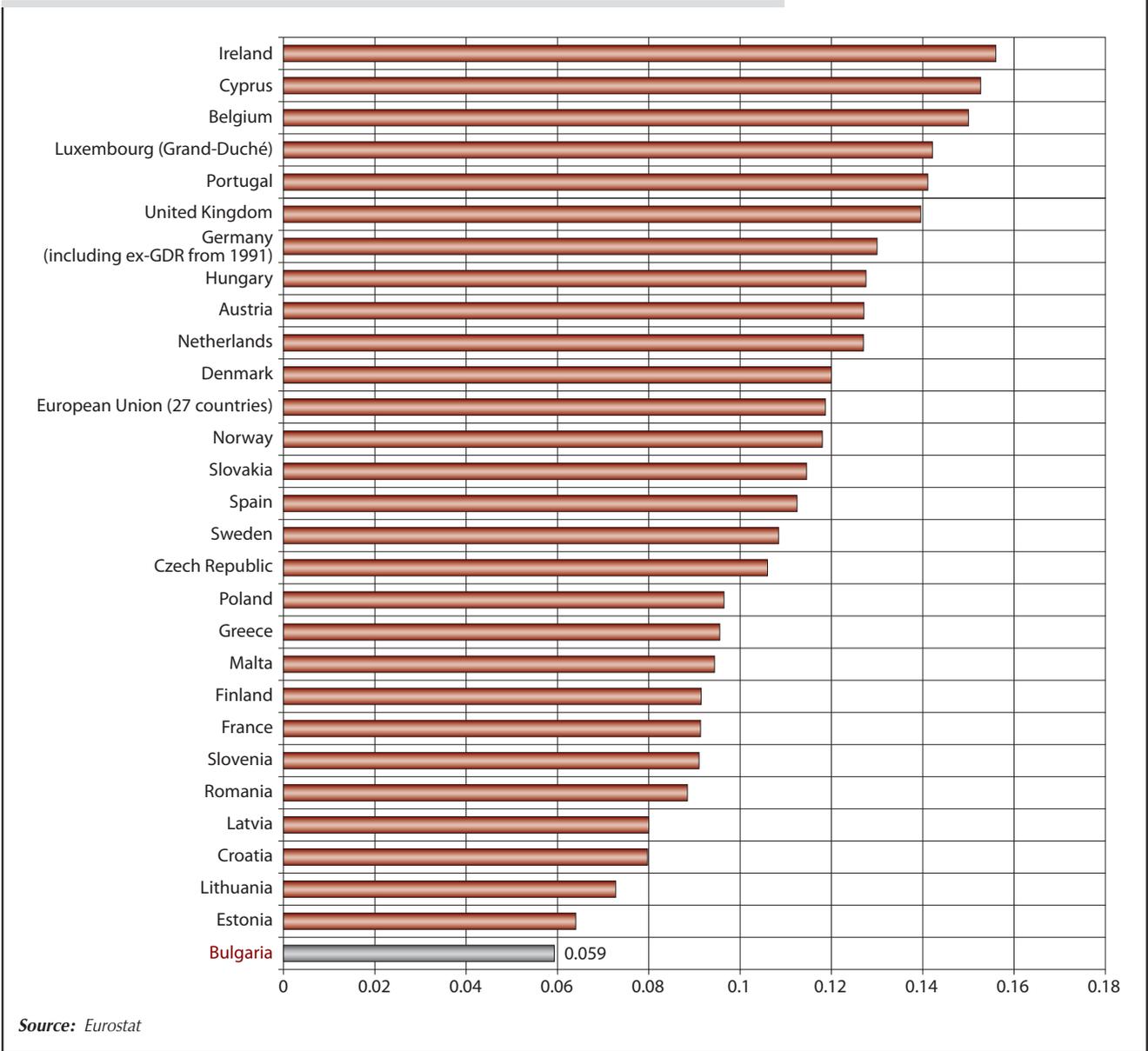


Source: Eurostat, Center for the Study of Democracy

1.5. PRICING: COST COVERAGE, TRANSPARENCY AND FAIRNESS

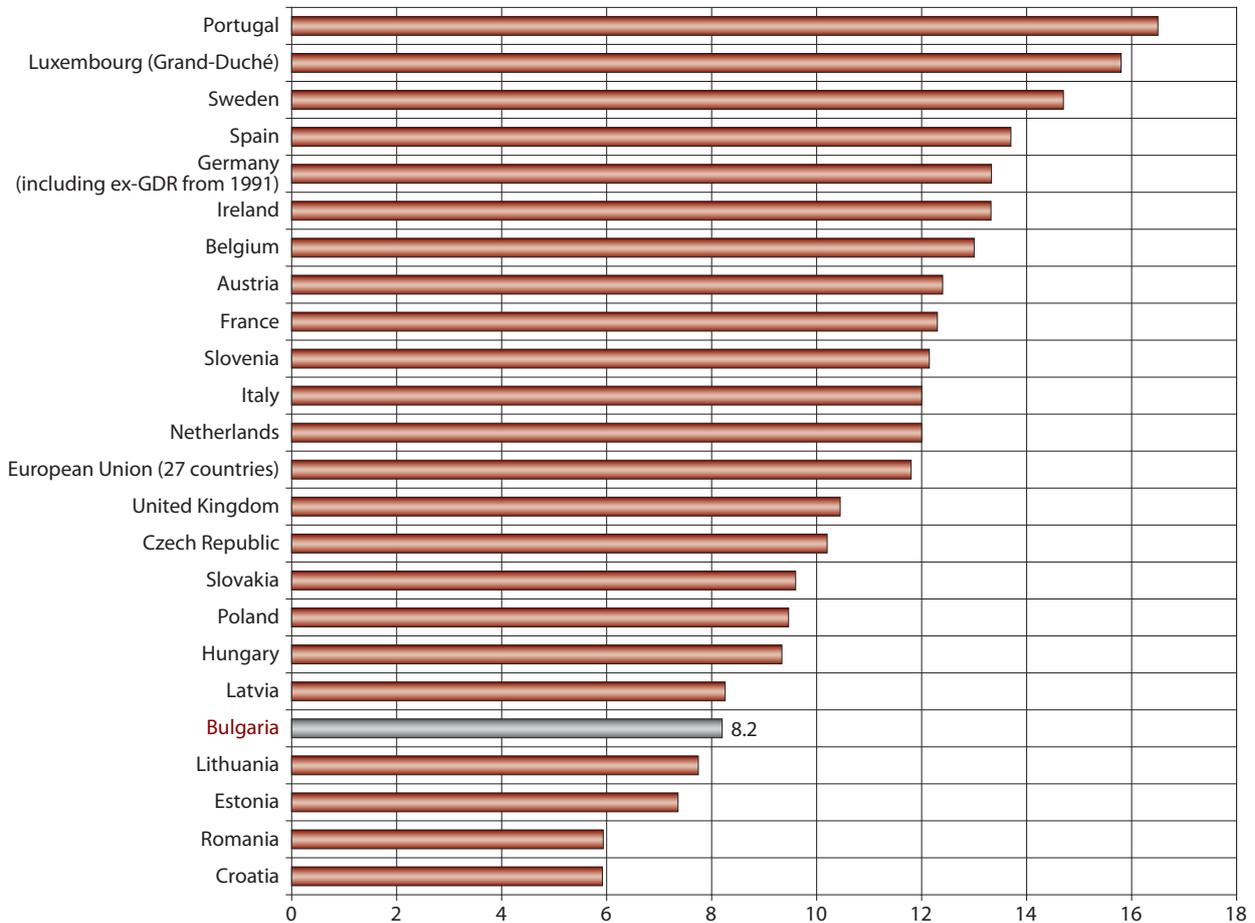
Bulgaria remains an outlier also in terms of prices that the final consumer pays for the use of energy. Bulgarian energy ranks consistently among the ‘cheapest’ in EU.

FIGURE 13. ELECTRICITY PRICES OF FINAL CONSUMPTION – EURO PER kWh (2008)



Source: Eurostat

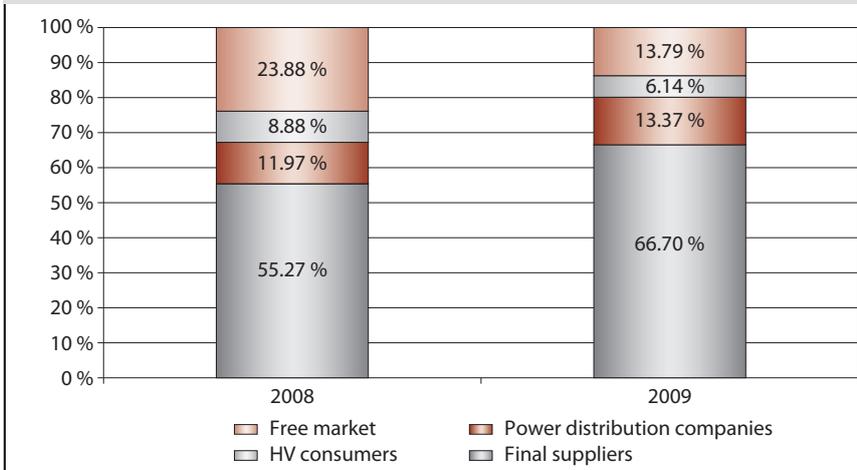
FIGURE 14. GAS PRICES OF FINAL CONSUMPTION – EURO PER GIGAJOLE (2008)



Source: Eurostat

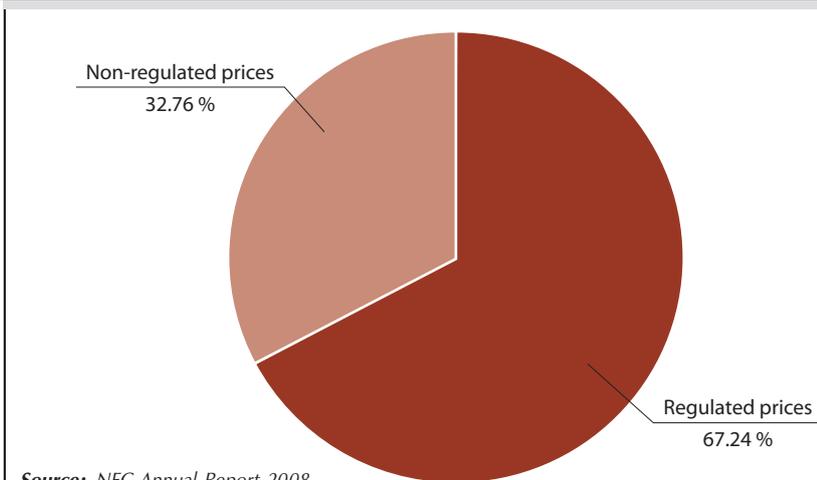
There are a couple of factors that produce that relative price level. First come the **low fixed consumption prices for gas and electricity set by the national regulator**. On the regulated market electricity companies often have to sell on sub-cost levels. The losses, which annually amount to dozens of millions, are partially compensated by the higher prices on the 'free' market. However, the electricity sold on the regulated market is still the predominant share which puts heavy burden on the National Electrical Company (NEC). The issue is especially grave when we consider the **'negative' margin between the purchase price that NEC is obliged to provide to renewable energy producers and the final sale price to consumers**.

FIGURE 15. BREAK-UP OF NEC'S 2008 AND 2009 SALES REVENUE BY CONSUMER TYPE



Source: NEC Annual Report 2008

FIGURE 16. SHARE OF NEC'S REVENUES – REGULATED AND FREELY NEGOTIATED PRICES 2008



Source: NEC Annual Report 2008

Second comes the **social burden of energy bills**, especially in the context of the ongoing economic crisis. Although Bulgaria ranks in top position for energy 'cheapness' in Europe, it also has a considerable share of 'energy poor' consumers. In Bulgaria the households pay approximately 14%⁷ of their income for water and energy bills. If the UK energy poverty threshold of 10% is assumed, then a large share of the Bulgarian population will be categorized as energy poor. One part of these households, or 360,000 from a total of 2,9 million, rely on social support for their energy needs. Those needy consumers who do not make it to the poverty bracket supported by the government, appear on the growing 'bad accounts receivables' of the energy distributing companies. There is a clearly discernible trend of decreasing collectability of accounts, which for Toplofikacia Sofia EAD is as low as the critical 50%.

⁷ National Statistical Institute (NSI) (2008).

The price of electricity is also low compared to the sector's investments in: rehabilitation of old plants, construction and installation of new capacities and improvements in the transportation and distribution network. During the course of 2008 and 2009 large investments were made by NEC.

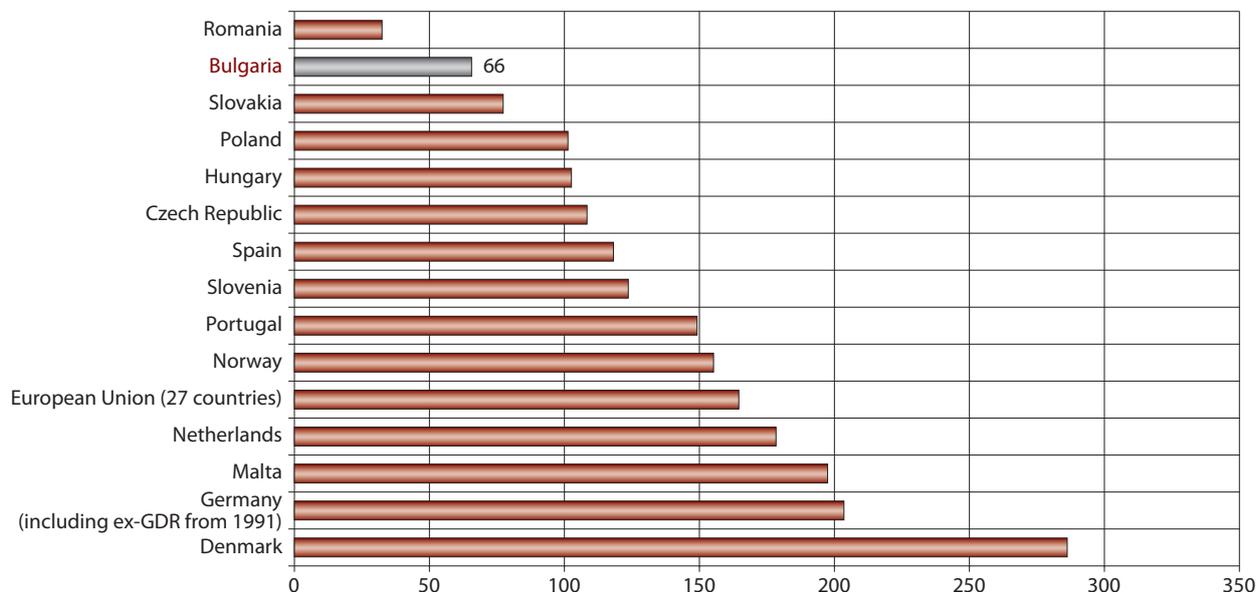
TABLE 5. INVESTMENT EXPENDITURES OF NEC IN 2008 AND 2009 (MLN BGN)

	2008	2009	
Electricity distribution network	168.3	97.0	<ul style="list-style-type: none"> • Rehabilitation and reconstruction of substations and electricity grids • Construction of new substations and grids
Hydro Power Plants	246.4	236.8	<ul style="list-style-type: none"> • Rehabilitation and modernization of HPPs • Construction of new HPPs
Others	3.2	6.5	<ul style="list-style-type: none"> • Supply of specialized transport equipment, information technology, construction and reconstruction of sites

Source: NEC Annual Report 2008, 2009

In addition, Bulgaria also lags in **implicit tax rate** on energy compared to the rest of EU.

FIGURE 17. IMPLICIT TAX RATE ON ENERGY⁸ – RATIO OF ENERGY TAX REVENUES TO FINAL ENERGY CONSUMPTION, DEFLATED (EUR PER TOE) (2007)



Source: Eurostat

⁸ This indicator is the ratio between Energy Tax Revenues and Final Energy Consumption calculated for a calendar year. It measures the taxes levied on the use of energy which contributes to foster energy efficiency. Energy Tax Revenues are measured in 1,000 EUR and the Final Energy Consumption as TOE (thousands tons of oil equivalent). The ratio is measured in EUR per TOE.

Taking all factors into account, corrective price increases will be inevitable in the near term, and energy companies are already signaling that. The regulating body seems to give mixed signals to that respect and there have been many speculations in the press. In any case the issue of **electricity pricing** is crucial not only for the well being of consumers but for the sustainability of the sector itself. Some key elements in the future pricing process should be:

- Full transparency into the methodology and reasoning for price formulation;
- Prices should allow companies to cover their cost of production (with the disclaimer that production cost itself could be optimized by increase in efficiency, decrease in energy stealing, improved technologies and general leaning of operations);
- Alternative energy producers as well as consumers should pay their fair share for adding RES capacities to the grid. Ideally final consumers will receive invoices showing what % of their bill goes to the 'green' energy sector, including what type – wind, hydro, etc. Another possible solution is the sale of the so called 'green certificates' on the common EU market;
- Prices for industrial consumers should be increased to mirror EU standards of industrial/household price balance;
- Consumers at the bottom of the energy poverty pyramid should be protected either through preferential prices/discounts or through inclusion in tailored energy efficiency programs;
- Revision of the tax burden should be made and if the analysis shows possibility for increase without distorting market efficiency, such increase should be made in a transparent and clearly communicated manner. The additional revenue could be used for energy efficiency programs;
- Calculating production cost for nuclear plants should factor in waste management;
- Pricing should also factor in CO₂ emissions. In the 2008 consolidated financial statements of Bulgarian Energy Holding (BEH) there could already be seen 'provisions for exceeding quotas for green house gas emissions' worth almost 40 million BGN. A detailed review of the accounting practices would show whether this is the most correct and efficient way to manage the participation of state owned companies in emissions trading. At Net Profit after provisions of ~85 million BGN, provisions of 40 million are a considerable share. This raises the much bigger question of how 'cheap' in reality coal based electricity is;
- As a further step, cost-benefit analysis could be made that takes into account other estimable environmental and social damages. Such detailed cost-benefit analysis would be beneficial for the design of the overall sustainable energy strategy with a balanced mix of energy sources.

TABLE 6. NOTES ON PROVISIONS, TAKEN FROM THE CONSOLIDATED 2008 FINANCIAL STATEMENT OF BEH

Provisions (in 1000 BGN)	2008	2007 (unaudited)
<i>Provision – long term</i>		
Provision for environmental protection	1,169	1,326
Provision for re-cultivation	35,940	29,012
Provision for going over greenhouse gas emissions quotas	-	-
	37,109	30,338
<i>Provision – short term</i>		
Provision for environmental protection	979	485
Provision for recultivation	1,611	1,611
Provision for going over greenhouse gas emissions quotas	38,585	-
Constructive liabilities	306	-
Legal liabilities	320	-
	41,801	2,096
Total for the group	78,910	32,434

Source: BEH Consolidated Financial Statement 2008

1.6. GOING FORWARD

The growing effects of the global economic crisis put increasing pressure on the ambitious energy sector projects. As **demand** (domestic and foreign) **shrinks**, **access to funding squeezes and price of funding increases** (partially to reflect the increased risk of such investments in itself), the **risks of large-scale projects** become even more sizeable. At the same time the financial and technical conditions weaved in the **contracts signed by the previous government** for projects such as the nuclear power plant (NPP) Belene seem to not only lack transparency but also sound financial judgement. In addition, a closer look into the **efficiency and strategic management of the state-owned energy companies**, now part of BEH, shows that there are many operational, financial and efficiency gaps that need to be filled. Adding to the complexities of the energy sector in Bulgaria are the processes of **full market liberalization** and **joining the international green house gas trading**.

At the same time, the interest in small and medium-sized **'green' energy production projects** is not only stable but markedly increasing in the last few years. There are a number of planned and ongoing projects, especially using wind and hydro power. Solar technology seems to be off the radar for the moment, due to the relatively high production cost per MWh. The boom of 'green' energy projects will likely be tempered by the plans of the national regulator to tighten licensing control as the power transmission network might not be able to accommodate all planned additional generation capacity. The **cost of additional equipment needed to add 'green' producers to the grid** is a valid argument, so is the **high fixed price for purchase of 'green' energy** stated in the long-term binding contracts.

TABLE 7. FEED-IN TARIFFS BY SOURCE APPROVED BY THE STATE REGULATORY COMMISSION, WITHOUT VAT (MARCH 2008)

	Feed-in Tariffs		Germany	
	BGN/MWh	Euro/MWh	Euro/MWh	Notes
HPP with installed capacity lower than 10 MW	85.19	43.35	126.7 76.5	Up to 500 kW 2-5 MW
Biomass plants with installed capacity lower than 5 MW			116.7 77.9	Up to 150 kW 5-20 MW
• Wood residues	215.00	109.41		(Cost regression 1%/a)
• Agricultural residues	162.00	82.44		
• Energy crops	184.00	93.64		
Wind power generators			79.5	Onshore-wind (Cost regression 1%/a)
• with installed capacity lower than 800 kW	120.00	61.07		
• with effective working hours less than 2,250 h and installed capacity of 800 kW and higher	175.00	89.06		
• with effective working hours more than 2,250 h and installed capacity of 800 kW and higher	156.00	79.39		
Photovoltaics				(Cost regression 8%/a)
• with installed capacity lower than 5 kW	782.00	397.96	424.8	Up to 30 kW
• with installed capacity higher than 5 kW	718.00	365.39	344.8	Over 1,000 kW

Source: In-depth Review of Energy Efficiency: Bulgaria 2008, Energy Charter Secretariat

There are also fears that these current conditions for renewable energy producers could be attracting **'speculative capital'** to the market.

The global macroeconomic conditions, the changed dynamics and size of the Balkan energy market, the necessary revision of the financial standing of current and planned large investment projects, the pressure from EU regulators and the growing need to scrutinize public procurement, domestic market interactions and state companies' management – all these will necessitate **a full-scale revision of the energy sector and its key players** – how they operate and how they develop in the future.

II. THE ENERGY SECTOR – A SECTOR OF HIGH CORRUPTION RISK⁹

2.1. SOURCES OF CORRUPTION RISK

The energy sector is among the most important industries in the national economy with a major share in the industrial added value.¹⁰ Electricity generation in 2007 was 43,297 GWh annually.¹¹ While taking into account the technical and commercial losses, some 27,000 GWh out of this quantity are hypothetically sold at a value exceeding 2 billion BGN net of the VAT. Besides, there is the added value in the other energy sub-sectors, such as the production of and trade in coal and other solid fuels, gas and heating, the extraction of oil and natural gas, and the management of water energy resources. Therefore, in order to protect public interest and prevent the abuse of large public funds, it is of key importance to ensure that the sector is managed responsibly and according to best practice.

Traditionally a sizeable share of the companies with the largest sales in Bulgaria operates in the energy sector. For 2008, 17 companies in the energy sector, excluding those in oil refining and trade, were in the Top 100 companies ranked by their revenue. However, those high performers in sales do not occupy leading positions in terms of investment efficiency. The profit of producers and distributors of electricity decreases over time, whereas the contractors implementing public procurement contracts awarded by the biggest energy companies are considered to be some of the most profitable businesses in the country.

Increases in the gas and energy prices boost the sales side and partially alleviates the problem. However, a closer look on the expense and provisions side in the official financial statements will show lack of efficiency and transparency. Profitability remains low both compared to other sectors and to that of similar companies abroad. Section IV discusses in detail public companies' management and financial standing issues. Although NEC ranks top 3 in the country on sales, it falls down to number 16 on profits. Maritza Iztok, Toplofikacia and Bulgargaz are in the same bucket of poor performers.

⁹ *Corruption in Public Procurement: Risks and Reform Policies*, Center for the Study of Democracy, 2007.

¹⁰ The gross added value of the country was reported by the NSI to be slightly over 36 billion BGN in 2005, out of which industry accounted for some 11 billion BGN (26.1%). See www.nsi.bg/gdp/

¹¹ Eurostat.

TABLE 8. RANKING OF ENERGY COMPANIES IN TOP 100 COMPANIES (RANKED ON SALES)

Ranking by sales		Company	Sales		Profit/Loss		Ranking by profit (ascending order)
2008	2007		2007	2008	2007	2008	2008
14	17	NPP Kozloduy (part of BEH)	634,157	835,564	3,459	70,110	7
34	30	CEZ Distribution Bulgaria	359,900	389,600	54,900	56,600	12
22	24	TPP Maritza-East 2 (part of BEH)	428,445	534,801	22,182	48,148	15
3	3	National Electrical Company (part of BEH)	2,494,589	2,975,656	41,479	46,837	16
35	35	EVN Bulgaria Electrorazpredelenie	321,996	375,632	28,623	33,351	21
75	66	Brikel	176,800	184,487	23,699	25,341	27
41	43	Enel Maritza-East 3	271,466	314,504	31,859	20,030	30
92	*	Bulgartransgaz (part of BEH)	150,363	148,418	42,733	15,618	36
10	9	CEZ Electro Bulgaria	910,500	1,076,800	14,200	14,400	38
9	15	Overgaz Inc.	667,647	1,098,224	20,248	11,147	47
28	*	Electricity System Operator (part of BEH)	357,433	453,070	9,433	6,567	57
17	22	EVN Bulgaria Electrosnabdiavane	512,049	642,943	73	6,118	58
29	29	Mines Maritza-East (part of BEH)	360,565	421,360	8,018	1,648	69
98	*	Energy Finance Group	50,073	139,502	561	889	73
83	67	TPP Bobov Dol	174,423	173,211	5,077	-1,495	80
32	28	Toplofikacia Sofia	365,635	394,188	-15,004	-58,325	91
6	*	Bulgargaz (part of BEH)	1,113,088	1,433,104	86,989	-90,543	92

Source: Capital Weekly

TABLE 9. RANKING WITHIN THE ENERGY SECTOR (RANKED ON SALES)

Ranking		Company	Sales (1000 BGN)			Profit/Loss (1000 BGN)				Profitability %
2008	2007		2006	2007	2008	Change %	2006	2007	2008	
1	1	National Electricity Company	2,226,888	2,494,589	2,975,656	19.28	32,163	41,479	46,837	1.57
2	*	Bulgargaz	1,203,773	1,113,088	1,433,104	28.75	114,557	86,989	-90,543	-6.32
3	3	Overgaz Inc.	437,895	667,647	1,098,224	64.49	20,371	20,248	11,147	1.02
4	2	CEZ Electro Bulgaria	70	910,500	1,076,800	18.26	2	14,200	14,400	1.34
5	4	NPP Kozloduy	739,724	634,157	835,564	31.76	4,712	3,459	70,110	8.39
6	5	EVN Bulgaria Electrosnabdianavane	266,000	512,049	642,943	25.56	21,000	73	6,118	0.95
7	6	TPP Maritza-East 2	361,685	428,445	534,801	24.82	8,473	22,182	48,148	9.00
8	*	Electricity System operator	-	357,433	453,070	26.76	-	9,433	6,567	1.45
9	7	Toplofikacia Sofia	340,834	365,635	394,188	7.81	-5,582	-15,004	-58,325	-14.80
10	8	CEZ Distribution	843,797	359,900	389,600	8.25	67,451	54,900	56,600	14.53
11	9	EVN Bulgaria Electrorazpredelenie	177,600	321,996	375,632	16.66	6,200	28,623	33,351	8.88
12	11	Enel Maritza-East 3	242,030	271,466	314,504	15.85	80,243	31,859	20,030	6.37
13	12	Brikel	160,349	176,800	184,487	4.35	11,864	23,699	25,341	13.74
14	13	TPP Bobov Dol	150,148	174,423	173,211	-0.69	4,226	5,077	-1,495	-0.86
15	*	Bulgartransgaz	-	150,363	148,418	-1.29	-	42,733	15,618	10.52
		Average for top 15	550,061	595,899	735,347	23.40	28,129	24,663	13,594	1.85

Source: Capital Weekly

In the face of the shrinking profits of monopoly producers over the period 2003 – 2004, Risk Engineering was the company with the third largest sales and, at the same time, it was awarded the largest public procurement contract for repair works of the facilities at Kozlodui NPP. Moreover, Risk Engineering ranked first in terms of return on investment and second in terms of profitability. It would be interesting to compare the growth of the sales and profitability of NEC's intermediary companies in the exports of electricity. It cannot be done, however, due to the restricted access to information.

The great turnovers in the context of the major intervention of the government and the lack of competitive environment expose the sector to substantial corruption risks. In 2004, the then Ministry of Energy and Energy Resources (MEER) admitted that the corruption risk "remained high" in that sector due to:

- the insufficient legal regulation at the national and institutional levels on the status and functions of the specialized anti-corruption structure at the MEER;
- the large stakes and the substantial financial resources in the energy sector;
- the process of privatization of the electric distribution companies;
- the large investment projects in terms of both number and value;
- the pressing need for strengthening of the capacity of inspectorates;
- the need for introduction of a training system for the people involved in the combat against corruption;
- the need for development of a policy to increase salaries as a factor for the reduction of the corruption risk.¹²

But those observations did not bring about any real practical measures. Moreover, there are many signs of the growing level of corruption in the energy sector. One of them is the increased share of the exported electricity by private intermediaries rather than by NEC. Besides, the corruption potential in the sector is used very skillfully and intensely under the guise of claims that the highest political and national interests are protected in this way. What are the reasons and conditions for this situation?

First, the energy sector suffers from lack of competition and from inefficient government regulation, both of **which create conditions that incur excessive costs at the expense of consumers**. They generate considerable corruption resources and opportunities for their distribution opposite to the logic of the market.

Energy activities are heavily regulated. The Law on Energy defines a wide range of activities subject to regulation: generation, imports and exports, transmission, transit transmission, distribution of electricity and heating, natural gas, oil and oil products, trade in electricity and heating and natural gas, and use of renewable energy sources. However, the regulatory body, the **State Energy and Water Regulatory Commission**

¹² *The Energy Sector Has a Huge Kick-back Potential*, *The Monitor daily*, 21 December 2004.

(SEWRC), is not protected against the pressures which those managing the sector might exert in pursuit of personal interests. This is partly due to the **closed circle of energy experts** and also to the huge financial stakes. Since there are no opportunities to seek collective (group) remedies, citizens are discouraged to withstand their rights before SEWRC because the personal interest of individuals has too low individual value compared to the legal defense costs.

SEWRC is required by law to control electricity producers and distributors so that to prevent them from using their monopoly position on the market to the detriment of consumers. But it seems that the price control is focused primarily on the electric distribution companies. However, distribution is only the final stage in the whole chain. In fact, in a monopoly environment distributors are expected to take up the protection of the end consumers without any opportunities to influence the other participants upstream all the way to the producers and the importers of energy sources. Thus the regulatory control of electricity producers remains very limited. They are shielded by their principal and the discontent of consumers can easily be re-directed to the suppliers which often operate even under the acceptable standards of service, although they have been privatized. But the law requires comprehensive auditing of the way in which producers form their prices at which they sell to the distributors (electric distribution companies or EDCs).

A formal procedure does exist. The business plans of producer companies are examined and approved by SEWRC. They can well envisage excessive expenditure that nobody would control because of the lack of capacity at the regulatory authority and sometimes also because of the inability of the companies themselves to draw up business plans. No precise economic analysis is carried out to check the way in which companies are managed or the practical need for one or another kind of expenditures and mainly the efficiency of the investment policies calculated in prices per unit of capacity and compared to the average European efficiency benchmarks.

The management of NEC and Kozlodui NPP use all kinds of pretexts to warn that the price of electricity would be increased soon. In 2005, for example, NEC made forecasts that the price of electricity would grow by 30 % upon the closing down of units 3 and 4 of Kozlodui NPP. Later on, NEC came out with new arguments, claiming that because of the coal price increase the price of electricity had to go up by 15 % in July 2006. But the real share of coal in the prime cost of electricity revealed that such an increase of the price of electricity would correspond to soaring of coal prices by 50 to 60 percent, which was far from reality. The growing speculations with the estimated costs for the maintenance of de-commissioned nuclear reactors have a similar purpose. But the annual reports of Kozoldui NPP outline a different picture of the costs needed to maintain operating reactors. About 30 % of the costs go for nuclear fuel. 18 % of the sales revenues are remitted to the special funds. Depreciation costs account for some 23 %. They discontinue when reactors are closed down. Another 15 % are labour costs and 16 % are operational costs and they should be greatly reduced after the decommissioning of the units.

Such price signaling is intended to justify the demands for increases in the electricity price. However, there needs to be more public information on the economic and financial grounds behind price corrections, so that both consumers' and producers' interests are taken care of.

Second, the sector is strongly dependent on the energy sources supplied under monopoly import terms and conditions. The local entities enjoying the trust and confidence of energy suppliers actually dominate the domestic market. It is not difficult for them to create the impression that there is no alternative to their involvement in the transactions. Since the energy imports depend on many geopolitical factors, one can assert that the energy market is characterized by strong political influences and it is a field of conflicts among divergent economic interests. This has a peculiar impact on the domestic energy market. Political and economic circles take shape in close connection with countries producing energy sources and with corporate structures dominating in them. Their success results from the penetration into the highest political levels over time, regardless of their political affiliation, on the one hand, and on the other, on their connections to the external energy suppliers who are typically linked to the highest political groups in their own countries. It is at this level that the influence of the business environment structured in this particular way is exerted on the energy security in the country and the region. Thus, the import of energy sources becomes a serious channel for political influence coming from outside. Besides, the monopoly position of importers gives them the opportunity to apply prices exceeding those of the international markets.

Quite indicative in this respect is the import of nuclear fuel for Kozlodui NPP. Each year one-third of the fuel in the reactors is to be replaced. Units 5 and 6 of the power plant need some 55 tons of fresh fuel on an annual basis. The only producer of nuclear fuel for this type of reactors is Russia. Furthermore, nuclear fuel is imported through intermediaries and the contract was amended to the detriment of the Bulgarian side a few years ago. As a result, the nuclear power plant purchases the Russian fuel at a price which is about 22 % higher than that of the international markets.¹³ Besides, the Russian nuclear fuel is known to be of poorer quality than the fuel offered by Western producers. However, that was not an obstacle for the nuclear power plant which signed a supply agreement valid until 2020.

Third, the issue of the export of electricity is similar, although with a reverse logic. Here again, intermediaries are involved and the professional community believes that there is no way to avoid them.

However, it should be noted that actually NEC carried out the export of electricity on its own several years ago. The practice of a widespread use of intermediaries has become quite common for the last 4 – 5 years. NEC officially announced that exports were carried out mainly through intermediaries for the first time in its 2004 annual report, which read that "the quantity of the electricity exported in 2004 through traders in

¹³ *Banker weekly*, № 23, 10 – 16 June 2006.

BOX 1. EXPORT OF ELECTRICITY

NEC carries out the transmission, import and export of electricity and the traditional export markets are the countries on the Balkan Peninsula. For the last few years, this most profitable activity has been in the hands of private traders in electricity. In 2003, the annual report of NEC pointed to exports of 5.45 billion kWh but did not specify the percentage of exports through intermediaries. In 2005, exports amounted to 7.6 billion kWh (2005 Annual Report of NEC) and the share of intermediaries was not specified. At its meeting held on 29 June 2006, the Parliamentary Anti-corruption Committee examined a NEC letter which made it clear that 90 % of the exports in 2005 were carried out through intermediaries. The names of the private exporters were not mentioned and NEC explained their involvement with the willingness of the electric companies in the neighboring countries to work with intermediaries and also with the claim that NEC could not afford deferred payments for 60 days and therefore it could not win in public tenders. The NEC annual reports make it clear that the revenues of NEC from exports were 3.1 eurocents per kWh on the average. "The bidders in the public tender for import of electricity offered to supply only a half of the quantity of electricity that Macedonia needs. The Macedonian electric transmission system operator (MEPCO) wants to purchase 0.862 billion kWh to meet the needs of the country until the end of April 2007. The lowest bid quoted 5.6 eurocents per kWh in April and 8.98 eurocents per kWh in the winter months." Obviously the price differential is at least 0.5 eurocents per kWh and it may well reach over 6 eurocents in the winter months. Even in "the worst scenario" from the perspective of intermediaries, the difference would amount to some € 35 million or close to 70 million BGN. These are the revenues which NEC gives up (although they are bigger than the profit reported in 2005) and leaves to intermediaries.

Source: CDS, Corruption in Public Procurement: Risks and Reform Policies, 2007

electric power accounted for 81.3 % of the total exports". In 2005, this figure reaches almost 90%. There exist no economic justifications for this situation because, in practice, NEC holds the monopoly on the purchase of electricity for export purposes; it has full monopoly over the high-voltage network that is used to bring the electricity to the neighboring countries to which the exports are almost exclusively oriented.

In general, intermediaries in the export of electricity belong to the same business, which control the importation of energy sources. This has become possible because the export of electricity is launched in public as a strategic business project of Bulgaria. Many economic analyses, as mentioned in Section I, prove that the prospects might not be so bright for this type of exports since the exports react to shrinking demand.

Besides, the size of NEC's revenues from exports is far below the levels of a strategic national priority. In 2004, for instance, exports accounted for 17.2 % of the electricity generated and provided 18.2 % of the revenues.¹⁴ Had it been true that NEC made a large profit from the export of electricity, exports would have generated, say, 30 – 40 % of the revenues. The NEC annual reports for 2004 and 2005 reveal that the average export price per kWh of NEC was less than 0.1 eurocent above the price on the domestic market, in spite of the much higher price on

¹⁴ See 2004 Annual Report of NEC.

the international market. Undoubtedly, such practices are harmful to the state-owned enterprise, to the government budget and to the consumers but they are beneficial to the intermediaries.

The need for intermediaries is justified in various ways but most frequently it is done as a result of their greater flexibility and ability to adapt more easily to the market requirements in comparison to NEC. For instance, intermediaries claim to be capable of offering deferred payment of 60 days for the supply of electricity to their customers, while NEC is believed to be unable to do so. If there was an export contract though, any commercial bank would be prepared to lend to NEC. The argument that the use of intermediaries contribute to the market liberalization process is similar. It is claimed further that “companies in the neighboring countries are willing to work with intermediaries”.¹⁵ However, it is perfectly clear that if NEC were a private company, it would not allow any single kWh to be exported by a competitor.

Fourth, the sector is characterized by **high technical and environmental risks and it affects the national security.** All this naturally supports the arguments about restricting the access to information and the debates on technological issues. In many cases, it is possible for information to be concealed without any sanction through its unjustified classification. This is particularly relevant to nuclear energy. The Law on the Safe Use of Nuclear Energy puts safety on top of the agenda for understandable reasons. Article 3, para 2 reads that “in the use of nuclear energy and ionizing radiation and in the radioactive waste management nuclear safety and radiation protection shall have priority over any other aspect of these activities”. This creates a substantial loophole for awarding public procurement contracts without any competition or even without any formal procedure. Thus, all other aspects of the public interest can be sacrificed in the name of safety without sanctions, including such aspects as cost efficiency, openness, transparency, competition and etiquette. The reference to safety has turned into a mantra in the nuclear energy sector which is not subject to discussion. It turns out that the legal provisions quoted above become the universal excuse for the violation or neglect of other laws or rules of ethics.

The high public and international sensitivity to nuclear safety issues turns into justification for the frequent and sometimes uncontrolled increase of the costs of Kozlodui NPP. The data from the annual reports of the nuclear power plant show that the prime cost was 0.034 BGN per kWh in 2001. In 2002 (prior to the closing down of Units 1 and 2), it increased by as much as 15 %. The same rate was reported in 2003, reaching 0.044 BGN. Throughout the period there was no increase of the prices of metals or nuclear energy, the exchange rate of the U.S. dollar dropped substantially, the facilities at the nuclear power plant were better utilized

¹⁵ Minutes from the meeting of the Parliamentary Anti-corruption Committee, 29 June 2006. A representative of NEC justified the need for intermediaries in the following way: “When state-owned companies in the neighboring countries, to which we exported about 10 %, and these are the companies of Macedonia, Serbia, Greece, Kosovo and Croatia, are no longer willing to buy, I want to ask whether the remaining 90 % of the output generated by our facilities should stay like monuments or their output should be sold somewhere”.

and staffing levels were reduced. Nevertheless, the prices of nuclear energy continued to grow in Bulgaria. The only plausible explanation could be investments in safety, although EU grants worth millions were allocated for that purpose. The comparison to the financial performance of nuclear power plants of the same type in market economies points to inefficiency of the generation of nuclear power instead. The operational costs of U.S. nuclear power plants were about \$ 0.016 per kWh on a net basis in 2004. The operational costs of French nuclear power plants were even lower. The adjustment to identical terms reveals that the operational costs of Kozlodui NPP were approximately 40 % higher than those of U.S. nuclear power plants. Such large discrepancies could hardly be explained by economic arguments because the costs incurred for nuclear fuel, materials, spare parts and others in the nuclear energy sector are at international prices and few of them are specific.

The energy experts in Bulgaria are not that many and they could hardly be called independent. Almost all of them are employed in the sector or provide consultancy services to it. The need for adequate expertise makes the participation of the the general public in the public debate very difficult, especially when the issue at stake is the making of crucial decisions with far-reaching consequences. In fact, civil society seems to have taken part in the discussion of only two sets of issues: the protection of the environment and the expediency of the closing down of the first units of Kozoldui NPP. This situation is also made worse by the underdeveloped consumer protection mechanisms and the lack of legal remedies against decisions of great importance to society. The expert parlance and the closed nature of the system make it difficult for external institutions to exercise control and to prove the liability in formal court proceedings. Any attempt at proving some violation would inevitably grow into a technical debate on the expediency of one or another decision. The bodies which administer justice would practically be unable to find independent and unbiased experts capable to justify it.

All this is particularly relevant to **experts in the nuclear sector**. The debate on the closing down of Units 3 and 4 of Kozlodui NPP and the construction of Belene NPP was actually diverted from economic expediency and channeled into abstract national interest deliberations. The arguments that were put forward sought to appeal to infringed national pride or a professed concern about higher prices hurting the consumer. The discussion on the price of the electricity generated by the nuclear power plant held at the expert level was not reported in the media in a way that could be comprehensible to consumers. Thus the arguments that nuclear energy was not the cheapest one and it could even prove to be the most expensive, taking into consideration most of the decommissioning costs and other price-formative factors, including the price of attracted financial resources over time, did not reach the public. Technically, this process has been going on for decades; the personnel of the nuclear power plant is numerous and the nuclear waste is not stored or disposed of free of charge. Both the public opinion and the media were not impressed by the disclosed data or the lack of explanation of the depreciation allowances at the nuclear power plant or the continuous growth of the investment in facilities subject to closure or the

lack of clear explanations of the exact price of the electricity generated there.¹⁶

Finally, whether privatization could be a solution to these risks is a key issue. Privatization per se cannot resolve efficiency problems against a non-existing market competition, particularly given the public mistrust in its transparency. Still, what makes corrupt practices in the privatization of the energy sector different from those in the other sectors of the economy? Given that a sizeable portion of the market is monopolized, it is not so much a matter of corruption in the privatization process but an opportunity for corrupt practices in the private monopoly under inefficient state regulation. A large percentage of potential buyers with predominant or exclusive government stake (although some state-owned enterprises are public) is typical for the energy sector. In fact, the old schemes of government officials draining resources out of the energy enterprises are being replaced by schemes to be applied by foreign officials. If the main objectives of the privatization are to promote the market and enhance efficiency through the involvement of the private sector, this legislative approach should be defined as inadequate, to say the least. The same companies that controlled both the input and the output of state enterprises are still involved but now as intermediaries in the import and export of raw materials and electricity. Their earlier incarnation as consultants in the privatization process was substituted by them being import or export intermediaries. The reason for this adaptation is related to their continued influence in SEWRC and the Ministry of Economy, Energy and Tourism (MEET).

An indirect indicator of the quality of buyers is the price offered for the facilities to be privatized. In the course of the history of Bulgarian Privatization there have been no other cases when packages of shares had price quotation differences of dozens of times at the same point of time. This could mean that either the buyers count on fundamentally different development strategies for the privatized company and, as a result, bids differ as much as 1:30 or more, or that they have no clear idea of the management of a private company or that unequal treatment is involved and some bidders have more information at their disposal than others. The problem is that the Law on the Privatization and the Post-privatization control does not allow participation of Bulgarian buyers with predominant state or municipal stake but it allows participation of buyers with predominant state interest from other countries. It is no surprise that the only facilities suitable for privatization and for attracting foreign investment have turned out to be the several larger electric distribution companies. Of course, their attitude to businesses and consumers cannot be substantially different from that of the state-owned companies. They turned to be the convenient culprits for the growing electricity prices and the energy shortages which have occurred in some regions. Thus they unwittingly became a convenient excuse for the excessive expenditures in the power plants and in the transmission phase at the expense of the consumers. The ongo-

¹⁶ The price should be the sum total of two components – one for the facilities and one for the generation of electricity. It should be identical to the electricity purchase price but this is not the case in reality and there are no satisfactory explanations to this effect.

ing privatization process continues to turn into a clash between domestic and foreign capital, where foreign interests are sometimes represented by state-owned enterprises (including a publicly quoted one), whereas domestic capital does not enjoy the trust and confidence of the general public. The only exceptions are the several electric distribution and district heating companies. On the other hand, since NEC and Bulgargaz are on the list of companies that are not to be privatized for years to come, the attempts to privatize certain elements of their operations – such as the exports of electricity in the case of NEC – are of increasing interest.

In this context, an issue of considerable public interest is whether privatization is appropriate if it only leads only to the replacement of domestic corrupt practices by foreign ones beyond the jurisdiction of the Bulgarian state and often also beyond that of the European Union. This also sets international anti-corruption efforts in an entirely new context. It is perfectly possible for the management of a Bulgarian enterprise to be involved in foreign corrupt schemes but affecting mainly and only the interests of Bulgarian consumers. The simplest case is the public procurement at a local enterprise, where corruption takes place abroad and hence the Bulgarian law enforcement authorities are unable to prevent or prosecute it. One of the possible illustrations refers primarily to the public procurement of imported energy sources.

2.2. PUBLIC PROCUREMENT IN THE ENERGY SECTOR

The energy sector has always made huge investments in comparison to the other sectors of the economy, regardless of the economic condition of the country. According to a survey of the Bulgarian Energy Chamber, energy enterprises have planned investments of 1,178 million BGN which is 150 % more than the level in 2006.

TABLE 10. GROWTH OF INVESTMENTS IN THE ENERGY SECTOR 2006 – 2007 (MILLION BGN)

	2006	2007
Kozlodui NPP	82	100
NEC	243	412
Generation of electricity	197	357
Distribution of electricity	200	280
District heating companies	52	29
Total	774	1,178

Source: Bulgarian Energy Chamber

In some cases, such investments are necessary and justified in terms of their type but not in terms of their amount.

Currently, for instance, the harmonization with the EU environmental protection standards is underway. Even the most conservative estimates point to hundreds of millions of Euros. The adjustment involved the construction of desulphurization systems in all thermal power plants and this measure enjoys sufficient public approval. How-

ever, there is always the risk even for the most appropriate measures to create favorable conditions for abuse so that to substantially exceed the

real expenditures needed. Energy investment projects are typically quite expensive. Their average price is many times higher than that in the other sectors. It is easy to conceal corrupt payments in such projects which most frequently go through the ubiquitous consultants. The value and nature of these projects inevitably call for the involvement of an engineer consultant who exercises a number of delegated state control functions as prescribed by law.

It is only natural for these large investments in the sector to have at least three energy companies ranking among the largest contracting authorities under the *Law for Public Procurement (LPP) and Regulation for Small Public Procurement (RSPP)*. According to the data from the Public Procurement Agency, in terms of the value of the public procurement contracts awarded over the period from 2004 and 2006, those were NEC EAD; Maritsa-East Mines EAD, Radnevo; Maritsa-East 2 TPP, and Kozoldui NPP. These four companies have awarded contracts worth more than 8.5 billion BGN between 2004 and 2006, accounting for 77% of the total value of the public procurement contracts awarded by the top ten contracting authorities for the same period. In 2009, the share of Public Procurement going to the energy sector is still considerable. We do not have data on the value of the contracts, but in number the energy sector is clearly among the leaders with 25%.

Since, according to the same data for 2004 – 2006, about two-thirds (66.5%) of the total value of public procurement are contracted by sectoral contracting authorities, it can be concluded that **energy companies have structural significance for the public procurement sector and they have appropriate feedback mechanisms to influence the market of certain supplies, services and construction works**. Besides, one should remember that the available data refers only to the public procurement contracts awarded under the LPP and RSPP. The law provides for the option to award contracts without holding public procurement procedures under certain thresholds – a provision commonly used to award contracts to pre-selected candidates.

TABLE 11. NUMBER AND VALUE OF PUBLIC PROCUREMENT CONTRACTS IN THE ENERGY SECTOR (1 OCTOBER 2004 – 30 JUNE 2006) (BGN)

Total for the period October 1, 2004 – June 30, 2006	Number of tenders announced	Number of contracts awarded	Value of the contracts awarded
Total	2,139	2,239	9,078,854,031
Construction works	328	320	8,165,029,124
Supplies	1,055	1,112	520,043,553
Services	756	807	393,781,353

Source: National Public Procurement Agency

TABLE 12. SHARE OF PUBLIC PROCUREMENT CONTRACTS IN THE ENERGY SECTOR*

2009	
Contracting Authority	Number of contracts
The National Railway Infrastructure Company (NRIC)	215
Sofia Municipality	214
"Lozenetz" Hospital	196
Ministry of State Administration and Administration Reform	176
TPP Maritsa – East	175
Ministry of Healthcare	171
EVN Bulgaria Electrorazpredelenie – Plovdiv /Formerly Electrorazpredelenie Plovdiv/	138
Kozloduy NPP	134
Ministry of Defence	111
University Hospital "St. Ekaterina"	108
National Revenue Agency	105
Military Medical Academy	100
Burgaz Municipality	98
Ministry of Regional Development and Public Works	92
Electricity System Operator	89
Mines Maritsa-East – Radnevo	88
National Gamegrowing Station "Vitinya" – Botevgrad	85
Enel Maritsa-East 3 /Formerly "Energy Company Maritsa-East" 3/	82
Varna Municipality	82
National Cardiological Hospital – Sofia	80
Pleven Municipality	75
University Emergency Hospital "N.I. Pirogov" – Sofia	71
Bulgarian National Television	64
University Hospital – Stara Zagora	62
University for National and World Economy	61
Total	2,872
Energy	706
Share of Energy (%)	25%

* Data as of August 13, 2009

Source: National Public Procurement Agency

When we look closer at the data from the National Public Procurement Agency (PPA), we see that the number of Energy sector Public Procurement (PP) contracts seem to increase at a higher rate than the total number. That, coupled with the traditionally large size of energy PP contracts, means that an increasingly larger share of the state money given to the energy sector are funneled through the PP scheme. Access to more detailed data would help confirm this conclusion and give precise estimates.

TABLE 13. RATE OF INCREASE IN PUBLIC PROCUREMENT

	2008	2007
Total	5,213	4,176
Energy	1,212	935
YoY change total		25%
YoY change Energy		30%

Source: National Public Procurement Agency

The risk of awarding **unfavorable public procurement contracts** is higher in the energy sector than elsewhere. The reasons lie in the existing monopoly over the distribution of electricity, heating and gas; the special market and PR significance of nuclear energy; the greater technical risks and the priority of nuclear safety over all other operational, legal and economic aspects (Art. 3, para 2 *Law on the Safe Use of Nuclear Energy*); the closed and non-transparent

price formation and approval and regulation of the sector as a whole; the large scale of the main producers, etc. The sector does not have the practice of calculating the effect of some public procurement or technical project on the basis of the end result. Generally, the application of formal criteria to the technical specifications leads, deliberately or not, to unfavorable end results. Investments are rarely evaluated, while taking into account the full range of efficiency criteria in the energy sector: the value per unit of output capacity for the whole period of operation of the facilities plus the reliability of the equipment (actually, the full life cycle). For instance, when nuclear fuel is supplied, the price is calculated on the basis of metric units rather than the quantity of energy they can generate.

BOX 2. SUPPLY OF NUCLEAR FUEL FOR KOZLODUI NPP

Kozoldui NPP conducted a public procurement tender for the supply of nuclear fuel. That happened in a more or less competitive environment and it was possible to reach a favorable price. The contract was awarded to the Russian company Tver which offered fuel of the lowest technical category at a price which was 20 % higher than the international price. That became possible because of the way in which the technical specifications were formulated in the public tender. The price bids were calculated and compared in terms of the quantity of fuel supplied rather than the quantity of energy it could generate.

Source: Verbatim Report – Minutes No. 31 of 29 June 2006 of the Parliamentary Anti-corruption Committee

In the case of many investment projects in the energy sector the price per 1 MW of installed or rehabilitated capacity is much higher than the price in similar or more developed countries. Unless the opposite is convincingly justified and supported by official numbers, this would be a clear sign of the amount of public resources abused. In such cases, society suffers double damage: taxpayers pay these amounts through overt or covert forms of state subsidies or guarantees in the form of government commitments to provide support and cover costs and then all electricity consumers pay once again. The appraisal of projects on the basis of price/capacity/duration/environmental effects/costs is not applied to the process of making decisions of great importance for the national economy. The competition among potential partners, suppliers or contractors is thus even less encouraged.

2.3. FORMS OF ABUSE

Several main types of deviation from the rules and economic expediency can be discerned in the public procurement in the energy sector. Some of them can be defined also as unlawful, while others formally comply with the letter of the law but they lead to damage which is compensated by distributing the loss among consumers. The main types of violations and deviations in public procurement in the energy sector are as follows:

- opening of public procurement procedures which are not expedient (do not meet public needs) in order to spend resources or to ensure personal benefit;
- selection of negotiations regardless of the options to hold a more competitive procedure and/or a non-professional team;
- deliberate manipulation of the procedure and the related documentation, including its unnecessary complications or ambiguities;
- deliberate manipulation of the requirements to the bidders; inadequate qualification criteria, requirements for experience, certification and technical requirements;
- exertion of administrative or political pressure to hire certain subcontractors or to guide the decisions of the administrative staff of the contracting authority;
- exertion of pressure on the contractor through the procedure for payments;
- deliberate creation of unequal treatment or prerequisites for inequality or unfair competition among the bidders;
- breach of trust and disclosure of information.

BOX 3. SUPPLY OF EQUIPMENT FOR MARITSA-EAST 2 TPP

In 1998, Maritsa-East 2 TPP announced a public procurement procedure for the supply and installation of a turbine. The selection was carried out at NEC EAD by a committee appointed by the Board of Directors of NEC. The appointment was confirmed by a decision of the Board of Directors of the company because, at that time, Maritsa-East 2 TPP was a branch of NEC. The principal gave its approval. The winner offered experimental equipment without the necessary guarantees. The purchased turbine could not be set into operation in the course of several years after its supply and installation. As a result of that inaction of the company, huge damage was caused due to the failure to generate power. The contractor could not be made to compensate for the damage since the contract did not contain such clauses. The only option left was to seek remedy pursuant to the general provisions for compensation under Art. 45 of the Law on Obligations and Contracts, requiring proof of the amount of the damage incurred. There is no available evidence to prove that it was done and, meanwhile, the statute of limitation for that damage expired.

Source: Pari Daily, 27 October 2004

Some typical violations are related to the decision to hold and announce procedures.¹⁷ The others involve deliberate errors in the opening of the procedure so that to provide grounds for its discontinuation if the best bid comes from an “unwelcome” candidate. In such cases, it is found out before the end of the procedure that financial resources are unavailable. These procedural maneuvers can continue until the favored bidder wins.

The evasion of a competitive public procurement procedure has a long history. A typical example under the earlier versions of the LPP was the awarding of contracts for services labeled as R&D. That has become much more difficult under the latest version of the law. Still, the specific features of the energy sector facilitate the evasion of compliance. The factors which contribute to this situation are as follows: the above mentioned Art. 3, para 2 of the *Law on the Safe Use of Nuclear Energy*; the technological monopoly over many supplies (e.g. nuclear fuel or spare parts); the electricity export arrangements, and so on.

The tendency for less competitive public procurement procedures in the energy sector can be seen in the relatively high percentage – about 40 % of all procedures – of negotiations with or without announcement.

¹⁷ Just a short excerpt from the catalogue: wording of the subject-matter of the procedure in a misleading way or in a way which does not fully correspond to the nature of the public procurement; establishment of unjustified or obscure criteria related to the qualifications; introduction of requirements for experience in spheres of little practical relevance; requirements for experience on a scale which is obviously irrelevant to the volume and nature of the contract; requirements for certification under a less known certification scheme (prior to the amendments to Arts. 30 to 33 LPP); excessively long validity term of the bids against the backdrop of dynamic market developments; too stringent technical requirements based on the catalogue of a certain manufacturer or bidder; excessively high and stringent requirements to the qualifications of the staff; too complicated procedure for obtaining the documentation; explanations on the content of the documentation, when the answers obviously do not cover the questions or come just before the deadline for the submission of the bids when essential aspects are clarified; unduly complicated or obscure procedure for submission of the bids, etc. Non-governmental organizations have gathered information on some of these practices.

BOX 4. THE MODERNIZATION OF KOZOLDUI NPP

In 1998, a contract was concluded in connection with the modernization of Units 5 and 6 of Kozoldui NPP. The initial price of the contract was \$8 million (which increased subsequently to \$24 million by 2004, which was indicative of the problem with the efficiency of public procurement and the justification of the costs). The contract was signed with a company which was registered specifically for that purpose and no public tender was held. Furthermore, the subcontractors were also to be selected on a non-competitive basis, regardless of the high price of the project and the enhanced public interest. It was perfectly lawful because the documentation did not envisage such a requirement. The issue of the modernization costs for Units 3 and 4 of Kozoldui NPP after the agreement between the Government of Bulgaria and the EU on their closing down was discussed also by the Parliamentary Anti-corruption Committee. According to the information made available there, the post-2001 costs for the two units amounted to some \$180 million and they were planned to continue until 2009. The problem would have hardly reached the Bulgarian general public without the inquiry of the European Commission into the modernization programs and the residual resource management programs until 2009.

Source: Minutes No. 31 of 29 June 2006 of the meeting of the Committee; Capital weekly, No. 45 of 2006

Table 14 makes it clear that 51.3 % of all public procurement procedures in the energy sector involved negotiations with or without announcement under the LPP, including accelerated procedures, and invitations under the RSPP. If contracts concluded without any public procurement procedure are added it becomes clear that the erosion of market competition is the rule rather than the exception. This conclusion is supported also by the use of the commodity exchange trading by the sectoral contracting authorities. Most of the public procurement contracts in the energy sector are supplies of energy sources. They can easily be purchased on the commodity exchanges in Bulgaria and abroad. It seems, however, that this procedure is assiduously avoided, in spite of the detailed regulation set out in the LPP Implementing Rules which leave no grounds for doubt as to their lawfulness. According to the data from the Public Procurement Agency, the number of public procurement procedures in the energy sector through commodity exchange transactions was 16 out of a total of 2,139 over the period from 1 October 2004 to 30 June 2006, i.e. they accounted for only 0.7%. One of the reasons is perhaps the limited corruption potential of commodity exchange transactions due to the lack of direct contact between the buyer and the supplier in the course of the negotiations.

**TABLE 14. PUBLIC PROCUREMENT IN THE ENERGY SECTOR BY TYPES OF PROCEDURES
(OCTOBER 2004 – JUNE 2006)**

	2004	2005	2006	Total	Share (%)
Number of public procurement procedures, including:	138	1,220	781	2,139	100
Open procedures under the LPP	48	268	151	467	21.8
Restricted procedures under the LPP	0	3	3	6	0.3
Accelerated restricted procedures under the LPP	0	0	0	0	0
Negotiations with announcement under the LPP	15	282	225	522	24.4
Accelerated negotiations with announcement under the LPP	3	12	2	17	0.8
Negotiations without announcement under the LPP	14	191	114	319	14.9
Open competitive bidding under the RSPP	43	269	175	487	22.8
Public tender under the RSPP	0	2	2	4	0.2
Negotiations by invitation under the RSPP	15	155	70	240	11.2
Commodity exchange transaction under the RSPP	0	13	3	16	0.7
Short-listing system and preliminary announcement – invitation	0	25	36	61	2.9
Competitive dialogue	0	0	0	0	0

Source: National Public Procurement Agency

Box 5. BELENE NPP

The Council of Ministers adopted a decision dated 29 April 2004 to approve the report of the Minister of Energy and Energy Resources on the construction of a nuclear power plant in Belene and to instruct the relevant ministers to hold negotiations with the potential investors and financial institutions to sign the project implementation contracts. The type of procedure chosen - even leaving aside the problems with the expediency of such a project started without any public debate – was a case in point. No explanations were given as to why the biggest ever public procurement in Bulgaria (7.82 billion BGN) would be awarded through the non-competitive procedure of negotiations. Thus the Ministry of the Environment and Waters approved the construction of a 2,000 MW facility on the basis of the light water technology. It provided opportunities for broadening the scope of potential bidders. At the same time, however, NEC announced a procedure only for Russian reactors of the WWER type, excluding the Western light-water type of reactors. That was a typical case of manipulated public procurement documentation and the technical specifications in particular to the benefit of a certain bidder or certain bidders. But the most important thing was the restriction of competition.

BOX 5. BELENE NPP (CONTINUATION)

The government institutions rejected those arguments and stated that the documentation did not mention Russian reactors and that the equipment already supplied on the site of Belene was manufactured by Skoda, the Czech Republic. A public tender was announced for the completion of units 1 and the construction of unit 2 on the basis of the light-water technology. Theoretically, at least four manufacturers could participate. The procedure offered three options: bids for the whole plant or separately for the nuclear and non-nuclear part and another one for the fuel. Still, the only bidders were two companies producing WWER type reactors only. Following the selection of the foretold winner the NEC stated that for security and economic reasons it had been decided to construct entirely new units rather than the completion of the first two. These considerations had been, however, pointed out by experts two years earlier and they should have led to a tender for all types of light water reactors not only WWER.

Source: Corruption in Public Procurement: Risks and Reform Policies, Center for the Study of Democracy, 2007

2.4. ABUSE IN THE CONSULTING AND INTERMEDIARY SERVICES IN THE ENERGY SECTOR

The sector has the practice of awarding public procurement contracts that cannot be justified on any essential technical, economic or other public grounds. Consultancy services deserve special attention from the perspective of efficiency and benefit as they are most difficult to quantify (or evaluate in qualitative terms) and therefore sectoral contracting authorities have special liking for these services. The reason is that the value of human resources is not analyzed in such procedures. The main costs in consultancy are the labor costs and the costs related to the servicing of the personnel (transportation, office costs, communications, information services, accommodation). All material costs are easily comparable in the competitive bids. Fees, however, are allowed to vary a lot and are typically calculated in the form of person-days or hours. The problem in the energy sector is that a detailed analysis would point to either incredibly expensive labor per unit of time or too long work with too much staff or both. If the requirements to the bidders and the technical specifications were worded accurately, the competition among the bids would be mainly price-based and ultimately consultancy services would drastically reduce their value, as is in fact the case on the free market. But in the energy sector the market for consultancy services cannot be considered free because of the lack of serious competition, the reasons for which are subjective rather than objective.

The practice of organizing and holding public procurement procedures with the sole purpose of ensuring income for the contractor is quite common. The compliance with the European environmental protection and safety standards provide favorable conditions for corrupt practices, including those in the supply of goods and construction works. Thus the corruption potential in the energy sector is the highest among all

spheres of the public sector. The problem is that there is no authority to decide which contract for the supply of goods or services was necessary and which was not. With regard to big contracts this function could be performed by SEWRC in the course of the review of the annual business plans of energy enterprises. The latter should have the obligation to submit their public procurement plans for each calendar year with the related justifications and cost plans.

BOX 6. THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCEDURE FOR BELENE NPP

In connection with the Belene NPP, NEC signed two initial contracts: one for the preparation of an environmental impact assessment and the other one for a feasibility study for the purposes of drafting the report to the Standing Committee for Energy at the National Assembly. The contracts were signed with Parsons E&C Europe Ltd. The price was set at about \$7.7 million. The media reported that the price of previous studies with similar content was approximately \$150 thousand. When labor input costs were re-calculated according to the generally accepted rates (in the United States and Europe) for external experts, the price of the contracts was estimated to be not more than \$1 million. A possible explanation of that drastic difference is that the contractors were selected without any procedure under the LPP. The ironic remark of one of the experts was that “there is no law to prevent NEC from spending 50 times more of the money of Bulgarian consumers of electricity”.¹⁸

Source: Corruption in Public Procurement: Risks and Reform Policies, Center for the Study of Democracy, 2007

The representatives of the energy sector justify the involvement of consultants in the development and implementation of large-scale projects with the existence of such a requirement in most loan agreements. On the other hand, they refer to the requirement under the Law on Spatial Planning and Development to have such consultants. In other words, officials in the energy sector argue publicly that they had no choice but to make big projects more expensive and, in spite of all their claims for high professional level, they could not possibly develop their projects without external consultants.

The consultancy market in the energy sector is dominated by several linked companies. The situation with the exporters of electricity is similar with some major companies being the key players in both sectors. The monopolization of both markets is inconceivable without the active support of the leadership in the sector and the main energy enterprises which, in turn, generates corrupt practices. The problem in this case is that the distortion and circumvention of public procurement procedures lead to less competition.

¹⁸ Mathew Brunwasser, *The Long Way to Belene or Why Only Petty Violations are Punished*, available online at <http://mediapool.bg/site/project/files/belene.shtml>.

BOX 7. PROCEDURE FOR THE SELECTION OF A CONSULTANT FOR MARITSA-EAST 2 TPP

Maritsa-East 2 TPP announced a public procurement procedure to select a consultant under the Law on Spatial Planning and Development for its ongoing investment project – rehabilitation of unit 1 to 6 and construction of desulphurization installations at units 1 to 4. Three candidates submitted their bids. The most beneficial bid at a price of about €9 million was filed by the US company C&L Engineers Limited in consortium with Energoprojekt AD, Sofia, which had no ongoing projects in the sector. After the bids were opened, the contracting authority discontinued the procedure pointing out the reason that it had no resources. The termination of the procedure was appealed by Parsons E&S Ltd. which had been eliminated. The decision of the contracting authority was reversed by the Regional Court of Stara Zagora and the reversal of the decision was subsequently confirmed also by the Supreme Administrative Court. Several months later – already in the following calendar year – a new procedure was announced and the wording of the service sought was modified only slightly remaining identical to the previous one in its essence. There was only one bid from Parsons E&C Ltd. which failed to win in the earlier procedure. The company held a sizeable portion of the market for such services and the price of its bid was about €18 million or twice higher than the bid of the other participant eliminated in the earlier procedure. This time the authorities had no difficulty in providing the financial resources although they were much greater in size than before. The only bidder Parsons E&C Ltd. was announced to be the winner and a contract was signed at the price quoted in its bid.

Source: Administrative Case No. 298/2004, Decision No.298/21 January 2004 of the Regional Court of Stara Zagora and the materials in Administrative Case No. 4245/2005 and Decision No. 9115/19 October 2005 of the Supreme Administrative Court, 4th Division

To give a rough idea of the size of potential damage to the state companies' performance and essentially to the final consumer and tax payer, we could have a closer look in the notes to the 2008 consolidated statement of BEH. The consulting services expenses jump from ~6 million BGN in 2007 to 37 million BGN for 2008.

The figure in itself could be reasonable if those consulting services lead to actual financial impact – such as improving margins, leaning the process, optimizing the network, etc. In the current total lack of transparency and solid track record of public funding abuse in the energy sector we could seriously doubt that those 37 million have been given for the right purposes.

The usual position of government institutions with regard to the monopolization of the market for consultancy and intermediary services is that there are no companies holding dominant position. They substantiate it by referring to market shares as percentages of the total turnover or the total number of contracts per contractor. What is omitted in these arguments is that some companies, which are public procurement contractors, are linked to each other and so are their subcontractors. More often than not, relationship schemes generate conflicts of interest, although manifested in different public procurement contracts. The reason is that the same company may act as the contractor under different public procurement contracts but within the same investment project or with the same contracting authority. Sometimes the government administration acting as the principal and the sectoral contracting authorities cite opposite arguments. They claim that the range of experts and con-

TABLE 15. EXPENSES FOR EXTERNAL SERVICES

Consolidated annual financial report as of 31 December 2008

9. Expenditures for external services

<i>In thousand BGN</i>	2008	2007 (unaudited)
Concessionary taxes and licences	12,874	5,922
Repairs	150,665	120,075
Insurance services	55,339	50,217
Consultancy services	37,292	6,206
Communication services	4,570	4,684
Security	20,109	19,160
Transport services	119,579	129,525
Rent	3,290	3,296
Others	62,021	28,202
Total expenditures for external services	465,739	367,287

Source: Consolidated financial statement BEH 2008

sulting companies is very narrow and this naturally limits their choice. This, however, raises the question why some consulting companies win public procurement tenders abroad but they cannot win in Bulgaria. And conversely, why the most successful bidders in Bulgaria do not have the same success in other countries?

2.5. ANTI-CORRUPTION MEASURES IN THE PUBLIC PROCUREMENT IN THE ENERGY SECTOR

An important prerequisite for the limitation of corrupt practices in the energy sector is the existence of a comprehensive national energy strategy and the optimization of the energy balance on this basis; the compilation of a list of the strategic facilities of national importance in the energy sector and the need for new production capacities. All this calls for a genuine public debate because it will involve the spending of billions of taxpayers and consumers BGN (including the sovereign guarantees) in the next 10 to 15 years.

Government officials should be subjected to continuous public pressure to fully exercise their rights of the principal in the companies generat-

ing electricity and heating. This includes comprehensive monitoring and control, including court remedies sought by the government as the shareholder against the management of its own companies. Such an option is envisaged in the *Commercial Code* but there is no evidence that it has ever been invoked. For this to happen, new obligations – together with non-compliance penalties – should be introduced for the principals. This could be done in the *Regulation on the Exercising of the Rights of the Government in the Companies with State Interest*.¹⁹ At present, the Regulation (Art. 11, subpara 12) envisages only the right but not the obligation of the company to seek damages from the manager or the controller as a prerogative of the sole owner of the capital. SEWRC should be empowered to exercise real control over the business plans of electricity producers. The Commission still fails to demonstrate a capacity for economic analysis which makes unjustified or poorly justified price increases possible. It is efficiency, i.e. the ultimate effect in the money/capacity/environmental effect ratio that can and must underlie price increase assumptions.

Analysis should be made of the efficiency of the existing production capacities. It is necessary to analyze the cost per unit of installed capacities and then calculate and add the costs for servicing financial arrangements and for building the requisite infrastructure.²⁰ Only then the cost can be compared to similar projects abroad so that to gauge the efficiency and public benefit of the respective project.

The introduction of a public monitoring system of procurement in the energy sector is urgent. For this purpose, a model should be developed and proposed to the government. This could be done by the non-governmental sector, including the Consumer Protection Organization. On the one hand, the system would enhance the confidence of consumers in the energy policy; on the other, it would minimize the damage caused to the sector by excessively expensive or unnecessary public procurement contracts. It is also necessary to work out a system of indicators for the corruption risk in the public procurement sphere in general, and the energy sector in particular, which could provide the underpinnings of continuous public monitoring of the spending of resources in the energy sector. The analysis of the current practices in the public procurement and the energy sector leads to the conclusion that the following indicators could be initially contemplated:

- unjustified increase of the corporate expenditures of energy producers and electric distribution companies over a certain period. An additional indicator in the nuclear energy sector could be the existence of much higher operational costs in comparison to similar power plants

¹⁹ Adopted with CoM Ordinance № 112 of 23 May 2003, promulgated in The State Gazette, No. 51 of 3 June 2003, actual entry into force on 16 February 2007. The Regulation mentions corporate responsibility in two cases: responsibility of the manager or liquidator in their management contracts and the release from responsibility as grounds for release of the management performance bond.

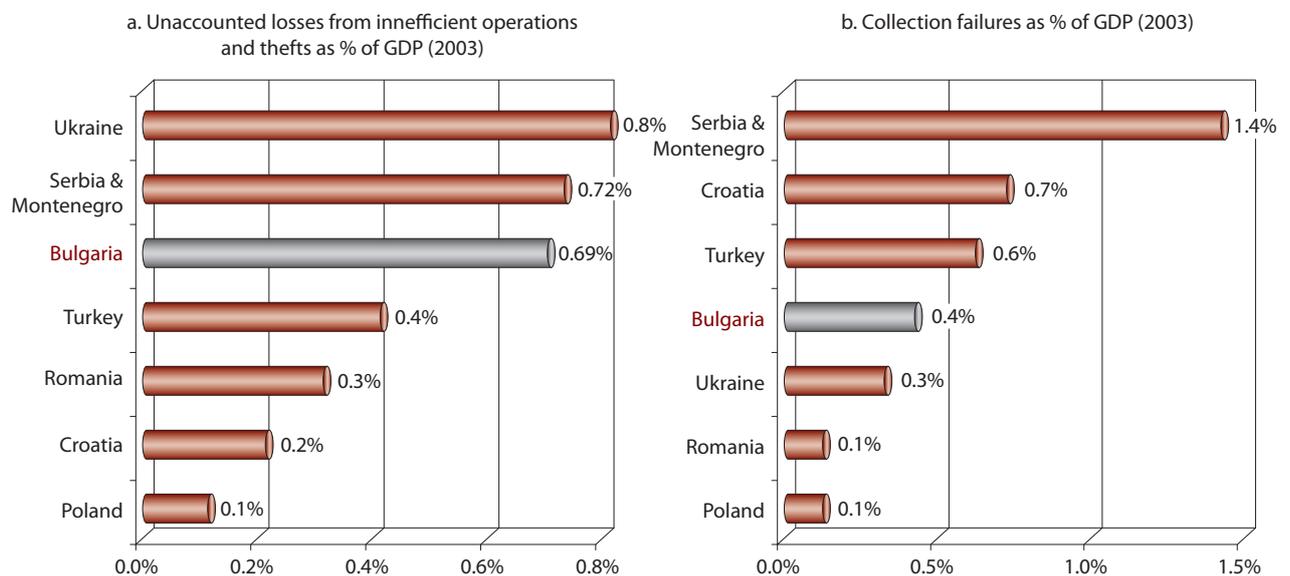
²⁰ A well known fact is that the cost of the electricity lines (about \$1 million per km on the average) to be established for the Belene NPP is not included in the estimates. Even without these financial and infrastructure costs, the price per kW of installed capacity in Belene is currently estimated to be about €2,000, whereas in Russia and the countries using similar technologies it is reported to be €1,500.

- in countries with market-based energy sector;
- undue reduction of the profit of these companies over a certain period, accompanied by inexplicable increase of the profitability of ancillary activities based on outsourcing or the profitability of contractual partners;
 - immediate reshuffling of the management after parliamentary elections without transparent and clear reasons (as an indicator of getting hold of resource-intensive business entities);
 - repeated public procurement procedures seeking the same service;
 - unjustified termination of public procurement procedures;
 - involvement of the same consultants in different roles and at different extent of domination of the market for consultancy services;
 - systematic avoidance of commodity exchange transactions in the typical purchase of commodity goods;
 - linkages between companies one of which is the consultant in an investment project, another is the buyer or the consultant in a privatization procedure, and still another is a contractual partner to a producer or wholesale or retail distributor of energy.

III. COMMON ENERGY CRIMES

According to World Bank collected data, the electricity market in Bulgaria stands out as having some of the highest hidden costs among EU member and candidate states. Hidden costs include poor bill collection rates; excessive losses due to inefficient operations or theft from the power system; and losses from tariffs set below cost-recovery rates.

FIGURE 18. HIDDEN COSTS IN THE ENERGY SECTOR



Source: Ebinger, J., Measuring Financial Performance and Infrastructure: An Application to Europe and Central Asia, World Bank, August 2006

3.1. NON-PAYMENT OF BILLS

The amount of unpaid bills is a result of both household and businesses indebtedness. A particular problem that electricity distributing companies (EDCs), face, due to the political and social dimensions, is the en-mass non-payment of electricity bills in neighborhoods populated by the Roma ethnic minority.

The largest such Roma neighborhood Stolipinovo, with a population of around 40,000 is in Plovdiv. The local EDC, the Austrian company EVN, has taken steps to minimize losses by supplying electricity for only a few hours a day. This policy which was started even before the purchase of the Plovdiv EDC by EVN is a result of over EUR 5 million worth

of unpaid household bills.²¹ The electricity bills in this neighborhood (and others as well), is not only the result of the extreme poverty in which much of the population of this neighborhood lives. The electricity bills have been used by local politicians to attract votes. The problem started in 1997, while the EDC was still state-owned, when local Union of Democratic Forces (UDF) politicians promised to “subsidize” and “reduce” electricity bills if elected. When the UDF won the elections, the majority population of Stolipinovo gradually stopped paying their electricity bills. The pile-up of bills forced the EDC to cut electricity of the entire neighborhood in the winter of 2002, which led to mass unrest (the international high-way was blocked and stores were pillaged). Human rights organizations accuse the EDC of violating human rights by making even those that paid their bills to suffer from the daily power-supply disruptions.

The debate of unpaid bills leads to the topic of energy poverty which is an area practically not analyzed in Bulgaria as of today. There is no publicly available data and the discussion is often times steered into **politics** instead of **policy**. Further policy analysis is needed to determine the best measures to increase collectability of unpaid bills without harming the extreme poor. An attractive alternative, for example, would be to provide subsidized participation in energy efficiency programs which will considerably decrease household energy bills – a much more sustainable measure than voucher schemes and other direct transfers.

3.2. ELECTRIC POWER THEFT

According to police statistics and independent surveys, during the 2000 – 2005 period conventional crime, including thefts, fell significantly throughout the country, as the number of crimes fell by over 30%.²² Despite these trends, the electric power energy sector suffered increasing losses from thefts of electric power and cables.

The theft of electric power is the single costliest commodity theft that takes place in Bulgaria. Generally, EDCs lose between 20% – 23% of distributed electric power due to technical inefficiencies or thefts. The two are difficult to differentiate as only a part of the thefts are uncovered. Since EDCs have committed to reduce losses from inefficiencies and thefts with 2 – 4% per year, they are reluctant to publicly report figures on power theft. Some figures have been published in the media.

²¹ *The Austrian Leave Restricted Power Supply to Stolipinovo*, 2 June 2005, *Sega Daily*.

²² *Crime Trends in Bulgaria*, Center for the Study of Democracy, Sofia 2006.

TABLE 16. ELECTRIC POWER LOSSES AND COST OF THEFT

Electric Power Losses

	Total loss (2005)	Estimated thefts (2005)
EDC Sofia – city	23.09%	
EDC Varna	23.92%	7-10%
EDC Stara Zagora	13.52%	
National Average	20-22%	

Cost of Thefts

Year	Estimated cost of thefts (million euro)	
2003	56.0	
2001	53.0	
2000	50.5	

Source: Ministry of Energy, EDC²³

Theft of electric power is carried out both by companies and by households (the approximate ratio is 1:5²⁴), and is almost always facilitated by criminal groups and on occasions by “solo-players”. The dynamics of the thefts depends on the price of electric power, and reportedly thefts usually surge after electric power price hikes.²⁵ Reportedly, small energy intensive companies or production facilities, restaurants, hotels, and coffee shops are amongst the most frequent violators. Thefts often involve some level of collaboration of internal EDC employees. Technically, there are a number of ways of stealing electricity, the majority of them focused to tempering the power meters by inserting special devices or remodeling the meters all aiming to show reduced consumption.

For instance in January 2004, the National Security Service foiled a group that was offering companies to tamper their power meters (thus reducing the amount of the power actually used by 10 times) and to reseal the meters with fake seals. The group’s services were used by dozens of private, as well as state owned companies (80 companies were formally charged) in the cities of Rousse, Varna, Silistra, Vratza and Plovdiv. This particular case was brought up to the attention of the police by the EDC-Plovdiv (EVN). According to the company’s Chairman of the Board of Directors, Valentin Kirchev the cost of stolen electricity by this scheme cost only EDC-Plovdiv at least 5 million EUR.²⁶ In the following months it was reported that several criminal groups, offering similar services, were active but the police had been unable to apprehend them.²⁷ The groups usually include technically skilled individuals, often former EDC employees.

According to Plamen Denchev, Director of EDC-Gorna Oriahovitza (E.ON.), the crime groups charged companies either a one-time fee of 100 EUR – 250 EUR for tampering the power meter, or a monthly

²³ EDCs Incur 112 Million Leva Losses in 2003, *Pari Weekly*, 9 Jan 2004; EDC-Varna to Set up Energy Police, *Sega Daily*, 26 Jan 2006; Stara Zagora with the Least Losses, *Sega Daily*, 20 June 2006.

²⁴ Ministry of Energy data for 2003, quoted in EDCs Incur 112 Million Leva Losses in 2003, *Pari Weekly*, 9 Jan 2004, stated that out of close to 6600 thefts in 2003, 1127 were by companies.

²⁵ Plamen Denchev, Director of EDC-Gorna Oriahovitza (E.ON.), quoted in *Energomafia*, 168 Hours Weekly, 5 March 2004.

²⁶ Power-thieves for Millions Arrested, *Sega Daily*, 8 Jan 2004.

²⁷ *Energomafia*, 168 Hours Weekly, 5 March 2004.

25 EUR fee that would involve stopping the power meter and turning it on right before EDC employee comes to check it. In some other instances, the crime groups demanded a percentage of the saved electricity expense. In 2004, an **improved meter-tampering device** that could be remotely operated was introduced at a cost of 250 EUR. This eliminated the need to use too many fake seals, as the device is installed once, and it is turned off during EDC employee inspections.²⁸

In another case, in Plovdiv, employees of the EDC-Plovdiv, did not connect a newly built local power distribution post to the billing system. Instead they personally went to collect the payments (offering a proper discount) from the users. Several months passed before the fraud was discovered.²⁹

Household thefts are a problem around the country. A small number of significant by volume thefts are carried out by owners of big houses, where the energy consumption could easily be around 1,000 EUR per month, as electric power is used for heating or air-conditioning. The more significant large scale problem, though, is related to thefts in the Roma neighborhoods. The thefts there include a broad range of methods, from breaking into power distribution posts, breaking and tampering power meters, and illegally connecting to the power grid. For instance, the Sofia-city EDC reported that monthly 92% of the electricity in Sofia's largest Roma neighborhood "Faculteta" is stolen. The EDC's 17 power distribution posts get 43 million KWh, while the power meters in the neighborhood show the usage of only 6 million KWh.³⁰

The problem in Plovdiv's Stolipinovo neighborhood is similar, although daily power interruptions reduce significantly the EDC's losses. EDCs around the country took another measure that outraged minority and human rights organizations: the electricity meters were removed from inside the apartment buildings and installed onto high poles in front of the buildings – aiming to prevent tampering the meters or stealing electricity. As this did not allow residents to confirm that what their electricity bills charged corresponded to what the meters showed (as these meters could be reached only through EDCs high-platform trucks).³¹ Such measures have been taken in the *Nadezhda* neighborhood in Sliven with around 18,000 residents, attracting the hostility of local residents. The above situations have forced the local EDC (EVN) technicians to enter Rome neighborhood, only escorted by private security companies or the police.³²

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ivanov, Svilen *Power Shock*, *Capital Weekly*, 28 Feb 2004.

³¹ Interviews with residents and minority/human rights organizations in Stolipinovo, July 2005.

³² Interviews with police and residents in Sliven and Plovdiv, July 2005. Media reports and interviews with local NGOs, confirm that the situation has not changed at present.

3.3. POWER CABLES THEFT

Theft of electricity cables is another type of crime that affects seriously EDCs. The theft of cables is closely linked to the scrap metal market in Bulgaria and unlike the above described case of electric power theft; its dynamics is determined by the price of scrap metal. The problem affects in a significant way, not only EDCs and the NEC, but also the Bulgarian Telecommunication Company, the National Railroad Infrastructure Company, and the regional Water-piping and Sewerage Companies.

For instance, the EDCs in Sofia-city, Sofia-region and Pleven (owned by CEZ Group), suffered altogether during the first half of 2006, 619,000 EUR worth of damages. Of these, around 342,000 EUR was the value of the cables stolen or damaged, and the rest was the replacement cost. Around 46 km of stolen cables had to be replaced.³³ About half of them were in the capital Sofia. This data, does not take into account the additional expense that the CEZ Group has incurred by replacing copper cables, with such that have thin-layered aluminum, or extra security measures to protect its grid.

The NEC data concerns only its own network and some under-reporting is likely. Sofia City – Water-piping and Sewerage Company also presents data that shows a fall of the thefts in 2005, compared to the previous two years.

TABLE 17. THEFT OF POWER CABLES FROM NEC

	Loss (thousands of euro)	Stolen cables (km)
2000	99	N/A
2001	289	128
2002	212	93
2003	265	104
2004	86	37
2005	6	N/A

Source: Ministry of Economy, Energy and Tourism and the Bulgarian Chamber of Metallurgy representatives quoted in "Iron Pharaohs", *Capital Weekly* (21/2006).

In response to the continued high-levels of thefts, CEZ Group publicly called for a ban on the purchase of scrap color metals. Legally, the origin of the metals turned in for scrap has to be verified and stolen metals should not be accepted by the more than 15 000 scrap-yards (owned by some 600 licensed and around 300 unlicensed companies).³⁴ In practice, according to the CEZ Group director, R. Dimitrov, this does not happen. One reason is the weak control due to unclear regulation rules.³⁵ More importantly, though, on a local level, scrap companies could be well connected and might have corrupted local police, politicians, or other

³³ Radoslav Dimitrov, head of EDC – Sofia, quoted in *mediapool.bg*, 16 Aug 2006.

³⁴ Bulgarian Chamber of Metallurgy representatives quoted in *Iron Pharaohs*, *Capital Weekly* 21/2006.

³⁵ *Ibid.*

regulatory institutions into inaction.³⁶ Some politicians/businessmen, such as Tzvetelin Kanchev are known to have engaged even in more direct actions, such as organizing large-scale theft of metals from companies by forcing Roma employees of such companies to steal metals or hiring Roma thieves to commit such thefts.

3.4. CRIME AND CORRUPTION IN THE OIL SECTOR

Organized Crime (OC) structures are primarily present in the import and retail distribution of oil. Grey imports provide some 35-40% savings on excise and VAT taxes. Small proprietors or smaller chains of gas stations often rely on smuggled gasoline to remain competitive. According to estimates of the Ministry of Finance such gas stations bring about an average of 150 million EUR in losses to the state budget. Duty-free gas stations, situated on Kapitan Andreevo and Kalotino border crossings, and duty free zones near the towns of Svilengrad, Vidin and Rousse were also estimated in 2006 to result in close to 50 million EUR of state budget losses. As duty-free zones were abolished in 2008, this no longer presents a fiscal problem.

It is hard to say what portion of small gas stations that are connected with OC structures is due to the fact that throughout most of the 1990s on the local level, gas stations were considered an easy way to invest criminal profits. Companies, such as „Interpetroleum and Partners“ (founded by SIC during the Yugoembargo) and „Litex“, are involved in wholesale supply of oil and refined fuels, particularly to small gas stations. Another company Gaztrade, is one of the largest importers of propane (a fuel with an increasing importance in Bulgaria – as many cars switch to propane due to high oil prices). In 2006, the company attracted media attention, as one of the owners embezzled over 3 million EUR.³⁷ In addition, Gaztrade has been one of the companies that participated in corruption schemes of the Sofia Heating Plant.³⁸

Along with the petrol stations a significant source of income for the OC is the market of propane-butane. The main reason here is the very large, and growing, percentage of automobiles running on propane butane, as being a much cheaper fuel. Some 70% of the propane-butane is imported and often smuggled. Until 2002-2003 import frauds with propane-butane were very substantial. The most prominent name, according to a police source, is Tzetzto Hafti, whose structure managed to smuggle entire train-loads of propane-butane through the Varna ferry from Ukraine. In the period 2004 – 2005 the grey import of propane-butane was seriously curbed, still excise and VAT savings continues to attract criminals, and demand for smuggled fuels from small gas stations has not subsided.

³⁶ Interviews with police officers in Plovdiv, Sofia, Sliven, Kazanlak, Varna, Botevgrad, and Kyustendil (July 2005).

³⁷ *Strike for 3.5 million Against Gaztrade-Varna, 24 Hours*, 5 June 2006.

³⁸ Sofia Municipality Internal Affairs (Inspectorate) report quoted in *SHP Loses 4 Million Leva [€2 million] from a Scheme, Sega Daily*, July 1, 2006.

3.5. A CASE: CORRUPTION IN SOFIA HEATING PLANT

The highlight case of Bulgaria's fight against corruption has been the arrest in February 2006 of Valentin Dimitrov, the head of Sofia Heating Plant (SHP) – Toplofikacia Sofia. The case could be used as a 'manual' to corruption as it reveals a wide range of corrupt practices, and it illustrates the possible range of practices that could be encountered in other state owned (but not only) companies.

In the years preceding 2006 the debt of SHP grew to 55 million euros, while uncollected receivables from unpaid heating bills, reached 78 million euros. The Internal Affairs department (Inspectorat) of Sofia Municipality detected frauds for up to 15 million EUR that took place only in the course of 2005. Tipped off by the Austrian authorities, the Agency for Financial Intelligence found at least 4.4 million EUR stashed in 16 bank accounts and treasury safes in Austria and Bulgaria belonging to the director of the SHP, Valentin Dimitrov and his 82-year-old mother. The suspicions were raised as 7 off-shore companies have been transferring money to Mr. Dimitrov's Austrian bank accounts. The Bulgarian prosecution found that the offshore companies were related to Bulgarian companies that have received contracts from SHP. In addition, money was laundered, as Swiss bank accounts belonging to Mr. Dimitov transferred funds to Bulgarian companies.

The corruption practices included:

- **Purchase of unnecessary parts and supplies.** Purchase of construction steel for 50 – 400 thousand EUR without public procurement bid. Such bids could be avoided only if there are less than 3 qualified suppliers (i.e. very specialized companies) which was not the case with construction steel producers. A public procurement bid is required for all purchases in excess of 10,000 EUR. SHP though, was billed through **multiple invoices** not exceeding this amount by a single company. In addition, the amounts paid were often twice or more than the real value of the equipment or supplies purchased. There are different companies, in effect related to the same individuals that appear in multiple contracts with SHP. For instance, 2 million EUR worth of contracts were awarded to the companies Shiber, Prostreemgroup, and Hidromontaj, in all of which Ms. Maya Stoilova has a stake. Similarly, Ms. Teodora Treneva is in charge (possibly nominally) of the companies MakoTel Trading and Broker Company OOD (owned by a Cyprus registered off-shore Zadberg Ltd.), which received 1 million in construction steel orders.³⁹ In another instance an entire **crane** was billed as a delivery of parts, while in fact the entire machine was purchased by SHP.
- **Fraudulent invoicing.** A more direct approach was the entering in the accounting system of invoices and delivery confirmation for machinery and parts that were in fact never delivered. So far the investigation has unveiled 10 million EUR worth of such fraudulent invoices.
- **Inflating the price of procured products and services.** Another

³⁹ *Heating with Versace, Capital Weekly, 28/2006.*

approach was the purchase of fuels through multiple intermediaries. Thus, instead of directly purchasing gas from an importer, SHP would use up to 3 intermediaries and eventually purchasing the good at much higher than the market price.⁴⁰ In one instance described, SHP which has on its premises a storage site of mazut (heating oil) for the government's strategic reserve (State Reserve) and periodically could buy certain quantities from it. Instead, of paying directly to the State Reserve Directorate, the State Reserve sold it first for 114 EUR per ton to a company called "Dameks", which in turn sold it to **Himimport (TIM)**, which then sold it to Gaztrade, which finally sold it SHP at 200 EUR per ton. All this happens when in fact the oil is at SHP's premises. The head of the State Reserve was also under investigation.⁴¹

- **Using public resources to purchase goods and services for personal use.** Probably the most shocking to the public aspect has been the openly posh lifestyle of Mr. Dimitrov – wearing Versace suits, expensive cars, and a wide range of luxurious goods in his office, house, etc. The majority of these were purchased for the company needs. In such way luxurious spa rooms on the company premises were supposedly for use by employees as a health center, but in effect for his personal use. Mr. Dimitrov's also had signed a contract with J-Models, a modeling/advertisement agency.

The **Frontier** connection: One of the key aspects of the corruption scandal has been the 50% ownership of Mr. Dimitrov's mother in the company "Bansko Property Partners 2", where the other 50% is held by Grik LLC and Metaconsult LLC (the Bahamas-registered company that owns 30% of Frontier). Director of Bansko Property Partners 2, along with Dimitrov's mother is Krassimir Georgiev. In addition, **Frontier, Risk Engineering, and Grozdan Dobrev** are co-owners of the KMK company (which is said to provide telecommunication and cable equipment).⁴² Neither of the above companies seems to be active, as Mr. Georgiev has pursued all of his investments in the ski resorts of Bansko with his company Bansko Property Partners 3.⁴³ Nevertheless, the Frontier connection has raised numerous questions as to why the inspection appointed by Mr. Ovcharov several months before Dimitrov was arrested found little trace of corruption. **Risk Engineering** was also among the SHP suppliers.

⁴⁰ *The SHP Boss Stole in Two Ways, Monitor Daily*, 17 July 2006.

⁴¹ Sofia Municipality Internal Affairs (Inspectorate) report quoted in *SHP Loses €4 Million Leva [€2 million] from a Scheme, Sega Daily*, 1 July 2006.

⁴² *The Lawyer who Needs a Lawyer, Capital*, 35/2006.

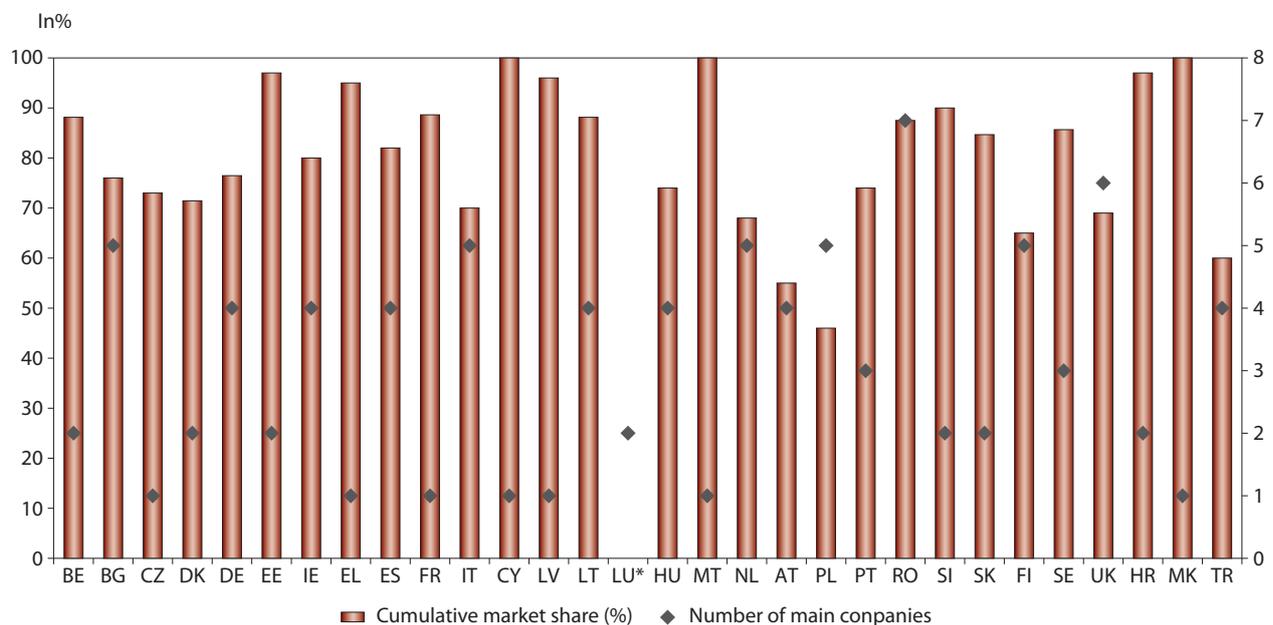
⁴³ *Bansko Property 3 is Famous, Bansko Property 2 with Dimitrov's Mother – Isn't, 24 Hours*, 11 July 2006, Interviews with the head of the Canadian firm as well as high-level former government officials familiar with the case. (April – May 2006).

IV. GOVERNANCE RISK AREAS

4.1. MANAGEMENT OF STATE-OWNED ENERGY COMPANIES

The energy sector by default is one of the most complex – it is technically challenging, it is heavily monopolized, it has a large number and variety of vested business and geopolitical interests and it is second only to the military sector when it comes to security concerns and the respective abuse of those concerns. Those are some of the reasons why the sector is heavily regulated and on the whole largely consolidated. These sector-specific complexities, taken in the environment of high level of corruption risk and actual ‘state-capture’, which were touched upon in the previous section, make the task of state management of the energy sector almost impossible to handle. In order to have an effective policy making and decision making process in existing governance structures, roles and responsibilities should be revised and transparency increased.

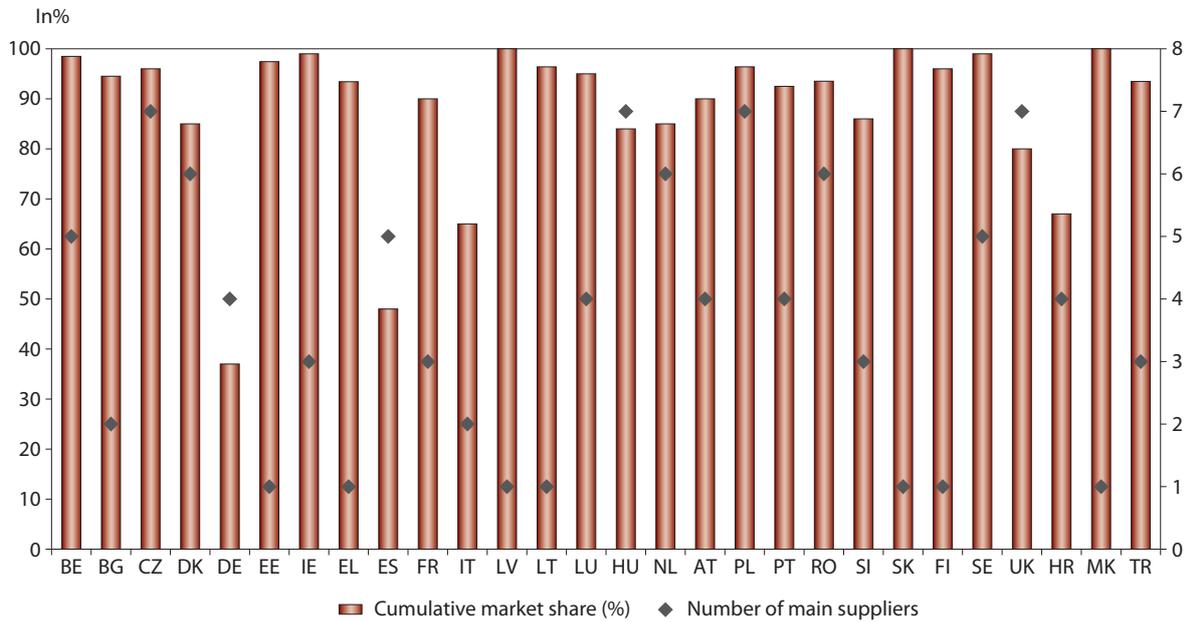
FIGURE 19. NUMBER OF MAIN ELECTRICITY GENERATING COMPANIES AND THEIR CUMULATIVE MARKET SHARE (2006)



* Information on market shares in generation not available

Source: In-depth Review of Energy Efficiency: Bulgaria (2008), Energy Charter Secretariat; Eurostat

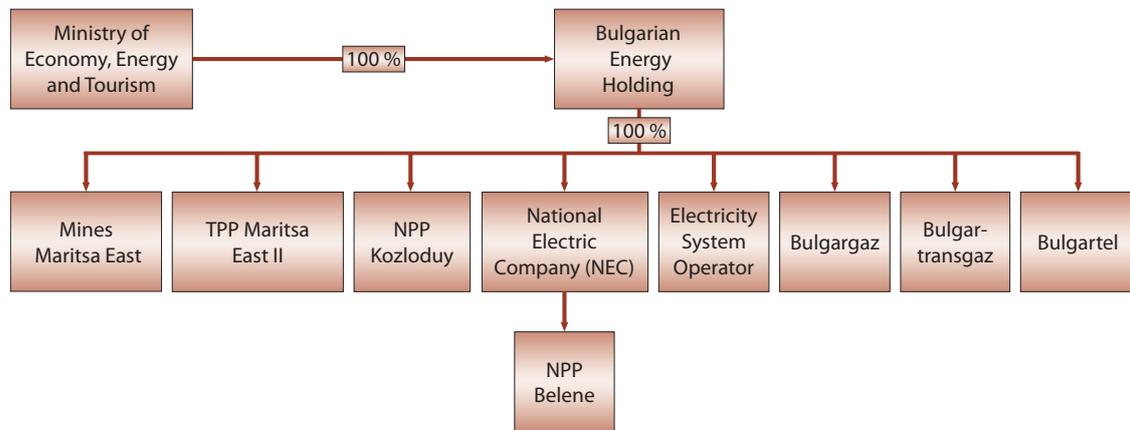
FIGURE 20. NUMBER OF MAIN NATURAL GAS SUPPLIERS TO FINAL CONSUMERS AND THEIR CUMULATIVE MARKET SHARE (2006)



Source: In-depth Review of Energy Efficiency: Bulgaria (2008), Energy Charter Secretariat; Eurostat

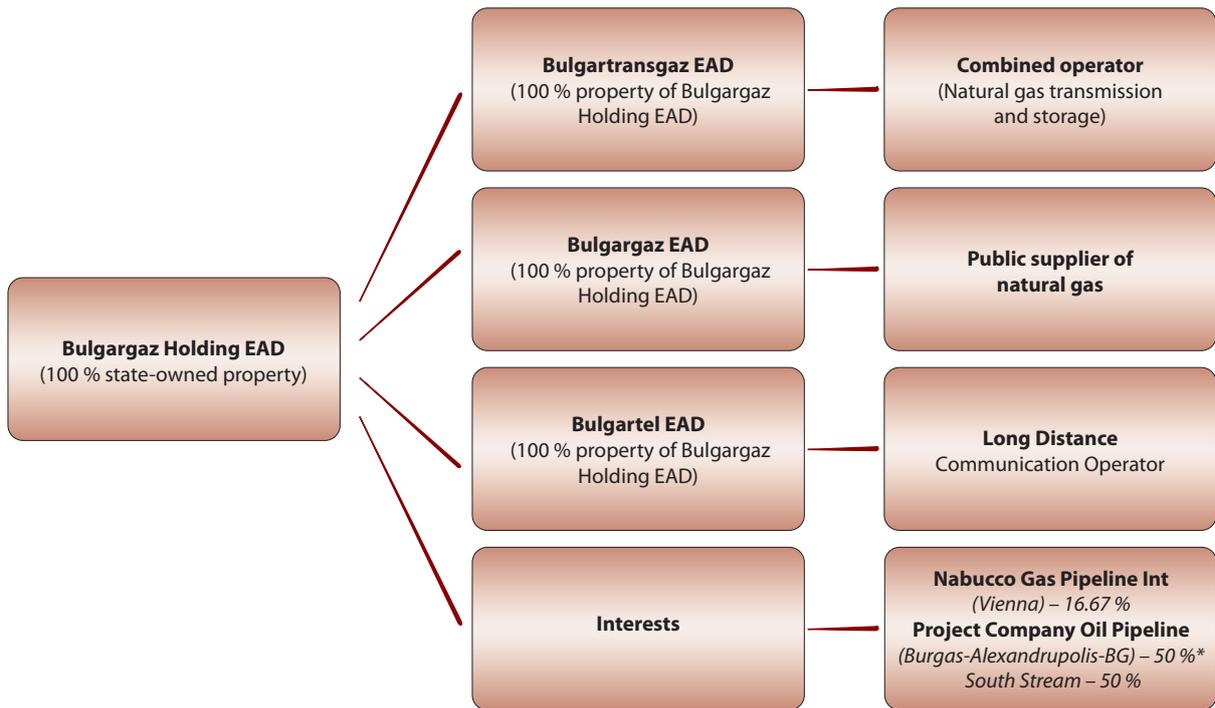
In an effort to address these complexities and centralize management Bulgarian Energy Holding (BEH) was created in Sept 2008. BEH’s listed activities cover the full range of possible energy-related activities: from extract and exploitation, to electricity production and its trade. BEH is 100% state owned, although its legal format of “акционерно дружество” (roughly translated as ‘shareholder company’) would make a potential IPO in the future much easier to perform. The Holding includes: Maritza-Iztok mines, TPP Maritza-Iztok 2, NPP Kozloduy, NEC, ESO, Bulgargaz, Bulgartransgas and Bulgartel. The separate companies within the holding structure retain their operative independence and licenses but they are wholly owned and directly subordinate to the corporate headquarters of BEH. The result of this consolidation, as BEH itself boasts, is the creation of one of the biggest energy companies in the region and a country leader, whose assets are valued at ~8.5 bln BGN, consolidated revenues amount to ~ 3.6 bln and the total number of employees is 21 000 people. The new NPP under construction (Belene) comes under NEC, while the Nabucco and Burgas-Alexandropolis come on Bulgargaz’ ‘books’.

FIGURE 21. STRUCTURE OF BULGARIAN ENERGY HOLDING



Source: Bulgarian Energy Holding (<http://www.bgenh.com/>)

FIGURE 22. STRUCTURE OF BULGARGAZ HOLDING



* BEH divested its shares in 2010.

Source: Bulgargaz Annual Report 2008.

Adding to the 'spaghetti bowl' structure is BEH's participation in other holdings and large projects as seen from Table 18.

TABLE 18. INVESTMENTS IN OTHER COMPANIES/PROJECTS

Investments <i>(in thousands BGN)</i>	2008		2007	
	Share	Amount of investments	Share	Amount of investments
Enel Maritsa East 3 AD	27%	116,327	27%	132,011
Enel Operations Bulgaria AD	27%	612	27%	617
ZAD Energy	48.08%	24,824	48.08%	24,702
POD Allianz Bulgaria AD	34%	7,133	34%	7,675
NECO	50%	4,494	50%	549
PKN Burgas-Aleksandrupolis*	50%	8	50%	8
Ecological exploitation of fuels and energy oils	69.90%	3	69.90%	3
		<u>153,401</u>		<u>165,565</u>
<i>Other investments</i>				
Company created under the Law for liabilities and contracts "St. Ivan Rilski"	50%	400	50%	400
Nabucco Gas Pipeline International	16.67%	248	16.67%	248
EI Bank	0.05%	43	0.045%	43
ZEUS Holding	4%	2	4%	2
		<u>693</u>		<u>693</u>
		<u>154,094</u>		<u>166,258</u>

* BEH divested its shares in 2010

Source: BEH Consolidated Financial Statement 2008

The complex structure of the new holding makes the task of efficient and transparent financial and operational management even more complicated. Without going in details on the latest developments in the big energy 'scandals' such as Belene and Toplofikacia, below will be outlined some of the major risks and challenges in the management of these state-owned companies. The list is far from comprehensive or detailed, but it will give a good picture of where some of the key 'intervention' points lie.

4.1.1. Public Procurement⁴⁴

As mentioned in Section II, the energy sector is one of the biggest 'clients' for public procurement. Both smaller and larger deals need to be revised as to: whether the procurement is needed, whether the proposed size

⁴⁴ Section is taken from *Corruption in Public Procurement: Risks and Reform Policies*, Center for the Study of Democracy, 2007.

and scope is realistic, what are the bid procedures, who are the bidders and who the winners. Section II explained in detail the main corruption risks and how they can be mitigated. The degree of possible damage to the budget and the tax-payer could be seen from the size of planned expenditures on purchase of land, machinery and facilities by BEH.

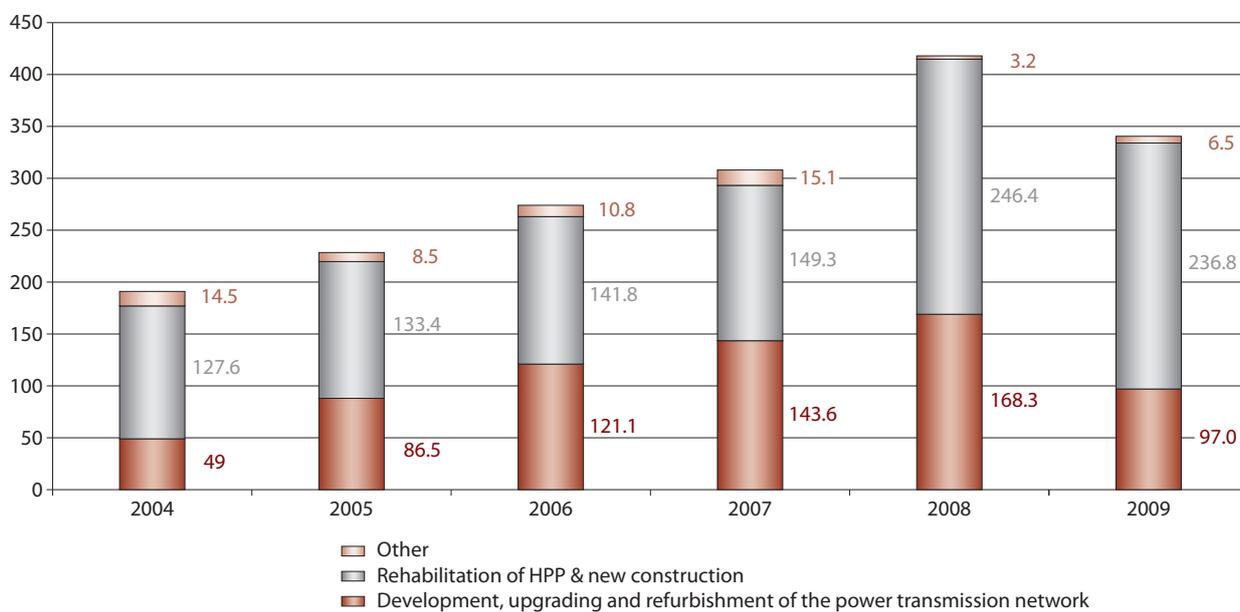
TABLE 19. PLANNED EXPENSES ON PP&E (THOUSANDS BGN)

Engagements for acquisition of property, plant and equipment (continuation)								
Investment project	2009	2010	2011	2012	2013	2014	2015	Total
Total for the group	402,434	575,727	309,914	125,121	12,000	12,000	10,000	1,447,196

Source: BEH Consolidated Financial Statement 2008

The available data points to a dramatic increase in investments in the past 2-3 years. Most of the investments seem to be in the area of hydro-power projects.

FIGURE 23. INVESTMENT ACTIVITIES OF NEC BY YEAR (MLN BGN)



Source: NEC Annual Report 2008, 2009

Also sizeable seem to be the sales of assets. Going through the respective sales bids and documents would probably reveal some interesting findings.

Box 8. BEH NET INCOME AND SALES

With the most significant profit from sales of real estate, machinery and equipment is the framework contract signed on 28 November 2007 with the contractor for the construction of NPP Belene. According to this contract the existing equipment found at the territory of the NPP Belene site, which will not be integrated in the project for construction of the new plant, will be bought by the contractor. In 2008 a sale of some of this equipment was completed. **The reported profit accounts for 844 thousand BGN (2007: 77814 thousand BGN).**

Source: BEH consolidated financial statement 2008

4.1.2. Financial Management and Transparency

With so many 'branches' of the holding 'tree', so many contracts signed by many different governments (often under vague conditions) and with so many technicalities of the sector, it would not be hard to manipulate or even unwillingly mistake financial data. Transfers of assets, provisions for all sorts of foreseen events, non-operational losses, consulting fees, etc – these are some of the many possible avenues for financial mismanagement and outright financial fraud. Currently we have not focused on detailed financial analysis but a thorough investigation would certainly reveal a lot of missing 'parts of the puzzle'. A specific example of how hard it would be to manage transparency in financial decision-making is the following abstract from BEH's consolidated 2008 statement, which explains that due to defects and inability to use some assets on the construction site of NPP Belene, those same **assets will be taken off the books**, with a marked loss of ~50 million BGN. Also sizeable share take the undefined category of 'Other' expenses.

Box 9. SCRAP OF MATERIAL ASSETS, REAL ESTATE, MACHINES AND EQUIPMENT

In 2008, an assessment was made of the technical condition of the assets found on the territory of NPP Belene. Part of the buildings, installations, separate construction elements and constructions are with considerable defects, other elements have also been assessed which will be dismantled due to the fact that they will not be used in the project for construction of NPP Belene, and have been scrapped. The balance amount of the scrapped assets found at the site of NPP Belene **amounts to 50,527 thousand BGN.**

Source: BEH consolidated financial statement 2008

TABLE 20. 'OTHER' EXPENSES SECTION, BEH 2008 CONSOLIDATED STATEMENT

Other expenses	2008	2007 (unaudited)
<i>In thousand BGN</i>		
Payments to the fund "Decommissioning of nuclear installations" and fund "Radioactive waste"	80,224	59,950
Free clothing and food	13,157	11,482
Expenses for fines and defaults	506	850
Depreciation of machines and equipment	1,145	-
Depreciation of financial instruments	326	-
Depreciation of material assets	142	10,142
Expenses for business trips	6,534	5,021
Expenses for training and qualification	1,308	1,075
Expenses for uncollected accounts receivables (sales)	419	109
Scrapped material assets, real estate, machinery and equipment	55,936	25,281
Expenses for one-time taxes	2,893	3,085
Expenses for local taxes and fees	4,618	4,389
Others	21,903	29,797
Total other expenses for the core activity	189,111	151,181
<i>Additional information by type of activity:</i>		
Activities related to electricity sale	169,156	140,638
Activities related to natural gas sale	9,454	1,448
Activities related to coal sale	9,358	8,024
Activities related to the group's administration	1,143	1,071
Total other expenses for the core activity	189,111	151,181

NEC's financial expenses also jump considerably in 2008 and almost double compared to 2007.

TABLE 21. NEC INCOME STATEMENT 2008, 2009

Income statement for the year ended 31 December 2009, in thousands of BGN							
Revenue	2009	2008	2007	Expenses	2009	2008	2007
Revenue from sales	2,754,548	2,912,988	2,340,363	Operating expenses	2,806,707	2,855,180	2,410,703
Other operating income	50,998	38,345	133,063	Net financial expenses	16,730	70,212	39,499
Income from dividends received from associated companies	24,634	20,896	18,255	Total expenses	2,823,437	2,925,392	2,450,202
				Profit before tax	6,743	46,837	41,479
Total revenue	2,830,180	2,972,229	2,491,681	Income tax expense	1,790	6,762	7,516
Loss		0	0	Net profit for the period	8,533	40,075	33,963

4.1.3. General 'Risk' Management

BEH operates in an industry that is quite dependent on source prices, currency fluctuations and simply the whim of foreign companies and oligarchs. A case in point is the recent 'gas' crisis. The Bulgarian government then claimed losses of 500 million BGN, while the final compensation requested from Gazprom were 20 million USD in direct damages and 80 million USD in opportunity costs. The crises revealed a number of flaws in the system such as the fact that the reserve storage facility could barely meet one-third of the needs and that there were no alternative transit routes. The overall moral of the story remains that with all the discussions around energy security and energy strategy, Bulgaria remains at high exposure and risk to Russian actions.

On a 'micro' level a more detailed analysis will show that there is high potential for not only mis-management of risk but also of 'corrupted' risk management. The Holding incurred losses of 75 million BGN due to exchange rate fluctuations. While this is a valid loss having in mind the large sales to Macedonia in USD, for example, it remains unclear whether the hedging strategy used is indeed the optimal.

TABLE 22. BEH LOSSES DUE TO EXCHANGE RATE 2008, 2007

	2008	2007
Loss from currency exchange rate, net (thousand BGN)	(75,725)	-

Source: BEH consolidated financial statement 2008

Box 10. BEH CURRENCY RISK***Currency exchange rate risk***

The group is exposed to currency exchange rate risk when buying, selling or procuring for investment projects, when the transaction is done in a currency different than the functioning currency. In order to manage the currency **exchange rate risk the exposition is hedged according to a received loan in Japanese yens.**

The group performs deals in Euro in relation to received technical and other services. These purchases are made in Euro. The exchange rate risk in these purchases, related to possible fluctuations in the currency exchange rate, is minimal because of the existing fixed exchange rate of Euro to BGN, set by the Bulgarian National Bank (BNB).

Source: BEH consolidated financial statement 2008

4.1.4. Risks Connected with the Trade of Green House Gas Emissions

Although the trade with such emissions is EU-regulated and therefore corruption risks should be limited, there is still need to keep related 'losses' and 'provisions' on the radar. For example, as we mentioned previously, we see in the 2008 BEH statement provisions for 'going over the allowed quotas for green house gas emissions' (related to the coal power plants) amounting to 38 million BGN.

An explanatory text in the notes to the 2008 consolidated statement describes the green house gas emission provisions. There is not enough public information to do deeper analysis of the used accounting and financial management practices in this case.

Box 11. PROVISIONS FOR EXCESS GREENHOUSE GAS EMISSIONS BEH***Provision for going over the quotas for greenhouse gas emissions***

For 2008, based on preliminary Plan for allocation of quotas for greenhouse gases (see also note 33 "Events after the date of the balance"), a shortage has been calculated for quotas for Enel Maritsa East 3 AD and TPP Maritsa East 2 EAD. Based on the market price of greenhouse gases, a provision has been estimated for going over the quotas for greenhouse gases.

The provision for going over the quotas for greenhouse gas emissions of Enel Maritsa East 3 AD has been issued as a result of an Agreement of NEC EAD for purchasing of electricity produced by Enel Maritsa East 3 AD. NEC EAD has the responsibility to compensate Enel Maritsa East 3 for any additional expenses it undergoes because of changes in the legal framework.

Source: BEH consolidated financial statement 2008

TABLE 23. PROVISIONS – BEH 2008

Provisions*In thousand BGN***2008****2007
(unaudited)*****Long-term provisions***

Provisions for protecting the environment

1,169

1,326

Provisions for recultivation

35,940

29,012

Provision for going over the quotas for greenhouse gas emissions

-

-

37,10930,338***Short-term provisions***

Provisions for conserving the environment

979

485

Provisions for recultivation

1,611

1,611

Provision for going over the quotas for greenhouse gas emissions**38,585**

-

Constructive liabilities

306

-

Legal liabilities

320

-

41,8012,096**Total for the group****78,910****32,434***Source: BEH consolidated financial statement 2008***BOX 12. GREENHOUSE GAS EMISSIONS LIABILITIES BEH*****Liabilities for the greenhouse gases***

With a letter from the European Commission the national plan for allocation of emission quotas, to which the big industrial installations have a right in the period 2008 – 2012, has been returned for reconsidering. In relation to that there is uncertainty regarding the exceeding of the allowed quantities of emissions of greenhouse gases by the operators of installations, which could bring a change in the allowed provision (see note 29).

Source: BEH consolidated financial statement 2008

The whole debate around the emissions trading – how it is going to affect energy companies, the price of electricity, etc is still a heated one and deserves a separate research and analysis. In this debate there are many vested interests (mainly from coal plants) since the new regulation will change the cost of produced electricity from the different sources dramatically.

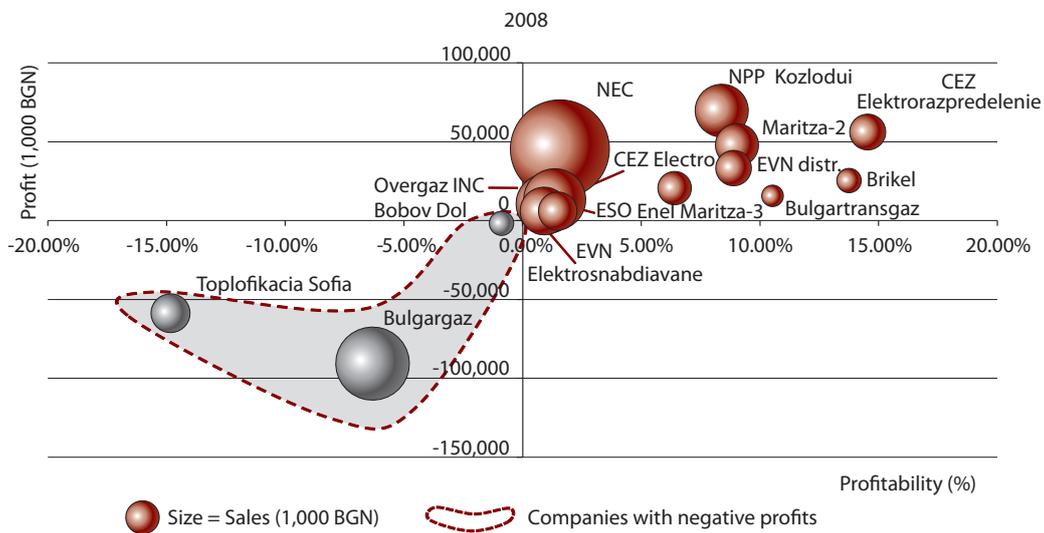
4.1.5. Export of Electricity

As mentioned in previous sections, there is a high risk of opportunity costs incurred due to limited participation of NEC in the export of electricity. The latest data is not available in order to assess what share of the trade market BEH has given up to private companies, but previous experience shows that the ‘unrealized’ profit could be quite large. What is needed is an efficient trading system that will bring transparency and ease of management, and will cut off speculations on the need and functions of intermediaries on the energy market.

4.1.6. The ‘Apex’ of all these Issues Remains: How BEH Manages its Operations and Profitability

The profitability of the Holding is a function of the profitability of all its subordinated companies. Although their profitability varies from company to company and from year to year, depending on cost of supplies, level of demand and price of sold energy and services, overall profitability is extremely low across the board. While NEC is the giant in sales, it is also one of the worst performers in terms of profitability. On the other hand private companies like Brikel have minute sales but mark comparatively high profits of ~ 14%.

FIGURE 24. 2008 SALES, PROFITS AND MARGINS



Source: Data sourced from Capital Weekly

Table 24 below also clearly drives the point home: NEC has an unacceptable profit level relative to its sales.

TABLE 24. NEC'S PROFITABILITY

	2009	2008	2007
Net Profit (after tax)	8,533	40,075	33,963
Sales	2,754,548	2,912,988	2,340,363
Profit margin %	0.3%	1.4%	1.5%

Source: NEC annual reports 2008, 2009

In the consolidated 2008 statement, there are already signals that the 2009 performance will be even worse due to unfavorable price and overall business conditions, decrease of demand, etc.

BOX 13. REALIZED LOSSES FROM TRADING ACTIVITIES – BEH

Realized losses from trade activities

NEC EAD and ESO EAD are performing their activities during 2009 in the environment of unfavorable price and business conditions. We are witnessing decrease in electricity consumption in the country, worsening of the export trade with decrease in the demand and decrease in the market prices. At the same time, with a decision of the State Commission for Electricity and Water Regulation, there was an increase in preferential prices of electricity produced by combined methods in power plants that use natural gas, starting from 01.01.2009; there was also an increase in preferential prices of electricity produced by renewable sources of energy and hydro power plants with installed capacity of up to 10 MW, starting from 01.04.2009. That led to realization of losses for NEC EAD amounting to 42 mln BGN for the period of the first six months of 2009.

In ESO EAD there was a rise in expenses for purchase of availability of cold reserve as a result of the decrease in consumption of electricity and the stopping of units in some of the condensation plants. As a result ESO EAD realised a loss amounting to 37 mln BGN for the period of the first six months of 2009.

Mines Maritsa East EAD has realised a loss amounting to 19 316 thousand BGN. The decrease in consumption in the country and the region resulted in decrease in orders for the company in the first half of 2009. As a result and because of stagnant coal prices sales revenue has considerably decreased, which led to a realised loss during the first half of 2009.

Source: BEH consolidated financial statement 2009

The profitability of an energy company, due to the complexities of the sector, explained above, is harder to manage. However, there are certainly avenues that could and should be pursued in order to improve overall performance. A non-exhaustive list would include:

- Losses along electricity production and distribution process: due to facilities mismanagement and stealing;
- Lack of lean operations;
- HR costs – in the table below we see that salaries expenses have increased dramatically in the last 1 year. Special cases are the NPP projects where security concerns would prevent any HR optimization projects;

TABLE 25. PERSONNEL EXPENSES OF BEH

Personnel expenses*In thousand BGN*

	2008	2007 (unaudited)
Salaries and bonuses	346,568	284,344
Pension and healthcare contribution	139,275	99,325
Change in surcharges for annual paid leave that was not used and for social security over the obligation for unused annual paid leave	14,117	14,611
Change in the liabilities for pension compensations	15,386	10,189
Social expenses	63,869	74,409
Total personnel expenses	579,215	482,878
<i>Additional information by type of activity:</i>		
Activities related to sale of electricity	453,028	369,314
Activities related to sale of natural gas	28,734	25,906
Activities related to sale of coal	94,398	85,591
Activities related to administration of the group	3,055	2,067
Total personnel expenses	579,215	482,878

The average number of the personnel for 2008 is 22 223 people (2007: 22 256)

Source: BEH Consolidated Financial Statement 2008

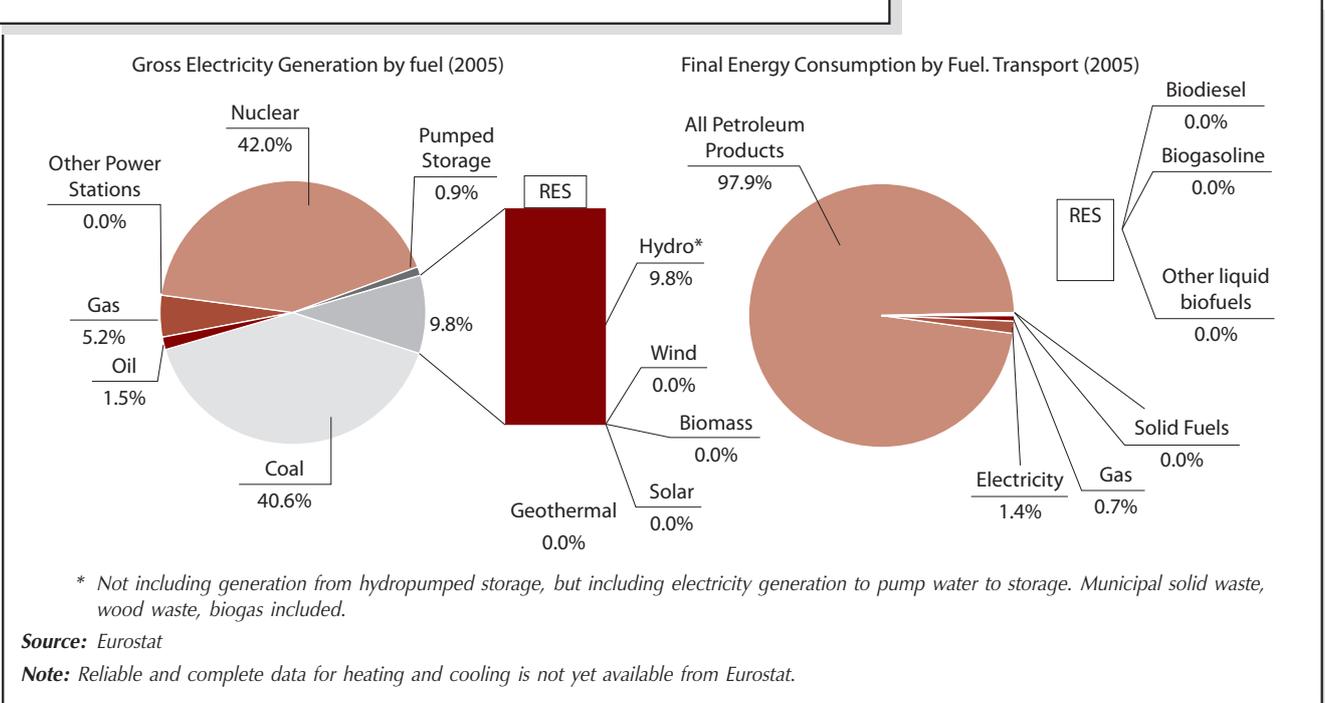
- Administration of the Holding and sub-companies;
- Divesting of losing parts of the holding/going public – There have already been considerations of restructuring BEH to allow IPO and privatization moves. However a very careful due diligence should be made as to whether this would be the right financial and managerial decision as well as to what precise parts of the holding to offer publicly or divest;
- Overall leaning/‘cutting the fat’ out – that includes a variety of solutions from better asset management/divestment, through network optimization, HR optimization, going digital, etc.;

- Improving successful collection rate – possible hiring of private collection agencies, etc.;
- Improving the use of IT in overall operations – CRM systems, electronic data collection, etc.

4.2. MANAGING THE ‘GREEN’

The sustainability issue has been discussed widely in the press and the public. The growth in interest in RES projects the last few years has been dramatic – mainly wind and hydro projects although the RES share is still low.

FIGURE 25. GROSS GENERATION AND FINAL CONSUMPTION BY FUEL (2005)



The decision to how ‘green’ we should go is influenced strongly by a number of conflicting pressures: EU directives, strong coal and nuclear lobbies, concern for energy poverty, etc.

The inclusion of RES producers to the network raises a large number of administrative, managerial, financial and corruption questions, among which:

- Unpredictability of RES – wind and sun, less so water, could not be precisely predicted and managed as sources of energy;
- Quality of the resource (ups and downs of wind and sun light) which lead to wavering of the current in the network;
- Inability to store produced energy;
- Lack of supply/demand balance – wind is strongest at night while consumer demand drops drastically then;

Box 14. 'GREEN INVESTORS' INTEREST

By the end of 2008 in NEC have been filed requests for addition to the electricity distribution grid of wind energy parks with total installed capacity of 7690 MW and photovoltaic parks with total installed capacity of 440 MW. Preliminary contracts for addition to the grid have been signed with 16 investors with total installed capacity of 1112 MW (of which 965 MW are wind plants and 147 MW are photovoltaic parks).

Source: NEC Annual Report 2008

- Inability to produce energy all the time;
- Production costs are still very high; fixed purchase prices are much higher than fixed sale price to final consumers;
- Large investments to get 'green' producers on the grid – currently not shared by RES producers;
- Potential speculative money in those investments;
- Potential abuse of structural funds;
- Corruption of the environmental impact assessment process.

In an attempt to control these challenges the regulating body started discussing a 20% cap of 'green' production from total capacities. This however, is not a sustainable solution and does not seem to be based on any thorough cost-benefit analysis. What is needed is a more precise prediction mechanism for the RES potential as well as better management of loads and peaks.

The main pillar of the 'anti-green' lobby argumentation remains the cost of green energy. Although it is true that currently RES are not as cheap as coal and nuclear, this is bound to change due to a number of factors:

- 1. RES technologies are improving rapidly** and there are in R&D phase a number of solutions that in 2-3 years will be cost competitive with traditional fossil-based producers. Cases in point are the upcoming CSP (Concentrated Solar Power) solutions that are times cheaper than PV (Photo Voltaic) installations both in up-front investment but also in the generation itself. PV technologies themselves are being improved to generate much cheaper electricity. Here comes the question, when solar projects are being approved in Bulgaria – do consultants and investors factor in those technological advances, or do they simply go after available EU funds and profitable long-term power purchase agreements?
- 2. Coal and nuclear are not as cheap as we are made to believe**
Millions and millions are poured worldwide from the traditional energy lobbies into the pockets of policy makers and media to create the illusion that 'green' energy can never be as cheap and functional as coal and nuclear. The introduction of the green house gas markets will change that for good.

Even the untrained eye will easily spot a number of issues:

1. If added the CO₂ cost will drastically change the balance between traditional and RES producers in terms of price
2. Coal and natural gas have very high price sensitivity and import de-

TABLE 26. KEY INDICATORS BY SOURCE

Energy resource	Cost 2005 (EURO/MWh)	Cost 2030 (EURO/MWh, CO ₂ =20-30 EURO/ton)	Emissions (kg CO ₂ /MWh)	Import dependence EU-27		Efficiency	Price sensitivity	Reserves/annual generation
				2005	2030			
Natural gas	35-70	40-85	400-440	57%	84%	40-50%	Very High	64 yrs
Oil	70-80	80-95	550	82%	93%	30%	Very High	42 yrs
Coal	30-50	45-70	750-800	39%	59%	40-48%	Medium	155 yrs
Nuclear fuel	40-45	40-45	15	100% uranium ore		33%	Low	85 yrs
Biomass	25-85	25-75	30	0%	0%	30-60%	Medium	RES
Wind	35-175	28-170	10-30	0%	0%	95-98%	None	
Hydro	25-95	25-90	5-20	0%	0%	95-98%	None	
Solar	140-430	55-260	100	0%	0%	-	None	

Source: 2020 Bulgarian Energy Strategy (draft 2008)

pendence – which decomposes another myth – that of energy ‘security’. In a world of diminishing resources, dependence on fuel imports could not be a wise decision in terms of security.

3. RES are much more efficient than traditional power plants
4. Endless reserves of renewables – that is obvious but often forgotten as an argument

These factors are key when policies are made regarding:

- Consumption prices;
- Long-term energy strategy;
- Large-scale investments in nuclear and coal.

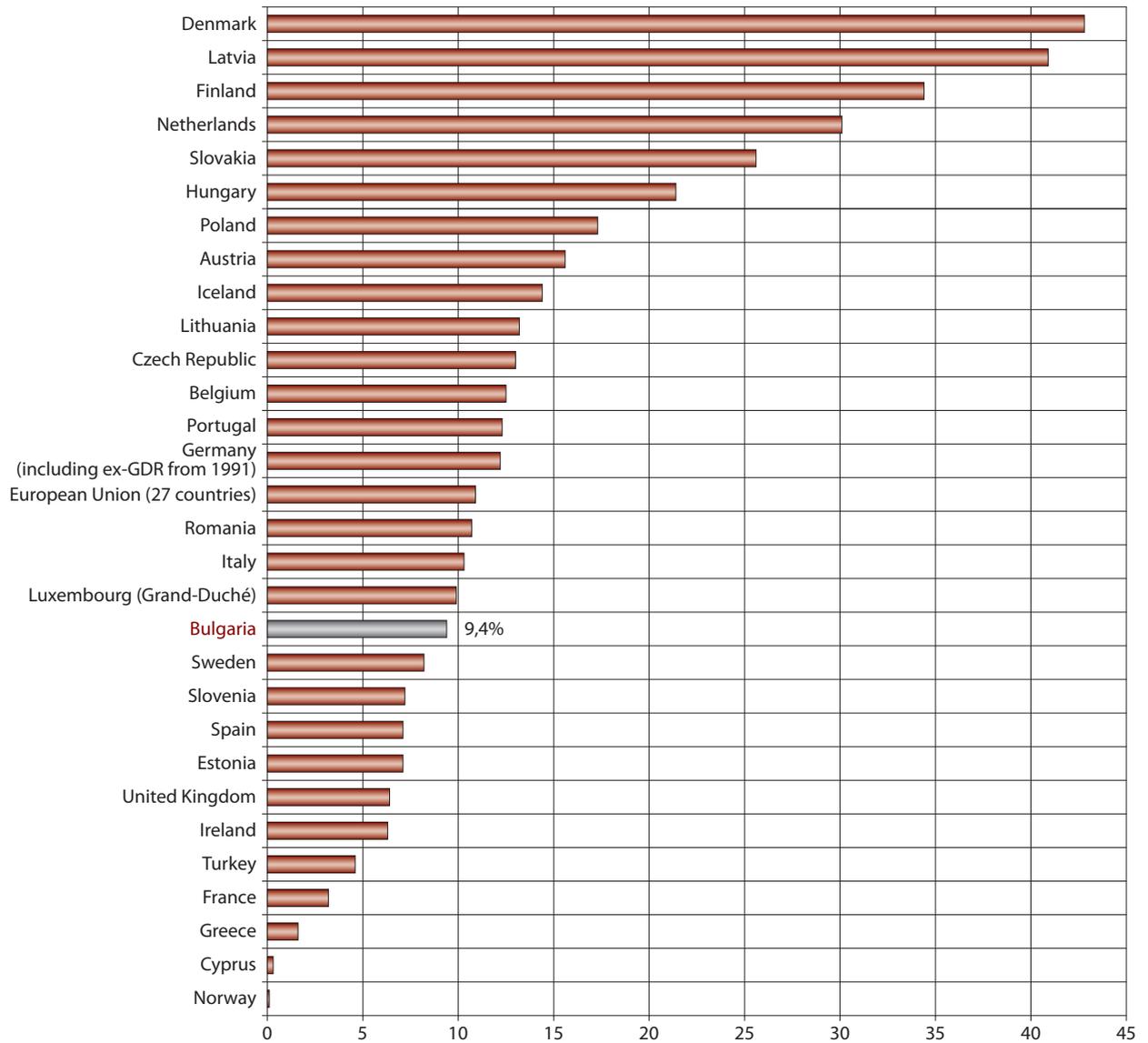
Therefore putting a cap to ‘green’ production cannot be an informed decision. A careful cost-benefit analysis of the overall energy mix as well as the individual investment project is the only correct route.

Another major shortfall of Bulgaria is the low share of **combined heat and power generation**. Bulgaria should further utilize the technology in order to reduce emissions and increase energy efficiency.

Some possible ways to address the challenges of adding more ‘green’ capacity are outlined below:

- Laws that oblige NEC to add new RES to the grid in a speedy and efficient manner. Currently NEC is dis-incentivized to add new ‘green’ capacities because of taking the full associated cost and technical burden;
- RES producers and consumers to have their share of ‘green’ cost. Share contributed to ‘green’ energy can be printed on consumer in-

FIGURE 26. COMBINED HEAT POWER GENERATION (CHP) – % OF GROSS ELECTRICITY GENERATION (2007)



Source: Eurostat, Combined Heat and Power Production (CHP) in the EU, 2001 (SAVE Programme)

voices in order to increase transparency;

- RES producers to join the international trade with 'green certificates';
- A balance to be sought between giving 'green' investors guarantees and lowering the burden to NEC of long-term purchase price agreements
- CHP capacity to be increased;
- The newest and most efficient RES technologies to be reviewed before approving projects.

4.3. LIBERALIZING MARKETS: ELECTRICITY AND GAS

Since July 2007 Bulgaria has formally liberalized its electricity markets. In theory that should allow all consumers to choose their supplier company as well as have access to the electricity network itself in accordance with the Electricity Directive of the EU. However, in practice, the markets are only partially liberalized – consumers are not yet able to choose providers.

Although there is some increase in players and activity on the liberalized market, its share is still not sufficient to create competitive and balanced market conditions.

TABLE 27. PURCHASED ELECTRICITY ON REGULATED AND ON FREELY-NEGOTIATED PRICE (GWh; %)

Purchased electricity at regulated prices

Contracting party	2009		2008	
	Amount of electricity purchased, GWh	Relative share of total amount, %	Amount of electricity purchased, GWh	Relative share of total amount, %
NPP and TPP	20,068	82.03	21,672	68.93
District Heating Plants	1,699	6.95	1,646	5.24
Autoproducers	2,133	8.72	2,078	6.61
Renewables-based plants:				
– hydropower	439	2.02	330	1.05
– wind	69	0.28	48	0.15
Total	24,462	100	25,774	81.98

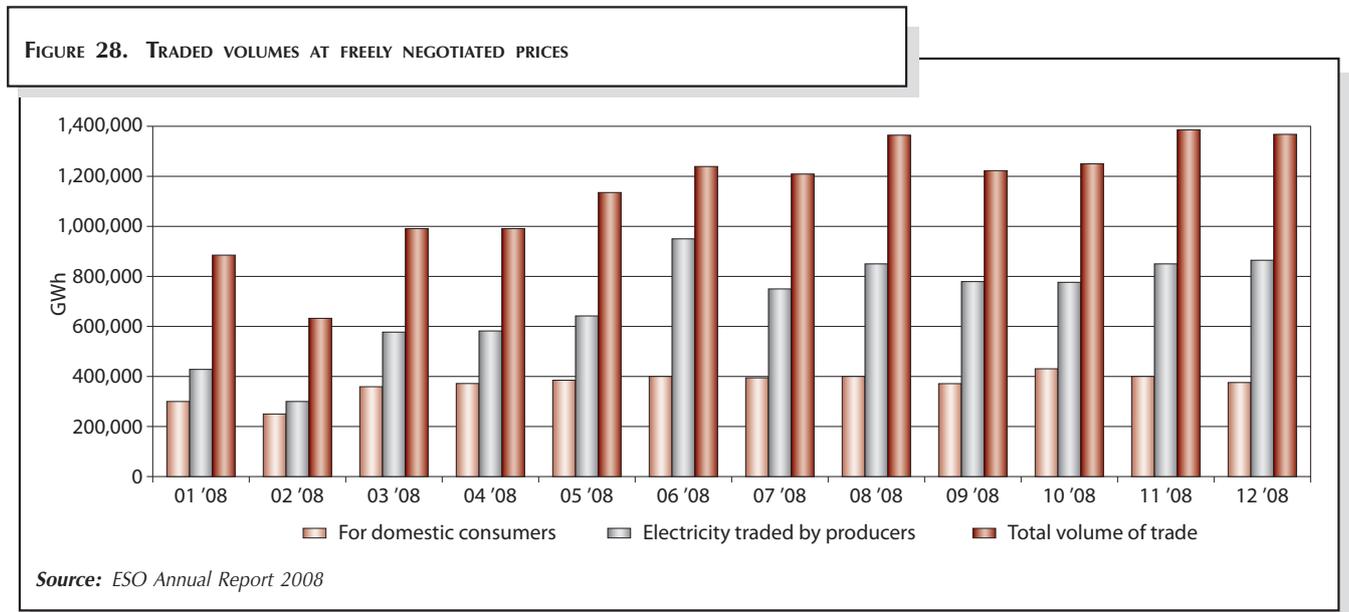
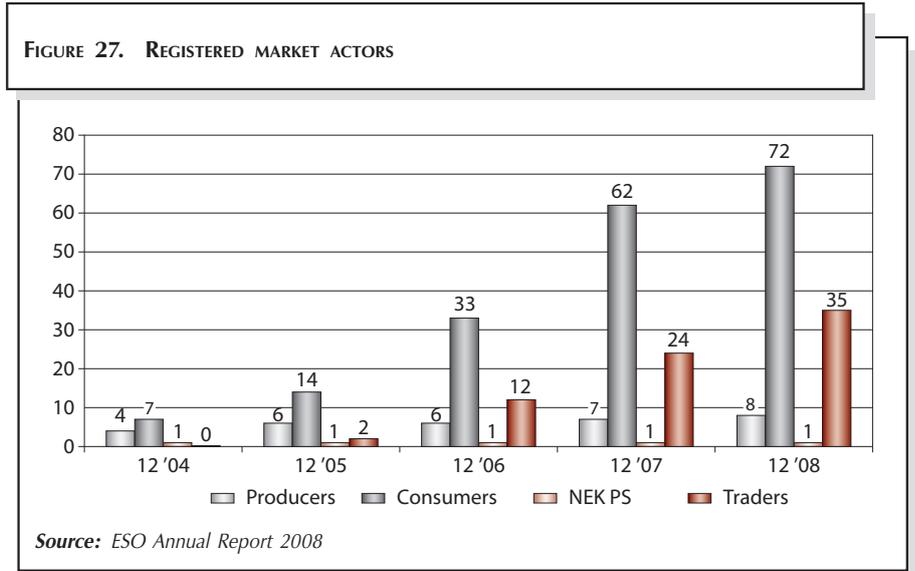
Purchased electricity at non-regulated prices

	2009		2008	
	Amount of electricity purchased, GWh	Relative share of total amount, %	Amount of electricity purchased, GWh	Relative share of total amount, %
Internal market			4,858	15.45
Import for re-export			808	2.57
Total			5,666	18.02

Source: NEC Annual Report 2008, 2009

Also since July 2007 the regulator set quotas to the producers that aim at covering the need for electricity of all 'protected customers'. Such protected customers are all households and businesses with up to 50 employees and annual turnover of 19.5 million BGN.

The current model is transitional and will be transformed after finalizing the new Rules for trade of electricity, under development by ESO. Some



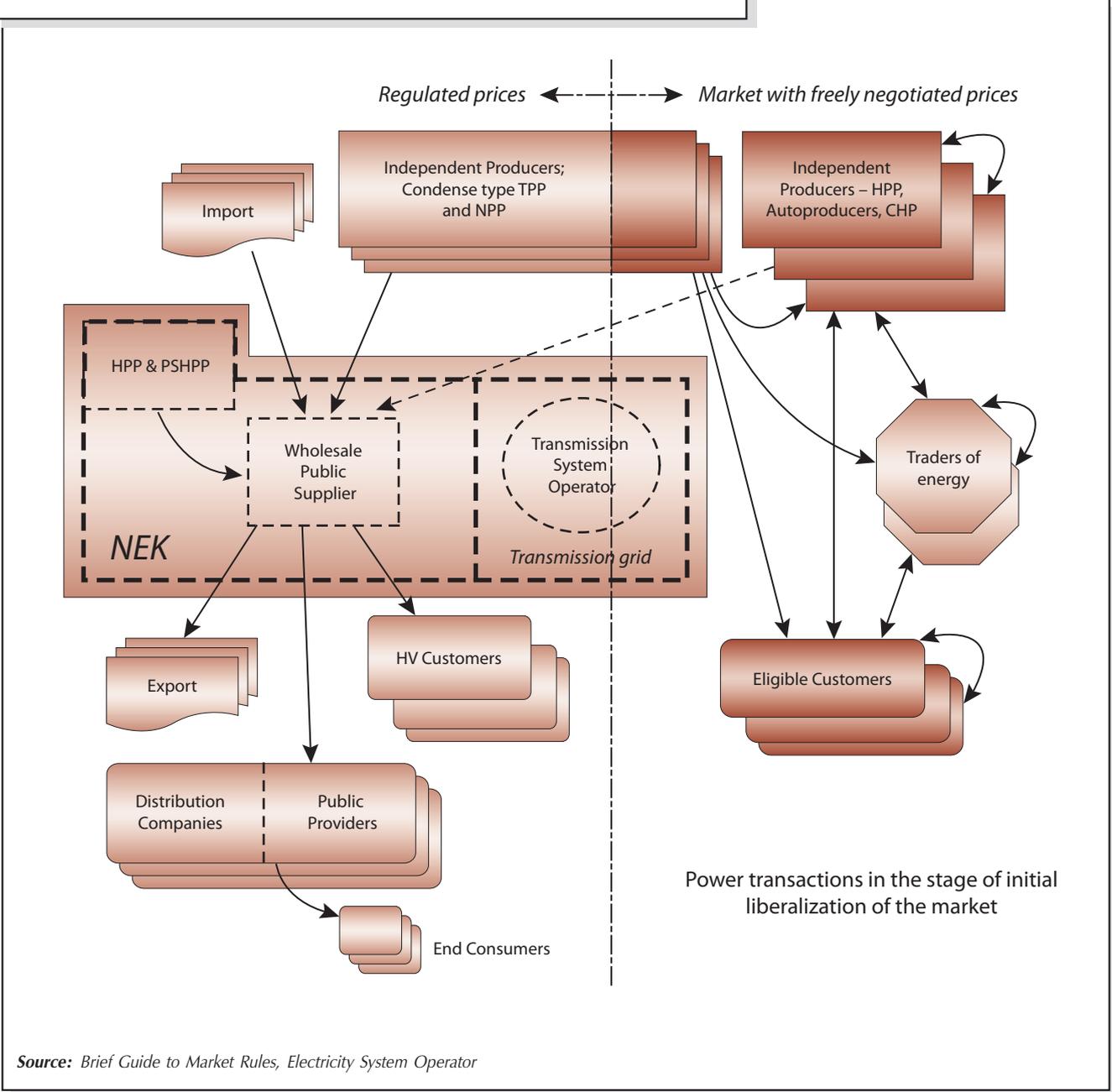
of the main issues under consideration for the new rules are the definition of the ‘balancing groups’ as well as the potential development of a future trade exchange mechanism. Under review is also whether Bulgaria should have its own energy exchange or it should join a regional one.

In any case the development and creation of the trade platform should be done in a **transparent** and **cost-efficient manner**. The platform should allow NEC to have higher participation in energy export and it should also allow gathering of data for the needs of the government analytics.

Some key shortfalls of the current market could be summarized:

- All prices along the generation-supply axis are still **regulated**;
- Trading with energy is not done in a **transparent and financially responsible manner**;
- **Long-term contracts** are signed to limit energy quantities and the number of players on the liberalized domestic electricity market;

FIGURE 29. LIBERALIZED MARKET STRUCTURE



- **Mandatory purchase and non-market prices** (this concerns mainly RES and co-generation) limit the development opportunities of a truly competitive energy market;
- There is still **no exchange-type market** despite the favorable pre-conditions set up in 2003.

The gas market is in an even earlier stage of development. Bulgaria is seriously lagging behind not only EC-27 but also behind its neighbors in developing its gas networks and household gasification. The short statistics below⁴⁵ show the huge gap between Bulgaria and the EU:

⁴⁵ Gas market – liberalization and functioning, Ministry of Economy, Energy and Tourism.

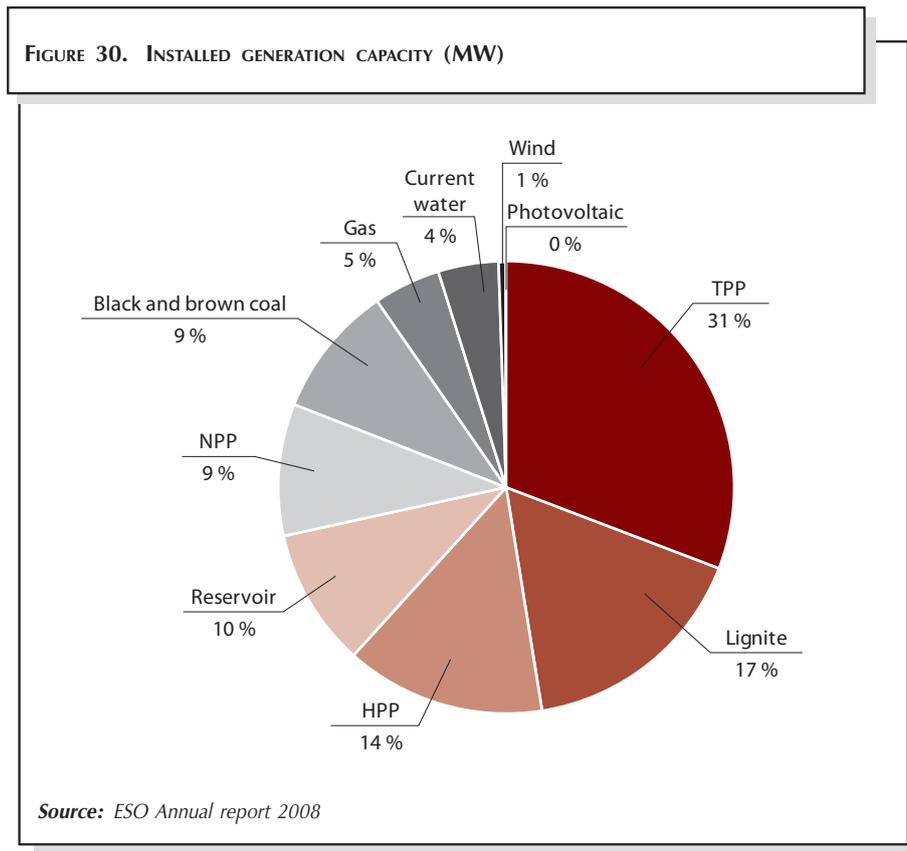
Share of municipalities on whose territory gas distribution is performed: BG=15%, EU>80%

Share of municipalities which are licensed to distribute gas or are in the process of acquiring such license (in 2/3 of them there is no actual gasification): BG=49.5% (as of 2005), EU=90%

Share of gasified households: BG<1% (~30 000 households), Romania=2million households, The Netherlands=92%, Slovakia=90%, UK=82%(2005), France=76%, Hungary=75%, CZ=66%, Poland=52%

Serious steps need to be taken in order to bridge that gap. Although increasing gasification is one of the priorities in the 2020 strategy, serious political and financial support will be needed in order to deliver gas to the majority of Bulgarian households.

4.4. THE 2020 STRATEGY REVISITED

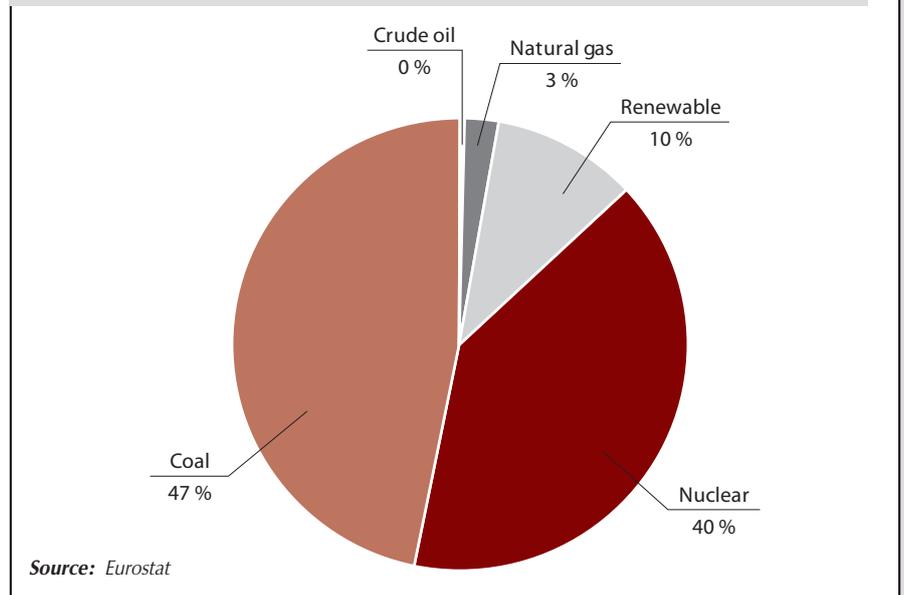


The 2008 version of the Bulgarian Energy Strategy is largely mirroring the EU strategic documents – their 2020 targets, their priorities and the means to achieve these priorities. It is a very informative and comprehensive document of ~80 pages that introduces the main goals and the main challenges of the industry. Below are outlined some of the key issues that can be considered as either flaws of the strategy or potential ‘risk’ areas for allowing special interests to influence policy-making.

One general remark is that the strategy overall is heavily influenced by the strong coal and nuclear lobbies in the country. While renewables and energy efficiency are put forward as prime strategic goals, the energy mix of the country will remain

heavily unbalanced in the direction of coal and nuclear. The figures below show the current energy mix.

FIGURE 31. PRIMARY ENERGY PRODUCTION BY SOURCE (2007)



General flaws of the strategy:⁴⁶

- There are no provisions for **revising the strategy** in relation to the actual achievement of the goals and the changing macro-economic and geopolitical situation. There should be specifically defined periods for such revisions;
- The strategy does not take into account the **dynamics of the changing markets** in EU – Section I already discussed the shrinking Balkan export market as an example;
- The strategy does not take into account the **technology development curve in RES** – very soon RES will be price competitive to traditional sources due to improved RES technologies as well as the development of the Emissions Trading Scheme (ETS) in Europe;
- The strategy clearly states that **coal** will remain the pillar of Bulgarian energy industry and that the country is willing to spend even more on coal plants through introducing ‘state of the art technologies’. This leaves room for even further expansion of the coal industry and new huge expenses such as the planned **Carbon Capture and Storage System (CCS)**. Bulgaria has stated its willingness to make a demonstration project in ‘Mariza Iztok’, which would be part of the EU program of building 10-12 pilot plants with CCS by 2015.⁴⁷ Such CCS project would mean accessing huge subsidies from the EC – would that be yet another avenue for huge corruption schemes? Analysts from Bellona share that: ‘It is already rumored that certain interest groups would use the CCS as an instrument to decrease CO₂ emissions by increasing subsidy frauds.’ Not only EU funds are at risk, the 2020 strategy in itself allows for the use of local funds for the CCS project (page 59):

⁴⁶ Largely based on the declaration of opinion of the participants of the National conference *Energy strategy of Bulgaria – analysis and recommendations*, February 2009.

⁴⁷ http://www.bellona.org/articles/articles_2009/1247472841.24

- In view of the dynamically changing market environment and risks related to the completion vs. non-completion of huge energy projects such as Nabucco, South Stream and Belene NPP, the strategy should include **more than one projected scenarios**. The model on which calculations are based should be revised and more than one scenarios should be given, with adjusted action plans in accordance;
- There are no clear mechanisms outlined in the strategy as to how funding (internal and external) will be **managed efficiently and transparently**. Previous sections showed that there are huge mis-management and fraud risks in the sector. Special provisions should be made in the strategy to counter this risk;
- The strategy should also highlight more the need to support **scientific research and development**;
- The need of a modern **system for communication and automatization** of the energy transmission network should be clearly stated. Such modern system is key for the 'unlocking' of the market for small RES producers;
- Provisions should be made for **further analysis** such as:
 - Impact assessment;
 - Macroeconomic impact of the strategy;
 - Ecological assessment;
 - Social assessment;
 - Cost-benefit analysis;
 - Assessment of RES utilization potential;
 - Assessment of the true energy efficiency capacity of the country.
- Provisions for the optimization of the process of **energy planning** and a wide **public debate** on the set priorities should be made;
- There should be provisions for financial incentives for using **'green' transportation**;
- Clear note should be made on **NOT defining** the energy produced by **burning household waste as 'clean'**. There are high environmental risk connected with this technology.

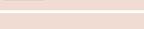
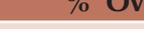
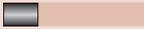
4.5. REDUCTION OF GREENHOUSE GAS EMISSIONS

When setting national targets the Commission uses an approach that takes into account the GDP level per capita in the respective Member State, the progress achieved and the economic growth forecasts. It is not surprising that in the process of negotiating these targets Bulgaria joined a group of ~8 countries⁴⁸ (mainly SEE) that lobbied for higher emission caps relying on their low income levels. As a result for Bulgarian sectors not covered by the ETS, **an increase of 20 % over 2007 levels** was proposed for emissions by 2020, which is the **highest in EU** (Member states are given targets that range from -20% to +20%). This is most likely also the result of the efforts of the local 'coal' lobby which is the biggest air polluter in the energy sector. On a macro level, Bulgaria is given a high emissions cap also within the Kyoto protocol.

⁴⁸ Interview with Za Zemiata, August 5, 2009.

Existing data shows that Bulgaria is doing well in terms of the 2012 Kyoto target.

TABLE 28. KYOTO TARGETS

EU member state	2003	2004	2005	2006	2007	Kyoto target 2012	% Under Kyoto target
Latvia	10.7	10.7	10.9	11.7	12.1	23.3	 48.07 %
Estonia	21.2	21.2	20.7	19.2	22.0	40.0	 45.00 %
Lithuania	16.7	21.1	22.6	22.8	24.7	44.1	 43.99 %
Romania	no data	160.1	153.7	153.9	152.3	259.9	 41.40 %
Bulgaria	no data	68.9	69.8	71.5	75.7	127.3	 40.53 %
Hungary	83.3	79.5	80.5	78.8	75.9	114.9	 33.94 %
Slovakia	51.1	49.5	48.7	49.0	47.0	67.2	 30.06 %
Poland	382.5	396.7	399.0	399.3	398.9	551.7	 27.70 %
Czech Republic	147.5	147.1	145.6	149.1	150.8	180.6	 16.50 %
Sweden	70.9	69.7	67.0	66.9	65.4	75.2	 13.03 %
United Kingdom	658.0	660.4	657.4	647.9	636.7	678.3	 6.13 %
France	560.9	556.1	553.4	541.7	531.1	564.0	 5.83 %
Greece	137.2	137.6	139.2	128.1	131.9	139.6	 5.52 %
Belgium	147.6	147.6	143.8	136.6	131.3	135.9	 3.38 %
Germany	1024.4	1025.0	1001.5	980.0	956.1	972.9	 1.73 %
% Over Kyoto target							
Netherlands	215.4	218.4	212.1	208.5	207.5	200.4	 -3.54 %
Portugal	83.7	84.6	85.5	84.7	81.8	77.4	 -5.68 %
Ireland	68.4	68.6	69.9	69.7	69.2	63.0	 -9.84 %
Finland	85.4	81.2	69.3	79.9	78.3	71.1	 -10.13 %
Slovenia	19.7	19.9	20.3	20.5	20.7	18.6	 -11.29 %
Italy	577.3	580.5	582.2	563.0	552.8	485.7	 -13.82 %
Denmark	73.6	68.2	63.9	71.0	66.6	54.8	 -21.53 %
Austria	92.5	91.2	93.3	91.6	88.0	68.7	 -28.09 %
Spain	407.4	425.2	440.6	433.0	442.3	331.6	 -33.38 %
Luxembourg	11.3	12.8	12.7	13.3	12.9	9.1	 -41.76 %

Source: Europe's Energy Portal (www.energy.eu)

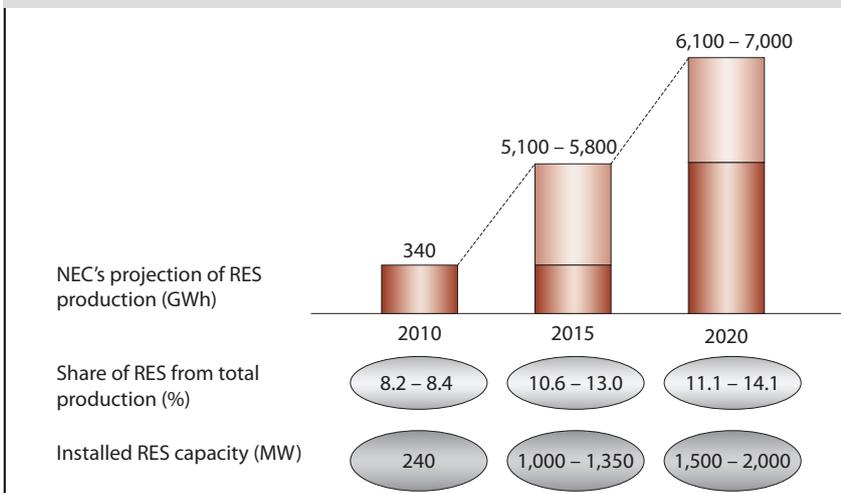
However, there are already signs that Bulgaria would not remain one of the air polluting havens in Europe for much longer. Changes proposed by the Commission in the ETS will force Bulgarian coal-fuel plants from 2013 to purchase/pay the allowances for all the emissions emitted. This invariably will change the balance between production cost for traditional energy producers and RES.

4.6. INCREASING OF RES SHARE IN GROSS FINAL CONSUMPTION OF ENERGY

The target set for 2020 for Bulgaria is 16% of final consumption to be from RES. Bulgaria, again, is expected to provide among **the lowest additional increase (7.1%) as compared to other Member States.**

As seen from the figures below, based on NEC’s 2008 annual report, Bulgaria has ambitious plans when it comes to RES – mainly hydro and wind projects. However, it is unclear what part of this projected increase will actually materialize.

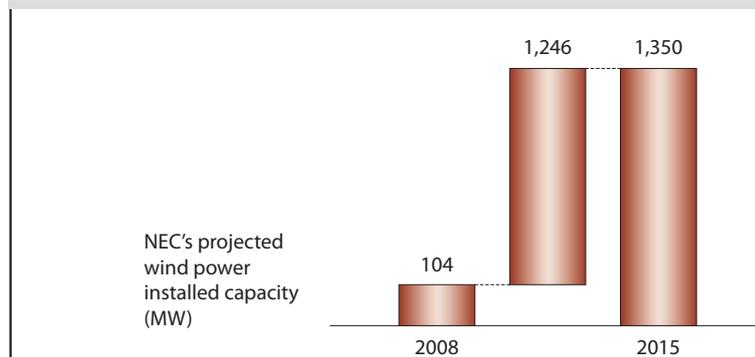
FIGURE 33. NEC’S PROJECTIONS FOR RES INCREASE



Source: NEC Annual Report 2008

The key issues for the government are the creation of a balanced mix of sources within RES over time. Large hydro and wind projects are much more harmful to the environment than localized solutions that allow **energy ‘independent’ local communities** that rely on small solar, wind and hydro projects. At the moment the existing legal and physical infrastructure does not allow for such energy independent communities to be formed. Such communities are very common and successful in countries like Denmark and the Netherlands.

FIGURE 34. NEC'S PROJECTIONS FOR WIND CAPACITIES INCREASE



Source: NEC Annual Report 2008

4.7. ENERGY EFFICIENCY IMPROVEMENT

Since Bulgaria is consistently the least performing country in Europe in terms of energy intensity, its 2020 targets are correspondingly more ambitious – a 50% decrease by 2020 compared to the 20% of other EU members.

The biggest potential for reduction comes from the process of energy generation and distribution itself, including: the development of the gas distribution network, reducing transmission and distribution losses, improving the efficiency of thermal power plants, increasing the share of energy generated from high-efficiency co-generation.

4.8. IMPORTANT ENERGY INVESTMENT PROJECTS

The huge ongoing and planned investment projects have been a constant topic of debate in the media and within policy circles. So far it has been clear that the guiding principle in decision making has not been sound economic analysis but rather accommodation of the strongest political and financial interests within the country and abroad (mainly Russia).

Some of the key projects are:

- **NPP Belene;**
- Second electrical/energy connection with Greece: **Galabovo – Nea Santa;**
- **Bourgas-Alexandroupolis** oil pipeline;
- **Regional terminal for Liquid Natural Gas (LNG)** – either at the Bulgarian Black Sea or at the Greek coastline;
- **AMBO** – project for petrol transmission line from the Caspian region: Bourgas-Skopie-Vlora(Albania);

- **Nabucco** – gas pipeline from the Caspian region, through Bulgaria and Turkey, to the Western countries;
- **South Stream** – gas pipeline to connect Russia with Italy and Austria, bypassing Ukraine;
- **Rehabilitation** of existing capacities – mainly coal plants in ‘Maritza Iztok’;
- **Large Hydro project ‘Tsankov Kamak’;**
- **Large wind projects** – such as those planned near Kavarna, Shabla and Balchik.

It would not be efficient for this report to go into detailed cost-benefit analysis of these projects. First, there have already been many discussions in the public space and much of the pro’s and con’s have already been outlined. What is more, all necessary data are not available at the moment to do an independent cost-benefit analysis. Finally, projects like Nabucco and South Stream will eventually be economics-based decisions of stakeholders outside Bulgaria. Therefore what is more beneficial to do is to outline the **key considerations and analysis that should govern policy makers** when deciding upon and implementing large infrastructural projects:

- **Solid financial analysis**
 - Thorough analysis of all financials of the project. For ongoing projects, independent audit of previous expenditures should be performed;
 - Sensitivity analysis that builds alternative scenarios based on pre-defined indicators such as: cost of fuel, demand fluctuations, export conditions, etc.;
 - Analysis of the Balkan region energy market (part of the sensitivity analysis) – new capacities, planned regulations, demand trends, etc.;
 - Time sensitivity analysis – how much it will cost, including opportunity cost, to build it in 3 years, in 5 years, etc.;
 - Analysis of ‘cost of NOT building it’ – opportunity costs, security costs, etc.
- **Specific key areas of economic analysis:**
 - Economic and political assumptions on which initial investment plans are made – market demand, regulations, etc.;
 - Detailed break-down of cost per MWh – including waste management cost, CO2 emission trading, share of cost to get on the grid (for RES especially);
 - Inflation projections;
 - Effects of the financial crisis;
 - Increasing cost of HR;
 - Increasing cost of capital;
 - Currency risks;
 - Increasing building/construction costs – materials, security regulations, etc.
- **Fraud analysis**
 - What damage has been done so far – existing fraud cases;
 - What are the potential risk areas – EU subsidies, Public Procurement, etc.;
 - Revision of Public Procurement plans – procedures, items to organize bids for, criteria set for the bids, etc (see Public Procurement section of the document);

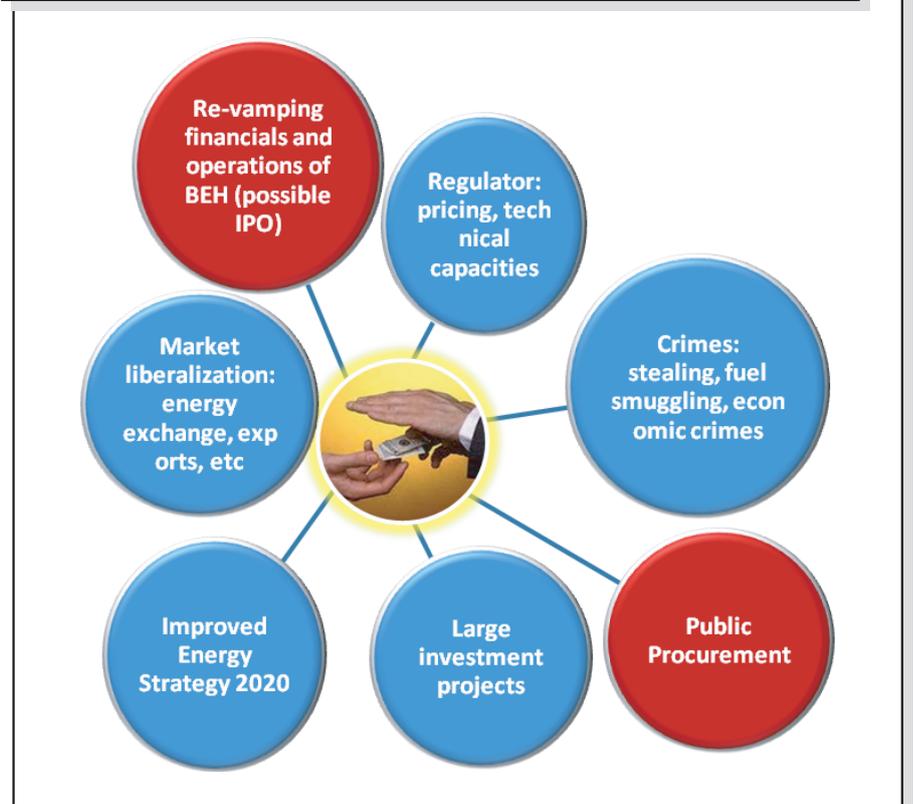
- **Revision of current management mechanisms and key management figures**
 - Is the current management structure optimal?
 - Where is power concentrated – is this optimal in terms of efficient and timely decision making; is it free of corruption?
 - Who are the key figures – their clean corruption record, their capacities, their vision for the development of the project?
 - Ways to optimize operation and management.
- **Environmental Impact analysis**
 - Long-term waste management;
 - Biodiversity;
 - Environmental Impact Assessments – currently they are not 100% transparent and independent, as they are performed by experts, paid by the investor, which produces conflict of interests;
 - Assessment for compliance with 'Natura 2000' – currently investors choose their experts, again – conflict of interests.
- **Social Impact analysis**
 - Effect on energy poverty;
 - Effect on local employment.
- **Strategic position and importance of the investment**
 - How it 'sits' in the overall revised energy strategy (see comments on current strategy above)?
 - How realistic is the project's relevance to security – e.g. dependence on Russia for nuclear fuel vs. inexhaustible RES?
- **Legal analysis**
 - Revision of all key contracts;
 - What would be the penalty payments if the government decides to freeze or permanently block the project?
 - Ability to amend current contracts with more favorable conditions.

These are some of the key analytical steps that should go into an informed-decision making. As governments are usually stretched thin of resources and time, in the next section we propose some practical steps and solutions to tackle not only large investment projects but the energy sector overall.

V. RECOMMENDED GOVERNANCE APPROACH

The current government has a lot to deal with when it comes to the energy sector. Some of the issues are legacies from the previous governments who signed contracts with unfavorable conditions; others stem from the specifics of the sector itself; still others are necessitated by the changing macroeconomic conditions and the tightening 'green' EU regulations.

FIGURE 35. COMPLEX CHALLENGES OF THE ENERGY SECTOR



In order to be successful in its efforts the current government should abide by the following **principles**:

- **Prioritize** and address those issues that will have the most output per unit of effort (financial and managerial) in the near term; at the same time put prioritization process in the context of long-term sustainability;
- **Work with reliable raw data** – conduct informed decision making, based on solid financial and economic analysis, using reliable and up-to-date data;
- **Utilize cost-benefit and sensitivity analysis** methodologies to develop more than one potential scenarios; carefully judge the likelihood of these scenarios based on the most current global political and economic events;
- Put to work **top experts** – if necessary hire world class experts and

consultants for the most crucial and sensitive analysis;

- Be **decisive and efficient** – quick measures are needed to save millions and billions to the state budget and the taxpayers;
- Be **transparent** in ongoing work without jeopardizing the final goal;
- Keep in mind the **environmental and social costs** of strategic decisions.

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